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ENGLISH FOR CONSTRUCTION

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АНГЛИЙСКИЙ ЯЗЫК В СФЕРЕ СТРОИТЕЛЬСТВА

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Гунина, Н. А. Английский язык в сфере строительства: учебное пособие английскому языку для бакалавров 1 и 2 курсов строительных направлений и специальностей / Л. Ю. Королева, Т. В. Мордовина, Е. Ю. Воякина. – Тамбов: Изд-во ФГБОУ ВО «ТГТУ», 2022.

Состоит из четырех модулей, каждый из которых включает в себя четыре урока. Каждый урок содержит несколько разделов, охватывающих различные аспекты английского языка, состоит из лексических и грамматических разделов, снабженных как практическим материалом, так и справочным, а также заданиями на формирование и закрепление основных умений и навыков – чтения, письма и говорения на английском языке. Подбор практических заданий позволяет развить умение вести беседы на тему «Строительство» на английском языке, а также закрепить грамматический материал.

Предназначено для бакалавров 1 и 2 курсов строительных направлений и специальностей.

CONTENTS

ВВЕДЕНИЕ

Данное учебное пособие предназначено для бакалавров 1 и 2 курсов строительных направлений и специальностей, и направлено на развитие навыков профессионально ориентированного речевого общения.

Цель учебного пособия: формирование профессионально ориентированной лингвистической компетентности студентов, обучение иноязычному устному и письменному профессиональному общению, а также формированию навыков межкультурной коммуникации, включая стереотипы мышления и поведения в культуре изучаемого языка.

Пособие направлено на решение следующих *задач*:

• расширить профессиональный лексический запас обучающихся;

• развить умения и навыки ознакомительного, просмотрового, поискового и аналитического чтения с учетом профессиональной направленности;

• сформировать умения и навыки говорения и письма на иностранном языке в сфере строительства.

Предлагаемый курс построен по тематическому принципу и состоит из четырех модулей, включающих учебный материал, способствующий развитию у студентов профессионально-ориентированной когнитивно-коммуникативной компетенции, и обеспечивающий совершенствование навыков правильного лексико-грамматического оформления профессиональной речи.

В данном пособии применяются основные приемы коммуникативно-ориентированного подхода к обучению иностранного языка. Каждый раздел (Unit) включает в себя тексты для чтения, которые содержат актуальную информацию из аутентичных источников. Тексты сопровождаются подробным словарем, а также значительным количеством упражнений на отработку усвоенного материала. Предлагаемая в пособии система заданий предполагает ответы студентов на ключевые вопросы по теме модуля, извлечение информации из текста для обсуждения, сопоставление фактов и сведений, лексическую работу, дискуссию по предлагаемым ситуациям.

Текущий контроль осуществляется в разделе Self-Study. Для каждого модуля так же предусмотрены задания (Progress Tests), направленные на контроль усвоения пройденного материала.

Учебное пособие может быть использовано как для работы в аудитории, так и для самостоятельной работы.

MODULE 1

UNIT 1 CONSTRUCTION EDUCATION	WHY GO TO COLLEGE TO BE COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
Colleges can prepare you for a specific **career path** or **higher-level qualifications**. **Further education** (FE) can help you build **technical, vocational** or **academic skills** in a wide variety of subjects. There are several colleges in your local area. Many colleges **offer courses** which are directly linked to construction and the built environment, such as **bricklaying**, **carpentry** and **joinery**, **civil engineering**, and **technician trades**, along with supervision and **management courses**. They also offer courses which help you move into other areas of the sector such as **administration, accountancy, law**, **computer-aided design** (CAD) and **IT**. Colleges also offer courses as a stepping stone to university.

Questions for discussion:

1 What colleges are there in your local area?
2 What courses are available there?
3 What skills can students develop at college?
4 What careers do construction colleges prepare their students for?

Useful language

In my area there are…..
Many colleges offer courses in…..
College students can …..
I think it is important to go to college because…
Colleges can prepare for different careers, including….

VOCABULARY 1

career path	продвижение по службе
higher-level qualifications	диплом о высшем образовании
technical skills	технические навыки
vocational skills	профессиональные навыки
academic skills	учебные навыки
offer courses	предлагать курсы
bricklaying	работа каменщика
carpentry	плотницкие работы
joinery	столярное дело
civil engineering	гражданское строительство
management courses	курсы менеджмента
administration	администрирование
accountancy	бухгалтерский учет
law	право
computer-aided design	системы автоматизированного проектирования
IT	информационные технологии
further education	средне-специальное образование (колледж, техникум)
technician	технический специалист

1 Match the words from keynotes to their definitions.

1 accountancy	a) the job or activity of building walls or buildings using brick s
2 civil engineering	b) the system of rules of a particular country, group, or area of activity
3 bricklaying	c) the use of computers to design objects
4 carpentry	d) the education that is needed to become an accountant
5 joinery	e) the science and activity of using computers and other electronic equipment to store and send information
6 law	f) the skill or work of making and repairing wooden objects
7 computer-aided design	g) the work of a joiner or the things made by a joiner
8 administration	h) the planning and building of public roads, bridges, and buildings
9 IT	i) the management or control of an organization

2 Complete the sentences with the words from the table above.

1 You don't need to be a master carpenter, but some basic _____ skills are required.

2 He got involved in wood-work, learning the fine points of _____ and carpentry.

3 _____ is one of the oldest handcrafts, it is the assembling of bricks, blocks and stone in various patterns and designs.

4 He points to the increasing use of _____, spreadsheet programs, windows and other visual aids to help users get what they need out of a computer.

5 His father advises him to study _____ and take up the legal profession.

6 Projects that involve construction of a structure are considered part of _____.

7 He has a degree in business _____.

8 He specialised in business administration and _____ and, in former times, economic history.

3 Search for seven words and phrases from Vocabulary 1 hidden in the grid.

c	**o**	**u**	**r**	**s**	**e**	**s**	**p**	**j**
a	**c**	**a**	**d**	**e**	**m**	**i**	**c**	**o**
r	**o**	**s**	**k**	**i**	**l**	**l**	**s**	**i**
p	**e**	**l**	**t**	**v**	**a**	**a**	**a**	**n**
e	**c**	**a**	**r**	**e**	**e**	**r**	**c**	**e**
n	**u**	**w**	**p**	**a**	**t**	**h**	**i**	**r**
t	**e**	**c**	**h**	**n**	**i**	**c**	**a**	**y**
r	**h**	**u**	**t**	**n**	**e**	**u**	**p**	**a**
y	**t**	**q**	**o**	**w**	**n**	**m**	**b**	**d**

READING

1 Read the text about the construction college and match the headings with the paragraphs. You do not need one of the headings.

1 How much does college cost?
2 What are the benefits for employers?
3 How do I choose a college course?
4 Who is college for?
5 Where do I find best construction colleges?
6 What happens after my course?
7 What is included in a course?

Why go to college?

Many colleges offer courses which are directly linked to construction and the built environment, such as bricklaying, carpentry and joinery, civil engineering, and technician trades. Whatever your career goal, there is a college course that will help you get there.

(A) _____

Further education is for anyone who has left school. You can go to college to continue studying straight after finishing your exams, or at a later stage in life to find new interests or improve your career prospects.

(B) _____

College courses are different in length. They last from weeks to years, depending on the qualification and whether you choose to study full-time or part-time. There is a lot of choice on offer. You might want to study in person or online via distance learning. You can choose a hands-on subject rather than focusing purely on academic, classroom-based learning. College courses can provide a starting point.

(C) _____

When you have finished a college or training course, you could continue studying for higher-level qualifications or look for a job. Construction firms advertise vacancies on their own websites and on online job boards such as Indeed and Totaljobs.

(D)_____

This will vary from nothing at all up to several thousand pounds depending on your own individual circumstances. The cost of any course provided by a college will depend on your age, level of existing qualifications and a wide variety of other factors which will all be taken into account.

(E)_____

Colleges offer open events where you can go and talk to members of staff, and sometimes other learners, to find out about the courses they teach. Most colleges have websites you can use to gather information on the courses they offer. If you are unsure about which course to take, look at the jobs pages to see what qualifications you might need to get you that job. All colleges have support teams who can give you advice and guidance on the courses which are available to you and best suit your personal needs. If you have several colleges in your local area it is a good idea to visit more than one before you make a decision.

(F) _____

By developing your skills and gaining specific qualifications, you make yourself more employable in the construction and built environment sector. Employers value people who have demonstrated their ability to work hard and have taken the time to learn trade skills or gain knowledge. If you have been in a job for a while and are looking to progress your career, your employer may offer to support you to continue training through a local college to expand your skills and bring new expertise to the team.

2 Read the text again and answer the questions.

1 What courses can one do at college?
2 What is further education?
3 What kind of learning can you choose?

4 What can you do after you finish college?
5 Is college education expensive?
6 Where can you find out about the college you want to study at?
7 How can college education help you with your career?

3 Are these sentences true (T) or false (F)?

1 College education can help you to achieve your career goal.
2 Further education is for those who have a university degree.
3 In many colleges you can study in person and online.
4 After finishing college you can get a job through specialized websites.
5 Colleges provide limited information about the courses they teach.
6 In many colleges there are support teams that help students find out more about their career.
7 College education improves students' employment opportunities.

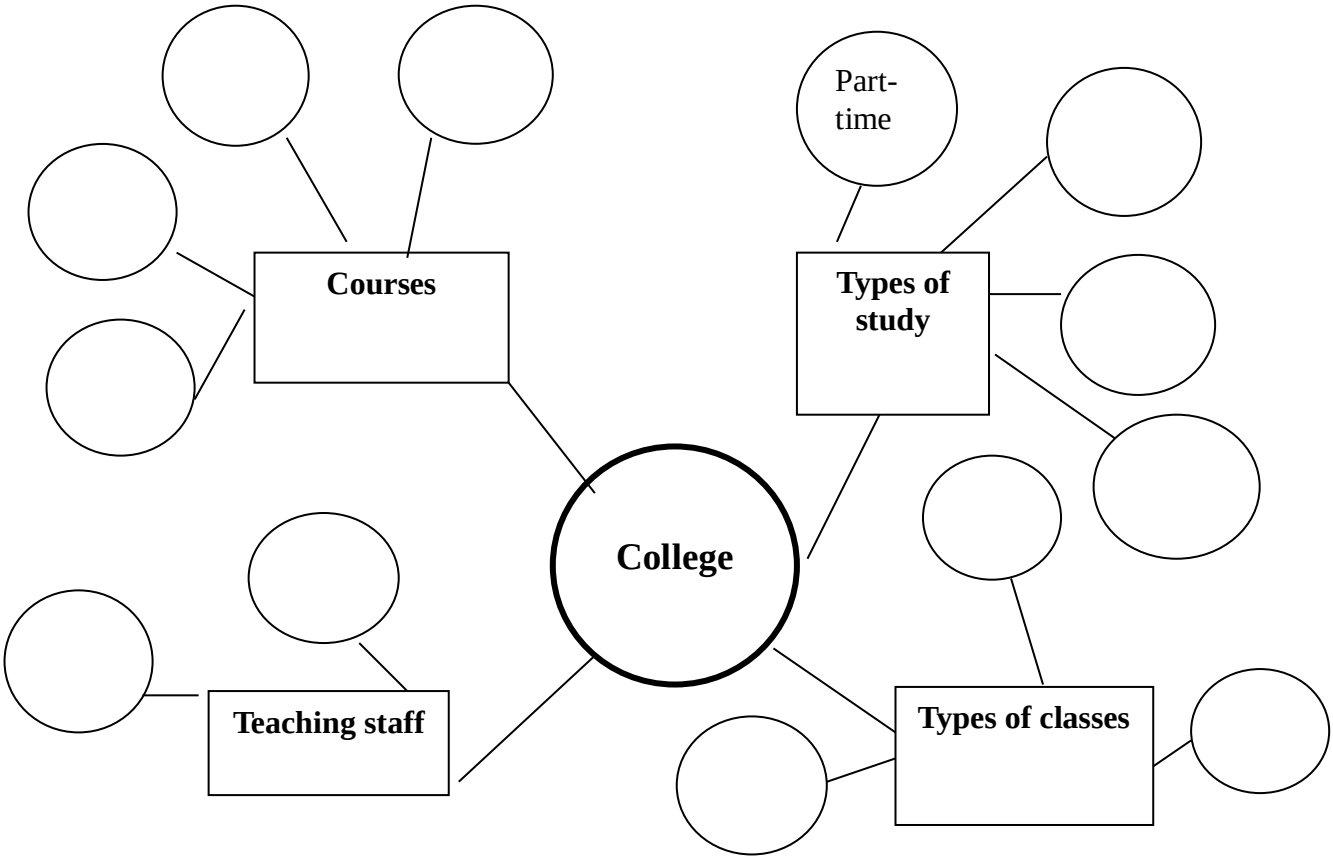
4 Match the sentences halves to make sentences that summarize the main ideas of the text.

1 Whatever your career goal,	a) on their own websites and on online job boards.
2 You can go to college	b) on your age and level of existing qualifications.
3 Construction firms advertise vacancies	c) who can give you advice and guidance on the courses.
4 When you have finished a college,	d) look at the jobs pages.
5 The cost of any course provided by a college will depend	e) who have demonstrated their ability to work hard.
6 If you are unsure about which course to take,	f) there is a college course that will help you get there.
7 All colleges have support teams	g) you could continue studying for higher-level qualifications.
8 Employers value people	h) to continue studying straight after finishing your exams.

VOCABULARY 2

1 Complete the mind map with the following words:

bricklaying, part-time, carpentry, seminar, joinery, online, full-time, lecture, *tutor, civil engineering, face-to-face, lecturer, tutorial*



2 Match the words to their definitions.

1 lecturer	a) a period of study with a tutor involving one student or a small group
2 tutorial	b) involves studying for the whole of each normal working week rather than for part of it
3 full-time	c) a teacher at a college or university who teaches one student or a small group
4 part-time	d) a class at a college or in which the teacher and a small group of students discuss a topic
5 seminar	e) engaged in study, etc. for specified periods and taking less time than a regular schedule
6 lecture	f) someone who teaches at a college or university
7 tutor	g) a formal, prepared talk given to a group of people, esp. students
8 construction	h) a situation in which someone has regular paid work
9 employment	i) a series of lessons or lectures in an academic subject or a practical skill
10 course	j) the work or business of building things, especially houses and other buildings

3 Choose the word that fits into the sentence.

1 China Distance Education Holdings Limited is a leading provider of **online / lecturer** education in China focusing on professional education.
2 After studying Italian **part-time** / **civil engineering** at Bury College he moved to Italy to further his studies.
3 There's free admission for **full-time / face-to-face** students.
4 Guest lectures, **seminars / tutors**, product presentations and cultural programmes will also be a part of the exhibition.
5 He is a part-time **lecturer / lecture** in carpentry and joinery.
6 They are also given vocational training, such as tailoring or **carpentry / tutorial**, and are taught to read, write and do simple maths.
7 Primary and some secondary schools had practical workshops for handcrafts, woodwork and **bricklaying / civil engineering**.
8 The online **tutorial / tutor** allows students to learn at their own pace, and have more time in class for discussion and active learning exercises.
9 The school runs **courses / lecturers** for beginners.
10 After graduation, she found **employment / seminar** with a local finance company.

LANGUAGE SKILLS

PRESENT SIMPLE WITH THE VERB TO "BE"

The verb "be" is different from the other verbs in this tense.

Positive	**Positive Short Form**	**Negative**	**Negative short form**
I **am**	I**'m**	I **am not**	I**'m not**
you **are**	you**'re**	you **are not**	you **aren't**
he **is**	he**'s**	he **is not**	he **isn't**
she **is**	she**'s**	she **is not**	she **isn't**
it **is**	it**'s**	it **is not**	it **isn't**
we **are**	we**'re**	we **are not**	we **aren't**
they **are**	they**'re**	they **are not**	they **aren't**

Question forms

Yes / No Questions	**Wh Questions**	
am I ?	where	**am** I ?
are you ?	what	**are** you ?
is he ?	when	**is** he ?
is she ?	who	**is** she ?
is it ?	which	**is** it ?
are we ?	why	**are** we?
are they ?	how	**are** they ?

BE as a main verb

As a main verb, the verb BE has the following meanings: be located somewhere, exist, take place.

Examples:

Moscow is in Russia.
The TV is in the living room.
This seminar is in Room 25.

BE as a linking verb

The verb BE as a linking verb connects the subject with the predicative complement which describes the subject (i.e., what the subject is or what qualities it has).

The linking verb BE may be followed by a noun, an adjective, a numeral, a pronoun, an infinitive, a gerund.

The verb BE in this function gives you a lot of ways to build sentences.

Examples:

He is a carpenter. They are engineers.
This is a lecture theatre. It is big.
This is a lecturer. He is very experienced.
He is a student. He is in his first year at college.
He is interested in construction. He is in construction business.

1 Fill in the gaps as in the example.

Long Form	Short Form	Negative Form	Negative Short Form
1. *We are students.*	*A We're students.*	*B We are not students.*	*C We aren't students.*
2. He is from Spain.	A _____	B _____	C _____
3. You are a singer.	A _____	B _____	C _____
4. It is a picture.	A _____	B _____	C _____
5. They are actors.	A _____	B _____	C _____

2 Choose the correct form of the verb (am, is, are).

1 Luke _____ often late.
2 They _____ Spanish.
3. You _____ happy.
4. I _____ thirsty.
5. It _____ cold.
6. She _____ German.
7. He _____ early.
8. We _____ tired.
9 She _____ angry.
10 They _____ busy.

3 The verb to be. Insert appropriate present forms.

A: Hi, Alex. How (1) _____ you?
B: Hello David. I (2) _____ fine and how (3) _____ you doing?
A: I (4) _____doing fine.
B: How (5) _____ your sister? Where (6) _____she now?
A: She (7) _____ in London. She (8) _____learning English there.
B: Really? That (9) _____wonderful! How about your parents?
A; They (10) _____ fine too. They (11) _____ in Cyprus now.
B: (12) _____ you busy tonight?
A: Not really, why?
B: We (13) _____ having a party. Would you like to come?
A: I'd love to.
B: Then come to our place at 7:00 p.m.

4 Complete the questionnaire with the correct form of the verb to "be"

(1) _____ construction for you?

Before you apply to a trade school, ask yourself these questions:

(2) _____ you hands-on? *Literally — do you enjoy working with your hands? (3)_____ you strong and handy?*

(4)_____ you a good listener? *You'll need to pay attention to details — details that may be given to you while talking or during a phone call.*

Do you enjoy working on projects? *Do you like to see something from start to finish?*

(5) _____ you flexible? *The only constant in this world (6)_____ change. This (7) _____ especially true in construction. (8) _____ ready to change locations, work-hours, and even jobs quickly.*

(9) _____ you fond of variety? *Your day-to-day routine will be different. Every day will bring new challenges and opportunities, each of which will require quick, creative thinking to solve.*

(10) _____ you ready to relocate? *There (11)_____ cranes everywhere! — there will be times when you'll need to travel to another city, state, or country to find the next best construction job. Your move could last a few months or a few years.*

(12) _____ you willing to help people? *Few industries (13) _____ as fundamental and beneficial as construction. You could be a part of a project that will affect the lives of hundreds, thousands, even millions of people.*

(14) _____ job security important to you? *Construction work can't be done remotely — at least not easily. There's growing demand for workers with specialized skills, especially those with real-world experience.*

Vocabulary notes:

hands-on *– умеющий работать руками; Example: She's very much a* ***hands-on*** *manager.*
flexible *– гибкий, умеющий подстраиваться под обстоятельства, адаптироваться к новым условиям; Example: How can we encourage workers to be more* ***flexible****?*
challenges and opportunities *– вызовы (трудности) и возможности*
Example: 2020 was a year of ***challenges and opportunities***
crane *– подъемный кран*
Example: The ***crane*** *lifted the container off the ship.*
beneficial *– полезный, приносящий выгоду, пользу*
Example: From our point of view, we do not see how these changes will be beneficial to the company.
do sth remotely *– заниматься чем-то удаленно;*
Example: Most of our employees work ***remotely.***
demand for *– спрос на что-то или кого-то;*
Example: There was little ***demand for*** *tickets.*

COMMUNICATION SKILLS

When we meet people for the first time, we give information about ourselves. We usually talk give such details as your first name and last name, your nationality, job title and the name of the company. We also ask people for information about themselves.

1 Match the questions 1-4 with the responses a-d.

Introducing yourself	
1 What's your name?	a I'm a construction manager.
2 Where are you from?	b I'm John Smith.
3 What's your job? / What do you do?	c I'm from the USA. I'm American.
4 What company are you with? / Who do you work for?	d I'm with Chicago Bridge & Iron company. / I work Turner Construction.

2 Read the conversation and match the questions to the responses.

Is Turner Construction a British company? Are you Peter Davis? Are you a construction manager?

Chris: _____

Peter: Yes, I'm.

Chris: Hi! I'm Chris Devlin. I'm with Turner Construction.

Peter: Hi Chris! **_____**

Chris: No, it's an American company. You're with Chicago Bridge & Iron Company, aren't you?

Peter: Yes, I'm**, _____**

Chris: No, I'm a cost estimator.

3 Act out a similar conversation. Use the information from the table.

Name	**Company**	**Job title**
Lara Brian	Structure Tone	Accountant
Pete Johnson	Bechtel	Construction manager
Jane Brook	PCL Construction	Cost estimator
Paul Smith	KBR	Carpenter

4 Read the conversation and complete the form.

Name	
Surname	

Nationality	
Company	
Job title	

Receptionist: Hello. Welcome to PCL Construction.

Pete: Hi.

Receptionist: Can I ask you some questions to complete my form?

Pete: Certainly.

Receptionist: Ok. What's your name, please?

Pete: Pete Smith.

Receptionist: Can you spell that, please?

Pete: Yes, my first name is Pete. That's P-E-T-E.

Receptionist: Ok, and can you spell your surname, please?

Pete: Yes, it's Smith. S-M-I-T-H.

Receptionist: Great, and where are you from, Mr. Smith?

Pete: I'm form the UK.

Receptionist: What company are you with?

Pete: I'm with Wax Industries.

Receptionist: Sorry?

Pete: Wax, that's W-A-X Industries.

Receptionist: Wax Industries?

Pete: That's right.

Receptionist: And what do you do Mr. Smith?

Pete: I'm a construction manager.

Receptionist: Thanks Mr. Smith. I hope you enjoy the conference.

Pete: Thanks. Bye.

5 Do the quiz with a partner. Compare your answers.

Introductions & Greetings Quiz

1 You see someone you know and say "Hi! __ are you?"
A How B What C Where

2 Another way of asking this question is "How are you __?"
A being B getting C doing

3 You can also ask "How are __?"
A all B everything C things

4 Another way is to ask, "How's it __?"
A living B going C doing

5 If you want to ask about someone else, you say "How is your son __ on?"
A getting B doing C living

6 When someone asks you, "How are you doing?" and you can say:
A Yeah, many thanks! B Yeah, lovely thanks! C Yeah, great thanks!

7 When someone asks you "What have you been up to?", but you don't want to give a long answer, you say:
A I can't talk now! B Lots and lots! C Oh, this and that!

8 Another way of giving a short answer if someone asks you what you have been up to is:
A Oh, I can't remember! B No time! C Oh, the usual!

6 Read some tips on how to make a small talk and introduce yourself confidently.

- **Prepare some basic answers about yourself** now, so that you can introduce yourself with confidence and perfect English in the moment.
- **Keep your answers short and simple** so you have less time to make mistakes—and less time to lose someone's attention!

Have answers ready for these questions:

Where are you from?
What do you do?
What are you doing here?
Do you like your job?
How was your trip?
Are you having a good time?
What do you think of the weather?
What do you think of the movie/event/conference/restaurant?

Let's look at the example. Let's say Amy and Brian are both at a business conference.

Amy: What are you doing here?
Brian: I'm here for the conference.
Amy: So am I. **What company are you from?**
Brian: I'm with the Sales team from Samsung.
Amy: That's really interesting. **Do you like it?**
Brian: Most of the time, yes.
Amy: What do you like about it?
Brian: I get to travel to nice conferences like this!

7 Read the conversation and fill in the missing phrases.

let me introduce you to Pleased to meet you You already know Good to see you again

Jane: Hi John, how are you?
John: Fine, thanks. And yourself?
Jane: I'm very well, thanks. I appreciate you coming to the meeting today.
John, [1]_____ Mary. She's our sales representative in Dublin.
John: [2] **_____**.
(Handshake)
Mary: Pleased to meet you too**.**
Jane: [3] _____Peter.
John: Yes, we have met before. Hi Peter.
(Handshake)
Peter: Hi, John. [4] _____.
John: And you too.

8 Work with a partner. Study the situations and choose the best option for each situation.

1 You introduce yourself to your new colleagues from another office.

A. Hi! My name's John.
B. Good morning. My name is Doe, John Doe. I come from the New York office.

2 You are having small talk with some people at a conference. Which of these would you rather not say?

A. I find it interesting that more and more people are deciding to attend this kind of conference.
B. Facebook is full of handsome men and pretty women.

3 When a person says "pleased to meet you", what would you answer?

A. Please to meet you.
B. Good to see you again.

4 A phrase that somebody uses when they know that the two people they are introducing to each other met for the first time earlier that day, is

A. *Good to see you again.*
B. You've already met.

5 When one person who is being introduced says 'good to see you again', it is polite for the other person to respond/reply by saying

A. Good to see you again.
B. And you too.

9 Role play the situation. Pick a role card, study the information and think of the questions that you can ask to find out the following information: a person's name, his/her job (occupation), age, job, marital status.

You're Jamie. You're an English chef. You're 24 and you live in London. You're in a relationship. You like cooking and reading.	You're Vladimir. You're a Russian engineer. You're 25 years old. You're from Moscow but now you live in Tver. You're married and you have 1 kid. You like rock-music.
You're Angela. You're a German politician. You're 30 and you live in Berlin. You're married. You like films and swimming.	You're Miley. You're an American singer. You're 21 and you're from Nashville, Tennessee. You're single. You like smoking and partying.
You're Mike. You're a Russian student. You're 19 years old. You're from Moscow but now you live in St. Petersburg. You're single. You like travelling.	You're Sonya. You're an Italian designer. You're 26 years old. You're from Rome but now you live in Moscow. You have a boyfriend. You like art.

SELF-STUDY

1 Choose the correct word in italics.

1 Choosing a *career / academic skills* can be a very difficult decision
2 The job requires someone with specialized scientific and *technical / flexible* knowledge.
3 She's on a time management *course / lecturer* this week.
4 This *bricklaying* / management course will give you the skills and knowledge you will need to start your career as a professional bricklayer.
5 My friend is a laboratory *technician / lecturer*.
6 We attended a *seminar* / *tutorial* on civil engineering.
7 He left school with no formal *qualifications / skills*.
8 He works as a sound *technician / lecturer* in a recording studio
9 Construction workers are employed on a *full-time / career* basis.
10. The program gives students *hands-on / flexible* experience on a construction site.

2 Read the text and fill in the missing words.

building	*styles*	*hands-on*	*students*	*projects*	*detail*	*skills*

Construction Technology offers training for (1) _____who want to develop their natural talents and interest in (2) _____and construction.

Students learn to apply the (3) _____taught within our construction technology laboratory.

Instruction in commercial and residential construction prepares our students to participate in real-world off-site construction (4) _____ and on-campus renovations. With safety in mind, (5) _____experience is gained by using state-of-the-art power and specialized tools.

Students build confidence and develop attention to (6) _____while becoming knowledgeable in modern methods and (7) _____of construction.

3 Match the sentence halves.

1 Do you love working	a. a hands-on construction program.
2 Are you the kind of person who	b. within 2 months of graduation.
3 The Construction Technology program is	c. less than 20 students.
4 You'll learn how to	d. with your hands?
5 Most students find a full-time job	e. plan, organize, solve problems and communicate well in your building projects.
6 Typical class size is	f. taking one semester of preparatory courses.
7 All students start by	g. likes to build things and see concrete results?
8 The school offers a choice of	h. takes an average of six semesters in school.
9 Each program is 108 credits and	i. five vocational study programmes

4 Complete the sentences with the correct form of the verb to be.
1 He _____ a carpenter.
2 This_____ a lecture theatre.
3 This_____ a lecturer. He _____ very experienced.
4 He _____ a student.
5 She _____ in his first year at college.
6 We _____ interested in construction.
7 They _____ in construction business.
8 I _____ a builder.

5 Put the responses in the correct place.

Amy: What are you doing here?
Brian: 1 _____
Amy: So am I. What company are you from?
Brian: 2 _____
Amy: That's really interesting. Do you like it?
Brian: 3 _____
Amy: What do you like about it?
Brian: 4 _____

A I get to travel to nice conferences like this!
B I'm here for the conference.
C I'm with the Sales team from Samsung.
D Most of the time, yes.

GLOSSARY

career path	administration	beneficial
higher-level qualifications	accountancy	do sth remotely
technical skills	law	demand for
vocational skills	computer-aided design	lecturer
academic skills	IT	tutorial
offer courses	further education	full-time
bricklaying	technician	part-time
carpentry	hands-on	seminar
joinery	flexible	lecture
civil engineering	challenges and opportunities	tutor
management courses	crane	lecturer
do sth remotely	beneficial	

UNIT 2 COLLEGE LIFE	COLLEGE IS FUN THERE IS / THERE ARE COMMUNICATION SKILLS SELF-STUDY

KEYNOTES

Your first year of college presents a lot of new experiences: **living away from home**, **meeting new people** and **managing your own time**. **Prepare for life** on campus by finding out what to bring, how to **handle difficult situations** and **solve problems**, and what you can do to **manage your workload**.

Campus life can be quite exciting for new students. There are a lot of interesting things to do. For example, you can **join different clubs** – a drama club or a karate club, you can **go to the gym** or play a team sport after classes. Most colleges have a wide range of **sports facilities**, such as a swimming pool, a tennis court or a basketball playground.

College students **on average** have 3 to 5 hours of free time every day. On average, students can spend 25-30 hours per week on class work.

College is a quite busy place and students spend most of their time inside a classroom or **library** trying to **acquire knowledge** and learn new things.

Questions for discussion:

1 What are the challenges of college life?
2 Is life on campus exciting? Why?
3 What activities do students living on campus do?
4 Why do some students have problems with studying?
5 What sort of things do you do in your free time (doing sport, playing a musical instrument, going out with friends, doing a creative hobby.)?

Useful language

College life can be quite exciting / challenging / boring / action-packed…

Students have to organize their time / do homework / attend lectures / do project work / read a lot / manage their workload effectively / manage their time effectively / deal with problems / handle difficult situations / solve problems…

Students can take part in discussion clubs / do sport / go to the gym (swimming-pool / library)….

Some students find it difficult to organize their time / to manage their time.

Some students struggle with managing their workload (doing their homework) / have problems with discipline / lack organizational skills / lack discipline / are not motivated for learning…

I really like / enjoy / am fond of / keen on doing sport / drawing / dancing / singing…

VOCABULARY 1

live away from home	жить вдали от дома
meet new people	знакомиться с новыми людьми
manage your own time	управлять своим временем
prepare for life	подготовиться к жизни
handle difficult situations	справиться с трудными ситуациями
solve problems	решить проблемы
manage your workload	распределять учебную нагрузку
join different clubs	заниматься в кружках (секциях)
go to the gym	ходить в тренажерный зал
play a team sport	заниматься командными видами спорта
sports facilities	спортивные сооружения
on average	в среднем
spend time inside a classroom	проводить время в классе
library	библиотека
acquire knowledge	приобретать знания
learn new things	узнать новое
challenging	увлекательный
boring	скучный
action-packed	насыщенный событиями
exciting	захватывающий
deal with problems	решать проблемы
take part in discussion clubs	участвовать в дискуссионных клубах
do sport	заниматься спортом
go to the swimming pool	ходить в бассейн
manage your time	управлять своим временем
find it difficult	считают сложным
lack discipline	отсутствие дисциплины
motivated for	замотивированный
keen on	увлекаться
struggle with	испытывать трудности
drawing	рисовать
organizational skills	организационные навыки

1 Match the words from keynotes to their definitions.

1. challenging	a) full of exciting events
2. boring	b) a building, room, or organization that has a collection of books
3. action-packed	c) the act of making a picture with a pencil or pen
4. exciting	d) the ability to use your time, energy, resources, in an effective way
5. library	e) something that needs great mental or physical effort in order to be done successfully
6. drawing	f) usually
7. organizational skills	g) thrilling
8. on average	h) not interesting or exciting:
9. sports facilities	i) places and things for doing sports

2 Complete the sentences with the words from the table above.

1 Self-discipline and _____ are crucial to success in any profession.
2 We were taught painting and _____ at art college.
3 This _____ loans books, CDs and videotapes.
4 It's _____ to sit on the plane with nothing to read.
5 Doing sudoku puzzles is a _____ activity for the brain.
6 There are lots of green open spaces, farms and _____.
7 _____, he goes to the gym twice a week.

3 Search for five words and phrases from Vocabulary I hidden in the grid.

o	**n**	**a**	**v**	**e**	**r**	**a**	**g**	**e**
a	**d**	**c**	**d**	**e**	**m**	**i**	**l**	**x**
r	**r**	**t**	**k**	**i**	**l**	**l**	**i**	**c**
p	**a**	**i**	**t**	**v**	**a**	**a**	**b**	**i**
e	**w**	**o**	**r**	**e**	**e**	**r**	**r**	**t**
n	**i**	**n**	**p**	**a**	**c**	**k**	**e**	**i**
t	**n**	**c**	**h**	**n**	**i**	**c**	**r**	**n**
r	**g**	**b**	**b**	**o**	**r**	**i**	**y**	**g**
y	**t**	**q**	**o**	**w**	**n**	**m**	**b**	**d**

READING

1 Read the text about ways of spending free time at college and fill in the gaps with the words in the box.

Reading	*cooking*	*photography*	*drawing*	*dancing*	*volunteering*	*gardening*	*sports*

COLLEGE IS FUN

College can be expensive, but it doesn't mean you should **miss out on** having fun. As a student, you have to spend money on school, food, **living expenses**, and everything else that is necessary to manage. However, you shouldn't forget about things that bring you joy! It is important to create a balanced and fun **lifestyle**. As such, there are many hobbies for college students that won't break the bank.

[1] _____allows you to temporarily **escape** into a different world, and it doesn't cost much, if anything at all. If you have access to a library, you can get books for free. You can also consider using an e-book and buying books for a lower cost than some **hardcover books** may cost. You can also read online in PDF form, share books with friends, or even start a book club where you can exchange books.

[2] _____ will help you record events and memories. Thanks to technology, most people have **access** to cameras on their phones. If you don't want to buy a professional camera, you

can master your skills on your mobile phone instead. Additionally, there are apps and resources to learn photo editing on either a computer or a phone.

[3] Participating in _____is a great way to benefit both your body and your mind. Whether you choose to play group _____ or go at it alone, you will produce endorphins in your body and train your **physical strength**.

[4] The great thing about _____ is that you can do it anywhere and you can easily share your creations via social media, or just keep them to yourself! It may even lead to painting and other **creative** activities.

[5] Urban gardens are becoming increasingly common as people opt to create a more **sustainable** world. Depending on the amount of space you have, you can start _____yourself and growing your own food or even just flowers for their aesthetic beauty. If you want to start small, try growing some herbs. All you need is a little bit of sunlight, water, and care to make your garden grow.

[6] Many people don't realize how much they like _____ until they try it. Not only will it help to save money on your meals when compared to always eating out, but it is also a healthy and creative alternative to feed your body and soul. Plus, if you learn new **recipes**, you can always share your creations with your friends and make _____ into a social experience.

[7] Do you like to move it, move it? _____ is a great exercise and a fun way to spend time. You can simply turn up the music and dance with yourself (like nobody's watching). You can also take classes to learn the techniques of whatever dance suits your fancy.

[8] If you could get into a habit that gives back, you can create a win-win situation by spending free time _____. There are countless organizations around the world for whatever cause that most interests you. From working with the homeless population to **raising awareness** for sustainability initiatives, getting involved in your community will both make you feel good, as well as help others.

2 Read the text again and answer the questions.

1 Why is it important for students to have an interesting hobby?
2 What are the benefits of reading?
3 What are the advantages of doing photography?
4 How can sport help you?
5 What are the main advantages of creative hobbies?
6 How can cooking become a social experience?
7 What volunteering activities can you do?

3 Read the text again and mark the statements below as true (T), false (F), or not stated (NS).

1 Most students do not have to spend money on school, food, and living expenses because their parents cover all their expenses.
2 Students do not buy hardcover books because they are expensive.
3 Apps and resources enable to learn photo editing without buying expensive cameras.
4 Group sport is better for physical strength.
5 You don't need to invest a lot if you want to take up gardening.
6 One can share interesting recipes and photos of your dishes online.
7 The best way to learn how to dance is to take classes.
8 Volunteering is about helping others.

4 Find the words in the text that mean the following.

a) making people more informed or knowledgeable
b) imaginative, producing unusual ideas
c) to fail to use an opportunity to enjoy or get an advantage from something
d) to get free from something, or to avoid something
e) someone's way of living
f) the amount of money required to maintain a normal standard of living
g) instructions telling you how to prepare and cook food
h) using methods that do not harm the environment
i) the ability of a person or animal to apply force on physical objects using muscles
j) the right or opportunity to use something
k) a book that has a stiff cover

5 Complete the text with the words in bold from the text.

1 The most obvious way to improve your _____ is by lifting weights.
2 Explore our thousands of tested _____ to find the best one for dinner, breakfast, lunch, game day, snacks, cooking for two – you name it!
3 Don't _____ on the fantastic bargains in our summer sale.
4 The project's goal is to _____ among the population.
5 Sometimes it is necessary to _____ from everyday routine.
6 To study for an architect or designer, you need to be _____ .
7 In our college we have an _____ to various facilities such as labs, computer classes, gyms, etc.

VOCABULARY 2

1 Match the words to their definitions. Use five words in your sentences.

1.	campus	A.	an important problem
2.	president	B.	second-year university student
3.	to go	C.	a place to live in
4.	freshman	D.	head of university administration
5.	sophomore	E.	land and buildings of a college or a university
6.	precaution	F.	the act of stopping someone from going to school
7.	issue	G.	to take things to a new house
8.	to move in	H.	food in a package or container that people take away from a restaurant
9.	suspension	I.	an action to prevent something dangerous from happening
10.	mandatory	J.	the act of stopping something from happening
11.	application	K.	first-year student at university
12.	prevention	L.	a formal request to do something
13.	dwelling	M.	necessary by rule or law

2 Watch the video (*http://allprofessionalenglish.blogspot.com/2020/08/us-college-students-return-to-campus.html*) and match the speakers to the phrase they said. One speaker said two phrases.

1. a student
2. student's father
3. student's mother
4. president of the University of Notre Dame

a) I don't want my son sick; I don't want him getting anyone else sick.
b) I made a mistake.
c) After quarantine I'm so excited to be in a new environment. I was home for four months.
d) Not really, because I believe that everything's been kind of addressed here at Tech.
e) We'll continue to test them. It's critical that we monitor their health, everybody's health.

3 Watch the video again and fill in the gaps with the words from the list. There are some words you don't need to use.

tests sophomores safe sickness months prevention relate virtual distancing breaking rooms students campuses masked isolate issues tested health necessary

From the University of Kentucky to Tulsa's Oral Roberts University to Troy University in Alabama starting this week it's move-in day at dozens of college 1) _____ nationwide.

- After quarantine I'm so excited to be in a new environment. I was home for four 2) _____.

At Georgia Tech a staggered return, 3) _____ reconfigured for more single dwelling options and a new app where students can sign up for meal times or order to go.

- Any concerns as you drop them off?
- Not really, because I believe that everything's been kind of addressed here at Tech.

At Duke University students are greeted with Covid 4) _____. This fall only freshmen and 5) _____ will be housed on campus. This is a difficult but a 6) _____ decision. And at Notre Dame where classes start Monday the school's president says all students will be 7) _____ before returning.

- We'll continue to test them. It's critical that we monitor their 8) _____, everybody's health.

But even with precautions there are some 9) _____ issues. At Iowa State University 66 students tested positive for Covid during move-in. The school has set aside space on campus to 10) _____ them. And at Syracuse a group of students placed on interim suspension for 11) _____ the school's mandatory quarantine.

As students return to campus some are already raising concern. So far socially 12) _____ seems not great.

Rising junior Miguel Hoch is so worried about contracting Covid, he's taking a leave of absence, his 13) _____ learning application denied.

- I don't want my son sick; I don't want him getting anyone else sick.

Even Notre Dame's president is facing some criticism after posing for this picture with students, 14) _____ but not distanced. He later apologized.

- I made a mistake.

Officials say despite their best efforts at 15) _____, there are measures in place should Covid come to campus.

We're going to do everything possible to keep them 16) _____. And what we're telling them also, tell your sons and daughters to act responsibly. College campuses are coming back to life as 17) _____ prepare to face a new reality.

4 Mark the sentences as True (T) or False (F). Correct the false statements.

1 The video shows British universities.
2 Some students are so excited to be in a new environment after four weeks of quarantine.
3 Georgia Tech University reconfigured rooms so that students would have single dwelling options.
4 At Georgia Tech University there is a new app where students can sign up for cleaning or order rooms.
5 At Duke University students are greeted with Covid tests.
6 At Duke University only freshmen will be housed on campus.
7 At Notre Dame only freshmen will be tested.
8 At Iowa State University 66 students who tested positive for Covid during move-in would not study this year; they went home.
9At Syracuse a group of students broke the school's mandatory quarantine.
10 Socially distancing on campus is great.
11 Some students are worried about contracting Covid and are taking a leave of absence.
12 Notre Dame's president is facing some criticism after posing for the picture without his face mask.
13 College campuses are coming back to life for the new academic year.

5 Discuss what new rules colleges and universities in your country have this academic year. Are the rules similar to the measures US colleges take? What solutions in the video did you like? Which solutions could you use in your country?

LANGUAGE SKILLS

We use **THERE IS** and **THERE ARE** to say that something exists.

Positive Sentences
We use **there is** for *singular* and **there are** for *plural*.

- **There is** *a spider* in the bath.
- **There are** *many people* at the bus stop.

We also use **There is** with *uncountable nouns*:

- **There is** some *sugar* on the table.
- **There is** *ice cream* on your shirt.

There is/are with SOME
With plural countable nouns we can either give the quantity ("five people") or use SOME if we don't know the exact quantity.

- **There are some** people in the office. (We don't know exactly how many people)

With uncountable nouns we also use SOME.

- **There's some** milk in the fridge. (I don't know the exact quantity.)
- **There's some** money in my wallet. (I don't know exactly how much money.)

Negative Form
The negative is formed by putting **not** after *is* or *are*:

- There is **not** a tree in the garden.
- There are **not** two elephants in the zoo.

There aren't with ANY
When we want to indicate that a zero quantity of something exists we use **there aren't *any*.**

- There aren't **any** people at the party.
- There aren't **any** trees in my street.

We also use this structure with **uncountable** nouns:

- There isn't **any** *water* in the swimming pool.
- There isn't **any** *sugar* in my coffee.

Questions
To form a question we place **is / are** in front of **there**.
Again we use **any** with plural questions or those which use uncountable nouns.
We also use **there is / are** in short answers.

- **Is there** a dog in the supermarket? - No, there isn't.
- **Are there** any dogs in the park? - Yes, there are.
- **Is there** a security guard in the shop? - Yes, there is.
- **Are there** any polar bears in Antarctica? - No, there aren't.
- **Is there** any ice-cream in the freezer? - Yes, there is.

1 There Is or There Are

1 There _____ no other way to do it.
2 There _____ no hope for me in this direction.
3 There _____ no strength in it for that purpose.
4 There _____ plenty of them about the place.
5 There _____ a light in the room still.
6 There _____ no need to give a name.
7 There _____ so many cases of the kind.
8 There _____ no two sides to the question.
9 There _____ many reasons for becoming a soldier.
10 There _____ many other stories of the same kind.

2 Some or Any

1 I've got _____ subjects to pass this year
2 There aren't _____ books on the table.
3 Have you got _____ brothers and sisters?
4 There is _____ milk in the fridge. It's for Susan.
5 This salad is awful ! There isn't _____ salt in it!
6 Well done ! There aren't _____ mistakes in your test!
7 She's got _____ beautiful postcards from London.
8 Is there _____ sugar left?
9 There are _____ books on the desk.
10 Mary has got _____ new friends.

COMMUNICATION SKILLS

Visiting a College

Useful Vocabulary: *books, cafeteria, course syllabus, hallway, professors, registration, college, scholarships, study abroad program, school facilities*.

Role-play the situation:

STUDENT A

You are a ***professor*** at a Public College (that is, a school for young people who have just graduated from high school). It is your class in the photograph.

A foreign student (Student B) is visiting the school for the day and has just been shown into your classroom by the advisor. He or she is going to ask you some questions about the college and the students. Before starting, think about the following:

(Note: If you don't know the true answer to Student B's questions, use your imagination!)

- The size of the college (small, medium or large)
- Number of students per class (from _____ to _____)
- Number of teachers
- When courses starts/finishes (They start in February and they finish in June)
- Number of courses per day (From 1 to 5)
- Age of students in your class (from 17 to 21)
- College facilities (study rooms, library, cafeteria, free Internet access, computer lab, language lab, scholarships, and study abroad program.

STUDENT B

You are a ***new student*** and have been invited to a Public College for the day. You are in a professor's classroom. Student A is the class professor and you are going to ask him/her questions about the school and the students.

When you finished, you can say: ***Thank you very much for letting me see the school. It's been really interesting.***

- How big is this college?
- How many students are there in each classroom?
- How many professors are working in this college?
- When do they start and finish each semester?
- How many coursesd students take during a day?
- How old are the students in this class?
- What kind of facilities do this college offers?
- What many course are you teaching at the moment?

SELF-STUDY

1 Fill in the gaps with the topical vocabulary.

1 You need to learn how to _____ your time effectively.
2 Develop your skills and _____ for new responsibilities.
3 Measures should be taken to _____ problems in planning, design, construction and management.
4 The College offers a wide range of sports _____.
5 You can find a lot of rare books in our _____.
6 He will take _____ in this contest.
7 The best way to _____ with problems is to respect the experience of the individuals and understand their goals.
8 The children are happy at the school, but they _____ discipline and behave badly.
9 It is quite unusual for a _____ (a first-year student) to be younger than eighteen or older than nineteen.

2 Choose an appropriate word or phrase to fill in the gap.

1 There's accommodation for about five hundred students on _____.
a college b campus c facilities
2 A _____ is a person in the first year at an educational institution, usually a secondary or post-secondary school.
a freshman b sophomore c pupil
3 A _____ is a student in the second year of study at high school (tenth grade or Class-10) or college.
a graduate b freshman c sophomore
4 The machine was railed off as a safety _____.
a suspension b application c precaution
5 We _____ into a dormitory over the club and slept in bunks.
a moved b went c ran
6 Crash helmets are _____ for motorcyclists.
a optional b unnecessary c mandatory
7 She teaches them how to write college _____ and how to train for entry exams.
a suspension b application c prevention
8 Educating new drivers is important for the _____ of accidents.
a dwelling b prevention c organization

3 Choose an appropriate word *in italics*.

1 There *is/are* lots of opportunities for higher education in our region.
2 There *is/are* necessary equipment in our college laboratories.
3 There *is/are* no gym on campus.
4 There *is/are* modern sports facilities in this university.
5 There *is/are* plenty of advantages to study for a construction engineer.
6 Can I borrow *some/any* of your books to prepare for the test?
7 Do you have spare time tonight? – Yes, I have *some/any*.
8 Is there *some/any* room for me in this dormitory?

4 Make question from the sentences.

1 There are some minuses about studying here.
2 There is a laptop on the table.
3 There are few ways of solving this task.
4 There will be two more students in this room.
5 There is somebody who knows the answer.

5 Match the questions with the answers.

1	How big is the college?	A	There are study rooms, library, cafeteria, free Internet access, computer lab, language lab, scholarships, and study abroad program.
2	What college facilities do you have?	B	Number of students per class is about 20.
3	How old are the students in this class?	C	The average age of students is 19.
4	How many students are there in the class?	D	The size of the college is quite large.

GLOSSARY

acquire knowledge	handle difficult situations	play a team sport
action-packed	issue	precaution
application	join different clubs	prepare for life
boring	keen on	president
campus	lack discipline	prevention
challenging	learn new things	solve problems
deal with problems	library	sophomore
do sport	live away from home	spend time inside a classroom
drawing	manage your own time	sports facilities
dwelling	manage your workload	struggle with
exciting	mandatory	suspension
find it difficult	meet new people	take part in discussion clubs
freshman	motivated for	to go
go to the gym	on average	to move in
go to the swimming pool	organizational skills	

UNIT 3 JOBS IN CONSTRUCTION	CAREERS IN CONSTRUCTION PRESENT SIMPLE COMMUNICATION SKILLS SELF-STUDY_

LEAD-IN

KEYNOTES
The construction industry is a wide industry that encompasses many professionals with lots of **responsibilities**. Careers in construction involve both **skilled trades** and professions such as **architects**, **bricklayers**, **carpenters**, **crane operators**, **electricians**, **mechanics**, **roofers** and others. There are several ways to start a career in the construction sector. You could start an **apprenticeship** with a **tradesperson** or get a college or university **qualification**. A career in the construction industry may be very **rewarding** for **hard-working** people who enjoy working as part of a team to build, repair and maintain new and existing buildings and structures.

Questions for discussion:

1 What types of jobs in construction do you know? What are their responsibilities?
2 What training and qualifications do you need to get a job in construction?
3 What personal qualities are necessary to make a successful career in construction?
4 What benefits do careers in construction have?
5 What is most important in a good job for you (money, interest, challenge, communication, leadership, working hours, status, etc.)?

Useful language

The most popular / demanded jobs in construction are ….
The main responsibilities / duties of an architect / a crane operator / a mechanic, etc. are ….
To be an architect / a crane operator / a mechanic, etc. you need ….
To make a successful career in construction you should possess such qualities as….
To my mind / In my opinion / As for me, high salary / status / flexible working hours, etc. is most important in a good job.

VOCABULARY 1

architect	архитектор
apprenticeship	ученичество
bricklayer	каменщик
carpenter	плотник
civil engineer	инженер-строитель
concrete finisher	бетонщик
crane operator	оператор крана, крановщик
creative	креативный, творческий
electrician	электрик
employ	нанимать на работу
foreman	прораб
glazier	стекольщик
hard-working	трудолюбивый
highly-qualified	высококвалифицированный
land surveyor	землемер
mechanic	механик
painter	маляр
patient	терпеливый
plumber	сантехник
project manager	проектный менеджер
punctual	пунктуальный
qualification	квалификация
reliable	надежный
responsible	ответственный
responsibilities / duties	обязанности
rewarding (job)	благодарная, полезная (работа)
roofer	кровельщик
self-disciplined	дисциплинированный
site manager	менеджер строительной площадки
skilled trades	профессии, требующие квалифицированного труда
tradesperson	профильный специалист
welder	сварщик

1 Label the pictures 1-6 with the job titles.

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

2 Name the job title according to its description.

1 someone whose job is to plan and build public buildings, roads, bridges, etc.
2 a person who cuts and installs glass for windows
3 a person whose job is to supply and connect or repair water pipes, baths, toilets, etc.
4 a person who puts in, checks, and repairs electrical wires and electrical equipment
5 a person who designs new buildings and is responsible for how they are built
6 a person whose job is welding a metal
7 a person whose job is to put new roofs on buildings or to repair damaged roofs
8 a person whose job is making and repairing wooden structures
9 a person who inspects the construction site, measures and records data about the site's location, elevation and contour
10 a person who is responsible for the day-to-day on site running of a construction project, keeping it within the planned schedule and budget, managing the quality control, and inspecting the on-site work carried out
11 a skilled person with experience who watches over a group of workers on site
12 a person whose job is building walls or buildings using bricks

3 Study the words and phrases that will help speak about jobs and responsibilities at work. Give Russian equivalents.

work *for / in*	deal *with*	be good *at*
get a salary	involve	work overtime
earn	cope *with*	do shiftwork
get a pay rise	working conditions	full-time / part time job
get a sick leave	flexible working hours	fire / sack / dismiss
get a paid holiday	be *in* charge *of*	resign
get a promotion	be responsible *for*	retire

Now complete the sentences 1-12 with the words and phrases given above.

1 A carpenter in the UK _____ 20$ per hour.
2 John is in _____ of our construction site.
3 Students in different countries often take _____ jobs to get some pocket money and learn new skills.
4 My brother _____ a big construction company.
5 The _____ in our office are from 9 a.m. to 6 p.m.
6 My job _____ cutting and installing glass for windows.
7 Jacob is _____ for running a construction project.
8 Nick is often late for work and our foreman has to _____ him.
9 People _____ at the age of 60 or 65 in Russia.

10 I have to _____ with electrical wires and electrical equipment, so I need to be very careful.

11 Our construction firm provides a social scheme for all employees. For example, you may get a paid _____ if you feel unwell.

12 He started his job in construction as a general worker and then he got a _____ and became a foreman.

4 Complete the sentences 1-6 with appropriate prepositions.

1 Working _____ a local company is quite boring. It's hard to make a good career here.
2 Tom's job is dealing _____ international construction projects.
3 Sue is _____ charge _____ on-site meetings.
4 Jack is responsible _____ making and repairing wooden structures.
5 My brother is good _____ welding metal structures.
6 Jack is very lazy and irresponsible. He doesn't cope _____ his work at all.

5 Complete the sentences 1-10 with the adjectives from the box.

punctual	reliable	responsible	patient	careful	self-disciplined
rewarding	skilled	creative	highly-qualified		

1 Construction sites are dangerous places to work, so workers should be very _____.

2 Construction work can be an exciting and _____ career where you can benefit society.

3 He's very _____ and always arrives at work on time.

4 If I want to be a good specialist, you need to be organized and _____.

5 An architect should be _____ to make successful construction projects.

6 Glaziers should be _____ while working with glass because it takes a lot of time to fit glass to the appropriate size.

7 We are looking for someone who is _____ and we could trust this person to perform very important duties.

8 A _____ construction crew makes the project run successfully and on time.

9 A _____ crane operator takes years to train.

10 Mike is _____ for designing the project of a new swimming pool.

6 Work in pairs. Think of a job but don't tell your partner. Take turns to ask and answer questions to guess the jobs.

Useful language

Is the job indoors or outdoors?
Do you work alone or with other people?
What qualifications do you need?
What training did you do?
Do you wear a uniform?
Are you a manual worker?
What are your responsibilities at work?

READING

1 Read the text and put the jobs into the right column.

Construction management staff	
Senior staff on site	
Trades workers	
Construction labourers	

CAREERS IN CONSTRUCTION

Construction trades workers are employed in a large variety of occupations that are involved in all aspects of the construction industry.

Bricklayers build and repair walls, floors, partitions and other structures with bricks, panels, concrete blocks, stone, and other materials. Carpenters construct, erect, install, or repair structures made of wood, putting in doors and windows, building stairs, and laying floors. Electricians install, connect, test, and maintain building electrical systems which can also include lighting, climate control, security, and communications. Glaziers are responsible for selecting, cutting, installing, replacing, and removing all types of glass. Insulation workers line and cover structures with insulating materials. Painters stain, varnish, and apply other finishes to buildings and other structures and apply decorative coverings to walls and ceilings. Plumbers install, maintain, and repair many different types of pipe systems. They may also install heating and cooling equipment and mechanical control systems. Roofers repair and install roofs. Finally, construction labourers perform a wide range of physically demanding tasks at construction sites, such as excavation, waste removal, and demolition.

Supervisors, managers and foremen oversee trades workers and helpers and ensure that work is done well and safely. They plan the job and solve problems. Those with good organizational skills may get a promotion to construction management occupations, including project manager, field manager or superintendent. These workers are responsible for getting a project completed on schedule by working with the architect's plans, making sure that materials are delivered on time, assigning work, and ensuring that every phase of the project is completed properly. They also resolve problems and make sure that work proceeds without interruptions and within the budget.

Construction managers determine the best way to get materials to the site and the most cost-effective plan for completing the project. Construction managers also manage the selection of general contractors and trade contractors to complete specific phases of the project which could include everything from structural metalworking and plumbing to painting, installing electricity and carpeting. Managers might travel considerably when the construction site is not close to their main office or when they are responsible for activities at two or more sites.

2 Read the text again and answer the questions.

1 What are the main responsibilities of bricklayers, carpenters, electricians, glaziers, insulation workers, painters, plumbers and roofers?

2 What do construction labourers do?

3 What are the main duties of the senior staff on the construction site?

4 How can construction employees get a promotion?

5 What are construction managers responsible for?

3 Find the words in the text that mean the following.

1 have someone work or do a job for you and pay them for it
2 put something that is damaged, broken, or not working correctly, back into good condition or make it work again
3 put furniture, a machine, or a piece of equipment into position and make it ready to use
4 keep a road, machine, building, etc. in good condition
5 take something away from somewhere, or off something
6 raising someone to a higher or more important position or rank
7 a list of planned activities showing the times or dates when they should be done
8 solve or end a problem or difficulty

VOCABULARY 2

applicant / candidate	заявитель / кандидат
application	заявление, заявка
apply for	подавать заявление
curriculum vitae (CV) / resume	резюме
job interview	собеседование при приеме на работу
position	должность
reference	характеристика
requirement	требование
skills	навыки
vacancy	вакансия

1 Study the vocabulary above and complete the sentences with the words and phrases.

1 Jake submitted the job _____ to the construction firm.
2 If you want to find a job, you should send your _____ to a few companies or post it on special websites.
3 The successful _____ for this position should have experience in project management.
4 Some companies will require a _____ from your previous employers.
5 There is a _____ for part-time work on the construction site this summer.
6 Mr. Smith has excellent organizational _____ and opportunities to get a promotion.
7 People who _____ for this position should have a 5-year experience in construction.
8 You really have to sell yourself at a _____.
9 Their main _____ are experience and communicative skills.
10 This company is looking for a person for the _____ of a construction manager.

2 Every job search will vary depending on your experience, career goals and the jobs you are looking for. Here are some steps you can follow to help you find a new job but they are mixed up. Put them in the correct order.

____ Write a CV and a cover letter
____ Get a job offer
____ Prepare for a job interview
____ Check recruitment websites, attend job fairs
____ Attend an interview

____ Set goals
____ Prepare references
____ Apply for jobs

3 Read the CV for the position of an electrician. Put the following headings in the correct place in the CV.

work experience	key skills	interests	education	references	profile

CURRICILUM VITAE

Name: Kirill Ivanov
Date of birth: 8 May 1989
Nationality: Russian
Address: 58 Suvorovsky pr., apt. 52
Moscow, 191015, Russia
Telephone: +7-812-264-00-00
E-mail: k_invanov@mail.ru

1….....

An enthusiastic professional with excellent technical skills in the field of electricity with over 5 years' experience in the installation, maintenance and operation of electrical systems across domestic, commercial and industrial sites. Highly skilled in the installation of new wiring systems. Demonstrates abilities to build productive relationships and collaborate with wireman teams and contractors. A good team player with good interpersonal skills.

2.....

2007-2008
Apprenticeship at the construction company "Kozerog"
2004-2007
Technical College, Moscow, Russia
1996-2004
School No.157, Moscow

3.....

December 2008 – present
Position: Electrical technician, Electron, Moscow.
Key responsibilities: maintaining, repairing and operating electrical systems, installing wiring systems, electrical panels, lights, sockets, switches.

4.....

Core skills: electrical system maintenance and repair, fault finding, testing, industrial site installations, equipment selection.

5.....

Cycling, reading, mountaineering.

6.....

Professional and personal references available on request.

4 Decide whether these statements are true or false.

1 Kirill Ivanov studied in Russia.
2 He doesn't gets on well with people and prefers to work alone.
3 He has already worked for five years.
4 He had a lot of workplaces.
5 At his previous job he was responsible for repairing and maintaining electrical systems.
6 He cannot work on industrial sites.
7 He is interested in climbing mountains.

5 Do you agree with the following statements about writing a CV? If you disagree try to explain your point of view.

1 A typical CV consists of two pages.
2 A photo is included into your CV.
3 A CV usually has five parts.
4 You can add any information you like to make a good impression on your potential employers.
5 If you have to conceal something you should do it.

6 Write a CV for one of two job advertisements below.

Carpenter needed

Norfolk Kitchen & Bath has an opening for a senior level carpenter for our kitchen & bath installation group.
Schedule: Monday – Friday 7:00am-3:30pm
Requirements: Minimum 3 years carpentry or woodworking experience. Face to face customer service experience. Committed to learning more about their carpentry skills and the overall process for remodeling projects. May be required to climb heights over 6'. Reliable and hardworking.
Salary: 15.5$ per hour.

Plumber position needed for Plumbing Tech Co.

Hours: full-time schedule with no on-call or weekend work.
Requirements: as a qualified candidate you will install, repair, and maintain pipes, valves, fittings, drainage systems, and fixtures in a residential setting.
Our ideal plumber: experienced, detail-oriented and organized, efficient, a good team player, service-oriented, a good communicator.
Salary: $35 - $45/hour.
Perks: Paid time off, uniforms, power tools are provided.

LANGUAGE SKILLS

PRESENT SIMPLE

Affirmative

*Example: I work as a bricklayer. He work**s** as a roofer.*

Negative

*I don't like working in the office. He do**es**n't have any experience in construction.*

Interrogative

Do you repair electrical equipment?

*Do**es** he design new buildings?*

We use **Present Simple** if:

1 things happen repeatedly: *What do you usually do at weekends?*

2 things happen in general: *Most students try to find a job during their studies.*

3 the action is a scientific fact: *Every day the population of the world increases by 200,000 people.*

4 the situation is permanent: *You work hard most of the time.*

5 the situation happens according to the programme or timetable: The meeting begins at 5 pm every Friday.

Time expressions: *always, usually, often, sometimes, hardly ever, occasionally, from time to time, seldom, rarely, never*

1 Complete the sentences with the present simple form of the verbs in brackets.

1 She _____ (run) because she's late for her lesson.
2 A welder _____ (join) together or cut pieces of metal using special equipment.
3 They _____ (use) special tools to install new structures.
4 What time_____(you / start) working?
5 Archie_____(not work) in the office.
6 _____ (Tony / live) near the factory?
7 He _____ (perform) physical labor and various tasks to assist other trades positions.
8 _____ (use) brick or concrete panels while building houses?

2 Make questions to the answers.

1 What _____?	Alan is a construction worker.
2 How many _____?	He works five days a week.
3 What time _____?	He gets up at six o'clock every day.
4 Where _____ lunch?	He has lunch on the site.
5 What time _____?	He leaves work at half past six.
6 What time _____?	He goes to bed at ten o'clock.

3 Ask questions for the underlined words.

1 ……?
George <u>often</u> works outside.
2 ……?
Mike attends on-site meetings <u>every morning</u>.
3 ……?
Peter and Rob go to the site <u>by company bus</u>.
4 ……?
His work duties require <u>good communication skills</u>.
5 ……?
I <u>rarely</u> go on business trips.
6 ……?
They can't employ Hans <u>because</u> he doesn't have enough experience.

COMMUNICATION SKILLS

JOB INTERVIEW STRATEGIES

What must one know before having a job interview? How must a person behave at a job interview, in your opinion?

Study the most frequently asked questions at the job interview.

- What job are you looking for?
- What are your strengths and weaknesses?
- Why should we hire you?
- What can you do for us that other candidates can't?
- What are your goals?
- Where do you see yourself in five years?
- Why do you want to work here?
- What salary are you seeking?
- If you were an animal, which one would you want to be?
- How do you come over stress?
- What is your typical way of dealing with conflict?
- What tools or habits do you use to keep organized?
- What skills do you have?

1 Read the following job interview. Notice the candidate's main strengths and skills. Fill in the gaps with the job interview questions.

A Have you got any questions to me?
B What are your three main strengths?
C What will be the major efforts in the next few years?
D When do you want me to start?
E How long were you in your last job with?
F What responsibilities will I have?
G Are you a leader by nature?

Norlect Engineering LTD is looking for candidates for an opening position of a construction engineer. Mr. James has come for the interview.

– Good morning, sir.

– Good morning. Come in. Mr. James, isn't it? Please take a seat. While I'm finishing these letters, fill in the application form, please... OK let's start. Tell me, please, (1) _____the General Electrics?

– Four years. I'm only leaving because the company is moving to another city.

– What do you know about our company? (2)_____?

– I know that it is a very promising company, so I'd like you to inform me (3)_____?

– We plan to expand our activity on French-speaking countries. We need a team of creative people to make our company competitive in the world market.

– (4)_____?

– Well, first of all, to be responsible for our contacts with French partners. You will have to travel very much.

– Yes, I see.

– So (5)_____?

– I think, they are reliability, loyalty and energy.

– OK, (6)_____?

– Yes, I think so. I get on with people very well.

– All right. Now Mr. James, I'm quite prepared to offer you a job with us. You have excellent references from your previous job. (7)_____, sir?

– In a week, if possible.

– Yes, certainly. Thank you very much. Good-bye.

– Good-bye.

2 Role-play the following situations. Work in pairs.

1 The Managing Director of the British company is interviewing a candidate for the position of a project manager.

2 The foreman is interviewing a candidate for the position of a carpenter.

3 The site manager is interviewing a candidate for the position of an electrician.

SELF-STUDY

1 Complete the sentences with the job titles from the box.

architect	*bricklayer*	*civil engineer*	*concrete finisher*	*crane operator*
foreman	*glazier*	*land surveyor*	*painter*	*project manager*

1 Steve gets a decent salary as a _____ planning and building roads, bridges, and buildings.

2 When the end of the column was over the steel baseplate, the _____ lowered it slowly into position.

3 The _____ fitted a new pane of glass in the window.

4 A _____ will offer to build a wall or a house extension if supplied with some bricks.

5 A _____ is associated with the coloring of buildings, equipment, as well as various interior items.

6 A _____ uses special equipment to conduct measurements and evaluations of sites for public, government and private property.

7 A _____ is a skilled person that does various works mostly on a construction site placing, spreading, protecting and finishing concrete in construction projects.

8 She works as a _____ for the construction company overseeing the planning, design, and construction of projects from the very beginning to the end.

9 The _____ distributes the work every morning on a construction site.

10 They hired an _____ to design the new library.

2 Choose the correct option a-c to complete the sentences 1-8.

1 A project manager is _____ for effective completing the construction project.
a reliable b responsible c in charge

2 The average _____ of an architect is $50,000 a year.
a earn b pay rise c salary

3 Being a site manager you must be ready to _____ with all problems on the construction site.
a cope b employ c involve

4 The job of a carpenter _____ constructing, erecting, installing, and repairing wooden structures.
a employs b involves c deals

5 Employees complained bitterly about poor working _____ on site.
a conditions b hours c salary

6 Those construction labourers with good organizational skills may get a _____ to construction management occupations, including project manager, field manager or superintendent.
a pay rise b sick leave c promotion

7 There are no paid holidays or a _____ if you are self-employed.
a sick leave b pay rise c responsibilities

8 _____ install, maintain, and repair many different types of pipe systems.

a electricians b plumbers c roofers

3 Match the words in the columns to make up phrases.

1	get	a	vitae
2	job	b	manager
3	working	c	finisher
4	curriculum	d	surveyor
5	skilled	e	interview
6	project	f	trades
7	civil	g	hours
8	land	h	operator
9	crane	i	engineer
10	concrete	j	a promotion

4 Complete the sentences 1-10 using the correct form of the Present Simple tense.

1 He never _____ (come) to work on time.
2 He _____ (have) to work every day because his partner is sick.
3 Mark_____ (leave) home at six.
4 Taylor _____ (not like) working at height.
5 _____ (your company / raise) the salary every year?
6 _____ (they / pay) you well?
7 They always _____ (offer) their help if it is needed.
8 Construction workers _____ (be) in demand now.
9 We sometimes _____ (have) meetings in the office.
10 The site manager _____ (order) construction materials once a week.

5 Match the job interview questions and answers in two columns.

1	What job are you looking for?	a	The salary is only part of what I'm looking for. I'm looking for a challenging job that will give me the opportunity to work on interesting projects.
2	What are your strengths?	b	Getting a project completed on schedule and within the budget, determining the best way to get materials to the site and the most cost-effective plan for completing the project.
3	What is your work experience?	c	In a week, if possible.
4	What salary are you seeking?	d	I'm seeking a position of a site manager.
5	What skills do you have?	e	I know that it is a very promising company, so I'd like to join you.
6	When can you start?	f	Coordination, management of personnel resources, time management, monitoring performance of the staff, decision making and negotiation skills

7	What do you know about our company?	g	I'm sociable, reliable, responsible and punctual.
8	What duties did you have at your previous workplace?	h	Five years in the construction industry.

GLOSSARY

applicant / candidate	flexible working hours	punctual
application	foreman	qualification
apply for	geothermal energy	recycling
apprenticeship	get a paid holiday	reference
architect	get a pay rise	reliable
be in charge of	get a promotion	renewable energy
be responsible for	get a salary	requirement
bricklayer	get a sick leave	responsibilities / duties
carpenter	glazier	responsible
civil engineer	green building	restore
concrete finisher	hard-working	rewarding (job)
cope with	highly-qualified	roofer
crane operator	hydropower	self-disciplined
creative	involve	site manager
curriculum vitae / resume	job interview	skilled trades
deal with	land surveyor	skills
demand for smth.	mechanic	tradesperson
earn	painter	vacancy
electrician	patient	welder
employ	plumber	work for / in
energy efficiency	position	working conditions
environmentally friendly	preserve	
	project manager	

UNIT 3 CAREERS IN GREEN CONSTRUCTION	GREEN CONSTRUCTION PRESENT CONTINUOUS COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
Today, people are discovering ways to live that do not harm the environment. They are learning to plant trees to replace the trees they use. They are learning to use less coal, gas and oil. They are learning to "think green." **Green jobs** are jobs that help **improve the environment**. They often involve air quality, **green building**, **recycling**, and **renewable energy**. Green careers will be gaining importance in the future because of the rapid construction of new buildings and the increasing **environmentally friendly** products. Green jobs are respectable jobs that contribute to **preserving** or **restoring** the environment, be they in traditional sectors such as manufacturing and construction or in new, emerging green sectors such as renewable energy and **energy efficiency**.

Questions for discussion:

1 What sectors are green jobs involved into?
2 What is green construction?
3 How do they help to preserve the environment?
4 Why is it important to develop green construction sector?
5 Would you like to work in green construction? Why / why not?

Useful language

The most popular jobs in green construction are ….
To preserve and restore the environment you need ….
It is important / essential to develop green construction sector *because ….*
As for me, I would / wouldn't like to work in green construction because ….

VOCABULARY 1

demand for smth.	спрос на что-либо
energy efficiency	энергоэффективность
environmentally friendly	экологически чистый
green building	экологичное здание
green jobs	«зеленые» рабочие места
improve the environment	улучшить окружающую среду
preserve	сохранять
recycling	переработка
renewable energy	возобновляемая энергия
restore	восстановить

1 Match the words 1-10 with their definitions a-j.

1) restore	a) the process of collecting and changing old paper, glass, plastic, etc. so that it can be used again
2) recycling	b) make our planet, atmosphere better
3) green jobs	c) a need for something to be sold or supplied
4) improve the environment	d) energy that is produced using the sun, wind, etc., or from crops, rather than using fuels such as oil or coal
5) energy efficiency	e) return something or someone to an earlier condition or position, or to bring something back into existence
6) preserve	f) activity of making buildings in a way that protects the natural environment, for example by using green energy
7) demand for smth.	g) not harmful to the environment
8) green building	h) keep something as it is, especially in order to prevent it from decaying or being damaged or destroyed
9) renewable energy	i) jobs related to the protection of the natural environment
10) environmentally friendly	j) using only as much energy as is needed without wasting it

2 Complete the sentences with the words from the table above.

1 Electric buses are a clean, _____ way to travel.

2 Environmental activities such as clean-up and training seminars are organized for teachers and children to raise awareness of what they can do to protect and _____ the environment.

3 The 'green' housing community uses _____ sources such as solar power.

4 What can young people do to help protect and _____ their local _____?

5 We must _____ our natural resources.

6 The supermarket has installed _____ bins for old newspapers, bottles and cans.

7 It identified _____ and energy savings as key priorities contributing to sustainable development.

8 _____ refers to environmentally friendly houses, factories, and offices.

9 There is an increased _____ for organic produce these days.

10 Jobs that have a direct, positive impact on the planet traditionally involve renewable energy, electric transport, energy efficiency or nature conservation are called _____.

3 Search for 9 words hidden in the grid.

k	**g**	**h**	**i**	**r**	**q**	**m**	**y**	**r**	**e**	**v**	**d**	**w**	**r**	**u**
z	**j**	**g**	**y**	**g**	**t**	**i**	**d**	**m**	**z**	**j**	**s**	**e**	**u**	**z**
v	**a**	**y**	**r**	**n**	**w**	**u**	**e**	**q**	**u**	**q**	**n**	**r**	**p**	**k**
x	**h**	**b**	**p**	**i**	**z**	**n**	**o**	**d**	**o**	**e**	**p**	**e**	**s**	**i**
a	**d**	**n**	**h**	**l**	**a**	**b**	**k**	**f**	**w**	**r**	**g**	**y**	**y**	**p**
c	**n**	**c**	**e**	**c**	**u**	**g**	**q**	**a**	**e**	**d**	**c**	**x**	**b**	**l**
r	**a**	**e**	**w**	**y**	**q**	**l**	**b**	**s**	**s**	**n**	**p**	**g**	**w**	**q**
e	**m**	**z**	**f**	**c**	**t**	**l**	**e**	**o**	**e**	**t**	**s**	**e**	**f**	**c**
s	**e**	**u**	**s**	**e**	**e**	**r**	**i**	**i**	**f**	**p**	**p**	**g**	**e**	**b**
t	**d**	**h**	**m**	**r**	**v**	**t**	**c**	**c**	**u**	**r**	**w**	**t**	**s**	**d**
o	**o**	**u**	**d**	**e**	**p**	**i**	**b**	**e**	**v**	**j**	**y**	**f**	**s**	**r**
r	**n**	**y**	**n**	**v**	**f**	**e**	**n**	**e**	**r**	**g**	**y**	**v**	**a**	**v**
e	**u**	**r**	**m**	**f**	**x**	**u**	**a**	**d**	**h**	**r**	**v**	**y**	**k**	**o**
c	**l**	**a**	**e**	**o**	**x**	**e**	**s**	**f**	**v**	**g**	**l**	**c**	**z**	**s**
h	**r**	**k**	**t**	**n**	**e**	**m**	**n**	**o**	**r**	**i**	**v**	**n**	**e**	**v**

READING

1 Read the text and match the paragraphs 1-5 with the headings A-E.

A What is green construction?
B Designing the environment in mind
C Using and recycling sustainable materials
D Incorporating alternative energy sources
E Green construction is the future
F Green architects
G Disadvantages about building green

____ 1) The first step in construction is design. Architects and engineers work to create blueprints and plans for the new building and the property it stands on. This is where the layout of the building, the outward appearance of the building, and all the systems and components that make up the structure are sketched out and prepared to be put into action.

____ 2) Construction is one of the biggest sectors of the economy, and demand for new and renovated buildings and infrastructure will keep the industry busy for years to come. With

such an important role in society, construction has a responsibility to be a leader in implementing sustainable practices and limiting the impact on the environment. As the long-term effects of our actions become a greater focus, green construction will continue to grow and become the new standard.

____ 3) Green buildings often turn to cleaner alternative energy options as a means to power (or partially power) their operations. For most buildings, an easy way to do this is through solar panels. Many modern offices and homes have solar panels installed on their roofs. These panels can collect the sunlight exposed to the top of the building each day and help create electricity. Even a few small solar panels can help to create greener energy and reduce the use of fossil fuels and their emissions.

____ 4) Most green buildings cost more to build than regular buildings. Many green materials cost more. Some parts of the mechanical system are more costly. The furnace and water heater that save energy cost more. The toilet and faucets that save water are more expensive than regular toilets and faucets. The extra foam and insulation and tape add cost to the house. Some of the techniques take extra time. Putting up extra foam and insulation and tape can increase the time it takes to build a house.

____ 5) Green construction refers to the philosophy and processes that makes the creation and usage of the built environment as friendly to the natural environment as possible. From the design stage to assembly to the functionality of the structure upon completion, green construction focuses on reducing negative impacts to the planet and even adding some positive benefits.

____ 6) More and more architects are thinking green. Green architects design houses that sit a certain way on the land. They place houses on the land so that the windows let in a lot of sunlight. Sunlight can help heat and light a home. They also may advise homeowners to use solar panels on their roofs to collect and store the sun's energy so it can be used for electricity. For cold climates, green architects design homes with radiant heat instead of a furnace. Homes with radiant heat have pipes inside the floors. They might also have pipes in the walls and ceilings. Hot water runs through the pipes and warms the home.

____ 7) One of the aspects of construction that has the biggest negative impact on the environment is the processing of building materials. Creating the wood, steel, concrete and other materials used in construction can cause deforestation, pollution, carbon emissions and other harmful effects. To minimize this impact, green construction can look at the materials they use and how they are sourced, processed and disposed of to make more environmentally friendly choices.

2 Read the text again and answer the questions.

1 What is green construction?
2 What do green architects and engineers do?
3 What sustainable materials are used in green construction?
4 What alternative energy sources were mentioned in the text?
5 How will green construction develop in the future?
6 What are main responsibilities of green architects?
7 What are the disadvantages of building green houses?

3 Find the words in the text that mean the following.

1 a drawing or set of drawings showing how a building or product is to be made and how it will work and look

2 basic systems and services, such as transport and power supplies, that a country or organization uses in order to work effectively

3 energy from moving water, wind, the sun, and gas from animal waste

4 a device that changes energy from the sun into electricity

5 make something become smaller in size, amount, degree or importance

6 cutting down of trees in a large area, or the destruction of forests by people

7 damage caused to water, air, etc. by harmful substances or waste

8 gas that harms the environment, that is sent out into the air

VOCABULARY 2

1 Match tools used in green construction 1-5 with their definitions a-e.

1) Biodegradable Materials	a) a clean energy source providing a clean and independent source of power that is free to use once it's installed
2) Solar Energy	b) taking less time and resources to complete construction
3) Passive House	c) building 'off-site' in a controlled environment
4) Technology Efficiency	d) materials such as sustainably sourced timber, bamboo, mycelium (a kind of fungus), and even classic linoleum don't have to end up in a landfill
5) Prefabrication	e) the most advanced forms of green construction using the design of a building to control the temperature

2 Label the pictures 1-6 with alternative sources of energy.

geothermal energy wind sun ocean energy hydropower biomass from plants

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____

LANGUAGE SKILLS

PRESENT CONTINUOUS

Present continuous of any verb is composed of two parts: **to be + V-ing.**

Examples: TO GO, present continuous

Affirmative	**Negative**	**Interrogative**
I am going	I am not going	Am I going?
You are going	You aren't going.	Are you going?
He, she, it is going	He, she, it isn't going	Is he, she, it going?
We are going	We aren't going	Are we going?
You are going	You aren't going	Are you going?
They are going	They aren't going	Are they going?

We use **Present Simple** if:

- to describe an action that is going on at this moment: ***You are using*** *the Internet.*
- to describe an action that is going on during this period of time or a trend: *More and more people* ***are becoming*** *vegetarian.*
- to describe an action or event in the future, which has already been planned or prepared: ***I'm meeting*** *my boyfriend tonight.*
- to describe a temporary event or situation: *He usually plays the drums, but* ***he's playing*** *bass guitar tonight*.
- with "always, forever, constantly", to describe and emphasize a continuing series of repeated actions: *Harry and Sally* ***are always arguing****!*

Time expressions: *now, at the moment, always, constantly*

! Be careful: Some verbs are not usually used in the continuous form. This verbs are normally used in the simple form because they refer to **states**, rather than actions or processes:

Senses / perception	**Opinion**	**Mental states**	**Emotions / desires**	**Measurement**
to feel to hear to see to smell to taste	to assume to believe to consider to doubt to feel (= to think) to find (= to consider) to suppose to think*	to forget to imagine to know to mean to notice to recognise to remember to understand	to envy to fear to dislike to hate to hope to like to love to mind to prefer to regret to want to wish	to contain to cost to hold to measure to weigh

1 Make the present continuous.

1 (she / go home now) _____
2 (I / read a great book) _____
3. (she / not / wash her hair) _____
4 (the cat / chase mice?) _____
5 (she / cry?) _____
6 (he / not / study Latin) _____
7 (we / drive to London?) _____
8 (they / watch TV?) _____
9 (where / she / go now?) _____
10 (I / not / leave now) _____

2 Present Simple or Present Continuous.

1. They normally _____ lunch at two. (have)
2. Are _____ in Paris this week? (you work)
3. You _____ new clothes every Saturday! (buy)
4. I played football at school but now I _____ swimming (prefer)
5. I _____ no idea what the book is about. Can you tell me what it's about? (have)
6. John _____ a difficult time at the university this year (have)
7. My father _____ everything about cars, but nothing about bicycles. (know)
8. The moon _____ round the earth. (go)
9. Do _____ those men at the door? – They _____ at us very strangely (you see, look)
10. We _____ that the contents of this letter should be changed.(feel)
11. They _____ lunch at the moment. – You shouldn't disturb them. (have)
12. The watch _____ to my grandmother. (belong)
13. Why _____ my coat? – Oh, I'm sorry. It _____ like mine! (you wear, look)
14. This cake _____ strange. What's in it? (smell)
15. Hi Jake. – What _____ at the moment? – I _____ the sunshine at the beach. (you do, enjoy)
16 Mary often ..... (read) in bed, but today she is very tired and she _____ (not / read).
17 They ..... (be) very naughty boys. They always _____ (go) to school late. Today their teacher _____ (be) very angry, because they _____ (be) late again.

3 Complete the dialogues.

1. I'm going on holiday.
Where _____ ?
2. He's cooking dinner.
What _____ ?
3. My sister is going to England.
Who _____ ?
4. We aren't staying in a hotel.
Where _____ ?
5 We are building the green house now.
What _____ ?

4 Build up sentences.

1. He / like watching TV / but / he / not / watch / at the moment / because / he / sleep //
2. What / Wendy / do / at the moment / ? // She / clean / her teeth / bathroom //
3. mother / can (-) / help me / now / because / she / cook / kitchen //
4. Where / your cousin / live / ? // She / live / Sydney / Australia //
5. Why / you / eat / sandwich / now / ? // Because / I / be / hungry //

COMMUNICATION SKILLS

Study the table below.

Green Building Pros	Green Building Cons
Energy-efficiency improvements	High construction costs
Water preservation	Technology relatively new and immature
Less waste	Hard to find qualified workers
Better recycling	Maintenance issues
Protection of our natural resources	Technology issues
Less particle pollution	Unclear long-term effects and risks
Less air pollution	Indoor air temperature may vary
Overall health improvements	Financing may be an issue
Higher property value	Design of green buildings can be exotic
Sustainable construction practice	Lack of availability of green materials

1 Discuss the advantages & disadvantages of green building. Do you agree with the list?

2 Make a round table discussion with two groups belonging to opposing attitudes to green building. Evaluate all the pros and cons analyzed in the table in order to make a profound decision regarding whether you want to invest in a green home or not.

SELF-STUDY

1 Complete the sentences with the words from the box.

renewable	efficiency	friendly	environment	recycling	restore

1 Sweden has shown the way forward on energy _____.
2 Protecting the _____ is every man's responsibility.
3 It is another outstanding opportunity to convey to the world that appropriate efforts to save and _____ the environment.
4 We must move towards environmentally _____ agriculture.
5 There's a new scheme in our town for _____ plastic bottles.
6 Electricity companies pay a premium for _____ energy.

2 Match the words in the columns to make up phrases.

1	environmentally	a	efficiency
2	energy	b	environment
3	green	c	friendly
4	improve	d	energy
5	renewable	e	building

3 Make up sentences using the correct form of the Present Simple tense.

1 in the classroom / am / I / standing /now.
2 Pete / reading / not / a book / now / is.
3 listening / now / the pupils /are / to the teacher.
4 now / playing / they / are / games.
5 me / helping / now / my / not / friend / is.
6 dancing / with / is / she / now / Fred?
7 What / Bruce and Loretta / doing / are?
8 What / are / Sam and Carla / looking at?

4 Present Simple or Present Continuous.
1 Where _____ from? (new neighbours, come)
2 She usually _____ (read) the newspaper in the morning
3 I _____ (do) my homework now.
4 I _____ (eat) my dinner now.
5 _____ (you / want) a pizza?
6 They _____ (watch) TV now.
7 I _____ (not / like) spaghetti.
8 The baby _____ (sleep) now.
9 My mother usually _____ (cook) dinner in the evening.
10 He _____ (write) a letter to his pen-friend every month.

5 Choose the correct answer *in italics*.

1 Look! Thomas is *bringing / brings* his little sister to class.
2 My older sister *is* often *listening / often* listens to pop music.
3 We *are writing / write* an exercise now.
4 Mmmm! Mum *is making / makes* a cake.
5 Our teacher *is giving / gives* us a test every month.
6 Listen! Dad *is reading / reads* a story to Ricky.
7 Mr. Michael usually *is growing / grows* roses in his garden.
8 They *are building / build* a new house on the hill now.
9 Maria *is drinking / drinks* milk every morning.
10 Look! Nick *is running / runs* down the hill

GLOSSARY

biodegradable materials	green building	recycling
biomass	green jobs	renewable energy
demand for smth.	hydropower	restore
energy efficiency	improve the environment	solar energy
environmentally friendly	Prefabrication	technology efficiency
geothermal energy	preserve	

PROGRESS TEST (Units 1-4)

1 Choose the best option.

1 Some will have a clear _____ path, other will just be seeking education.
a job b career c education
2 Crane operators require considerable _____ skills for operation and maintenance.
a technical b academic c personal
3 She teaches at a college of _____ education.
a future b past c further
4 Excellent facilities exist to develop skills in _____ design.
a computer-based b computer-soft c computer-aided
5 _____ skills are the abilities, strategies and habits that can help learners succeed in studies.
a technical b academic c vocational

2 Match the halves to make a phrase.

1	meet	a	for life
2	manage	b	a club
3	prepare	c	to the gym
4	solve	d	new people
5	join	e	knowledge
6	go	f	part
7	acquire	g	your time
8	take	h	problems

3 Match construction job titles 1-8 with the description of their duties a-h.

1	architect	a	watching over a group of workers on site and delivering work duties
2	bricklayer	b	moving large loads of building materials to inaccessible places
3	crane operator	c	repairing the engines of vehicles and other machines
4	electrician	d	fitting glass into windows
5	foreman	e	designing new buildings, making drawings
6	glazier	f	joining metal parts together
7	mechanic	g	checking installing and repairing electrical wires and electrical equipment
8	welder	h	laying bricks to construct a building

4 Choose the correct answer *in italics*.

1 *Biodegradable / Renewable* materials are substances that decompose easily through the actions of bacteria, fungi, and other living organisms.
2 There was a high *question / demand* for civil engineers last year.
3 Alternative energy sources are environmentally *kind / friendly*.
4 *Green / Red* building is popular nowadays.
5 It is our task to *increase / improve* the environment.
6 *Solar / Sun* panels are a good alternative for energy production.

5 Correct the sentences with the verb TO BE.

1. London aren't a country.
2. The United States aren't a city.
3. An elephant am not a small animal.
4. English and Turkish isn't sister languages.
5. Mercedes aren't a bike.
6. Is I a student ?
7. Mrs. Stuart aren't a poor woman.
8. Cigarettes isn't good for people.
9. The North Pole am not hot.
10. Simon are from United Kingdom.

6 Fill in the gaps with THERE IS or THERE ARE.

1 _____ few students in our group.
2 _____ no water in this building.
3 _____ a wide range to choose from.
4 _____ a lot of materials to work with.
5 _____ not any equipment in this laboratory.
6 _____ some mistakes in my test.

7 Complete the sentences 1-10 with the verbs in the correct form of the Present Simple tense.

1 A building project _____ (begin) simply with a client and an architect, but later many more people become involved.
2 The client _____ (be) the customer and therefore the most important member of the team.
3 Our construction team often _____ (involve) many different trades offering a variety of skills.
4 How often _____ (the foreman / have) to attend office meetings?
5 The architect _____ (not have) to wear a uniform.
6 The design team _____ (work) on the Brown's house every day.
7 The drivers _____ (bring) in fresh loads of cement several times a day.
8 _____ (you / repair) construction equipment on site?
8 The site manager _____ (have) control of all construction processes on site.
10 What _____ (a crane operator / do)?

8 Present Simple or Present Continuous.

1 The river_____ (flow) very fast today – faster than usual.
2 You _____ (always to complain) that waiters are rude!
3 I _____ (walk) to school every day. I _____ (take, not) the bus.
4 You _____ (always to borrow) money!
5 That's worrying because the number of people without job_____ (increase).
6 Robert is a vegetarian. He _____ (eat, not) meat.

7 _____ (you, cook) your own dinner every day?
8 Holidays abroad _____ (become) increasingly popular.
9 Are you in a hurry? — No, I _____ (walk) quickly because I'm cold.
10 Where's your father? — He _____ (be) in the bathroom. He _____ (shave).
11 She _____ (not / like) football.
12 Mary _____ (listen) to music now.
13 Tom usually _____ drink) coffee, but he _____ (drink) tea now.
14. We _____ (go) to the disco tonight.
15. _____ (he / go) to work by bus every day.

MODULE 2

THE CONSTRUCTION INDUSTRY

UNIT 1 **FROM THE HISTORY OF CONSTRUCTION**	**GLIMPSES OF THE HISTORY OF CONSTRUCTION** **PAST SIMPLE AFFIRMATIVE** **COMMUNICATION SKILLS** **SELF-STUDY**

LEAD-IN

KEYNOTES
Construction History covers all periods from the various earliest **signs** of **human activity** to the very recent past, from **cave dwellings** to **nuclear power stations**. Obviously the techniques used to study these periods vary. Early **buildings** lack written records, so the descriptions tend to depend entirely on **archaeological recording** and interpretation. Later, written records can be used along with archaeological recording. In more recent periods very detailed accounts may survive, with **drawings**, **models** and **photographs** to show how building were **put together** and oral histories can be compiled from those who worked on them.

Questions for discussion:

1 What signs of human activity can you name?
2 Do you agree that cave dwellings are an example of early construction?
3 What types of early buildings do you know?
4 Do builders use drawings nowadays to put buildings together?

Useful language

I can name the following signs of….
I agree / disagree that…..
I know such types of…… as….
I think builders …….
I don't think ……..is/are used ……..

1 Label the pictures with the words in the box.

drawing	building	photograph	cave dwelling	nuclear power station

1 _____ **2 _____** **3_____**

4 _____ **5 _____**

2 Put some words above into the correct group. Add more examples.

Early construction	Late construction
Cave dwellings	

3 Talk about types of construction typical for different periods of time.

A cave dwelling is typical for the early period of construction.

VOCABULARY 1

a hut	хижина, лачуга, барак
a stone house	каменный дом
a temple	храм
a church	церковь
a cathedral	собор
a pyramid	пирамида
a skyscraper	небоскреб

a high-rise	высотное здание
a brick house	кирпичный дом
a detached house	особняк
a semi-detached house	дом на 2 семьи
a cottage	коттедж
a bungalow	бунгало
a terraced house	дом, похожий на ряд других
a castle	замок
a block of flats	многоквартирный дом
a lighthouse	маяк
a teepee	вигвам

1 Match the words 1-10 with their definitions a-j.

1) a hut	a) a house that is all on one level
2) a temple	b) a tower built next to the sea that has a powerful flashing light at the top to show ships where to go or to warn them of danger
3) a skyscraper	c) a house that is not joined to another house
4) a teepee	d) a small simple shelter
5) a castle	e) a large stone structure with a square base and walls with three sides that meet at a point on the top of the structure
6) a lighthouse	f) a very tall building containing offices or flats
7) a high-rise	g) a building used for worship in some religions
8) a detached house	h) a large strong building with thick walls built in the past to protect the people inside from being attacked
9) a pyramid	i) a very tall building with many floors or levels
10) a bungalow	j) a tall round tent made of animal skin that some native Americans traditionally lived in

2 Complete the sentences with the words from the table above.

1 She lived in a very small _____ where everything was on one level.
2 All people in Rome met in this _____ to worship ancient gods.
3 _____ in Egypt which were built many years ago still attract a lot of tourists from all over the world.
4 What do you know about _____ where native Americans used to live centuries ago?

5 My friend has an office in the _____which is taller than 150 meters. Can you imagine that?

6 Her ex-boyfriend bought a large _____ with a garage and a huge garden.

7 My cousin's family lives on the 125th level of a _____ .

8 Builders had to live in a _____ made of wood as a temporary building.

9 Yesterday they visited a _____ built in the 12th century and developed at the order of German Emperor Kaiser Wilhelm at the beginning of the 20th century.

10 The tip of this _____ is brilliant white against the sky and at night its light is seen far away showing the way to ships.

3 Search for 8 words hidden in the grid.

c	**t**	**e**	**m**	**p**	**l**	**e**	**p**
w	**a**	**f**	**s**	**o**	**l**	**g**	**y**
t	**o**	**s**	**g**	**d**	**s**	**a**	**r**
q	**e**	**l**	**t**	**v**	**w**	**t**	**a**
r	**s**	**e**	**a**	**l**	**b**	**t**	**m**
z	**u**	**e**	**p**	**g**	**e**	**o**	**i**
d	**o**	**r**	**u**	**e**	**n**	**c**	**d**
c	**h**	**u**	**t**	**n**	**e**	**u**	**p**
x	**t**	**q**	**o**	**w**	**n**	**m**	**b**

READING

1 Read the text about the history of construction and fill in the gaps (A-F) with the sentences (1-6).

(1) began to have symbolic as well as functional value	**(4)** Yet another trend is the change in energy available to the construction process
(2) by which human beings were able to adapt themselves to a wide variety of climates	**(5)** draws upon research establishments that study material properties and performance
(3) Later, more durable natural materials	**(6)** Gradually more durable structures began to appear

GLIMPSES OF THE HISTORY OF CONSTRUCTION

[1]Construction is an ancient human activity. It began with the purely functional need for a controlled environment to moderate the effects of climate. Constructed shelters were one means **(A)** _____ and become a global species.

[2] Human shelters were at first very simple and perhaps lasted only a few days or months. Over time, however, even temporary structures evolved into such highly refined forms as the igloo. **(B)** _____, particularly after the advent of agriculture, when people began to stay in one place for long periods. The first shelters were dwellings, but later other functions, such as food storage and ceremony, were housed in separate buildings. Some structures

(C) _____, marking the beginning of the distinction between architecture and building.

[3] The history of building is marked by a number of trends. One is the increasing durability of the materials used. Early building materials were perishable, such as leaves, branches, and animal hides. **(D)** _____—such as clay, stone, and timber—and, finally, synthetic materials—such as brick, concrete, metals, and plastics—were used. Another is a quest for buildings of ever greater height and span; this was made possible by the development of stronger materials and by knowledge of how materials behave and how to exploit them to greater advantage. A third major trend involves the degree of control exercised over the interior environment of buildings: increasingly precise regulation of air temperature, light and sound levels, humidity, odours, air speed, and other factors that affect human comfort has been possible. **(E)** _____, starting with human muscle power and developing toward the powerful machinery used today.

[4] The present state of construction is complex. There is a wide range of building products and systems which are aimed primarily at groups of building types or markets. The design process for buildings is highly organized and **(F)** _____, code officials who adopt and enforce safety standards, and design professionals who determine user needs and design a building to meet those needs. The construction process is also highly organized; it includes the manufacturers of building products and systems, the craftsmen who assemble them on the building site, the contractors who employ and coordinate the work of the craftsmen, and consultants who specialize in such aspects as construction management, quality control, and insurance.

2 Which of the sentences summarizes the ideas in the text?

a The construction industry hasn't changed greatly since ancient times.
b The history of construction is closely connected with the human activity over the years.
c The construction industry depends mainly on the materials used.

3 Write the number of the paragraph 1-4 that gives information about the following.

the evolution of buildings	paragraph _____
constructed shelters as a way to adapt to climate changes	paragraph _____
the modern construction industry is a complex process	paragraph _____
trends in the history of building	paragraph _____

4 Read the text again. Answer the questions.

1 What is construction?
2 How did construction begin?
3 What was the first simple structure?
4 When did more durable structures begin to appear?
5 What marked the distinction between architecture and building?
6 Can you name the trends which affected the history of construction?
7 Is the design process for buildings highly organized today?
8 What does the modern construction process include?

5 Are these statements true or false?

1 Construction began with the need for a controlled environment.
2 Ancient people had to protect themselves and built shelters.
3 Early human shelters were very strong and could last many years.
4 All structures had symbolic value in ancient times.
5 The increasing durability of materials used affected the evolution of construction greatly.
6 The qualities of building materials were not important for construction.
7 The ability to control the interior environment of buildings is one of the trends in construction today.
8 The present state of construction is quite simple.
9 Material properties and performance are studied today to organize the building process properly.
10 The modern construction process involves a lot of people.

VOCABULARY 2

1 Match the words in the box with the correct category.

(1) consultant; (2) shelter; (3) construction management; (4) clay; (5) contractor; (6) temperature; (7) stone; (8) safety standards; (9) timber; (10) light; (11) brick; (12) insurance; (13) concrete; (14) sound level; (15) metals; (16) humidity; (17) plastics; (18) design a building; (19) manufacturer; (20) to meet needs; (21) construction process; (22) air speed; (23) odour; (24) craftsman; (25) quality control

BUILDING MATERIALS	JOBS IN CONSTRUCTION	FACTORS EFFECTING CONSTRUCTION	CONSTRUCTION SERVICES	OTHERS
clay …… …….	manufacturer …….. ……...	humidity …….. ……...	Construction management …… ……..	…….. ……..

2 Choose the correct word in italics.

1 The garden is enclosed by a high *brick / clay* wall.
2 *Humidity / light* means the amount of moisture in the air.
3 The company is the world's largest brick *consultant / manufacturer.*
4 Yesterday the town reached its highest ever March *air speed / temperature.*
5 To ensure the best quality of buildings *quality control / construction process* is needed.
6 Chemicals are used in the manufacture of *plastics / clay.*
7 The floors are made of *brick / concrete.*
8 Do you have *insurance / shelter* for the house yet?
9 *A contractor / manufacturer* is a person or company whose job is to provide goods or do work for another person or organization.
10 Any *construction management / construction process* can take quite a long time.

3 Choose the best definition a or b for the words 1-8.

1. A craftsman is a person who	a) makes beautiful or practical objects using his hands
	b) builds houses
2. A manufacturer is a person or company that	a) designs products
	b) produces goods
3. A consultant is a professional person who	a) deals with complaints
	b) gives help or advice on a particular subject
4. Construction management is a professional service that	a) uses special techniques to oversee the planning, design and construction of a project
	b) uses methods to supervise the construction site personnel
5. Construction process is	a) planning and design of a building
	b) activities associated with building, landscaping etc.
6. Quality control is	a) methods used to ensure safety of products
	b) regular tests that are done in a factory to make sure that its products are good
7. A brick is	a) a block used for building walls and other structures
	b) a strong light substance produced by a chemical process
8. Clay is	a) a type of heavy wet soil that becomes hard when it is baked in a kiln
	b) a strong light substance produced by a chemical process

LANGUAGE SKILLS

PAST SIMPLE AFFIRMATIVE

We use the Past Simple form to talk about actions and finished events in the past. Some verbs are regular and some are irregular.

Affirmative sentences	**Regular verbs**	**Irregular verbs**
S (subject) + V (verb) in the Past Simple form	- ed	II form
Examples		
	They decid**ed** to build a skyscraper in the city last year. - Они решили	They **built** a skyscraper in the city last year. - Они построили небоскреб в городе в прошлом году.

	построить небоскреб в этом городе в прошлом году.	

Verbs ending in *-ed* are pronounced

[d] after a vowel or a voiced consonant	**[t]** after an unvoiced consonant	**[id]** after the sounds [t] or [d]
played	brushed	waited

1 Read the verbs paying attention to the pronunciation of *-ed.*

cleaned	laughed	painted
snowed	pushed	shouted
closed	watched	wanted
filled	danced	decided
stayed	walked	landed
cried	washed	departed
snored	parked	insisted
opened	rushed	affected
whispered	marked	adapted
rained	developed	skated

2 Complete the table with the correct infinitive or past simple form of the verbs. Which verbs are regular and which are irregular?

Infinitive	**Past Simple**	**Infinitive**	**Past Simple**
build	1 _____	mark	11_____
2_____	developed	12 _____	began
refine	3_____	become	13 _____
4 _____	evolved	14 _____	organized
make	5 _____	use	15 _____
6_____	affected	16 _____	specialized
include	7 _____	invent	17 _____
8 _____	added	18 _____	came
attach	9 _____	move	19 _____
10 _____	varied	20 _____	gave

3 Complete the texts with the past simple of the verbs in brackets.

a) Bronze is made when tin is added to copper and brass is copper with zinc. Copper (1) _____ (come) into use before 5,000 BC and bronze around 3,100 BC, although the times vary by region. People (2) _____ (use) copper and bronze for the same types of tools as stone such as axes and chisels, but the new, less brittle, more durable material (3) _____ (cut) better. Bronze was cast

into desired shapes and if damaged could be recast. They (4) _____ (develop) a new tool in the copper age, namely the saw. Other uses of copper and bronze (5) _____ (be) to "harden" the cutting edge of tools such as the Egyptians using copper and bronze points for working soft stone including quarrying blocks and making rock-cut architecture.

During the Bronze Age the corbelled arch (6) _____ (come) into use such as for beehive tombs. The wheel came into use but (7) _____ (be) not common until much later. Heavy loads were moved on boats, sledges (a primitive sled) or on rollers. The Egyptians (8) _____ (begin) building stone temples with the post and lintel construction method and the Greeks and Romans (9) _____ (follow) this style.

b) The ancient Greeks, like the Egyptians and the Mesopotamians, (10) _____ (tend) to build most of their common buildings out of mud brick, leaving no record behind them. However many structures do survive, some of which are in a very good state of repair, although some have been partly reconstructed or re-erected in the modern era. The most dramatic is the Greek Temples. The Greeks (11) _____ (make) many advances in technology including plumbing, the spiral staircase, central heating, urban planning, the water wheel, the crane, and more.

No timber structures survive (roofs, floors etc.), so our knowledge of how these were put together is limited. The spans are, in the main, limited and suggest very simple beam and post structures spanning stone walls. For the longer spans, it is uncertain if the Greeks or Romans (13) _____ (invent) the truss but the Romans certainly (14) _____ (use) timber roof trusses.

c) The agricultural revolution, dated to about 10,000 BC, (15) _____ (give) a major impetus to construction. People no longer (16) _____ (travel) in search of game or (17) _____ (follow) their herds but (18) _____ (stay) in one place to tend their fields. Dwellings began to be more permanent. Archaeological records are scanty, but in the Middle East are found the remains of whole villages of round dwellings called tholoi, whose walls are made of packed clay; all traces of roofs have disappeared. In Europe tholoi were built of dry-laid stone with domed roofs; there are still surviving examples (of more recent construction) of these beehive structures in the Alps. In later Middle Eastern tholoi a rectangular antechamber or entrance hall (19) _____ (appear), attached to the main circular chamber—the first examples of the rectangular plan form in building. Still later the circular form was dropped in favour of the rectangle as dwellings were divided into more rooms and more dwellings were placed together in settlements. The tholoi (20) _____ (mark) an important step in the search for durability; they were the beginning of masonry construction.

We can use time expressions to talk about a definite time in the past:

last (year, month, week)
ago
yesterday

4 Complete the sentences with the time expressions *last…., ago, yesterday.*

1 They finished the construction of the bridge 3 years _____.
2 The building company concluded a profitable contract _____ month.
3 Ancient people used these building materials many centuries _____.
4 They agreed to build a new shopping centre in this part of the city _____.
5 Do you know that this company moved to London _____ year?
6 They stopped the reconstruction of the museum _____.

5 Complete the sentences with the past simple of the appropriate verbs in the box.

make, appear, mark, cover, lead, construct, move

1 The hunters of the late Stone Age _____ about a wide are in search of food.
2 They _____ walls of tents using animal skin.
3 Ancient people _____ some huts with crude thatch.
4 Timber buildings _____ later.
5 Builders _____ brick houses at that time.
6 These symbolic buildings _____ the beginning of architecture.
7 The development of technology in this period _____ to the production of metal tools.
8 Egyptians _____ their houses using mud brick.

COMMUNICATION SKILLS

Keeping up a conversation: agreeing and disagreeing		
	with someone's opinion	**with facts**
Agreeing (strongly)	That's very true. I agree with you there. Yes, I know exactly what you mean. You are absolutely right.	You are absolutely right. I quite agree. That's right. Right. Yes. Exactly.
Agreeing (partly)	Yes, but don't you think…. I agree with you, but….	I agree up to a point, but that's not the whole picture.
Disagreeing	I am afraid I don't quite agree with you. I don't think so. I don't see it quite like that.	I am afraid not. Not quite. That's not the whole picture.
Disagreeing (strongly)	That's just not true! Oh, come on! (*infml)*	

1 Use phrases of agreement or disagreement to comment on facts.

A: Construction is an ancient human activity.
B: _____

A: Ancient people built shelters to protect themselves against animals.
B:_____

A: At first human shelters were not very simple.
B: _____

A: The first shelters were dwellings.
B: _____

A: Agriculture didn't affect the development of construction industry.
B: _____

A: Early building materials were perishable.
B: _____

A: Clay, stone and timber were synthetic materials.
B: _____

A: The present state of construction is complex.
B: _____

2 Complete the conversation with phrases of agreement or disagreement.

Vicky: Hi, Rebecca!
Rebecca: Oh, hi, Vicky
Vicky: Why didn't you attend our lecture on Construction yesterday? It was very interesting.
Rebecca: Oh, what a pity, but I was ill. What was it about?
Vicky: The history of construction. Do you know anything about it?
Rebecca: A few facts. I remember that ancient people built shelters to protect themselves against animals.
Vicky: I a_____ to a p_____, but that's _____. In fact, shelters helped them to adapt themselves to a great variety of climates.
Rebecca: Ah, r_____.
Vicky: What else do you remember?
Rebecca: At first structures were temporary but then they became more durable.
Vicky: You are a_____ r_____.
Rebecca: And one more thing is that early building materials were clay, stone and timber.
Vicky: I am a_____ not. You see, early building materials were leaves, branches and animal hides.
Rebecca: That's t_____. I've forgotten about them. Well, brick and concrete were synthetic materials, weren't they?
Vicky: E_____. They were used many years ago and they are still popular today.
Rebecca: And I believe people in the past didn't think much about the interior environment of buildings.

Vicky: That's j_____ not t_____. They did think about all factors that affected human comfort.

Rebecca: And it goes without saying that at the present moment the construction industry is very complex.

Vicky: That's v_____ t_____. It includes many aspects and specialists.

Rebecca: Well, you must admit that I do know something, but of course, not everything.

Vicky: Yes, no doubt.

Rebecca: Oh, it's half past two already. It's time to go to the college.

Vicky: Yeah, let's go.

3 Work with a partner. Use the information on the cards. Take turns to agree or disagree with facts or opinions.

STUDENT A	**STUDENT B**
(a) Nowadays the construction process is highly organized. It includes manufacturers, craftsmen, contractors, consultants and many other professionals and workers.	b) Ancient people were very clever. They used those natural materials that were available at that time to build shelters
c) Ancient people needed to find places where they could build a shelter and protect themselves against animals.	d) Construction management, quality control and insurance are important aspects of construction today.
e) Modern buildings are very durable thanks to modern technologies.	f) The history of construction is not very complex. At first people built shelters, now they construct skyscrapers.

Useful phrases	
I think (that) ……	*I am convinced (that)……*
I (strongly) believe (that) ……	*My view is that……*
I am confident (that)……	*In my opinion……*
I am sure (that)……	*To my mind……*

4 Work in groups of three. Look at the list of facts about construction. Agree or disagree with them.

1 Construction industry is only for men.
2 Ancient women could built shelters to protect themselves against animals.
3 The construction process was simple centuries ago.
4 The construction process is still simple today.

5 People used brick and concrete many years ago.
6 Brick and concrete are used now.
7 Construction management was not necessary in ancient times.
8 Quality control is an important aspect of construction today.
9 Ancient people tried to follow primitive safety standards.
10 Safety standards are high nowadays.

SELF-STUDY

1 Choose the correct word in italics.

1 A house that is joined to another similar house by one wall that they share is called *a semi-detached house / a cottage.*
2 A small house usually in a village or countryside is called *a detached house / a cottage.*
3 A large building that is divided into apartments is called *a skyscraper / a block of flats.*
4 A building where Christians go to worship God is called *a church / a temple.*
5 If you want to live in a separate house you need *semi-detached house / a detached house.*
6 In general people call a house or a place they live in *a dwelling / a bungalow.*

2 Complete the sentences with the correct form of the words given in the right column.

1 _____ is an ancient human activity.	construct
2 The first shelters of people were _____.	dwell
3 All structures have a _____ value.	function
4 Ancient people began to choose materials according to their _____.	durable
5 Leaves and branches were _____ materials.	perish
6 The _____ of stronger materials allowed people to build high structures.	develop
7 Modern _____ materials are very strong.	build
8 People who employ and coordinate the work of craftsmen are called _____.	contract

3 Put the words in the correct order to make affirmative sentences.

1 they / this / many / building / constructed / ago / centuries.
2 dwellings / used / people / in / live / to.
3 were / natural / clay / popular / stone / and / materials.
4 the / in / energy / change / available / the / process / to / construction / important / was.
5 state / construction / is / complex / the / modern / of.
6 the / highly / process / organized / is / construction.
7 consultants / in / construction / control / management / specialize / quality / insurance / and.
8 agricultural / impulse / the / gave / revolution / a / to / great / construction.

4 Complete the sentences with the past simple of the verbs in brackets.

1 People _____ (make) bricks from mud and straw.

2 Then they _____ (dry) them in the sun.
3 They _____ (use) bitumen to join bricks together.
4 About 3000 BC the first fired bricks _____ (appear).
5 Different symbolic buildings _____ (mark) the beginning of architecture in areas.
6 Then people _____ (develop) bronze.
7 The extracting of stone _____ (be) a costly process.
8 Egyptians _____ (move) blocks weighing up to 1,000,000 kilograms.

5 Match the sentence halves.

1 I agree	a but that's not the whole picture
2 You are	b with you there
3 Yes, I know exactly	c I don't quite agree with you
4 I agree to a point	d absolutely right
5 I am afraid	e what you mean
6 I don't see it	f quite like that

GLOSSARY

air speed	coordinate	perishable
archeological recording	cottage	photograph
block of flats	craftsman	plastics
brick	design a building	put together
brick house	detached house	pyramid
build	drawing	quality control
building	dwelling	safety standards
building material	employ	semi-detached house
bungalow	functional	shelter
castle	high-rise	sign
cathedral	humidity	skyscraper
cave dwelling	insurance	sound level
church	light	stone
clay	lighthouse	stone house
concrete	meet needs	synthetic
construction	metal	teepee
construction management	model	temperature
construction process	manufacturer	temple
consultant	nuclear power station	terraced house
contractor	odour	timber

UNIT 2 THE CONSTRUCTION INDUSTRY	THE CONSTRUCTION INDUSTRY IN THE UK PAST SIMPLE INTERROGATIVE AND NEGATIVE COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
In general, there are three sectors of construction: **buildings**, **infrastructure** and **industrial**. • Building construction is usually further divided into **residential** and **non-residential**. • Infrastructure, also called **heavy civil** or heavy engineering, includes large **public works**, **dams**, **bridges**, **highways**, **railways**, water or wastewater and utility distribution. • Industrial construction includes **offshore construction** (mainly of energy installations), **mining** and **quarrying**, **refineries**, **chemical processing**, **power generation**, **mills** and **manufacturing plants**.

Questions for discussion:

1 What sectors of the construction industry can you name?
2 Do you agree with this classification?
3 What types of offshore construction do you know?
4 What sector of the construction industry would you like to work in? Why?

Useful language

I can name the following sectors of….
I agree / disagree with…..
I know such types of…… as….
I would like to work in …….because ……..
I think this sector is the most important one today.
I don't think that other sectors are as important as ……..

1 Label the pictures with the words in the box.

dam	bridge	railway	residential building	refinery

1 _____ **2 _____** **3 _____**

4 _____ **5 _____**

2 Put the words in the box into the correct group. Add more examples.

dormitory	educational institution	hotel	block of flats	religious institution	house

RESIDENTIAL BUILDINGS	NON-RESIDENTIAL BUILDINGS
…… ……..	……. …….

3 Make up sentences with the words from the table.

A house is a residential building as people use it for living there.

VOCABULARY 1

infrastructure	инфраструктура
industrial	промышленный
building construction	строительство зданий

residential	жилой
non-residential	нежилой
heavy civil engineering	строительство объектов для отраслей тяжелого машиностроения
public works	объекты гражданской инфраструктуры
a dam	дамба
a bridge	мост
a highway	автомагистраль
a railway	железная дорога
water distribution	водораспределение
waste water distribution	распределение сточных вод
utility distribution	распределение энергоресурсов
offshore construction	строительство сооружений, находящихся в открытом море
mining	горнодобывающая промышленность
quarrying	разработка месторождений
a refinery	нефтеперерабатывающее предприятие
chemical processing	химическая обработка
power generation	электрогенерация
a mill	мельница
a manufacturing plant	производственное предприятие

1 Match the words 1-10 with their definitions a-j.

1) infrastructure	a) a structure that is built over a river, road or railway to allow people and vehicles to cross from one side to the other
2) a manufacturing plant	b) a building where grain is crushed into flour
3) a dam	c) the set of systems within a place or organization that affect how well it operates
4) a bridge	d) the process of digging stone from a quarry
5) a refinery	e) a way of making changes to chemical compounds
6) residential	f) a factory or building where goods are manufactured
7) quarrying	g) in or related to industry, or having a lot of industry and factories
8) chemical processing	h) relating to houses where people live
9) a mill	i) a factory where substances in their natural state such as oil or sugar are made pure

10) industrial	j) a wall built across a river that stops a river's flow and collects the water especially to make a reservoir that provides water for an area

2 Complete the sentences with the words from the table above.

1 Houses near i_____ sites aren't often sold so quickly because they are regarded as undesirable.

2 Petrochemical producers use c_____ p_____ to make a range of chemical products.

3 The company was accused of low investments into workers and i_____.

4 There is only one m_____ in the town where you can crush grain into flour.

5 This company opened it first m_____ p_____ in London at the beginning of the XIX century.

6 Mining and q_____ faced great problems last year.

7 This d _____ on the river Nile in Egypt is quite famous.

8 It was not safe to locate chemical factories in a r_____ area as it could affect people's health.

9 They built the b_____ across the river fifty years ago and now it's necessary to repair it.

10 This is the best r_____ in the Middle East where you can purify oil.

3 Search for 10 words hidden in the grid.

d	**a**	**m**	**f**	**r**	**a**	**i**	**l**	**w**	**a**	**y**
g	**k**	**i**	**m**	**h**	**r**	**e**	**s**	**t**	**u**	**v**
w	**x**	**l**	**z**	**y**	**l**	**g**	**n**	**o**	**j**	**p**
q	**w**	**l**	**r**	**t**	**y**	**d**	**o**	**a**	**s**	**d**
f	**g**	**c**	**h**	**e**	**m**	**i**	**c**	**a**	**l**	**h**
i	**n**	**d**	**u**	**s**	**t**	**r**	**i**	**a**	**l**	**t**
l	**z**	**c**	**h**	**n**	**v**	**b**	**m**	**s**	**a**	**n**
u	**q**	**y**	**r**	**e**	**n**	**i**	**f**	**e**	**r**	**a**
r	**e**	**s**	**i**	**d**	**e**	**n**	**t**	**i**	**a**	**l**
a	**d**	**f**	**h**	**e**	**q**	**n**	**m**	**r**	**o**	**p**
a	**g**	**n**	**i**	**y**	**r**	**r**	**a**	**u**	**q**	**l**

READING

1 Read the text about the construction industry in the UK and match the headings (A-F) with the paragraphs (1-6).

(A) The residential sector	**(D)** The construction materials sector
(B) The industrial sector	**(E)** The overview of the construction industry sectors in the UK
(C) The commercial sector	**(F)** The infrastructure sector

THE CONSTRUCTION INDUSTRY IN THE UK

(1) _____

The construction industry in the UK consists of five different sectors: the residential sector, the industrial sector, the infrastructure sector, the commercial sector and the construction materials sector. The residential sector deals with houses and apartments. The industrial sector deals with big projects like factories and power plants. The infrastructure sector is for projects like roads, bridges and tunnels. The commercial sector is for things like schools, hospitals and office blocks. The client pays for the project and hires general contractors to deal with subcontractors, equipment and materials. The construction materials sector deals with building materials.

(2) _____

This sector accounted for 38.6% of the construction industry's output in 2000. The amount spent on public housing has never exceeded £2bn whereas the figure for private housing has consistently been double or triple that amount.

New homes are currently exempt from the Sale of Goods Act. Each year there are 150,000 homes purchased throughout the UK. With an average value of £100,000 per property this means that an industry worth in excess of £1.5bn per year is unregulated by the government and exempt from usual trading standards, leaving owners of new homes with little or no protection for the most expensive purchase they will ever make. This is made even more concerning by the fact that 84% of new homes have defects.

(3) _____

This sector accounted for 9.2% of all construction work in 2000 – a slightly lower figure than for the previous 4 years – and was worth £6.43bn. Road building is the main source of infrastructure work.

The National Audit Office revealed that more than £434m worth of road-construction contracts – 51% of those awarded – were won by five firms, Balfour Beatty, Budge, Fairclough, Alfred McAlpine and Tarmac.

(4) _____

This is the smallest of the basic sectors of the whole construction industry dealing with factories and plants. In 2000, the output of private construction work was £3.7bn, or 5.3% of the total construction sector.

(5) _____

This sector output, which includes a wide variety of commercial work, accounted for just over 18% of all construction work in 2000.

(6) _____

Building materials embrace a wide range of materials and components such as bricks, tiles, cement and timber. The UK construction materials sector is undergoing a period of rationalisation, with many UK companies now forming part of international companies.

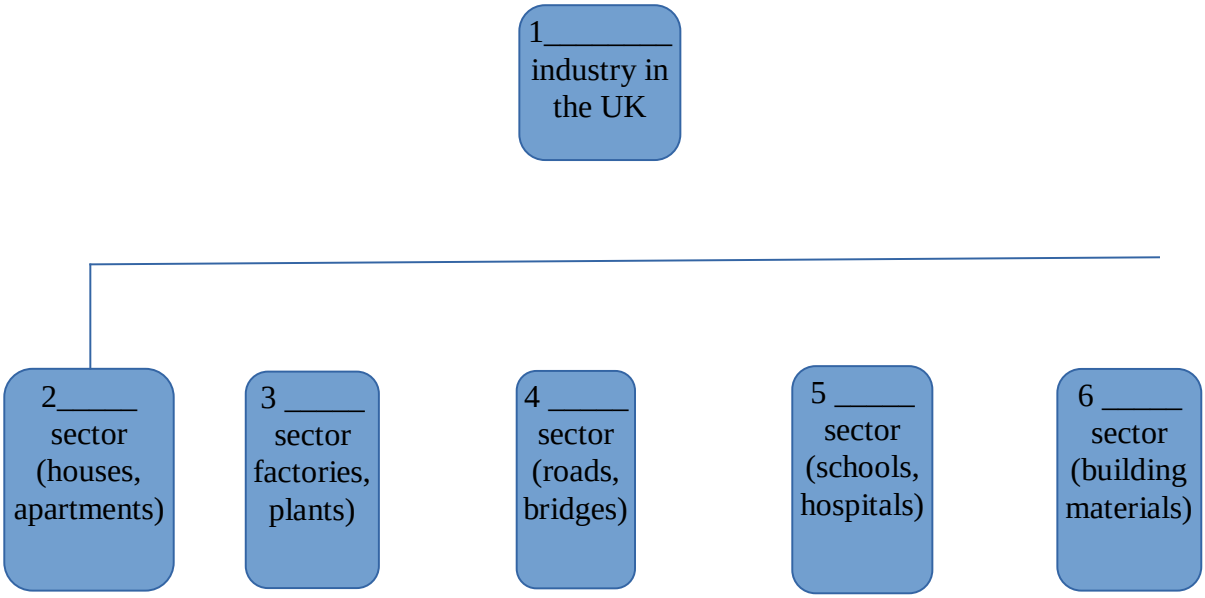
2 Which of the sentences summarises the ideas in the text?

a The construction industry in the UK is focused on commercial projects.

b The main sectors of the construction industry in the UK and their output in the construction work.

c Building materials is the basic part of the UK construction industry.

3 Complete the chart with the names of the construction industry sectors.



4 Read the text again. Answer the questions.

1 How many sectors does the construction industry of the UK consist of?
2 What are these sectors?
3 Which sector deals with big projects like factories and power plants?
4 Which sector deals with houses and apartments?
5 The commercial sector is for projects like roads, bridges and tunnels, isn't it?
6 What does the infrastructure sector deal with?
7 Are building materials the main focus of the construction materials sector?
8 How many houses are bought throughout the UK each year?
9 What is the main source of infrastructure work?
10 Which sector is the smallest one of all other sectors of the UK construction industry?

5 Are these statements true or false?

1 The construction industry of the UK includes four sectors.
2 The residential sector is for projects like roads and bridges.
3 The industrial sector deals with big projects like factories and plants.
4 Houses and apartments are the focus of the commercial sector.
5 The average cost of a house in the UK is £ 100,000.
6 Bridge building is the main source of infrastructure work.
7 Building materials include a small range of materials, e.g. bricks and tiles.
8 The construction industry in the UK does not have any problems.

VOCABULARY 2

1 Match the words in the box with the correct category.

brick, house, plant, tile, apartment, cement, factory, block of flats, timber, tunnel, hospital, school

The residential sector	The infrastructure sector	The industrial sector	The commercial sector	The construction materials sector
…….	…….	…….	…….	…….
…….	…….	…….	…….	…….
…….	…….	…….	…….	…….

Choose the correct word in italics.

1 *The tunnel / plant* was dug with the help of heavy machinery.
2 They built a lot of *plants / blocks of flats* in this residential area.
3 Do you know that they use *cement / brick* to make concrete?
4 *Tiles / bricks* are used for covering floors, walls or roofs.
5 They finished the construction of *the factory / hospital* last month. So people living in this area have a place where they can get medical care.
6 She worked in *a school* / *factory* that produced building materials.
7 It was a brick house fronted on three sides with *tile / timber.*
8 They bought a wonderful *apartment / block of flats* in the centre of London.

3 Choose the best definition (a-h) for the words (1-8).

1. a tile	a) related to buying and selling things
2. cement	b) a building or set of buildings where large amounts of goods are made using machines
3. timber	c) a long passage under or through the ground, especially one made by people

4. commercial	d) a thin, usually square or rectangular piece of baked clay, plastic etc., used for covering roofs, floors, walls etc.
5. a tunnel	e) a piece of planned work or an activity that is finished over a period of time and intended to achieve a particular purpose
6. a factory	f) a grey powder that is mixed with water and sand to make mortar or with water, sand and small stones to make concrete
7. a project	g) to take action in order to achieve something or in order to solve a problem
8. to deal with	h) wood used for building

LANGUAGE SKILLS

PAST SIMPLE
NEGATIVE, INTERROGATIVE AND SHORT ANSWER

Affirmative sentences	**Interrogative sentences**	**Short answers**	**Negative sentences**
	Did + S (subject)+ V (verb) without ***-ed (for regular verbs) or the I form (for irregular verbs)***?	Yes, S (pronoun) did. No, S (pronoun) didn't.	S (subject) + didn't +V (verb) without ***-ed***
Examples			
They decid**ed** to build a skyscraper in the city last year.	**Did** they **decide** to build a skyscraper in the city last year?	Yes, they did. No, they didn't.	They **didn't decide** to build a skyscraper in the city last year.
They **built** a skyscraper in the city last year.	**Did** they **build** a skyscraper in the city last year?	Yes, they did. No, they didn't.	They **didn't build** a skyscraper in the city last year.
The verb ***to be*** does not use the auxiliary ***did***.			
He was in a meeting last week.	Was he in a meeting last week?	Yes, he was. No, he wasn't.	He **wasn't** in a meeting last week.
They were in London last year.	Were they in London last year?	Yes, they were. No, they weren't.	They **weren't** in London last year.

1 Look at the sentences from the text "The construction industry in the UK". Make them negative.

1 This sector accounted for 38.6% of the construction industry's output in 2000.
2 The National Audit Office revealed that more than £434m worth of road-construction contracts were won by five firms.
3 The output of private construction work was £3.7bn.
4 This sector output accounted for just over 18% of all construction work in 2000.
5 Private housing was double or triple that amount.
6 The construction industry in the UK had many problems in the past.

2 Complete the questions and answers with using *did, didn't, was, wasn't, were* and *weren't.*

1 When _____ they build this skyscraper?
2 I think, it _____ in 2020.
3 No, it _____. It _____ in 2010.

4 _____ the company make building materials last year?
5 No, it _____. The company produced building materials two years ago.

6 _____ your cousins contractors a few years ago?
7 No, they _____. They _____ manufacturers.

8 Who _____ in a meeting yesterday?
9 I _____. But I think 8 colleagues _____.

3 Write questions for the quiz about the construction industry and its past.

1 When / people / begin/ to build / houses?
2 What / the / first / structures / people / built?
3 Why / people / use / leaves / and / branches / for / their / first / structures?
4 climate / affect / people's / projects?
5 Why / it / necessary / to / look / for / more / durable / materials?
6 What / sectors / the / construction / industry / include / in / the / past?
7 the / construction / industry / highly-organized / many years ago?
8 What / problems / builders / have / centuries / ago?

4 Take turns to ask and answer the questions.

5 Write questions for the sentences.

1 I phoned the construction company yesterday.
When _____ the company?

2 They sold these houses last year.
Why _____ these houses?

3 She spent a lot of money to buy an apartment.
How much money _____?

4 They chose this construction site because it was the biggest one in the area.

Why _____ this construction site?

5 Ancient people built the first shelters to protect themselves against animals.
What _____ to protect themselves against animals?

6 They used leaves and branches to build shelters.
Why _____ to build shelters?

6 Read the text on the left and change it using the Past Simple Tense adding expressions of the past: ….. *ago, last century, in the past.*

At present	In the past
Construction industry sectors include building construction (residential and non-residential), infrastructure construction, and industrial construction. Construction is the process of constructing a building or infrastructure. Construction differs from *manufacturing* in that manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client. Construction is directly connected with the fields of civil engineering and *architecture*. A construction company is responsible for building structures, in both the commercial and private sectors. A construction company is a type of business, enterprise, or similar organization created and operating to construct a wide variety of buildings, developments, housing, path, pavement, roads, motorways, and other types of construction projects.	*Construction industry* sectors _____ building construction (residential and non-residential), infrastructure construction, and industrial construction _____. Construction _____ the process of constructing a building or infrastructure. Construction _____ from *manufacturing* in that manufacturing typically _____ mass production of similar items without a designated purchaser, while construction typically _____ place on location for a known client _____. Construction _____ directly connected with the fields of civil engineering and *architecture* _____. A construction company _____ responsible for building structures, in both the commercial and private sectors. A construction company _____ a type of business, enterprise, or similar organization created and operating to construct a wide variety of buildings, developments, housing, path, pavement, roads, motorways, and other types of construction projects _____.

7 Use the prompts to write questions. Then read the text in the right column again and answer them.

1 construction / industry / sectors / include building construction (residential and non-residential) / infrastructure construction / and industrial construction / in the past?
2 construction / process / of constructing / a building / or infrastructure?
3 How / construction / differ / manufacturing?
4 What / construction company / responsible?
5 construction company / build / different / types / construction / projects / many years / ago?

COMMUNICATION SKILLS

Keeping up a conversation: fillers and hedges **Fillers** are used to fill in pauses and give the speaker time to think.		
formal	**neutral**	**informal**
So to speak If I may…..	Actually, Well, In a sense, I mean You know	Sort of …. Like…. Er...
Hedges are used to protect the speaker from the risk of seeming to be wrong, impolite, etc.		
Generally speaking…. If I may say so….. Personally Correct me if I am wrong…..	To be honest Sorry to interrupt but…… I think / I guess / I believe / I feel If you know what I mean	

1 Complete the story with fillers and hedges.

When I first arrived in Moscow it seemed like any other Eastern European capital, cold and proud and mysterious _____. I lived there for two months and _____, it became more fascinating every day _____, not a week passed without any adventure. A foreign student in Russia used to live ….____, in a kind of vacuum, _____, people seemed unfamiliar, and everything new seemed to be strange and exotic. _____, I found it inspiring. Values and ways of living, old buildings, modern offices, skyscrapers, and, _____, of thinking, _____ were the most difficult to understand. _____, at first I thought it would be impossible to understand the Russian way of life. But the longer I lived there, the more I realised that to understand it you had to let go off your own, _____, you had to experience the ways of living and thinking of others.

2 Complete the dialogues with fillers.

1 When do you think this construction company was founded?
2 Y_____ k _____, it started in 2010.

3 This sector of the construction industry in our country was quite profitable last year.
4 I cannot agree with you. I m_____ our analysis shows different results.

5 A_____, the output of the residential sector of the construction industry in this country was much lower last year in comparison with the previous year.
6 It was s_____ o_____ a disaster for the sector.

7 W_____, your survey shows that the construction industry had huge profits in 2012.
8 It was a boon, i_____ a s_____.

3 Match the sentence halves paying attention to the appropriate fillers and hedges.

1) It's sort of	a) these new building technologies must replace the old ones in the near future.
2) I mean that's	b) the best answer to the problem.
3) I feel he	c) but they built these houses in such a short time that nobody can guarantee you any safety.
4) Generally speaking,	d) difficult to say.
5) Correct me if I am wrong	e) the analysis made by our specialists proves the fact that your new project is not so flawless as you pretend it to be
6) Sorry to interrupt but	f) should let them decide whether to buy the flat.
7) To be honest,	g) if I may say so.
8) Your building project is rather attractive but it requires a lot of investments	h) I like the way you made your presentation.

4 Complete the dialogue with fillers and hedges. Role-play it.

Ann: Betty, you have been to the USA, haven't you?
Betty: Yes, I have, why?
Ann: The thing is I am going to the USA next week. _____, you can give me some advice….. The do's and don'ts, _____…..
Betty: _____ Are you going to work for a construction company?
Ann: Yes, and I am worried I may do something wrong, like, _____ saying something wrong or at the wrong time, _____.
Betty: I most certainly do…._____, you can't help it. _____, we never really know what is normal in a foreign country.
Ann: Well, I guess that's true _____, but…..
Betty: Don't worry too much. _____, you must try to stay calm in any situation and show that you can control your emotions.
Ann: Oh, that is not so easy, _____.
Betty: But you must do it. What else, learn all the information about this construction company beforehand as well as the construction industry of the country in general.
Ann: _____, I have already learned everything. But I am still worried.
Betty: That's OK. When you arrive there, it won't seem to be so awful/
Ann: All right. Thank you very much.
Betty: Have a good trip.
Ann: Thank you.
Betty: You are welcome.

5 Work in groups of three. Take turns to be the group leader and introduce the information on cards using fillers and hedges. Other students must express their opinions about the facts using fillers and hedges.

The construction industry in the UK	The construction industry in the Russian Federation	The construction industry in the USA
The construction industry in the UK consists of five different sectors: the residential sector, the industrial sector, the infrastructure sector, the commercial sector and the construction materials sector.	The Ministry of the Russian Federation for Construction, Housing and Utilities Infrastructure is the main regulator of construction, architecture and city planning in the country.	All the world's marvelous, biggest, and largest construction projects are done by large companies. Construction and Infrastructure sector is the core of the country's financial progression.

SELF-STUDY

1 Choose the correct word in italics.

1 This sector *deals with / use* houses and apartments.
2 These are wooden houses. They are made of *brick / timber.*
3 A grey powder that is mixed with water and sand to make mortar is called *cement / tile.*
4 *A tile / brick* is used for covering roofs, floors.
5 This is *a commercial /infrastructure* project our company is negotiating now.
6 *The manufacturing / construction* industry consists of residential and non-residential sectors.

2 Complete the sentences with the correct form of the words given in the right column.

1 This_____ plant produces tiles and other building materials.	manufacture
2 The _____ sector deals with houses and apartments.	residence
3 The _____ industry in the UK includes 5 sectors.	construct
4 _____ houses are very popular in this country.	brick
5 The _____ sector deals with big projects like factories and power plants.	industry
6 Four _____ sectors comprise the industry.	differ
7 The _____ sector is for things like schools, hospitals and office blocks.	commerce
8 Your _____ project is very interesting.	build

3 Put the words in the correct order to make interrogative sentences.

1 When / finish / did / the / bridge / they / construction / of?
2 Why / sell / they / houses / the / low / price / at / did / a / such?
3 the / industry / construction / 2015 / in / did / start?
4 How / structures / many / build / year / they / last / did?
5 construct / did / they / blocks / flats / of / many / ago / years / two?
6 Did / include / in / the / industry / construction / sectors / five / the / past?
7 Where / he / work / did / month / last?
8 you / a / flat / did / buy / yesterday?

4 Make the sentences negative.

1 They founded the construction company last year.
2 She bought two flats last week.
3 The construction industry included two sectors in the past.
4 They made a huge profit last year.
5 She knew much about the residential sector of the construction industry.
6 He decided to begin producing building materials a few years ago.
7 This sector dealt with the construction of bridges and tunnels in the past.
8 They were glad to see so many changes in the construction industry of the country.

5 Match the sentence halves.

1 Sorry to	a what I mean
2 Generally	b I am wrong
3 If you know	c interrupt but
4 If I may	d speaking
5 Correct me if	e say so

GLOSSARY

bridge	heavy civil engineering	quarrying
building construction	highway	railway
chemical processing	industrial	refinery
cement	infrastructure	residential
civil engineering	manufacturing plant	tile
commercial	mill	timber
construction materials	mining	tunnel
dam	non-residential	utility distribution
deal with	offshore construction	water distribution
factory	power generation	waste water distribution
	public works	

UNIT 3 CONSTRUCTION PROJECTS	SKY CITY 1000 SKI DUBAI ARTICLES COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
Construction is a process that consists of the building or **assembling** of infrastructure. Normally any **construction project** is managed by the **project manager** and supervised by the **construction manager**, **design engineer**, **construction engineer** or project architect. For the successful execution of a project, effective **planning** is essential. Those involved with the design and execution of the infrastructure in question must consider the **environmental impact** of the project, the successful **scheduling**, **budgeting**, **site safety**, **availability of materials**, **logistics**, inconvenience to the public caused by **construction delays**, **preparing tender documents**, etc. Thus, each type of construction project requires a unique team to plan, design, construct, and **maintain the project**. All building construction projects include some elements in common - design, financial, and **legal considerations**.

Questions for discussion:

1 What do you associate with the term "construction project"?
2 Do you agree that any construction project must be managed properly?
3 What specialists are needed for the successful execution of a construction project?
4 What is essential for maintaining any construction project?

Useful language

I have the following associations with the term "construction project"…….
I associate the following notions with the term "construction project"…….
I agree / disagree that…..because……..
I know that such specialists as…… are needed for the successful execution of a construction project.
I think …….is / are essential for maintaining any construction project.

1 Complete the sentences with the jobs from the box. Use *a / an* where necessary.

project manager	construction manager	design engineer	construction engineer	builder

1 Steve is _____ - he is responsible for the successful planning, execution and closing of a project.

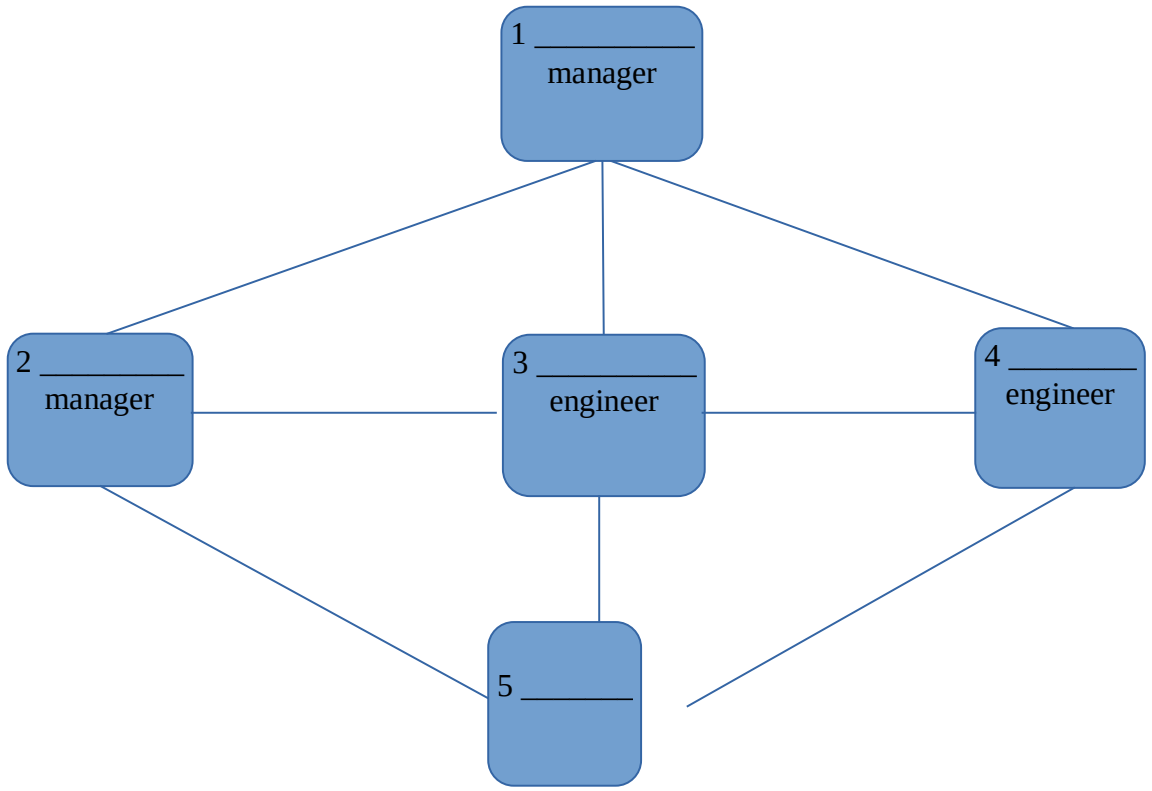
2 Laura is _____ - she oversees the design and implementation of large construction projects.

3 Marco is _____ - he supervises and manages contractors and workers at construction sites.

4 Helen is _____ - she coordinates all the design work required during construction projects.

5 Richard is _____ - he carries out a lot of tasks at construction sites under the supervision of a foreman.

2 Complete the chart with the words from the box above. The chart must show the hierarchical structure of any construction project management.



3 Talk about the specialists involved into any construction project and say who reports to whom.

A construction manager reports to …...
A design engineer reports to…….
A construction engineer reports to…….
A builder reports to ……..
A project manager reports to ……..

VOCABULARY 1

a construction project	строительный проект
a project manager	менеджер проекта / управляющий проектом
a design engineer	инженер по строительным конструкциям / инженер-проектировщик
a construction manager	руководитель строительных работ
a construction engineer	инженер по строительству и монтажу
to assemble	собирать, компоновать, монтировать
to supervise	наблюдать, контролировать
execution	выполнение
planning	планирование
implementation	выполнение
to oversee	осуществлять надзор, управлять
to coordinate	координировать
to be responsible for	нести ответственность за
to carry out	выполнять
an environmental impact	влияние на окружающую среду
scheduling	планирование сроков, расчет действий по графику
budgeting	формирование бюджета
site safety	техника безопасности на стройплощадке
availability of materials	наличие материалов
logistics	логистика
a construction delay	отставание от графика строительства
preparing tender documents	подготовка тендерной документации
to maintain a project	обеспечивать выполнение проекта
legal considerations	вопросы правового характера

1 Match the words 1-10 with their definitions a-j.

1) budgeting	a) the act of putting a plan into action or of starting to use something
2) planning	b) the process of planning and organizing to make sure that resources are in the places where they are needed so that an activity or process happens effectively
3) implementation	c) the fact that something can be bought, used or reached, or how much it can be

4) to maintain	d) the process of calculating how much money you must spend during a particular period of time, and of planning how you will spend it
5) logistics	e) the condition of not being dangerous
6) availability	f) a powerful effect that something especially something new has on a situation or person
7) scheduling	g) the situation in which you have to wait longer than expected for something to happen, or the time that you have to wait
8) safety	h) the act of deciding how to do something
9) impact	i) the job or activity of planning the times at which particular tasks will be done or events will happen
10) delay	j) to keep a road, machine, a building, etc, in a good condition

2 Complete the sentences with the words from the table above.

1 They spent the whole day on b_____, calculating how much money they needed for the construction project.

2 A large construction project costs a lot to m_____.

3 About 10% of his turnover went to paying for l_____.

4 The project went over budget due to some miscalculation at the p_____ stage.

5 The i_____ of the construction project was everything their success depended on.

6 For your s_____ wear a helmet when you are at the construction site.

7 The construction project may have a very negative i_____ on the environment. You should be careful.

8 No d_____ is possible in this project implementation. Otherwise we will lose a lot of money.

9 Your s_____ for the construction project is inappropriate.

10 I will check the a_____ of materials at the site.

3 Search for 8 words hidden in the grid.

p	**l**	**a**	**n**	**n**	**i**	**n**	**g**
r	**o**	**d**	**g**	**s**	**m**	**d**	**a**
o	**b**	**q**	**r**	**e**	**p**	**e**	**i**
j	**v**	**c**	**t**	**w**	**a**	**l**	**p**
e	**z**	**i**	**n**	**h**	**c**	**a**	**t**
c	**s**	**a**	**f**	**e**	**t**	**y**	**m**
t	**b**	**u**	**i**	**l**	**d**	**e**	**r**
n	**i**	**a**	**t**	**n**	**i**	**a**	**m**

READING

1 Read the texts about large construction projects and fill in the gaps (A-F) with the sentences (1-6).

(1) outside temperatures soar over 40ºC	**(4)** materials from all over the world are used
(2) a medium-sized city with housing	**(5)** overcrowding and a lack of green space
(3) which cover the equivalent of three football pitches	**(6)** 14 dish-shaped levels stacked one upon the other

SKY CITY 1000

Tokyo has a major problem with **(A)** _____. The Takenaka corporation has proposed Sky City 1000, a vertical city for the 21st century as a solution.

The Sky City proposal consists of a building 1,000 meters tall (about three times the height of the Eiffel Tower in Paris) and 400 meters wide at the base. It has a total floor area of eight square kilometers. It functions like **(B)** _____, offices, commercial facilities, schools, parks and theatres. It provides for 35,000 full-time residents and 100,000 workers. Sky City 1000 hopes to provide all the services of a city in an attractive natural environment.

The building is made up of **(C)** _____. To get around such a large building high-speed lifts containing up to 70 people will be used in the building and a small train will run around the roof. Engineers have carried out tests using Tokyo's fire helicopter to see what the danger would be if there was a fire.

The main advantage of Sky City 1000 is that people would be able to get to work, the shops and schools without getting in a car. However, some people would be scared to live in such a tall building, especially with Japan's earthquake problems.

SKI DUBAI

Dubai is an engineer's dream because it has a large number of engineering superprojects. The Gulf Emirate can now boast the largest snowdome in the world, but in the middle of the desert.

Ski Dubai is 85 meters high and 80 meters wide and cost $272m. It has five slopes and 6,000 metric tons of snow, **(D)** _____. One slope is 400 meters making the snowdome the Gulf's first indoor ski 'mountain'. It is so steep that engineers had to ensure there were no avalanches.

In the summer **(E)** _____. During the day the temperature inside is maintained between -1ºC and -2ºC. The snow-making process is carried out at night when the temperatures inside the building are reduced to -8ºC. Liquid water is used to create a cloud. The cloud then sprinkled with tiny hard ice particles. This allows snow crystals to form. They fall from the cloud as real snow.

The complexity of this unique construction project means that **(F)** _____. For many of the locals it offers an exciting experience as it is the first time they have seen snow.

2 Which of the sentences summarises the ideas in the texts?

a The unique construction projects in the world.
b The most expensive construction projects in the world.
c The most useless construction projects in the world.

3 Read the texts again. Answer the questions.

1 What problems does Tokyo have?
2 What construction project has Takenaka corporation proposed as a solution?
3 What is the height of Sky City 1000?
4 How many people can live and work in Sky City 1000?
5 Is the building made up of 20 levels?
6 The main advantage of Sky City 1000 is that people would be able to get everywhere without getting in a car, isn't it?
7 Why is Dubai an engineer's dream?
8 How many slopes does Ski Dubai have?
9 During the day the temperature inside is maintained between -8ºC and -10ºC, isn't it?
10 What does the complexity of Ski Dubai mean?

4 Are these statements true or false?

1 The Sky City building is 500 meters wide at the base.
2 It has a total floor area of eight square kilometers.
3 15,000 full-time residents can live in Sky City.
4 High-speed lifts are necessary to get around such a large building.
5 Sky City 1000 does not have any advantages and it is dangerous to live there.
6 The Gulf Emirate can now boast the largest bridge in the world.
7 Ski Dubai is more than 80 meters high and less than 60 meters wide.
8 Ski Dubai has seven slopes.
9 The snow-making process is carried out at night.
10 Ski Dubai offers an exciting experience to people.

5 Complete the table with the information from the texts.

	Sky City 1000	**Ski Dubai**
height		
width		
cost		
area covered		
advantages		
disadvantages		

VOCABULARY 2

1 Complete the table with nouns from the box.

complexity	length	width	depth	density	height

Adjectives	Nouns
wide	
long	
high	
complex	
deep	
dense	

2 Look at the pictures and complete the sentences with nouns or adjectives from the table above.

1 This is a _____ tower.

2 Its _____ is 324 meters (1063 feet).

3 The building is 300 meters _____ at the base.

4 The _____ of the base is 300 meters.

	
5 The _____ of the swimming-pool is 3 meters. 6 The swimming-pool is 3 meters _____.	7 The San Francisco – Oakland Bay Bridge is 7.18 kilometers (4.46 miles) _____. 8 The _____ of the San Francisco – Oakland Bay Bridge is 7.18 kilometers (4.46 miles).

3 Choose the correct word in italics.

1 The *complexity / depth* of this construction project is a problem for our company.
2 The base of the building is 100 metres in *length / width.*
3 The *length / complexity* of the bay is 200 miles.
4 This area has a high population *complexity / density.*
5 The *depth / height* of many skyscrapers in New York is impressive.
6 The *depth / height* of the children's pool is only 0.85 meters.

4 Choose the best definition (a-f) for the words (1-6).

1) complexity	a) the relationship between the mass of a substance and its size
2) depth	b) the distance from the top to the bottom of something, or the quality of being tall
3) length	c) the distance across something from one side to the other
4) width	d) the distance down either from the top of something to the bottom, or to a distance below the top surface of something
5) height	e) the measurement of something from end to end or along its longest side
6) density	f) the state of having many parts and being difficult to understand or find an answer to

LANGUAGE SKILLS

ARTICLES

A / an	**The**	**No article**
is used when we mention something (a singular noun) for the first time	is used: - when we refer to something that has been mentioned before	- with general plural countable nouns
Examples		
This is ***a*** construction project.	***The*** construction projects costs a lot.	They built ___ houses in this area every year.
	The	**No article**
	- with the names of some countries	- when we refer to something (a plural noun) for the first time
Examples		
	They build a lot of skyscrapers in ***the*** USA.	___Skyscrapers are typical for this country.
	The	**No article**
	- with the names of geographical features, e.g. seas, oceans, rivers.	- with the names of towns and cities, and most countries
Examples		
	Do you know ***the*** Thames river?	He worked as a builder in ____ New York.
	The	
	- with superlatives	
Examples		
	This is ***the*** longest river in Europe.	
	The	
	- when there is only one of something	
Examples		
	The sun is the star in the centre of the Solar System.	

1 Read the texts and complete the sentences with *a / an, the* or leave the space blank if no article is needed.

TRANSATLANTIC TUNNEL

[1]_____engineers have proposed cutting journey times from [2]_____ New York in [3]_____United States to [4]_____ London in [5]_____ United Kingdom to 54 minutes travelling on [6]_____ magnetically raised train. The idea is that [7]____ train will travel through [8]____ tunnel floating in [9]_____ Atlantic Ocean. [10]____ tunnel will be 150 feet below the surface of [11]_____ sea and will be nearly 5, 000 kilometers long. The train will travel at 8,000 kph (20 times the speed of today's fastest trains).

[12]_____ giant anchors will be sunk into [13]____ bottom of [14]____ sea, in some places up to 8 kilometers deep. 54,000 tunnel sections will be transported by [15]_____ special ship and will then be lowered into place. [16]____ tunnel section will then be attached to [17]____ anchors. [18]____ tunnel will have to stand up to some of [19]_____ Atlantic's strongest currents including part of [20]____ Gulf Stream. [21]____ tunnel will probably cost $12 trillion and need one billion tons of steel. It will take [22]____ decades to build. If it is built, it will be [23]_____ largest and [24]_____ most expensive engineering project in the history of [25]____ world.

CONSTRUCTION IN THE UNITED ARAB EMIRATES

2 John, who is an engineer, lives and works in [1]_____ United Arab Emirates. He is currently working in [2]_____ Dubai, the capital city of one of [3]____ seven emirates that make up the country. There has been a massive number of [4]_____ construction projects across [5]____ city recently, and construction in [6]_____UAE is currently [7]_____ fastest in [8]_____ world. This is mainly because [9]_____ government wants to build in order to spread [10]_____ economy of [11]_____ country. One of [12]_____biggest projects is [13]_____ theme park called Dubailand. Others include [14]_____ huge shopping centres and [15]_____ tourist attractions. In fact, everywhere you look at the moment you can see [16]____ crane. Experts say that 15-20 per cent of [17]_____ world's cranes are in Dubai.

2 Choose the correct option in italics.

1 His cousin collect *photos of buildings / the photos of buildings*.
2 We are going skiing in *Alps / the Alps* for New Year.
3 She is *a president / the president* of a country in Europe.
4 Honey, could you feed *a dog / the dog*, please?
5 My sister loves *animals / the animals.*
6 My Mom wants to go to *New York / the New York* this year.
7 The Gilbert and Ellis Islands are in *Pacific Ocean / the Pacific Ocean.*
8 They say *money / the money* makes the world go round.

3 Complete the sentences with *the* or –.

1 What's on at ____ theatre _____ next week?
2 What is _____ most famous structure in _____ world?
3 _____ Mount Everest is in _____ Himalayas, in both _____ Nepal and _____ China.
4 Washington DC, _____ capital city of _____ USA, isn't a state.
5 Everybody needs _____ love.
6 I want to sit on _____ beach and watch _____ sun go down.

COMMUNICATION SKILLS

Talking about a project
When we give information in a talk, it helps the listener if we put the points in a clear order. These sequencing phrases are useful for showing the order that things happened. ***First*** usually introduces the main point and ***finally*** the last point. ***Next***, ***after that*** and ***then*** have a similar meaning and we don't use them in a fixed order.

Sequencing phrases		**Stages of a project**
1 First **2 Next** **3 After that** **4 Then** **5 Finally**	**we**	**a** designed the bridge **b** had regular meetings **c** planned the schedule **d** agreed on a budget **e** did research

1 Match the sequencing phrases 1-5 with the stages of the project a-e.

First we agreed on a budget.

2 Complete the talk with the correct words in italics.

I'd like to tell you about a project that my team finished last month. The *aim / plan* of the project was to construct an original bridge across the river that is the main river in our city. There were five *steps / stages. First / then* we agreed on a budget of $300,000. *Finally / next* we planned the schedule. We had one *month / year* to do everything. *After that / finally* we did research. We talked to *builders / the project manager* about all possible problems and their solutions. *Finally / then* we had regular meetings to discuss our progress and problems. *Next / finally* we agreed on all the stages which had to be included into the project and began the construction of the bridge. The project succeeded because we were a good team and we had good communication.

3 Take turns to give the talk.

4 Work in pairs. Prepare a talk about a project. Use the information on cards and sequencing phrases. Give your talk to your partner and then make notes about your partner's project.

Student A	**Student B**
Use the notes to make past simple sentences.	**Use the notes to make past simple sentences.**

Then add sequencing phrases to help you prepare your talk.	**Then add sequencing phrases to help you prepare your talk.**
I'd like to tell you about a project that my team _____ (finish) two months ago. The aim of the project _____ (be) to construct a tunnel in the suburbs of our city. **Stages** 1 _____ we _____ (plan) the schedule. 2 _____ we _____ (compare) other similar projects. 3 _____ we _____ (talk) to the project manager about all possible problems and their solutions. 4 _____ we _____ (have) regular meetings to discuss our progress and problems. 5 _____ we _____ (agree) on all the stages which had to be included into the project and began the construction of the tunnel. The project _____ (succeed) because we _____ (be) a good team and we _____ (have) good communication.	I'd like to tell you about a project that my team _____ (finish) last month. The aim of the project _____ (be) to construct a tower in the centre of our city. **Stages** 1 _____ we _____ (plan) the schedule. 2 _____ we _____ (compare) other similar projects. 3 _____ we _____ (talk) to the project manager about all possible problems and their solutions. 4 _____ we _____ (have) regular meetings to discuss our progress and problems. 5 _____ we _____ (agree) on all the stages which had to be included into the project and began the construction of the tower. The project _____ (succeed) because we _____ (be) a good team and we _____ (have) good communication.
Make notes about your partner's project.	**Make notes about your partner's project.**
The project finished ……. . The aim was to ……. .	The project finished ……. . The aim was to ……. .

Every project has its own schedule and budget.
So talking about a project we often use ***preposition + noun phrases***
(with the words ***time*** and ***schedule***)

on time	on schedule
late	behind schedule
early	ahead of schedule
at the money available	on budget
more than the money available	over budget
less than the money available	under budget

1 Look at the information about three projects and complete the sentences. Use *preposition + noun phrases* with the words *schedule* and *budget.*

Project A	Project B	Project C
Agreed start date: 15 March Agreed budget: $150,000	Agreed finish date: 1 July Agreed budget: $200,000	Agreed finish date: 20 May Agreed budget: $350,000

1 Project A: spent $120,000 and started on 24 May.
It was _____(budget), but _____ (schedule).

2 Project B: finished on 1 July and spent $250,000.
It was _____ , but _____ .

3 Project C: spent $350,000 and finished on 15 May.
It was _____ and _____ .

2 Think of any construction project that was finished some time ago. Tell your partner about this project focusing on its stages, using sequencing phrases and preposition + noun phrases with the words *schedule* and *budget* where possible.

I remember one construction project that finished 20 years ago…….

SELF-STUDY

1 Choose the correct word in italics.

1 It's important to teach engineering students *budgeting / planning*, i.e. the way to calculate how much money you need to *delay / implement* a construction project.

2 The detailed organization and implementation of a complex operation is called *planning / logistics.*

3 He *supervises / maintains* a team of 10 construction workers.

4 The company needs someone to *assemble / coordinate* this construction project.

5 Was it difficult for workers to *assemble / coordinate* such a complex structure?

6 The *delay / execution* of the project required more time than expected.

7 Your company is *responsible for / maintain* the most expensive construction project in the country.

8 Nowadays much attention is paid to the ways to reduce the *natural / environmental* impact of construction.

2 Complete the sentences with the correct form of the words given in the right column.

1 Construction workers sometimes have to use this equipment in the _____ of their duty.	execute
2 Many companies are committed to reducing the _____ impact of construction.	environment
3 The _____ of all construction teams helped to meet deadlines.	coordinate
4 Projects like this take months of careful _____.	plan
5 When are you planning to discuss problems with the _____ of the project?	implement
6 The _____ of this structure is 500 meters.	high
7 The _____ of the swimming pool is 6 meters.	wide
8 The _____ manager told us not to worry about the schedule.	construct

3 Complete the sentences with articles *a, the* or – if no article is needed.

In [1]_____ hot tropical forest in [2]_____Central America about thirty-five years ago, some workers for [3]_____ banana company were cutting their way through thick [4]_____vines.

They were searching in [5]_____ Costa Rica for new land where they could plant [6]_____ bananas. They came to [7]____ small clearing. They found [8]_____ big round stone almost two meters (six feet) across its center. It was almost perfectly round. It was resting on [9]_____ small platform paved with river stones.

[10]_____ workers looked around in the underbrush. They found many more stones. Some of them were large, some small. But all of them were round and smooth. The workers wondered who had made [11]_____ stone spheres and where they had been made. No bedrock was seen nearby. And when they told others what they found, they learned that few people had ever seen these strange spheres. No one knew where they came from.

As more [12]_____ trees and underbrush were cleared away, more of [13]_____ stone spheres were found. Other small areas paved with [14]_____ river stones were also found. But [15]_____ spheres have remained [16]_____ mystery.

4 Complete the sentences with the right form of the words in brackets.

It [1]_____ (take) very careful [2]_____ (measure) to show that they were not quite true spheres. Some of them were only a few centimeters across their centers and [3]_____ (weigh) only a few kilograms. Others were as [4]_____ (large) as two and a half meters (eight feet) across and weighed more than 14,500 kilograms (sixteen tons). The stones were found [5]_____ (most) in groups of at least three to as many as forty-five. Some were found in [6]_____ (long) straight rows. Others [7]_____ (form) circles and other shapes. Some of the straight lines [8]_____ (point) north and south.

5 Match the sentence halves.

1) I'd like to tell you	a) all the stages that had to be included into the project.
2) First, we	b) compared other similar projects.
3) Next we	c) regular meetings.
4) After that we talked	d) about the project that we finished last month.
5) Then we had	e) to team members and discussed all details.
6) Finally we agreed on	f) planned the schedule.

GLOSSARY

assemble	deep	logistics
availability of materials	dense	long
be responsible for	density	maintain a project
budgeting	depth	oversee
carry out	design engineer	planning
complex	environmental impact	preparing tender documents
complexity	execution	project manager
construction engineer	height	scheduling
construction manager	high	site safety
construction project	implementation	supervise
construction delay	legal considerations	wide
coordinate	length	width

UNIT 4 FOUNDATIONS	TYPES OF FOUNDATION PRESENT PERFECT COMMUNICATION SKILLS SELF-STUDY_

LEAD-IN

KEYNOTES

Foundation is one of the **essential** parts of the structure. It is defined as that part of the structure that **transfers** the **load** from the structure constructed on it as well as its weight over a large area of **soil** in such a way that the amount does not exceed the ultimate **bearing capacity** of the soil and the settlement of the whole structure remains within a tolerable limit. Foundation is the part of a structure on which the building stands. The solid ground on which it rests is known as **foundation bed**.

Foundation should fulfill the following **objectives**:

- Distribute the weight of the structure over a large area of soil.
- Avoid unequal **settlement**.
- Prevent the **lateral movement** of the structure.
- Increase **structural stability**.

Questions for discussion:

1 What is / are the main function(s) of foundation?
2 Do you agree with the classification of objectives foundation must fulfill?
3 Do you know how to increase structural stability?
4 Can you name other parts of a building and their functions?

Useful language

The main function(s) of foundation is / are….
I agree / disagree with…..
I know that structural stability can be increased in the following way(s)……
I don't know how to increase structural stability.
I know such parts of a building as……
The main function(s) of …… is / are .....
I can't name other parts of a building.

1 Look at the information about loads on structure. How many types of loads are distinguished and what are they?

Loads can be defined as the forces that can cause stresses, deformations or accelerations. These loads are applied to a structure or its components that cause stress or displacement. There are different types of structural loads that we need to consider during the design process.

These types are as follows:

* dead load
* live load
* wind load
* snow load
* seismic load

2 Can you define each type of loads mentioned above? What other types of loads on structure do you know?

3 Label the pictures with the types of loads they refer to.

dead load	live load	wind load	snow load	seismic load

1 _____ 2 _____



3 _____ 4 _____ 5 _____

VOCABULARY 1

a load	нагрузка
dead load	постоянная нагрузка
live load	рабочая нагрузка, временная нагрузка
wind load	ветровая нагрузка
snow load	снеговая нагрузка
seismic load	сейсмическая нагрузка
a foundation	основание
essential	существенный, основной
to transfer	переносить
soil	грунт
bearing capacity	несущая способность
ultimate	предельный, абсолютный
settlement	оседание
a foundation bed	основание фундамента, подошва фундамента
an objective	цель
to distribute	распределять
to avoid	избегать
to prevent	предотвращать
to increase	увеличивать
lateral movement	поперечное смещение, боковой сдвиг
structural stability	устойчивость конструкции

a stress	напряжение
a deformation	деформация
acceleration	ускорение
displacement	смещение

1 Match the words 1-10 with their definitions a-j.

1) dead load	a) the capacity of a building to support the loads applied to it
2) live load	b) strong physical pressure applied to a building or structure
3) foundation	c) a change in the dimensions of an object resulting from a stress
4) bearing capacity	d) a situation in which something is not likely to move or change
5) displacement	e) subsidence of all or part of a structure
6) stress	f) most extreme or important because either the original or final, or the best or the worst
7) deformation	g) the intrinsic invariable weight of a structure such as a bridge; it may also include any permanent loads attached to the structure
8) settlement	h) the removal of something from its usual place or position by some force
9) ultimate	i) the base that is built below the surface of the ground to support a building
10) stability	j) a variable weight on a structure such as moving traffic on a bridge

2 Complete the sentences with the words from the table above.

1 The structural s_____ is guaranteed by several factors.

2 The self-weight of the structure (weight of floors, roofs, walls, etc.) is considered to be d_____ l_____.

3 Of course the project manager bears the u_____ responsibility for the construction project.

4 Moving or variable loads like people, furniture, temporary structures refer to l_____ l_____.

5 Builders must follow all the instructions concerning the possible subsidence of a building. i.e. its s_____.

6 It's essential to build the structure on the f_____ that will correspond to all standards.

7 During earthquakes building d_____ can result in awful consequences.

8 This structure has a very high load – b_____ c_____ .

9 S_____ is a measure of internal forces in a material that changes shape under a force.

10 Many high-rise buildings are based on inter-story d_____ constraints.

3 Search for 8 words hidden in the grid.

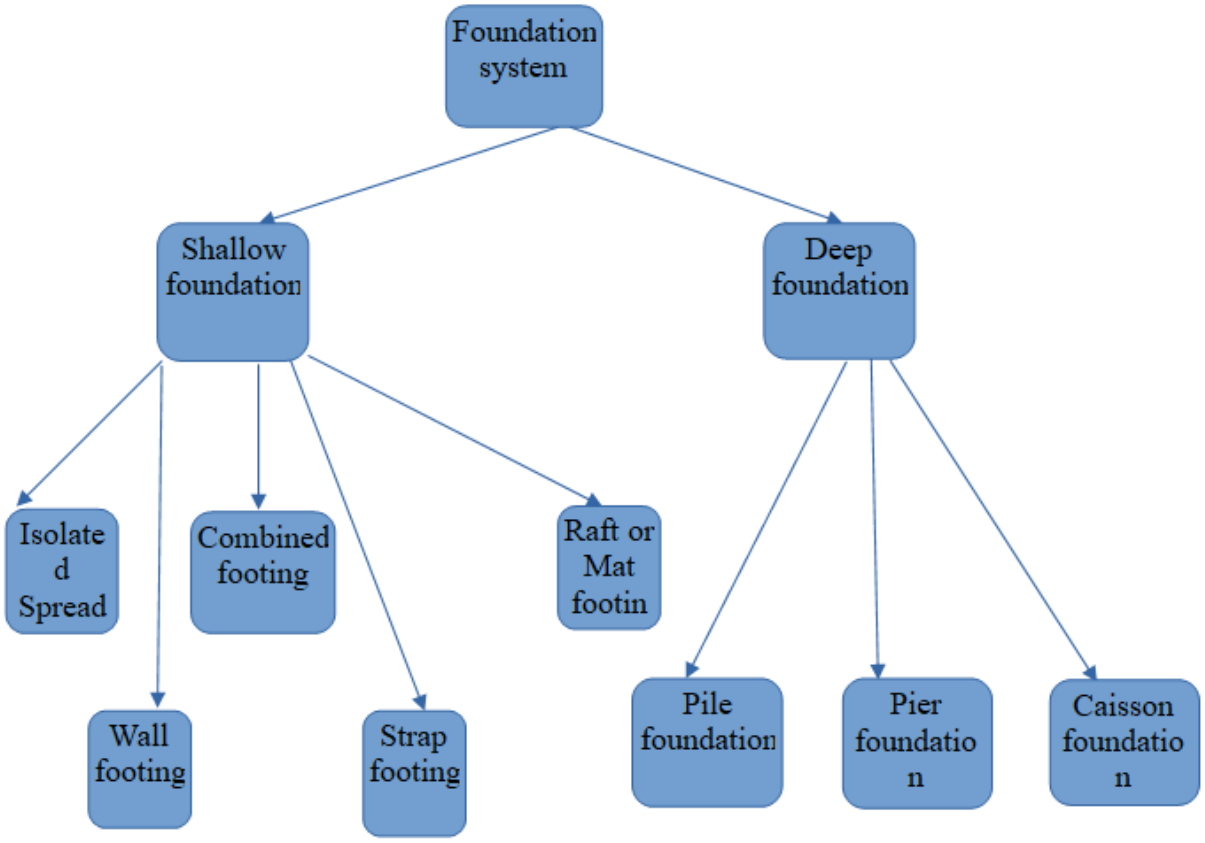
s	**t**	**r**	**e**	**s**	**s**	**a**	**f**	**l**	**n**
t	**b**	**v**	**a**	**s**	**e**	**u**	**l**	**o**	**m**
a	**q**	**y**	**s**	**w**	**t**	**l**	**i**	**a**	**y**
b	**g**	**h**	**k**	**l**	**t**	**t**	**v**	**d**	**t**
i	**m**	**n**	**v**	**z**	**l**	**i**	**e**	**p**	**i**
l	**e**	**t**	**r**	**d**	**e**	**m**	**o**	**u**	**c**
i	**d**	**f**	**n**	**j**	**m**	**a**	**l**	**k**	**a**
t	**z**	**u**	**e**	**t**	**e**	**t**	**s**	**i**	**p**
y	**o**	**c**	**g**	**x**	**n**	**e**	**m**	**u**	**a**
f	**c**	**m**	**b**	**a**	**t**	**n**	**o**	**i**	**c**

READING

1 Read the text about types of foundation and match the headings (A-H) with the paragraphs (1-8).

(A) Raft or mat footing	**(E)** Pier foundation
(B) Caisson foundation	**(F)** Wall footing
(C) Pile foundation	**(G)** Isolated spread footing
(D) Combined footing	**(H)** Strap footing

In general, all foundations are divided into two categories, - shallow and deep foundations. The terms Shallow and Deep Foundation refer to the depth of the soil at which it is placed. Generally, if the width of the foundation is greater than the depth, it is labeled as the “Shallow Foundation”. If the width is smaller than the depth of the foundation it is called “Deep Foundation.” However, deep foundation and shallow foundation can be classified as shown in the following chart.



(1) _____

This is the most widely recognized and most straightforward shallow foundation type, as this is the most economical type. They are typically utilized for shallow establishments to convey and spread concentrated burdens caused, for instance, by pillars or columns. They are generally used for ordinary buildings (typically up to five stories).

Isolated footing comprises a foundation directly at the base of the segment. Generally, every section has its footing. They straightforwardly transfer the loads from the column to the soil. It might be rectangular, square, or circular. It can comprise both reinforced or non-reinforced material. For the non-reinforced footing, however, the stature of the footing has to be more prominent to give the vital spreading of the load. These footings are inadmissible for the orientation of large loads.

(2) _____

This footing is also known as continuous footing. This type is used to distribute loads of structural or non- structural load-bearing walls to the ground in such a way that the load-bearing limit of the soil isn't outperformed. It runs along the direction of the wall. The width of this foundation is usually 2-3 times the width of the wall. The wall footing is a continuous slab strip along the length of the wall. Stone, brick, reinforced concrete, etc. are used for the construction of such foundations.

(3) _____

This type of footing is very similar to the isolated footing. When the columns of the structure are carefully placed, or the bearing capacity of the soil is low and their footing overlap each other, this footing is provided. It is fundamentally a blend of different footings, which uses the properties of various balances in a single footing dependent on the necessity of the structure.

The foundations which are made common to more than one column are called *combined footings*. There are different types of combined footing, including slab type, slab and beam type, rectangular, raft, and strap beam type. They may be square, tee-shaped, or trapezoidal. The main objective is the uniform distribution of loads under the entire area of footing, for this is necessary to coincide with the center of gravity of the footing area with the center of gravity of the total loads.

(4) _____

These footings are similar to combined footings. Reasons for considering or choosing strap footing are identical to the combined one. In *strap footing*, the foundation under the columns is built individually and connected by a strap beam. Generally, when the edge of the footing cannot be extended beyond the property line, the exterior footing is connected by a strap beam with interior footing.

(5) _____

These foundations are used where other shallow or pile foundations are not suitable. It is also recommended in situations where the bearing capacity of the soil is inadequate, the load of the structure is to be distributed over a large area or structure is subjected continuously to shocks or jerks.

Raft foundation consists of a reinforced concrete slab or T-beam slab placed over the entire area of the structure. In this type, the whole basement floor slab acts as the foundation. The total load of the structure is spread evenly over the entire area of the structure. This is called raft because, in this case, the building seems like a vessel that floats on a sea of soil.

(6) _____

This a common type of deep foundation. They are used to reduce cost, and when it is desirable to transmit loads to soil strata which are beyond the reach of shallow foundations. Pile is a slender member with a small cross-sectional area compared to its length. It is used to transmit foundation loads to a deeper soil or rock strata when the bearing capacity of soil near the surface is relatively low. Pile transmits load either by skin friction or bearing. Piles are also used to resist structures against uplift and provide structures stability against lateral and overturning forces.

(7) _____

Pier is an underground structure that transmits a more massive load, which cannot be carried by shallow foundations. It is usually shallower than piles. The pier foundation is generally utilized in multi-storey structures. Since the base region is determined by the plan strategy for the regular establishment, the single pier load test is wiped out. Along these lines, it is increasingly well known under tight conditions. Pier foundation is a cylindrical structural member that transfer heavy load from superstructure to the soil by end bearing. Unlike piles, it can only transfer load by bearing and by not skin friction.

(8) _____

This type of foundation is a watertight retaining structure used as a bridge pier, construction of the dam, etc. It is generally used in structures that require foundation beneath a river or similar water bodies. The reason for choosing the caisson is that it can be floated to the desired location and then sunk into place. Caisson foundation is a ready-made hollow cylinder depressed into the soil up to the desired level and then filled with concrete, which ultimately converts to a foundation. It is mostly used as bridge piers. Caissons are sensitive to construction procedures and lack construction expertise.

2 Which of the sentences summarizes the ideas in the texts?

a Deep foundation and its classification.
b Different types of foundation and their features.
c Shallow foundation and its types.

3 Read the texts again. Answer the questions.

1 What are two main types of foundation?
2 What is shallow foundation?
3 What footing is called deep foundation?
4 Is wall footing the most recognized shallow foundation type?
5 Isolated spread footing is usually used for ordinary buildings, isn't it?
6 Which footing is also known as continuous footing?
7 Why is combined footing called so?
8 When is raft foundation used?
9 What footing is a common type of deep foundation?
10 There are four types of deep foundation, aren't there?

4 Are these statements true or false?

1 There are three main types of foundation.
2 Shallow foundation is subdivided into five types.
3 Deep foundation has three types.
4 The depth of the soil effects the choice of a specific type of foundation.
5 Pile foundations are used to reduce cost.
6 A pier is a structure above ground that transmits a more massive load which cannot be carried by shallow foundations.
7 Pier foundation is typical for multi-storey buildings.
8 Raft foundation is generally used in structures that require foundation beneath a river or similar water bodies.
9 Strap footings are similar to combined footings.
10 The width of wall foundation is usually 2-3 times the width of the wall.

5 Complete the table with the information from the text.

Type of foundation	Features	Application
Isolated spread footing		
Wall footing		
Combined footing		
Strap footing		
Raft or mat footing		
Pile foundation		
Pier foundation		
Caisson foundation		

VOCABULARY 2

1 Match the words in the box with the correct category.

reinforced trapezoidal column square pile non-reinforced rectangular reinforced concrete wall pier pillar circular slab tee-shaped beam cylindrical

Structures or structural elements	**Shape**	**Material or its properties**
……..	……..	……...

2 Choose the best definition (a-j) for the words (1-10).

1) a column	a) a strong column made of stone, metal or wood that supports part of a building
2) a pier	b) a vertical structure, often made of stone or brick that divides or surrounds something
3) a pillar	c) a long thick piece of wood, metal or concrete, especially used to support weight in a building or other structure
4) a pile	d) having the shape of a rectangle
5) a slab	e) made stronger, usually by adding more material or another piece
6) a beam	f) a tall vertical stone post used as a support for a roof or in classical buildings for decoration or standing alone as a monument
7) a wall	g) concrete that contains metal rods to make it stronger
8) reinforced	h) a strong thick column used to support a wall, roof or other structure
9) reinforced concrete	i) a thick, flat piece of a solid substance such as stone, wood, metal, etc., that is usually square or rectangular
10) rectangular	j) a strong column or post of wood, metal or concrete that is pushed into the ground to help support a building

3 Complete the sentences with the words from the table above.

1 A row of reinforced concrete p_____ supports the bridge.
2 The roof of the temple was held up by a row of thick stone c_____.
3 The w_____ in this flat are so thin that you can hear just about every word that the neighbours say.
4 They used the p_____ foundation in this multi-storey building.
5 Steel rods can be used to meke this construction r_____.
6 The living room was small but comfortable with exposed b_____.
7 The invention of steel and r_____ c_____ led to the revolution in building techniques.
8 He examined the stone s_____ floor and found some defects.
9 The two small rooms were side by side in a long r_____ shape and had six large windows in a corner row.
10 A p_____ is a slender member with a small cross-sectional area compared to its length.

LANGUAGE SKILLS

PRESENT PERFECT
AFFIRMATIVE, NEGATIVE, INTERROGATIVE, SHORT ANSWER

We use the Present Perfect form to talk about experience when the time / date isn't important.

Affirmative sentences	**Interrogative sentences**	**Short answers**	**Negative sentences**
S (subject)+ **have** / **has** + **Past Participle** of V (verb) (ed for *regular verbs* or III form for *irregular verbs)*	**Have** / **has** + S (subject)+ **Past Participle**?	Yes, S (pronoun) + **have** / **has**. No, S (pronoun) + **haven't** / **hasn't**.	S (subject) + **haven't / hasn't + Past Participle**
Examples			
They **have decid*ed*** to build a skyscraper in the city recently.	**Have** they **decided** to build a skyscraper in the city recently?	Yes, they **have**. No, they **haven't**.	They **haven't decided** to build a skyscraper in the city recently.
The company **has built** a skyscraper in the city recently.	**Has** the company **built** a skyscraper in the city recently?	Yes, it **has**. No, it **hasn't**.	The company **hasn't built** a skyscraper in the city recently.

1 Write the past participle of these irregular verbs. Which verbs have a past participle that is different to their past simple form.

build →	take →	be →
have →	do →	go →
send →	give →	find →
speak →	meet →	hold →

2 Complete the sentences with the present perfect form of the verbs in brackets.

1 They never _____ (build) such structures.
2 She _____ (find) a prestigious construction company.
3 Project managers just _____ (meet) to discuss current problems.
4 He already _____ (send) an e-mail to his partner.
5 Our Director General just _____ (make) a presentation.
6 The construction engineer _____ (go) on a business trip recently.
7 She _____ (see) her former colleagues twice since she left the company.
8 He _____ (work) in the construction industry for 20 years.
9 My friend just _____ (decide) to become a civil engineer.
10 The company _____ (employ) temporary workers since 2014.

3 Make the sentences from the exercise above negative.

4 Complete the text with the present perfect of the verbs in brackets.

Green or modern materials in construction _____ (prompt) the expanded use in design projects. This is an important step in redesigning a green building efficiently and as an energy saving source.

Concrete is an indispensable green building material as tons are produced year round. Without concrete, many of the world's infrastructure wouldn't be safe. Although much _____ (do) to improve its technology, the breakthrough results go unnoticed.

Rock structures _____ (make) it through the history books as a lasting building material. It remains available and the cost is reasonable.

Ceramics are useful in areas that are more technical and specialized. Ceramic flooring, counter-tops, fixtures and meticulously, ceilings _____ (be) in many dwellings and building across the nation for a long time. In other numerous countries, ceramic (roofing tiles) materials are used to cover the roof of a building.

The improved materials and technical advancements often _____ (be) the result of maintenance and efficiency. Prospects are exciting for certain areas of engaging research. The ultimate goal is to reduce the foot mark the construction industry has on the planet.

5 Use the prompts to write questions.

1 Mark and Paula / Sweden / gone / to / three / have / for / weeks?
2 built / the construction company / has / bridge / this?
3 you / seen / ever / have / an / construction/ such / impressive?
4 they / discussed / have / already / problems / these?
5 on / you / worked / any / have / ever / construction project?
6 she / seen / any / skyscrapers / has / ever?
7 you / already / have / with / met / construction team / the?
8 have / this / they / just / construction project / finished?

6 Complete the sentences with the past simple or present perfect forms in italics.

1 They *finished / have finished* this construction project last year.
2 Our construction manager *has already made / made* a decision concerning the type of foundation for the new building.
3 The *have* never *had /* never *had* any problems with the choice of the proper type of foundation.
4 They *started / have started* this project last month.
5 *Have* you *sent / did* you *send* your e-mail to the construction manager?
6 She *didn't finish / hasn't finished* her report yet.
7 Managers *have* never *been /* never *were* to the USA.
8 She *has* already *discussed / discussed* the matter with the construction engineer.

COMMUNICATION SKILLS

Expressing conviction	
Formal	**Less formal**
I am convinced that…… I strongly / firmly believe that ….. I firmly believe that ….. I honestly feel that ……. I'm a strong / firm believer in …….	Without a doubt….. I do think / believe that….. I really do feel / believe that …… My view is that ….. Definitely!

1 Use phrases of expressing conviction to agree or disagree with the facts.

A: Isolated spread footing is the cheapest type of foundation.
B: _____

A: It is quite easy to choose the most suitable type of foundation.
B: _____

A: Shallow foundation is more common than deep foundation.
B: _____

A: The caisson can be floated to the desired location and then sunk into place.
B: _____

A: Pier foundation is usually used for the construction of multi-storey buildings.
B: _____

A: Reinforced concrete is a very popular building material.
B: _____

2 Complete the conversation with phrases of expressing conviction.

A: Good morning, everyone! Today we are doing to discuss types of foundation. I am c_____ that you are familiar with this topic.
B: Of course, we are.
A: There are two main types of foundation: shallow foundation and deep foundation.
C: D _____ !
A: I f_____ b_____ that both types of foundation are used in a similar way.
D: Well, my v_____ is that they are not quite similar.
E: But what does their choice depend on?
A: The choice depends on the depth of the soil at which it is placed. Do you agree?
B: W_____ a d_____ it is so.
C: The isolated footing transfers the loads from the column to the soil.
D: I really d_____ f_____ that the isolated footing must be used for ordinary buildings up to five storeys.
E: Exactly.
A: And in case the columns of the structure are carefully placed, or the bearing capacity of the soil is low and their footing overlap each other, combined footing is the best.
B: D_____!
C: And if shallow or pile foundations are not suitable, different types of deep foundation must be used.
D: I d_____ t_____ that the most common type of deep foundation is the pile footing.
A: You are absolutely right.
E: And my v_____ is that the caisson foundation is the best in case of watertight structures.
B: Yes, that's right.
A: Well, I think we have focused on the main and most widespread types of foundation and it's time to finish our discussion. I thank all of you for your opinions.
B: You are welcome.
C: Thanks a lot!

3 Work in pairs. Take turns to express your conviction about different types of foundation and agree or disagree with the given facts.

I firmly believe that the raft footing is ……..
I agree with you because……..
I am afraid I disagree with you because……..

SELF-STUDY

1 Choose the correct word in italics.

1 This is an area with a lot of snow in winter. So we must pay attention to *snow load* / *wind load*.

2 Do you know that it is *ultimate / essential* to make accurate calculations.

3 What are the main *objectives / stresses* of your construction project?

4 The *deformation / settlement* of soil was so great that it was necessary to take urgent measures.

5 The removal of something from its usual place or position by some force is called *deformation / displacement.*

6 The ultimate *settlement / bearing capacity* is the value of bearing stress which causes a sudden catastrophic settlement of the *foundation / soil.*

7 What do you know about this type of *soil / settlement.*

8 A slight *stress / deformation* of the building will not have significant negative consequences.

2 Complete the sentences with the correct form of the words given in the right column.

1 _____ of the foundation soil is a vertical displacement of the soil surface.	settle
2 For most structures _____ processes are the main problem.	displace
3 _____ of buildings can be divided into some types.	form
4 The _____ in the decline of the country's construction industry began a few years ago.	accelerate
5 There has been a period of relative _____ in the construction industry.	stable
6 The room is roughly _____ .	rectangle
7 The decision to include _____ concrete was made in part after observing in other local buildings the need for basic skills training.	reinforce
8 It was necessary to make all the calculations concerning the load _____ wall.	bear

3 Complete the sentences with the present perfect form of the verbs in brackets.

1 She _____ (write) three reports today.

2 I _____ (see) that construction. It is awful!

3 We _____ (know) the project manager for 10 years.
4 you _____ (finish) the project?
5 Who _____ (build) that bridge across the river?
6 Do you know how many construction projects they _____ (finish)?
7 they _____ (discuss) all the details of the project already?
8 The construction company just _____ (start) their new project.

4 Make these sentences negative.

1 They have done it recently.
2 She has met the construction engineer today.
3 I have already spoken to our partners.
4 We have known each other for ages.
5 They have just returned from abroad.
6 He has finished his report today.

5 Complete the sentences with the present perfect or past simple forms of the verbs in brackets.

1 The company _____ (finish) the project last year.
2 They _____ (conclude) an agreement recently.
3 She _____ (solve) this problem today.
4 He _____ (go) to France a week ago.
5 They _____ (start) the project five years ago but _____(not finish) it yet.
6 you _____ (know) about their decision?
7 She _____ (see) this construction yesterday.
8 They never _____ (deal) with such projects.

GLOSSARY

acceleration	increase	reinforced concrete
avoid	isolated spread footing	seismic load
beam	lateral movement	settlement
bearing capacity	live load	slab
caisson foundation	load	snow load
circular	objective	soil
column	pier	stress
combined footing	pier foundation	structural stability
dead load	pile	strap footing
deformation	pile foundation	tee-shaped
displacement	pillar	transfer
distribute	prevent	ultimate
essential	raft or mat footing	wall
foundation	rectangular	wall footing
foundation bed	reinforced	wind load

PROGRESS TEST (Units 1-4)

1 Complete the sentences 1-10 with the words and phrases from the box.

a skyscraper *a semi-detached house* *a terraced house* *safety standards* *meet needs* *building construction* *civil engineering* *construction manager* *snow load* *wall footing*

1 The _____ is a continuous slab strip along the length of the wall.
2 The restaurant is at the top of one of the big _____ in the city.
3 All the constructions are calculated in terms of wind and _____.
4 They live in _____, i.e. the house that is joined to another similar house on only one side.
5 The _____ is responsible for the management of the physical construction processes.
6 Our one-bedroom flat is in the basement of _____, which is one in a row of similar houses.
7 London's sewerage network was the biggest _____ project in the country at that period of time.
8 They insisted on the application of _____ needed to guarantee safety on the construction site.
9 _____ covers such areas as the construction of new buildings, the demolition of old buildings etc.
10 All our constriction projects must _____ of our clients.

2 Match the words 1-10 with their definitions a-j.

1 a manufacturer	a) a person or company that arranges to supply materials or workers for building structures
2 a contractor	b) relating to houses where people live
3 a pyramid	c) the act of putting a plan into action
4 industrial	d) the state of having many parts and being difficult to understand
5 infrastructure	e) the basic systems and services that a country or organization uses in order to work effectively
6 residential	f) a company that produces goods in large amounts
7 implementation	g) a force or a system of forces producing deformation or strain
8 complexity	h) a solid object with a square base and four triangular sides that form a point at the top
9 a load	i) the amount of weight carried especially by a structure
10 a stress	j) related to industry

3 Complete the sentences 1-10 with the correct form of the words in brackets.

1 We live in a _____ house in the residential area of London. (TERRACE)
2 This _____ site corresponds to all modern requirements. (CONSTRUCT)
3 What do you know about this _____ plant? (MANUFACTURE)
4 These _____ materials are the most popular in our country now. (BUILD)
5 The _____ of the pool is about 3 meters. (DEEP)
6 They have just discussed the _____ of their new construction project. (IMPLEMENT)
7 We don't know anything about the _____ of the building materials we need. (AVAILABLE)
8 Calculating all structures you must take into account the _____ of the soil. (SETTLE)
9 There are two main types of _____. (FOUND)
10 This structure must be _____. (REINFORCE)

4 Complete the sentences 1-10 with the past simple or present perfect form of the verbs in brackets.

1 The construction company already _____ (buy) all building materials it needs.
2 They _____ (construct) this multi-storey building two years ago.
3 She _____ (learn) interesting facts about the manufacturing company recently.
4 He just _____ (call) their main contractors to discuss current problems.
5 His family _____ (live) in a semi-detached house at that time.
6 Yesterday the construction manager _____ (choose) this type of foundation as the most suitable one.
7 They _____ (not implement) the project yet.
8 The construction of the building _____ (begin) 10 years ago but they _____ (not finish) it yet.
9 He _____ (be) responsible for the supervision of all construction work many years ago.
10 They _____ (not know) each other at that period of time.

5 Put the sentence parts into the correct order to make interrogative sentences.

1 When / buy / you / did / materials / building / these?
2 Have / already / the / problems / current / you / discussed?
3 Why / the / company / chosen / construction / has / foundation / type / of / this?
4 Did / about / arguments / your / with / they / contractors / know?
5 Have / this / project / they / finished / construction / already?
6 Why / family / in / bungalow / a / live / your / did?
7 Was / responsible / he / supervision / of / for / the / all / work / construction?
8 What / learnt / you / have / about / foundation / types / of?

6 Make the sentences negative.

1 They have just returned from China.
2 She bought a cottage 2 years ago.
3 He knew that she would leave for France.
4 The construction company has built this structure recently
5 They began the construction of the bridge a year ago.
6 She has already finished the project.

7 Complete the sentences with *a / an, the* or leave the space blank if no article is needed.

[1]_____ Brooklyn Bridge is [2]_____ southernmost of four toll-free vehicular [3]_____bridges connecting [4]_____Manhattan Island and [5]_____Long Island, with [6]_____ Manhattan, Williamsburg, and Queensboro bridges to [7]_____ north. Only [8]_____passenger vehicles and pedestrian and bicycle traffic are permitted. [9]_____ major tourist attraction since its opening, [10]_____ Brooklyn Bridge has become [11]_____ icon of New York City. Over the years, [12]_____ bridge has been used as [13]_____ location of various stunts and performances, as well as several [14]_____crimes and attacks.

Proposals for a bridge between [15]_____ then-separate cities of [16]_____Brooklyn and [17]____New York had been suggested as early as 1800. At the time, [18]_____ only travel between [19]_____ two cities was by a number of ferry lines. [20]____Engineers presented various designs, such as chain or link bridges, though these were never built because of the difficulties of constructing [21]_____ high enough fixed-span bridge across [22]_____ extremely busy East River.

MODULE 3

BUILDING MATERIALS

UNIT 1 **MATERIALS**	**TYPES AND PROPERTIES OF MATERIALS** **PASSIVE VOICE: AFFIRMATIVE STATEMENTS** **COMMUNICATION SKILLS** **SELF-STUDY**

LEAD-IN

KEYNOTES
Building material is material used for **construction.** Many naturally occurring substances, such as **clay**, **rocks**, **sand**, and **wood**, even twigs and leaves, have been used to construct buildings. Apart from naturally occurring materials, many man-made products are in use, some more and some less **synthetic**. The manufacturing of building materials is an established industry in many countries and the use of these materials is typically segmented into specific **specialty trades,** such as **carpentry, insulation, plumbing,** and **roofing** work. They provide the make-up of **habitats** and **structures** including homes.

Questions for discussion:

1 What materials do you know?
2 Which of them are commonly used in construction?
3 What can you say about their properties?
4 What building material do you think is the most durable?

Useful language

I can list the following materials …
I know that…
I can say…
I think …
I suppose…

VOCABULARY 1

	**BUILDING MATERIALS**
alloy	сплав
aluminium	алюминий
brass	медь
brick	кирпич
bronze	бронза
cement	цемент
ceramic	керамика
composite	смесь
concrete	бетон
copper	медь
diamond	алмаз
fibreglass	стекловолокно
glass	стекло
gold	золото
graphite	графит
gravel	гравий
iron	железо
lead	свинец
marble	мрамор
metal	металл
nickel	никель
nylon	нейлон
plastic	пластик
platinum	платина
polycarbonate	поликарбонат
polystyrene	полистирол
rubber	резина, каучук
sand	песок
silver	серебро
steel	сталь
stone	камень
tin	олово
titanium	титан
wood	дерево

1 Find the names of 14 materials in the puzzle and circle them. The words go vertically from top to bottom, and sideways from left to right. No words go diagonally.

b	a	j	l	o	y	c	o	m	p	o	s	i	t	e
p	**l**	**a**	**s**	**t**	**i**	**c**	e	t	o	z	p	r	a	k
l	u	r	t	i	b	k	y	l	l	b	o	j	i	i
o	m	a	l	j	m	o	q	a	y	u	l	s	d	a
f	i	b	r	e	g	l	a	s	s	i	y	t	i	y
b	n	s	d	r	a	r	x	p	t	b	c	n	a	o
t	i	t	a	n	i	u	m	d	y	f	a	h	m	i
j	u	e	k	y	l	b	n	t	r	i	r	v	o	z
a	m	e	b	l	c	b	f	g	e	a	b	h	n	i
j	r	l	k	o	q	e	s	v	n	u	o	z	d	w
y	z	c	o	n	c	r	e	t	e	x	n	b	g	y
h	i	r	j	t	k	u	l	c	e	r	a	m	i	c
s	v	n	x	p	g	r	a	p	h	i	t	e	q	w
i	y	b	t	l	e	k	o	e	u	j	e	c	d	i

2 Match the words with their definitions.

1) a brick	a) a tough elastic polymeric substance made from the latex of a tropical plant or synthetically
2) glass	b) hard solid non-metallic mineral matter of which rock is made, especially as a building material
3) metal	c)synthetic or semi-synthetic material, that use polymers as a main ingredient
4) plastic	d) a solid material which is typically hard, shiny, malleable, fusible, and ductile, with good electrical and thermal conductivity
5) wood	e) the hard fibrous material that forms the main substance of the trunk or branches of a tree or shrub, used for fuel or timber
6) stone	f) a non-crystalline, often transparent amorphous solid, that has widespread practical, technological, and decorative use in, for example, window panes, tableware, and optics
7) rubber	g) a small rectangular block typically made of fired or sun-dried clay, used in building

3 Complete the sentences with the words from the table above.

1_____is highly elastic and durable and is corrosion resistant. It remains flexible in a wide range of temperatures, is water resistant, an electrical and thermal insulator, and is able to absorb movement and vibration.

2 The house is built of red _____. Its chimney is made of _____ too.

3 Stain _____ windows were used in gothic renaissance and baroque architecture from the 11th to the 18th century.

4 _____construction materials can be classified into the following categories: natural stone and crushed stone (hard-rock aggregate), sand and gravel.

5 Designers, architects and builders use _____ in construction and manufacturing because of its durability, resistance to all forms of weather and all-round strength and resilience.

6 The table and chairs were made of a dark rich _____, and the tiles on the floor looked like polished bricks.

7_____ is used in a growing range of building and construction applications, including insulation, piping, window frames and interior design

READING

1 Read the text about types of building materials and fill in the gaps (A-F) with the sentences (1-6).

(1) improve the service and decorative qualities of buildings and structures	**(4)** to produce finished products or intermediate materials that are feedstock for future finished products
(2) which are used simultaneously as sound-absorbing coatings and as a decorative finish for the interiors of theaters, concert halls, and motion-picture theaters	**(5)** are usually designed for interior or exterior finishing
(3) waste material which has been recycled and injected back into use as productive material	**(6)** An arbitrary distinction is made between

TYPES OF BUILDING MATERIALS

There are two types of building materials nowadays: *raw materials* and *finishing materials*.

A raw material, also known as a feedstock, unprocessed material, or primary commodity, is a basic material that is used _____.

The term *raw material* denotes materials in unprocessed or minimally processed states; e.g., raw latex, iron, wood, sand in its natural form or which has undergone the transformation required to prepare it for international marketing in substantial volumes. The term secondary raw material denotes _____.

Finishing materials and items used to _____, as well as to protect structural members from atmospheric and other effects. The main finishing materials in modern construction include finishing mortars and concretes; natural and artificial masonry materials; decorative ceramics; materials and items made from wood, paper, glass, plastic, and metals.

Finishing materials _____; some materials are used for both (for example, natural decorative stone, ceramic materials, and architectural glass). A special group consists of materials and items for covering floors, which must meet a number of specific requirements (negligible wear, high impact strength, and so on). Finishing materials also include acoustic materials, _____.

_____finishing materials proper, which are used mainly to form decorative and protective coatings (varnishes and paints, wallpaper, polymeric films, linoleum, and so on), and structural finishing materials, which also perform the functions of

enclosing members and are components of such members (decorative concrete, facing brick, glass blocks, and molded glass).

2 Which of the sentences summarizes the ideas in the text?

a Raw materials are basic materials that are used to produce finishing materials.
b Raw materials and finishing materials – are two types of building materials.
c Finishing materials are more valuable.

3 Read the text again. Answer the questions.

1 How many types of building materials are there nowadays?
2 What does the term raw material denote?
3 What are finishing materials used for?
4 What are the examples of raw materials do you know?
5 What are the examples of finishing materials do you know?

VOCABULARY 2

	**PROPERTIES OF BUILDING MATERIALS**
physical properties • bulk density • porosity • durability • density • density index • specific gravity • fire resistance • frost resistance • weathering resistance • spalling resistance • water absorption • water permeability • hygroscopicity • coefficient of softening • refractoriness	**физические свойства** • объемная плотность • пористость • долговечность • плотность • индекс плотности • удельный вес • огнестойкость • морозостойкость. • устойчивость к атмосферным воздействиям • устойчивость к отслаиванию • впитывание воды • водопроницаемость • гигроскопичность • коэффициент размягчения • огнеупорность
mechanical properties • strength • hardness • elasticity • plasticity • brittleness • fatigue • impact strength	**механические свойства** • сила • твердость • эластичность • пластичность • хрупкость • изнашиваемость • сила удара

• abrasion resistance	• устойчивость к истиранию
chemical properties • chemical resistance • corrosion resistance	**химические свойства** • химическая устойчивость • устойчивость к коррозии
electrical properties to conduct/to resist electricity	**электрические свойства** проводить/не проводить (сопротивляться) электричество
magnetic properties magnetic/non-magnetic material	**магнитные свойства** магнитный/немагнитный материал
thermal properties • thermal capacity • thermal conductivity • thermal resistivity • specific heat	**тепловые свойства** • тепловая мощность • теплопроводность • термическое сопротивление • удельная теплоемкость

1 Match the beginnings and the ends of sentences to get definitions of material properties.

1) Density	a) gives the volume of the material occupied by pores. It is the ratio of volume of pores to the volume of material. Porosity influences many properties like thermal conductivity, strength, bulk density, durability etc
2) Porosity	b) is the capacity of a material to resist failure caused by loads acting on it. The load may be compressive, tensile or bending. It is determined by dividing the ultimate load taken by the material with its cross sectional area. It is an important property for any construction materials. So, to provide maximum safety in strength, factor of safety is provided for materials and it is selected depending on nature of work, quality of material, economic conditions etc.
3) Thermal capacity	c) is the ratio of mass of the material to its volume in homogeneous state. Almost all the physical properties of materials are influenced by its density values.
4) Frost resistance	d) is the capacity of a material to regain its initial shape and size after removal of load. Such materials are called as elastic materials. Ideally elastic materials obey Hooke's law in which stress is directly proportional to strain. Higher the value of modulus of elasticity lower the deformations.
5) Elasticity	e) is the capacity of a material to absorb and retain water in it. It is expressed in % of weight of dry material. It depends up on the size, shape and number of pores of material.
6) Chemical resistance	f) is the ability to withstand against fire without changing a shape of material and other

	properties. Fire resistance of a material is tested by the combined actions of water and fire. Fireproof materials should provide more safety in case of fire.
7) Strength	g) are the properties of a materials to conduct or to resist electricity through them. For example, wood have great electric resistance and stainless steel is a good conductor of electricity.
8) Water absorption	h) is the ability of a material to resist freezing or thawing. It is depends upon the density and bulk density of material. Denser materials will have more frost resistance. Moist materials have low frost resistance and they lose their strength in freezing and become brittle.
9) Electrical properties of materials	i) is the ability of a construction materials to resist the effects by chemicals like acids, salts and alkalis. Underground installations, constructions near sea etc. should be built with great chemical resistance.
10) Fire resistance	j) is the property of a material to absorb heat and it is required to design proper ventilation. It influences the thermal stability of walls.

2 Underline the two correct adjectives for each material.

1 A ceramic cup is flexible/heat-resistant and hard/soft.
2 A concrete floor is rigid/flexible and brittle/tough.
3 A rubber tyre is rigid/flexible and weak/strong.
4 A fibreglass window frame is heat-resistant/soft and rigid/flexible.
5 A nylon rope is rigid/flexible and strong/weak.
6 The graphite in the middle of a pencil is light/heavy and hard/soft.
7 A polycarbonate road sign is rigid/flexible and strong/weak.
8 A polystyrene coffee cup is brittle/tough and heavy/light.

3 Complete the table below using the extract from the following research paper to help you.

A promising candidate among the different adsorbent materials are activated carbons. Through activation, highly porous materials can be prepared. Due to their high porosity, activated carbon materials are able to adsorb large amounts of hydrogen. Following adsorption, hydrogen molecules can be found at two possible locations: (1) on the surface of the adsorbent, or (2) as a compressed gas in the void space between adsorbent particles.

noun	verb	adjective
compression	compress	
	adsorb	
	activate	
		porous

4 The gapped words below all describe physical or chemical properties of substances. The meaning of each word is given on the right. Complete the words with the correct vowels (a - k).

1. br_ttl_n_ss	a) how easily something can be broken
2. c_nc_ntr_t n	b) how much of one substance is found in another
3. c_nd_ct_v_ty	c) how well something allows heat or electricity to go through it
4. d_ns_ty	d) how much mass a given volume of a substance has
5. fl_mm_b_l_ty	e) how easily something burns
6. l_m_n_nc_	f) how much light passes through or comes from a substance
7. m_ss	g) how much matter is in a solid object or in any volume of liquid or gas
8. p_rm__b_l_ty	h) how easily gases or liquids go through a substance
9. p_r_s_ty	i) how many small holes are in a substance
10. pr_ss_r_	j) how much force a liquid or gas produces when it presses against an area
11. v_l_m_	k) how much space is contained within an object or solid shape

5 Complete the following sentences using *from*, *with* or *of*.

1 Bronze contains significant amounts _ copper.
2 Calvanised steel is steel coated _ zinc.
3 Steel is an alloy derived _ iron.
4 Pure metals can usually be recovered _ alloys.
5 To produce stainless steel, iron is mixed _ other metals.
6 Stainless steel contains quantities _ chromium and nickel.
7 Glass tableware contains traces _ metals, such as lead.
8 When new metal is extracted _ ore, the costs can be high.

LANGUAGE SKILLS

PASSIVE VOICE: AFFIRMATIVE STATEMENTS

Active voice				**Passive voice**			
Subject	**Verb**	**Object**		**Object (becomes subject)**	**Verb**	**Subject (becomes object or is dropped)**	
This company	builds	schools and kindergartens	every five years.	Schools and kindergartens	are built	by this company	every five years.

► In active form the focus is on the subject (the doer) who performs the action expressed in the verb.

► In passive form the focus is not on the subject, but on the action or the object which was acted upon.

Form of the Passive:

The Passive is **Subject + to be in the tense of the active verb + Past Participle**

1. If the action is more important than the agent.
This theatre was built in 1868. (The important thing is what happened, not who did it.)

2. If the agent is not known.
He was offered a job. (Someone offered him the job.)
They are supposed to be good students. (Some teachers suppose that.)

Sentences which cannot be changed into passive voice:

A verb can be either **transitive** or **intransitive**.

A transitive verb needs an object (in sentence) to give complete meaning while intransitive verb does need an object (in sentence) to give complete meaning.

Intransitive verbs cannot be changed into Passive voice. The reason is that there is not any object in such sentences and without object of sentence Passive voice is not possible.

He sent a letter. (Send is a **transitive verb** and it needs an object i.e. letter to express full meaning.)

He laughs. (Laugh is an **intransitive verb** and it does not need object for expressing full meaning.)

Sleep, arrive, go, come, exist, happen, have, live, occur, reach, sit, die are examples of **intransitive verbs.**

The following tenses **can also not be changed into Passive voice**:

- Present perfect continuous tense
- Past perfect continuous tense
- Future continuous tense
- Future perfect continuous tense

Prepositions used in Passive voice:

By – This book was written by Shakespeare.
With – This letter was written with a pen, not a pencil.
Of – What is this made of?
In – Made in USA.

Passive vs Active voice in different tenses:

Tense (+ to be)	Active voice	Passive voice
Present Simple (am/is/are)	I **do** this work every day.	This work **is done** by me.
Present Continuous (am/is/are being)	I **am doing** this work now.	This work **is being done** by me now.

Present Perfect (has/have been)	I **have done** this work.	This work **has been done** by me.
Past Simple (was/were)	I **did** that work yesterday.	That work **was done** by me yesterday.
Past Continuous (was/were being)	I **was doing** that work all day yesterday.	That work **was being done** by me all day yesterday.
Past Perfect (had been)	I **have done** that work by 3 o'clock yesterday.	That work **had been done** by me by 3 o'clock yesterday.
Future Simple (will be)	I **will do** this work tomorrow.	This work will be done by me tomorrow.
Modal Verbs (modal+be)	I **must/can/might/should do** this work.	This work **must/can/might/should be done** by me.

1 Read and translate the text, sum up the general information. Underline all sentences written in the Passive Voice.

BUILDING MATERIALS

Some of the most important building materials are: timber, brick, stone, concrete, metal, plastics and glass.

Timber is provided by different kinds of trees. Timbers used for building purposes are divided into two groups called softwoods and hardwoods. Timber is at present not so much used in building construction, as in railway engineering, in mining and in the chemical industry where it provides a number of valuable materials.

However, timber is still employed as a building material in the form of boards. For the interior of buildings plywood and veneer serve a number of purposes.

A brick is best described as a "building unit". It may be made of clay by moulding and baking in kilns, of concrete, of mortar or of a composition of sawdust and other materials.

There exists variety of bricks for different purposes: ordinary, hollow or porous, lightweight, multicolor bricks for decorative purposes, etc. Bricks are usually laid in place with the help of mortar.

The shape and convenient size of brick enables a man to grip it with an easy confidence and, because of this, brick building has been popular for many hundreds of years. The hand of the average man is large enough to take a brick and he is able to handle more than 500 bricks in an eight-hour working day.

It is necessary, therefore, for the "would be" bricklayer to practice handling a brick until he can control it with complete mastery and until he is able to place it into any desired position.

The brick may be securely handled by placing the hand over the surface of the upper part of a brick and by placing the thumb centrally down the face of the brick with the first joints of the

fingers on the opposite face. It is better to protect the thumb and the fingers with leather pads, which also prevent the skin from rough bricks.

2 Continue reading the text and complete the sentences with the correct forms of the verbs in the Passive voice.

Sometimes natural stones such as marble, granite, basalt, lime-stone and sandstone ____ ____ (use) for the construction of dams and foundations.

Marble, granite and sandstone ___widely ____ (use) for decorative purposes as well, especially with the public buildings.

Natural stone ____ ____(use) for foundations and for the construction of dams. The main varieties of building stone are basalt, granite, marble, sandstone and limestone.

Metals: Aluminum, principally in the form of various alloys, ___ highly ___ (value) for its durability and especially for its light weight, while *brass* ____ frequently ___ (use) for decorative purposes in facing. *Steel* finds its use in corrugated sheets for roofing, for girders, frames, etc. Various shapes ___ ___ (employ) in construction.

Plastics are artificial materials used in construction work for a vast number of purposes. Nowadays plastics, which are artificial materials, ___ ____ ____(can/apply) to almost every branch of building, from the laying of foundation to the final coat of paint. Synthetic resins are the main raw material for plastics. Plastics have some good advantages as they are lighter than metals, not subject to corrosion, and they ____ ____ easier ____ (can/machin). Besides, they are inflammable, they can take any color and pattern, and they are good electrical insulators. Moreover, they possess a high resistance to chemical action.

Foamed glass is a high-porosity heat insulating material, available in block made of fine-ground glass and a frothing agent. Foamed glass ___ widely ___ (use) in prefabricated house building, to ensure heat insulation of exterior wall panels, and in industrial construction. Foamed glass has a high mechanical strength, is distinguished by moisture, vapor and gas impermeability. It is non-inflammable, offers resistance to frost, possesses a high sound adsorption, and it is easily sewn and nailed. Structural foamed glass blocks designed to fill ceilings, and for making interior partitions in buildings and rooms, to ensure heat and sound insulation. For insulation mineral wool or cinder wool ___ often ___ (resort) to.

3 Make your own sentences with the following phrases in Passive forms:

are divided into	
is not much used in	
it may be made of	
are used for	
are employed	
has been developed for	
is recommended	

4 Complete the sentences with the verbs in Present, Past, or Future Simple Passive.

1 Many houses **(to burn)** during the Great Fire of London.
2 His new house **(to finish)** next year.
3 St. Petersburg **(to found)** in 1703.
4 Many houses **(to build)** in our town every year.
5 This work **(to do)** tomorrow.
6 Rome **(not to build)** in a day.
7 Lost time never **(to find)** again.

5 Turn from Active into Passive

1 We built this house in 1999.
2 We will build this house in 2035.
3 We are building this house at the moment.
4 The builders used cheap finishing materials.
5 Builders use cheap finishing materials.
6 The builders will use cheap finishing materials.
7 Somebody has cleaned the room.
8 Somebody is cleaning the room.
9 We must finish the house on time.
10 We should finish the house on time.

COMMUNICATION SKILLS

1 Read these extracts from suppliers' websites and match extracts 1-6 to photos a-g.

1 **Thomson's Aggregates**:_____
We offer a wide range of construction aggregates, including gravel and sand.
We also stock concrete mix.

2 **Watson's Goods Ltd**:_____
We specialize in acoustic, thermal and fire protection insulation for walls and floors.

3 **Morris and Sons Ltd**:_____
Our timber comes in a range of standard sizes, but can also be made to order.
It is perfect for flooring, roofing and general building work. We also stock plywood and chipboard.

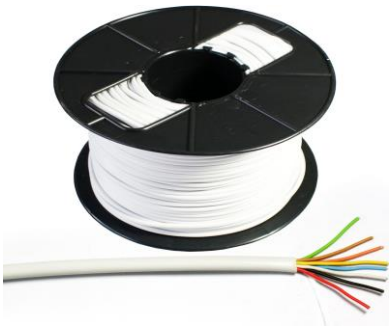
4 **Williams Brothers**:_____
We design, produce and install high quality steel staircases, gates and railings made to your specifications. We also have a range of standard products.

5 **Shockingly Good**!:_____
We supply a wide range of electrical products, cables, alarm systems, plugs, sockets, conduits (PVC and steel) and other electrical fittings.

6 **Penter's Paint Supplies**:_____

We supply everything you need to paint, including paints, brushes, rollers, clothing, spray and equipment.

a _____

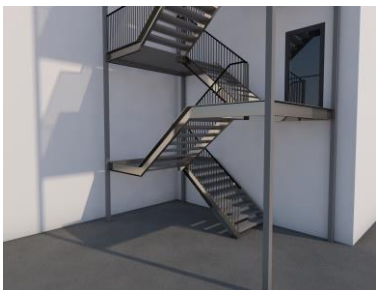


b _____

c _____

d _____

f _____



g _____

2 Work with a partner, make a dialogue. One of you - is a supplier, the other is a buyer who asks questions about the properties of purchased materials. Use the cards with the information on material properties.

Sand ***Thomson's Aggregates*** It is chemically inert. It is clean and free from any organic or vegetable matter, but 3 to 4% clay is permitted. It contains sharp, angular, coarse and durable grains. It does not contain salts which attract moisture from the atmosphere. It is well graded i.e., it contains particles of various sizes in suitable proportions.
Acoustiblok Isolation Membrane ***Watson's Goods Ltd*** It is a material which works by converting sound energy into trace heat energy. At only 3mm thick, the depth of the material is hardly noticeable in the grand scheme of things, but the benefits to uplift acoustic performance are immense. The material has an optimum balance of mass and flexibility, making it a unique sound proofing material.
Timber ***Morris and Sons Ltd*** Our timber is uniform. It is pleasant when cut freshly and it has clear ringing sound when struck. Its texture is fine and even, and its grains are close. Its density is high and its hardness allows us to talk about durability. Our timber does not warp under changing environmental conditions and does not deteriorate due to wear. It has high strength in bending, shear and direct compression, high resistance to fire and low water permeability. It is free from defects like dead knots, shakes and cracks.
Metal staircases ***Williams Brothers*** Our metal staircases can be custom designed and constructed into a variety of shapes and sizes. Common metal staircase materials include stainless steel, aluminum, and iron. Each of the metal choices can also be paired with other design materials to create unique looks. Metal is often combined with wood, glass, and/or cable rail for a stunning finish. Our metal stairs are known for requiring very little maintenance. They are highly functional and resistant to extreme temperature changes and humidity fluctuations. We are proud to offer a wide variety of styles and finishes along with comprehensive design services to build the perfect metal staircase for your needs. We also offer a wide variety of finish and color options.
Polyethylene (PE) ***Shockingly Good!*** We offer Polyethylene (PE) cables for sale. All of the polyethylenes are excellent dielectrics. Outstanding electrical properties include high insulation resistance, high dielectric strength, low dielectric constant, and low dielectric loss at all frequencies, excellent resistance to cold flow, and

good abrasion resistance. Our PE cables can be used for insulation on telephone signal and control cables, high frequency electronic cables, high and low voltage power cables, line wire, neutral supported secondary and service drop cable.

Paints

Penter's Paint Supplies

Our paints have a good body or spreading power. They work smoothly and freely and are capable of being laid in a thin coat with the brush. They are durable and resistant to wear film on drying. Their colors do not fade or change. They become surface dry in about 9 hours and hard enough to take up another coat in 24 hours. Our paints do not crack on drying. They give a smooth and pleasing appearance showing no brush marks on drying.

Sample questions

What can you tell us about your products?
What are the advantages of your products?
What are the properties of your products?
What are the constituent parts of your products?
What are your products made of?
What color / size / shape is your product?
What is the durability of your products?
What is the density of your products?
What is the insulation resistance/ dielectric strength/the resistance to cold flow of your products?
What is the thickness / depth / length / height of your products?

3 Act out a dialogue and make a purchase decision. Are you satisfied with the properties of the materials offered by the seller? Express your own opinion with the following phrases:

I think …
I believe …
I am sure ...

SELF-STUDY

1 Read the text and complete the sentences with the correct forms of the verbs in the Passive voice.

When a machine or a tool is made, the most suitable material 1___ ___ ___(must/choose) by considering its properties, which 2___ ___ ___(can/classify) as mechanical, thermal, electrical and chemical. The main types of materials used in mechanical engineering are metals, polymer materials, ceramics and composite materials. The most commonly used materials are metals, which 3___ ___ ___ (can/divide) into ferrous and non-ferrous. They 4___ ___ ___ (can/use) in their pure form or mixed with other elements. In this second case we have an alloy and it 5___ ___ (use) to improve some properties of the metals. The most commonly used ferrous metals are iron and alloys which use iron. Because iron is soft and pasty it is not suitable to be used as a structural material, so a small amount of carbon 6___ ___ (add) to it to make steel alloy. Non-ferrous metals contain little or no iron. The most common non-ferrous metals used in mechanics are copper, zinc, tin and aluminium. Some common non-ferrous alloys are brass (formed by mixing copper and zinc), bronze (formed by mixing copper and tin) and other aluminium alloys which 7___ ___ (use) in the aircraft industry. Other examples of materials used in mechanical engineering are plastic and rubber. PVC

or polyvinyl chloride is a type of plastic and 8___ ___ (use) to insulate wires and cables: Rubber is a polymer and its best property is elasticity, as it returns to its original size and shape after deformation. Ceramic materials are good insulators: hard, resistant and strong, but brittle. Composite materials 9___ ___ (make) up of two or more materials combined to improve their mechanical properties. Concrete is reinforced with steel and 10___ ___ (use) in building engineering.

2 Read the text again and match the words with their definitions.

1 alloy	a a type of plastic used for insulation
2 steel	b a combination of different metals
3 PVC	c an alloy formed by mixing iron and carbon
4 concrete	d an alloy formed by mixing copper and zinc
5 brass	e metals containing iron
6 ferrous materials	f a composite material used to build houses
7 ceramic	g a metal not suitable as structural material
8 iron	h a good insulator but brittle

3 Match these adjectives to their meaning:

1 transparent	a) able to last a long time
2 porous	b) hard, but easily broken
3 durable	c) easy to bend without breaking, flexible
4 brittle	d) light can pass through
5 dense	e) has many small holes that allow water and air to pass through
6 pliable	f) has a high mass to volume ratio
7 translucent	g) clear, allows to see through it

GLOSSARY

abrasion resistance	electrical properties	plasticity
alloy	fiberglass	platinum
aluminium	finishing materials	polycarbonate
brass	fire resistance	polystyrene
brick	frost resistance	porosity
brittleness	glass	refractoriness
bronze	gold	resist electricity
bulk density	graphite	raw materials
ceramic	gravel	rubber
cement	hardness	sand
chemical properties	hygroscopicity	silver
chemical resistance	impact strength	specific gravity
coefficient of softening	iron	specific heat
composite	lead	steel

conduct electricity	magnetic material	stone
concrete	magnetic properties	strength
copper	marble	thermal capacity
corrosion resistance	mechanical properties	thermal conductivity
fatigue	metal	thermal properties
density	nickel	tin
density index	non-magnetic material	titanium
diamond	nylon	water absorption
durability	physical properties	water permeability
elasticity	plastic	wood

UNIT 2 STEEL	TYPES OF STEEL, METAL PROCESSES COMPARATIVE AND SUPERLATIVE ADJECTIVES COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
Steel is an **alloy** of **iron** with typically a few percent of **carbon** to improve its **strength** and **fracture resistance** compared to iron. Many other elements may be present or added. Stainless steels that are **corrosion**- and oxidation-resistant need typically an additional 11% **chromium**. Because of its high **tensile strength** and low cost, steel is used in buildings, **infrastructure**, tools, ships, trains, cars, machines, **electrical appliances**, and weapons. Iron is the **base metal** of steel. Depending on the temperature, it can take two crystalline forms (**allotropic forms**): body-centred cubic and face-centred cubic. The interaction of the allotropes of iron with the alloying elements, primarily carbon, gives steel and cast iron their range of unique properties.

Questions for discussion:

1 Think about some items you're familiar with that are made of steel.
2 Which of these items are not protected (for example, by paint)?
3 Which of them are commonly used in construction?
4 What can you say about their properties?

Useful language

I can list the following items…
I know that…
I can say…
I think …
I suppose…

VOCABULARY 1

	**STEEL**
allotropic forms	аллотропные формы
alloy	сплав
base metal	основной металл
carbon	углерод
chromium	хром
cooking	кухонная утварь
copper	медь
corrosion	коррозия
damage	повреждать
destroy	разрушать
ductile	пластичный
ferrum	железо
electrical appliances	электроприборы
impure	нечистый, неочищенный
impure form	нечистая форма (с примесями)
infrastructure	инфраструктура
reduction	снижение
resistance to corrosion	устойчивость к коррозии
strength	сила
substance	вещество
transmute	преобразовывать, превращать
nonmetal	неметалл
wires	провода
withstand	выдерживать

1 Match the words 1-7 with the definitions a-g.

1	alloy	a	A common metal that is not considered precious, such as copper, tin, or zinc.
2	strength	b	The process of corroding metal, stone, or other materials.
3	wire	c	The capacity of an object or substance to withstand great force or pressure.
4	corrosion	d	The chemical element of atomic number 6, a nonmetal which has two main forms (diamond and graphite) and which also occurs in impure form in charcoal, soot, and coal.

5	carbon	e	It is a long thin piece of metal that is used to fasten things or to carry electric current.
6	base metal	f	A metal made by combining two or more metallic elements, especially to give greater strength or resistance to corrosion.
7	impure	g	Not pure; combined with something else.

2 Complete the sentences with the words from the table above.

1 A _____ is a cable which carries power or signals from one place to another.
2 Her delicate art transmuted _____ into pure gold.
3 A substance that is _____ is not of good quality because it has other substances mixed with it.
4 Melting aluminum with a small amount of copper produces the _____ duralumin.
5 _____ is the process in which a metal is gradually destroyed by an electrochemical process.
6 The _____ of an object or material is its ability to be treated roughly, or to carry heavy weights, without being damaged or destroyed.
7 Research has noticed a reduction in the ability of the oceans to absorb_____.

3 Read and complete the definitions with the words from the box.

alloy	air	coins	cooking	copper	wires	steel	~~ferrum~~	carbon	expensive	gold	ductile

Iron: Its Latin name is (1) *ferrum.* It is magnetic and has a silvery colour. In prehistoric times it was used to make ornaments and weapons. If exposed to the (2) _____ , it oxidises.
(3) _____ : It is one of the most widely used metals by humans. In prehistoric times it was used to make cooking utensils, (4)_____ and ornamental objects. It is used in (5)_____ and cables.
(6) _____: It is the most (7)_____metal and is used to create precious jewellery. It is the most (8) _____metal
(9)_____ : It is an (10) _____ formed from iron and (11)_____ It can contain between 2.1% and 4% carbon. It is also used for (12)_____ utensils and pans.

4 Read the text about types of steel and fill in the gaps (A-F) with the sentences (1-6).

(1) contain no significant quantities of other metals
(2) which is used in cutting tools that operate at high temperatures
(3) can be divided into three main grades:
(4) which do not rust
(5) widely used building material.
(6) which consist of iron, carbon and one or more alloying metals

TYPES OF STEEL

Steel is the most (a)_____. This is a well-known alloy of iron and carbon, but it is not as simple as one might think. Steel comes in a huge range of different grades, each with different characteristics.
There are two main types of steel. The first, carbon steels, consist of iron and carbon, and (b)_____. Carbon steels (c)_____:
• mild steel (the most widely used grade) which contains up to approximately 0.3% carbon,

• medium carbon steel which contains between approximately 0.3% and 0.6% carbon.
• high carbon steel which contains between approximately 0.6% and 1.4% carbon.

The second main category of steel is alloy steels, (d)_____. Specific grades of alloy steel include:

• low alloy steels, which contain 90% or more iron, and up to approximately 10% of alloying metals such as chromium, nickel, manganese, molybdenum and vanadium
• high strength low alloy steels (HSLA), which contain smaller quantities of the above metals (typically less than 2%)
• stainless steels, which contain chromium as well as other metals - such as nickel – and (e)_____.
• tool steels, which are extremely hard, and are used in cutting tools. They contain tungsten and/or cobalt. A widely used grade of tool steel is high-speed steel, (f)_____, such as drill bits.

5 Which of the sentences summarizes the ideas in the text?

a Steel is the most widely used building material.
b There are two main types of steel
c There are a lot of specific grades of alloy steel.

6 Answer the questions.

1 How many main types of steel do you know?
2 What is the first?
3 What is the second?
4 What are the main grades of carbon steels?
5 What do the specific grades of alloy steel include?

VOCABULARY 2

	**METAL PROCESSES**
blacksmith	кузнец
cavity	полость
casting	литье
cross-sectional profile	поперечный профиль
cold forging	холодная ковка
compressive force	сжимающая сила
die (n)	штамп
drawing	вытяжка, протягивание
extrusion	экструзия, вытеснение
forging	ковка
hammer	молот, молоток
hollow sections	полые секции

hot forging	горячая ковка
melting	плавка
metal processes	виды/процессы обработки металлов
mould	литейная форма
moulding	формовка, лепка
pull	тянуть
rod	стержень
rolling	прокатка
sheet metal	листовой металл
sheet metal forming	формовка листового металла
solidify	затвердеть

1 Match the words 1-10 with the definitions a-j.

1	casting	a	It is a space or hole in something such as a solid object or a person's body.
2	hammer	b	Make or shape (a metal object) by heating it in a fire or furnace and beating or hammering it.
3	mould	c	This is a person whose job is making things by hand out of metal that has been heated to a high temperature.
4	blacksmith	d	To make or become solid or hard.
5	cavity	e	An object made by pouring molten metal or other material into a mold.
6	forging	f	It is a hollow container that you pour liquid into. When the liquid becomes solid, it takes the same shape as this container.
7	solidify	g	It is a tool that consists of a heavy piece of metal at the end of a handle. It is used, for example, to hit nails into a piece of wood or a wall, or to break things into pieces.

READING

1 Read and translate the text about metal processes.

METAL PROCESSES

Casting is a 6,000-year-old process. It is the oldest and most well-known technique based on three fundamental steps: moulding, melting and casting. First the pattern is made to form the mould. Then an empty mould is created, and finally the empty cavity is filled with molten metal which is then left to solidify into the shape. Casting materials are usually metals but can also be plastic, resin or various cold materials, for example concrete. Casting is usually used for making complex shapes.

Drawing is a manufacturing process for producing wires, bars and tubes by pulling on material through a series of dies until it increases in length. It is divided into two types: sheet metal drawing, and wire, bar, and tube drawing. Drawing is usually done at room temperature but it can be performed at elevated temperatures to hot work large wires, rods or hollow sections in order to reduce forces.

Forging is the process by which metal is heated and shaped by a compressive force using a hammer or a press. It is used to produce large quantities of identical parts, such as machine parts in the automobile industry. Cold forging is done at a low temperature using soft metals and plastic. Hot forging is done at a high temperature and makes metal easier to shape without breaking. In the

past, forging was done by a blacksmith using a hammer. Nowadays industrial forging is done with presses powered by a machine.

Rolling is a metal forming process in which a material (metal, plastic, paper or glass) is passed through a pair of rollers. According to the type of material rolled, there is hot rolling or cold rolling.

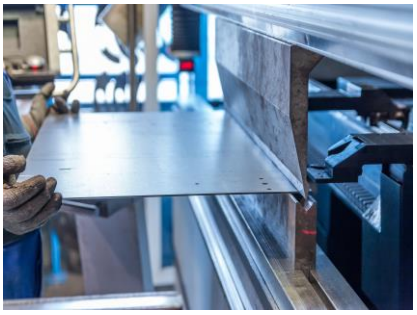
Extrusion is a process used to produce objects with a fixed cross-sectional profile. A material is pushed or drawn through a die of the desired cross-section. The two main advantages of this process are its ability to create very complex cross-sections and work materials that are brittle. The extrusion process can be done with hot or cold materials. Commonly extruded materials include metals, polymers, ceramics, concrete and foodstuffs. Ceramic can also be formed into shapes via extrusion. Terracotta extrusion is used to produce pipes. Many modern bricks are also manufactured using a brick extrusion process. Extrusion is also used in food processing. Products such as certain pastas, many breakfast cereals, French fries, dry pet food and ready-to-eat snacks are mostly manufactured by extrusion.

Sheet metal forming is simply metal formed into thin and flat pieces. The basic forms can be cut and bent into a variety of different shapes. Everyday objects are constructed with this process. There are many different metals that can be made into sheet metal, such as aluminium, brass, copper, steel, tin, nickel and titanium. For decorative uses, important sheet metals include silver, gold, and platinum. Sheet metal forming is used in car bodies, airplane wings and roofs for buildings.

2. Match the picture with name of the metal processes from the box.

Drawing	Sheet metal forming	Rolling	Casting	Forging
Extrusion				

a)_____



b) _____

c) _____

d) _____

e)_____

f) _____

3 Put the words in the correct order to make complete sentences.

1 can be / brittle materials / extrusion / done / with
2 drawing / room temperature / is done at
3 many / is used / everyday objects / sheet forming / to make
4 in the past / using / forging / a hammer / was done
5 taking their forms / fluid substances / into moulds / solidify
6 not essential / heat / is / in the drawing process

4 Read the texts again and write the correct processes that produce the objects listed below

Product	Process
bricks	
wires	
concrete	
tubes	
machine parts	
pasta	
rods and bars	
golden leaves	
sheet	

5 Read the texts again and answer the following questions.

1 Which steps are included in casting?
2 What is the mould used for?
3 What does drawing use in order to process metals?
4 What types of drawing are there?
5 What kind of process is forging?
6 How was forging done in the past?
7 What does rolling consist of?
8 What materials can be used in rolling?
9 What are the advantages of extrusion?
10 What materials can be used in extrusion?
11 What kind of process is sheet metal forming?
12 What can vary in sheet metal forming?

LANGUAGE SKILLS

COMPARATIVE AND SUPERLATIVE ADJECTIVES

Comparatives

One way to describe nouns (objects, people etc.) is by comparing them to something else. When comparing two things, you're likely to use adjectives like ***smaller, bigger, taller, more interesting, and less expensive***. Notice the **-er** ending, and the words **more** and **less.**

• For adjectives that are just one syllable, add **-er** to the end (this explains the above example).
• For two-syllable adjectives not ending in -y and for all three-or-more-syllable adjectives, use the form "**more + adjective**."
• For two-syllable adjectives ending in -y, change the -y to **-i** and add **-er**.

Examples:
This house is **more exciting** (**exciting)** than ever.
Your house is **bigger** (**big)** than mine.
The house in the mountains was **cosier (cosy)** compared to the house we rented at the seaside.

Superlatives

When comparing more than two things, you'll likely use words and phrases like *smallest, biggest, tallest, most interesting, and least interesting*. Notice the **-est** ending and the words **most** and **least**.

• For adjectives that are just one syllable and for two-syllable adjectives ending in –y, add **–est.**
- if the adjective ends in -e, just add **–st** (late → the latest)
- if the adjective ends in consonant, vowel, consonant, **double the last consonant** (big → the biggest)
- if the adjective ends in -y, change the y to **i**. (happy → the happiest)

• For two-syllable adjectives not ending in -y and for all three-or-more-syllable adjectives, use "**most**". We also usually add "**the**" at the beginning.

Examples:
John is 1m75. David is 1m80. Chris is 1m85. Chris is **the tallest**.
Canada, China and Russia are big countries. But Russia is **the biggest**.
Mount Everest is **the highest** mountain in the world.

The following adjectives have irregular forms:

Adjective/Adverb	Comparative	Superlative
good/well	better	best
bad/badly	worse	worst
far	farther, further	the farthest, the furthest
little	less	least

1 Fill in the gaps with the comparative or superlative forms of the adjectives in brackets to complete the following sentences in English.

1 Sharks are _____than lions. (dangerous)
2 William Shakespeare is _____than Christopher Marlowe. (famous)
3 Henry is _____than his sister. (absent-minded)
4 Tom is _____than David. (selfish)
5 He is _____than he used to be last year. (fat)
6 Andrew seems to be _____than he was two months ago. (slim)
7 Walt is _____nowadays than he used to be when he was _____ (impatient / young)
8 Our town is _____than Manchester. (attractive)
9 Tom is _____than his elder brother. (impulsive)
10 This poem is _____than any other poem I've read. (pathetic)
11 Your house is _____than mine. (beautiful)
12 His room is _____than yours. (dark)
13 I think that English films are _____than American ones. (interesting)

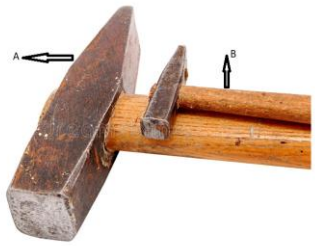
14 George runs _____than Jim. (fast)
15 The living conditions are _____than they used to be. (bad)
16 Today Father is _____than usual. (irritated)
17 Exercise 16 is _____than exercise 15. (easy)
18 "Prevention is _____than cure". (good)
19 Your argumentation is _____than Robert's. (convincing)
20 At home, Mother is always _____than Father. (busy)

2 Complete as in the example.

Example: a) long → longer

a) long →	e) heavy →
b) short →	f) wide →
c) strong →	g) thin →
d) narrow →	h) weak →

3 Compare these two hammers.



Example: Hammer A is longer than hammer B.

long	heavy
short	wide
strong	thin
narrow	weak

4 Compare these materials. Make sentences as in the example.

Example: a) Paper is more combustible than glass.

a) paper/ glass - combustible	d) glass/wood - brittle
b) steel/lead - hard	e) wood/concrete - heavy
c) steel/gold - expensive	f) rubber/steel - rigid

5 Answer the questions. Use *more than* for >, and *less than* for <, look at the example.

Example: 1How long is a ladder? It is usually more than 1.5m long.

1 How long is a ladder? (>1,5 m)
2 What is the width of a window? (<2 m)
3 How wide is a water pipe? (>13 mm)
4 How thick is a metal sheet? (<9 mm)
5 How wide is a hand pump? (<3 m)
6 How high is a house? (>3 m)
7 What is the depth of a well? (<80 m)
8 What is the height of the door? (>2 m)

COMMUNICATION SKILLS

1 Read the information about two types of steel pipes.

Galvanized pipe

There are many uses of galvanized steel pipe in the residential and commercial building. Generally, these pipes are used for transferring oil, water, gas, and another type of liquid substances. These pipes are made of solid steel and can come in many forms. Galvanized pipe is made of solid steel and extra coating of zinc. To avoid the rust and corrosion, this zinc coating is used. The schedule of the pipe indicates the thickness of the wall inside the pipe. The more number in the schedule indicates the more thickness of the pipe. If you use the schedule 40 pipe in your residence, you will get more benefits of it. It is super thick and ultra strong pipe which will last for a long time without any trouble. As it is rust and corrosion free, there would be no leakage on the pipe and you can use it for years. There are some benefits of using the galvanized pipe.

• The galvanized pipe has increased pressure rating. It has the great ability to increase the withstand pressure of the liquid substances. It is also easy to calculate the pressure of the galvanized pipe than the other type of pipe, though the galvanized pipe is expensive than the other type of pipe.

• The extra coating of the zinc in the galvanized pipe ensures the thick and uniform pipe from all side. So, there is no chance of spillage and loss of the water or other liquid substances, if it transfers with the galvanized pipe.

• The galvanized pipe can provide more strength to any construction. No matter what you are transporting through the galvanized pipe, it always provides you the better support, highest strength, and consistent performance all over the year.

The galvanized pipe was been used widely in the residential construction back 1980s. But the usage has been reduced in past few years for different types of contamination have been found in the normal galvanized steel. But the 3 inches galvanized pipe schedule 40 is free from all type of problems and can be used safely in the residential and commercial purpose.

Coated steel pipe includes 3PE and FBE coating

For the water, oil, gas and the other type of liquid material transmission, the epoxy coated steel pipe are used widely on these days. This steel is very popular as it is highly durable and comes with an extra ordinary quality. This steel pipe is suitable for both residential and the industrial use. This steel is environment friendly as it doesn't have any pollution or another type of negative impact on the environment. It is high temperature resistant and has the bending feature which is usually missing in the other type of steel. There are two types of coating: 3PE and FBE.

• The 3PE has three layers PE antisepsis features. On the first layer, it comes with the epoxy powder. On the second layer it comes with the adhesive and on the third layer, you will get the polyethylene. It is one of the most solid steel pipes which come with the strong coating. The 3PE anti corrosive steel pipe provides you the tightness which can save the energy and reduce cost while using. For protecting the environment from the pollution, it is the best steel pipe which can assure long-term operation. For the corrosion resistance, it can be used for 30 to 50 years long without any replacement and the other kind of trouble. It ensures the low water absorption and can perform quite well in the low temperatures.

• The fusion bonded coating pipe is known as FBE coating pipe. The epoxy based powder protects the steel pipe from the external vulnerable factors in the construction sector. The FBE coating pipe is popular for its protective and highly durable nature. In the harsh condition of the environment this type of steel pipe is used. This FBE coating pipe is also corrosion resistant and also chemical resistance in certain cases. So, you will get the highest protection and service from this steel pipe. As this pipe ensures the high bonding and strength to the pipe, it becomes one of the damage resistance pipes.

2 Fill in the table of advantages and disadvantages of these two types of steel pipes below.

Galvanized pipe	
advantages	**disadvantages**
Coated steel pipe includes 3PE and FBE coating	
advantages	**disadvantages**

3 Ask your partner about these types of steel pipes.

Sample questions

What are these pipes made of?
What are their coatings?
Where are these pipes used?
What are the main advantages of this type of pipe?
What are the main disadvantages of this type of pipe?
What type of pipes is used in your house?

SELF-STUDY

1 Read the text and complete the sentences with the suitable word or phrase.

corrosion carbon stronger alloy concrete structural framework strength-to-weight decoration

Steel is a metal 1_____of iron and 2_____ and often other alloying material in its composition to make it 3_____ and more fracture-resistant than iron. Stainless steels resist 4_____ and oxidation because of the additional chromium in their make-up. Because it is so strong compared to its weight and size, structural engineers use it for the 5_____ of tall modern buildings and large industrial facilities. Some of its qualities include:

- Steel has high 6_____ and strength-to-size ratios.
- It's high-cost relative to other metals. Structural engineers can consult on choosing the most cost-effective sizes to use in a house to support the actual load on the building.
- Steel is less time-consuming to install than7_____.
- It can be installed in any environment.
- Steel can be susceptible to corrosion if improperly installed or maintained

Chrome, gold, and silver are generally used for finishes or 8_____because they lack the tensile strength of steel.

2 Match the words with their definitions.

1	rolling	a	It is a process used to produce objects with a fixed cross-sectional profile.
2	drawing	b	Make or shape (a metal object) by heating it in a fire or furnace and beating or hammering it.
3	forging	c	The process of metal forming into thin and flat pieces.
4	sheet metal forming	d	Pouring molten metal or other material into a mold.
5	extrusion	e	It is a metal forming process in which a material is passed through a pair of rollers
6	solidify	f	To make or become solid or hard.
7	casting	g	It is a manufacturing process for producing wires, bars and tubes by pulling on material through a series of dies until it increases in length

3 Compare these two spanners.

Example: Spanner *A is longer than* spanner *B.*

1 long
2 wide
3 short
4 narrow
5 light
6 cheap
7 thick
8 thin
9 heavy
10 expensive

4 Choose the correct adjective degree in brackets:

1 Nick is (happier, the happiest) boy that I know.
2 Of the six cars, I like the silver one (better, best).
3 Jane's notebook is (cheaper, the cheapest) than mine.
4 This is (more delicious, the most delicious) cheese-cake I have ever had!
5 This bookcase is (more beautiful, the most beautiful) than that one.
6 Do you feel (better, the best) today than yesterday?
7 I think my cat is (prettier, the prettiest) of all the cats in the world.
8 Steve Jobs is (more famous, famouser) than Stephen Wozniak.
9 This week the weather is (hotter, more hot) than last week.
10 Our new house is (more expensive, expensiver) than the old one.
11 Chemistry was (harder, the hardest) subject at school.

5 Write down the degrees of comparison of the following adjectives.

Example: wet – wetter – the wettest
expensive – more expensive – the most expensive

	Comparative	**Superlative**
1 big		
2 clever		
3 good		
4 pleasant		
5 poor		
6 bad		
7 funny		
8 important		
9 sunny		
10 far		
11 comfortable		
12 wise		

6 Make sentences from these words

1 most – the Mona Lisa – in – is – painting – the – famous – the – world.
2 longer – the Don – is – the Volga – than.
3 more – Spain – Germany – than – beautiful - is.
4 London – city – in – biggest – the – England – is.
5 the – team – Adam – is - worst – the – player – in.

GLOSSARY

allotropic forms	die (n)	moulding
alloy	drawing	nonmetal
base metal	ductile	pull
blacksmith	electrical appliances	reduction
carbon	extrusion	resistance to corrosion
casting	ferrum	rod
cavity	forging	rolling
chromium	hammer	sheet metal
cold forging	hollow sections	sheet metal forming
compressive force	hot forging	solidify
cooking	impure	strength
copper	impure form	substance
corrosion	infrastructure	tensile strength
cross-sectional profile	melting	transmute
damage	metal processes	wires
destroy	mould	withstand

UNIT 3 CONCRETE	CONCRETE COMPOSITION, REINFORCED CONCRETE CARDINAL AND ORDINAL NUMBERS, PARTS, PERCENTAGES COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
Concrete is a composite material made of **fine and coarse aggregate** (**gravel, crushed stone**, **recycled concrete**, and **geosynthetic aggregates**) **bound** together by a **liquid binder** such as **cement** that hardens over time. **Portland cement** is the most common type of cement, and is a fine powder, produced by heating **limestone** and **clay** materials in a **kiln** and adding **gypsum**. So Portland cement concrete consists of the **mineral aggregate**, bound with Portland cement and water. After mixing, the cement **hardens** into the **stone-like material** - concrete.

Questions for discussion:

1 What engineering concrete structures are you familiar with?
2 Do you know about the properties of concrete?
3 What is the difference between concrete and cement?
4 What do you know about the composition of concrete?

Useful language

I know such …
I can say…
I think / suppose …
As for the differences…
It consists of…

VOCABULARY 1

	**CONCRETE COMPOSITION**
aggregate	наполнитель
bound	связанный
cement	цемент
clay	глина
concrete	бетон
crushed stone	разрушенный/дробленый камень
fine and coarse aggregate	мелкий и крупный наполнитель/заполнитель
geosynthetic aggregates	геосинтетический наполнитель
gypsum	гипс
gravel	гравий
harden	затвердеть
kiln	печь
limestone	известняк
liquid binder	жидкое связующее вещество
mineral aggregate	минеральный наполнитель
plaster of Paris	строительный алебастр (разновидность гипса)
plasticizer	пластификатор
Portland cement	портландцемент
prestress	подвергнуть предварительному напряжению
recycled concrete	переработанный бетон
retarder	замедлитель
stone-like material	похожий на камень материал

1 Match the words 1-7 with the definitions a-g.

1	cement	a	It is a substance used for building which is made by mixing together cement, sand, small stones, and water.
2	gypsum	b	It consists of very small stones. It is often used to make paths.
3	kiln	c	To make solid, rigid, or firm.
4	Portland cement	d	It is a grey powder which is mixed with sand and water in order to make concrete.
5	concrete	e	It is the type of cement usually used in buildings and bridges.

6	gravel	f	It is a soft white substance which looks like chalk and which is used to make plaster of Paris.
7	harden	g	It is an oven that is used to bake pottery and bricks in order to make them hard.

2 Complete the sentences with the words from the table above.

1 They had lain on sleeping bags on the _____ floor.
2_____ can be mixed with sand, gravel, and water to make concrete.
3 Here the colossal sunken valley was rich in_____, and the low rolling hills were white as if with frost.
4 The solid is loaded into the _____ , and heated until reaction is complete.
5 The mixture _____ as it cools.
6 _____ - an unconsolidated mixture of rock fragments that is coarser than sand.
7 _____is so named because of its similarity to Portland stone, which was quarried on the Isle of Portland in Dorset, England.

READING

1 Read the text and fill in the gaps with the words and phrases from the box.

are measured	structural strength	solid	water	key material	fine powder	
	concrete	reduces	plasticizer			

CONCRETE MIX DESIGN

Cement is a _____ in construction. It consists of a very_____. When_____ is added to cement, a chemical reaction occurs, and the cement begins to set - it starts to become _____. The most widely used cement-based material is _____ , which is made from cement, fine aggregate (sand), coarse aggregate (gravel) and water. After concrete has set, it needs time to reach its _____ - the strength needed to perform effectively. Generally, engineers consider that this strength is reached after 28 days - a point called 28-day strength.

Concrete mix designs, which are specified by engineers, state the proportions of cement, fine aggregate and coarse aggregate to be used for specific structures. For example, a 1:2:4 (one-two-four) mix consists of one part cement, two parts fine aggregate and four parts coarse aggregate. For mixing precise quantities - known as hatching- proportions _____ by weight. Mix designs also specify the water-cement ratio - the amount of water added relative to the amount of cement used. Excess water _____the strength of concrete, so the quantity of water is kept to a minimum. But as drier concrete is more difficult to work with, an additive (added chemical substance) called a _____ is often used. This helps the concrete to flow more easily. Other additives can also be used - for example, a _____may be added to delay setting, which gives workers more time to pour (place) the concrete.

2 Find words and expressions in the text to match the descriptions (1-10).

1 gravel used in concrete
2 sand used in concrete
3 powder that enables concrete to set
4 mixing concrete accurately

5 specification of concrete ingredients
6 effective structural capability of concrete
7 affects the wetness and strength of concrete
8 different types of chemical put in concrete
9 allows concrete to stay wet for longer
10 makes drier concrete easier to work with

3 Read about the most impressive concrete structures around the world. Match the structure with the picture below.

THE MOST IMPRESSIVE CONCRETE STRUCTURES AROUND THE WORLD

By far, concrete has been the number one building material. Its use has been seen for centuries where it's used for building structures such as dams, statues, and landmarks among others. The reason as to why concrete is useful to many people irrespective of the centuries is the fact that it's among the most versatile and ubiquitous building materials. It was used by ancient Greeks and ancient Romans. There are structures to testify of these facts and all around us; commercial concrete remains the one material that is continuously being used. Take a look at some of the most impressive concrete structures that are in existence today.

1 The Pentagon

This is one of the American icons of architectures. The building is huge and is one of the most popular buildings around the world being used by the US government. It's reported that up to 410,000 cubic yards of this amazing building material were used in the construction of this structure. The building has five sides and was built way back in the 1940s.

2 The Pantheon

This is one of the world's wonderful structures of concrete that was built in 126 AD and is still in existence today. This structure is located in Rome, Italy. Though built so long ago, this structure remains one of the buildings which concrete was used to build. It's a beautiful and awesome feat of history that many still wonder how it was constructed with the level of primitivism that is expected to have existed back then. It remains to be one of Rome's most popular tourist destinations to date.

3 Bank of London and South America

Also referred to as BLAS, this structure is another unique concrete structure in existence today. It's located in Buenos Aires, Argentina. It looks like a colossal skeleton that is rising from the ground when you look at it from outside.

4 Christ the Redeemer

This Brazilian structure is listed among the Seven Wonders of the World. It's located in Rio Janeiro, Brazil. The construction of the amazing structure commenced in the 1920s and was completed after 9 years. The statue is 98ft tall and was built by the use of soapstone and reinforced concrete. It weighs around 1445 tonnes.

5 The Motherland Calls

At the time of its unveiling in 1967, the Mother of Calls was recognized as the world's largest statue. The complex structure was built to commemorate the Battle of Stalingrad. The woman statue is located in Volgograd, Russia.

6 Burj Khalifa

This is the tallest man-made structure on planet earth. The primary construction material of the 2717ft tall structure is concrete. The construction of this tall structure took five years between 2004 and 2010. The unique structure was built in order to impress people all the way from its construction to design. Burj Khalifa is located in Dubai, United Arab Emirates.

7 Causeway Bridge

This frightening structure spans 24 miles over Lake Ponchartrain. The most frightening thing to most people is that when at the midpoint, you aren't able to see land on either side.

8 The Hoover Dam

The Hoover Dam is an electricity generating dam that was constructed in 1935 and it created Lake Mead. It was constructed with 4,360,000cubic yards of concrete and was the world's largest dam at the time of completion.

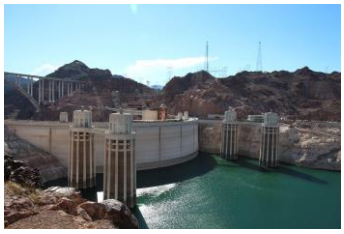
9 United d'Habitation

This huge apartment in Marseille, France was completed in 1952. It's a reflection of the optimism of post-war ability to merge individual and collective aspirations.

10 The Panama Canal

In history, the Panama Canal remains as one of the most important structures made of concrete. It dramatically cut the times that shipping of goods across the world required. In this way, it revolutionized commerce.

The list of most impressive concrete structures around the world is quite long. These are just but the most popular of them all. It simply shows how important concrete is as a building material.

 a

 b

 c

 d

 e

 f

 g

 h

 i

 j

4 Find information on the Internet or in print publications about one of these structures. Make a mini report.

VOCABULARY 2

	REINFORCED CONCRETE
bending forces	изгибающие силы
cast	отливать, лить
cast in-situ	лить на месте
formwork	опалубка
in-situ concrete	монолитный бетон
precast concrete	сборный бетон
prestressed	предварительно напряжённый/преднапряжённый
reinforcement	арматура
reinforcing bars	арматурные стержни
reinforced concrete (RC)	железобетон (ЖБИ)
shuttering	опалубка
trapped	в ловушке

1 Match the words 1-10 with the definitions a-j.

1	to cast an object	a	an arrangement of wooden boards, bolts, etc, used to shape reinforced concrete while it is setting
2	reinforcement	b	steel bars or mesh of steel wires used as a tension device in reinforced concrete and reinforced masonry structures to strengthen and aid the concrete under tension
3	formwork	c	to make something by pouring a liquid such as hot metal into a specially shaped container and leaving it there until it becomes hard
4	reinforcing bars	d	concrete that is made with pieces of metal inside it to make it stronger
5	reinforced concrete	e	a system of steel bars, strands, wires, or mesh for absorbing the tensile and shearing stresses in concrete work

2 Read the text about reinforced concrete and fill in the gaps with words and phrases from Vocabulary 2.

REINFORCED CONCRETE

Reinforced concrete (RC) structures contain steel bars. Steel _____ is needed mainly because concrete is weak in tension - that is, bad at resisting stretching forces. As steel is strong in tension, _____ overcome this weakness. In order to form the different parts of structures, formwork - sometimes also called _____- is used. This consists of moulds of the required

size and shape, made from steel or timber, which are used to contain the concrete until it has set. When wet concrete is _____ (placed) in its final position, it is called_____. Instead of being cast in-situ, reinforced concrete elements can also be precast- cast at a factory - then delivered to the construction site ready for assembly. Sometimes, precast concrete is also _____. With prestressing, tension is applied to the reinforcing bars, by machine, usually before the concrete is poured. The bars are then held in tension while wet concrete is poured around them. After the concrete has fully set, the bars become "_____" in tension. This increases the concrete's ability to resist_____.

3 Put paragraphs in order to get a linked text. Compare your text with your neighbor's.

1 A concrete plant consists of large storage hoppers for various reactive ingredients like cement, storage for bulk ingredients like aggregate and water, mechanisms for the addition of various additives and amendments, machinery to accurately weigh, move, and mix some or all of those ingredients, and facilities to dispense the mixed concrete, often to a concrete mixer truck.

2 In general usage, concrete plants come in two main types, ready mix plants and central mix plants. A ready-mix plant mixes all the ingredients except water, while a central mix plant mixes all the ingredients including water. A central-mix plant offers more accurate control of the concrete quality through better measurements of the amount of water added, but must be placed closer to the work site where the concrete will be used, since hydration begins at the plant.

3 A wide variety of equipment is used for processing concrete, from hand tools to heavy industrial machinery. Whichever equipment builders use, however, the objective is to produce the desired building material; ingredients must be properly mixed, placed, shaped, and retained within time constraints. Any interruption in pouring the concrete can cause the initially placed material to begin to set before the next batch is added on top. This creates a horizontal plane of weakness called a cold joint between the two batches. Once the mix is where it should be, the curing process must be controlled to ensure that the concrete attains the desired attributes. During concrete preparation, various technical details may affect the quality and nature of the product.

4 Modern concrete is usually prepared as a viscous fluid, so that it may be poured into forms, which are containers erected in the field to give the concrete its desired shape. Concrete formwork can be prepared in several ways, such as slip forming and steel plate construction. Alternatively, concrete can be mixed into dryer, non-fluid forms and used in factory settings to manufacture precast concrete products.

Concrete production is the process of mixing together the various ingredients - water, aggregate, cement, and any additives - to produce concrete. Concrete production is time-sensitive. Once the ingredients are mixed, workers must put the concrete in place before it hardens. In modern usage, most concrete production takes place in a large type of industrial facility called a concrete plant, or often a batch plant.

4. Read the text about the world's most outstanding reinforced concrete buildings. What is what?


a


b

Palazzo Italia, Milan

The intricate paper-like exterior of this intriguing building is yet another stunning example of what precast can do. As the only permanent structure from Italy's 2015 World Expo, the Palazzo is 35 meters high and its exterior made of 700 precast panels. You might not expect concrete to appear so delicate or to work well as a layered architectural element, but this building proves the opposite. The concrete itself is suited to this kind of intricate effect, and it includes within it a photocatalytic compound that, when activated by UV light, helps break down pollutants. Basically, this precast concrete structure can clean itself.

Sydney Opera House, Australia

One of the most famous buildings of all time was devised by Jørn Utzon, a Danish architect whose design won him the right to do so in 1957. It wasn't complete until 1973, debuting its "billowing sails" on the Sydney skyline. It took Utzon's team four years just to figure out a way to build those distinctive sails, but they ultimately settled on a complex system of precast elements. The group essentially refined the mold process so integral to precast, creating a set of ribs that could provide the foundation for the arching shells, which were built on top of pedestals. Only one piece of the roof was cast in place; the rest? Precast. This Modern Expressionist design is now a UNESCO World Heritage Site and remains one of the most recognizable structures in the world.

5 What other outstanding reinforced concrete structures do you know? What is an example of an interesting reinforced concrete structure in your city?

building made of reinforced concrete	interesting facts

LANGUAGE SKILLS

CARDINAL AND ORDINAL NUMBERS, PARTS, PERCENTAGES

The **cardinal** numbers (one, two, three, etc.) are adjectives referring to quantity, and the **ordinal** numbers (first, second, third, etc.) refer to distribution.

Number	Cardinal	Ordinal
1	one	first
2	two	second
3	three	third
4	four	fourth
5	five	fifth
6	six	sixth
7	seven	seventh
8	eight	eighth
9	nine	ninth
10	ten	tenth
11	eleven	eleventh
12	twelve	twelfth
13	thirteen	thirteenth
14	fourteen	fourteenth
15	fifteen	fifteenth
20	twenty	twentieth
21	twenty-one	twenty-first
22	twenty-two	twenty-second
23	twenty-three	twenty-third
24	twenty-four	twenty-fourth
25	twenty-five	twenty-fifth
30	thirty	thirtieth
31	thirty-one	thirty-first
40	forty	fortieth
50	fifty	fiftieth
60	sixty	sixtieth
70	seventy	seventieth

80	eighty	eightieth
90	ninety	ninetieth
100	one hundred	hundredth
500	five hundred	five hundredth
1,000	one thousand	thousandth
100,000	one hundred thousand	hundred thousandth
1,000,000	one million	millionth

Fractions and decimals

Said	Written	Said
half	0.5	point five
a quarter	0.25	point two five
three quarters	0.75	point seven five

Percentages

Written	Said
25%	twenty five percent
50%	fifty percent
75%	seventy five percent
100%	a/one hundred percent

Units

Written	Said
$1,200	one thousand two hundred dollars
£16,486	sixteen thousand four hundred and eighty-six pounds
545kms	five hundred and forty-five kilometres
$25.35	twenty-five dollars thirty-five

Years

Written	Said
1988	Nineteen eighty-eight
1864	Eighteen sixty-four
1999	Nineteen ninety-nine

How to say "0"

nought	**used in mathematical expressions and decimals:** "**nought** times three equals **nought"** 0.3 = "**nought** point three" (or "point three") 0.03 = "point **nought** three"
zero	**used in scientific expressions, especially temperatures:** -20°C = minus twenty degrees or twenty degrees below **zero** **also used to mean 'the lowest point':** "The heavy rain reduced visibility to **zero**"
"o" (the letter)	**used in telephone numbers:** 0171 390 0062 = "**o** one seven one three nine **o** double **o** six two"
nil/nothing	**used to express the score in games such as football:** 2 - 0 = "two **nil**" or "two **nothing**"

1 Fill in the blanks with the data in parentheses with verbal numbers.

1 The division of the circle into _____ (360) parts occurred in ancient India, as evidenced in the Rigveda.

2 _____ (22 200) donors from Manchester have been honoured at an awards ceremony for donating.

3 The newly elected board of directors consists of_____ (42) new members.

4 Chelsea won_____ (2:0) against Marseille at Stamford Bridge.

5 Russia is the largest country in the world by surface area, covering more than _____ (1/8) of the Earth's inhabited land area, with over _____ (144 000 000) people at the end of March _____2016.

2 Write the correct ordinal number.

1 Saturday is the _____ day of the week.

2 The _____ month of the year is June.

3 The _____month of the year is March.

4 In a competition the gold medal is for the_____ place and the silver medal is for the_____ place.

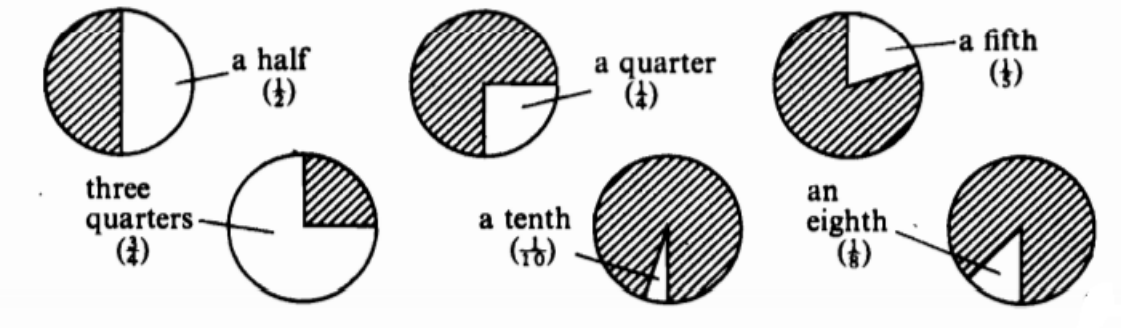
3 Identify the ordinal position of the following letters.

e.g. *H is the eighth letter.*

1 T is the _____ letter.
2 Q is the _____letter.
3 N is the _____letter.
4 P is the _____letter.
5 K is the _____letter.
6 M is the _____letter.
7 R is the _____letter.
8 S is the _____letter.
9 O is the _____letter.

10 L is the_____ letter.
11 J is the _____ letter.
12 G is the _____letter.

4 Study these diagrams.

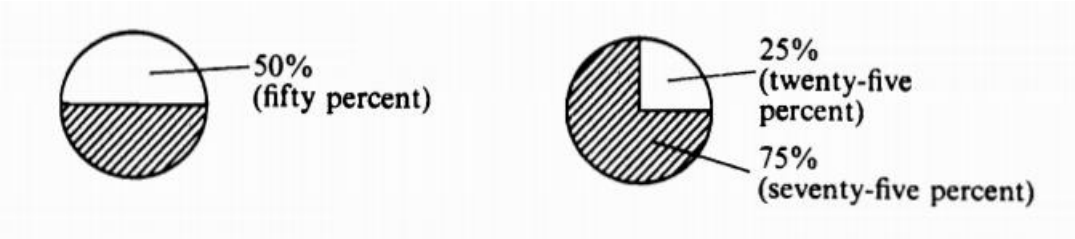


5 Read these out.

Example: a) Put half of the cement into the wheelbarrow.

a) Put ½ of the cement into the wheelbarrow.
b) Pour ¼ of the oil out of the tin.
c) Throw ¾ of the water away.
d) Cut off ⅒ of the plank.
e) Please give me ⅕ of the sand.
f) You can use ⅛ of the gravel.

6 Study these diagrams and read out the sentences below.



1 The bottle is 50% empty.
2 The tank is 75% full.
3 The can is 25% empty.
4 The bucket is 50% empty.

COMMUNICATION SKILLS

1 Read the dialogue and fill in the blanks with the correct words or phrases from the box.

binding workable chemical reaction separate key component aggregates compound material proportioning basic ingredients difference crushed strengthen cement paste extreme temperatures hydration air pockets together the key

A: There is a considerable amount of confusion surrounding what exactly **concrete** is made of, as well as the differences between concrete and cement. Could you tell us about that?

B: Well? What is concrete made of? Although many people seem to refer to concrete and cement interchangeably, they are in fact two _____ things. Cement is a _____material, and one of the key ingredients of concrete. Concrete, on the other hand, is a _____ _____composed of water, cement and _____ (for example, sand and gravel).

A: To clear the confusion further, could you take a more detailed look at the two materials, gaining a better understanding of concrete in the process? What is the _____between concrete and cement?

B: So, as already stated, cement is a binding material and a _____ _____of a standard concrete mix. Cement is composed of calcium, aluminium, iron and silicon, and is created by mixing clay, limestone and sand, although this may vary.

A: Are these materials crushed?

B: Yes, they are _____ and grinded together and heated to _____ _____ in a kiln, after which the ingredients undergo a_____ _____, forming a new substance: 'clinker'. After being ground further, the final substance is identifiable as what we know to be_____.

A: And upon completion, the cement is ready to form part of a concrete mix, isn't it?

B: Exactly!

A: So, we've established that the three _____ _____of concrete are as follows: cement, water and aggregates. Now, could you tell us in greater detail about the individual roles of these ingredients?

B: Ok, first of all about cement. When mixed together, the cement and water form a paste which coats the various aggregates in the mix. The _____ then hardens and binds the aggregates _____.

A: I see. What about water?

B: To create the aforementioned paste, water is _____ ; it chemically reacts with the cement and makes the concrete _____. The amount of water added to the mix alters the water/cement ratio which, in turn, dictates the strength of the concrete upon completion.

A: Well, and what is the role of aggregates?

B: Aggregates pad out and _____ the concrete, and can be split into fine and coarse varieties; sand is considered a fine aggregate, where gravel is a coarse aggregate.

A: Thank you. And how is concrete made? What is the process?

B: The process of making strong, durable concrete begins with correct _____. For example, a mix that doesn't have enough paste to fill the space between aggregates will produce a rough finish. Conversely, a mix that contains too much space will be more likely to crack.

A: Once the proportions have been finalized and the ingredients combined, the mixture will begin to harden through a chemical reaction known as _____, won't it?

B: Yes, exactly! Once the concrete is properly mixed and workable, it's then placed into forms before the mix becomes too stiff. This process helps to eliminate any flaws within the concrete such as _____ _____. Following this, the concrete can then be floated and trowelled depending on the specific requirements of the batch.

A: Thanks for the information. It was very interesting and instructive.

2 Discuss in mini dialogues with your neighbor.

a) the difference between concrete and cement
b) cement composition
c) cement making process

Express your agreement with the above arguments using the phrases below.

Formal phrases	
I accept your point of view.	Я принимаю Вашу точку зрения.
I agree up to a point, but…	Я отчасти согласен, но…
I could not agree with you more.	Полностью с Вами согласен.
I have to side with you on this.	Должен поддержать Вас в этом.
I see exactly what you mean.	Я понимаю, что Вы имеете в виду.
That is exactly how I feel.	Это именно то, что я думаю.
That is partly true but…	Это частично правда, но…
You are absolutely right.	Вы абсолютно правы.
Informal phrases	
I agree with you 100 percent.	Я согласен с Вами на 100 процентов.
I was just going to say that.	Я как раз собирался сказать то же самое.
I'm with you in this.	Я Вас в этом поддерживаю
Me too.	Я тоже.
Tell me about it.	Да уж, это так.
That is partly true but…	Это частично правда, но…

SELF-STUDY

1 Complete the extract about a type of prestressed concrete using the words in the box.

cast	concrete	formwork	in-situ	pouring	precast
prestressing	reinforcement	structural			

PRESTRESSING TECHNIQUES

In the production of reinforced concrete components, the process of (1) _____ usually involves holding the (2) _____ in tension while (3) _____ the concrete. This form of prestressing is called pre-tensioning, as tension is applied before the concrete is poured. The technique is often used in the manufacture of floor components, which are small enough to fit on the back of a truck, and can therefore be (4) _____ at a factory. A less common prestressing technique is post-tensioning (applying tension after the concrete has set). This is more suitable for large elements, especially long beams, which cannot be transported, and therefore need to be poured (5) _____ Before the concrete is poured, ducts (usually plastic tubes) are placed inside the (6) _____ along the length of the beam. These ducts contain steel cables. After the concrete has been (7) _____ and has gained sufficient (8) _____ strength, the cables are put in tension, using jacks at either end of the beam. This is only possible because the cables are free to move within the ducts - it is not possible with pre-tensioned reinforcing bars, which are held fast by

the hard (9) _____ surrounding them. The ends of the cables are then permanently anchored at either end of the beam.

2 Match the words with their definitions.

1	concrete	a	It is an oven that is used to bake pottery and bricks in order to make them hard.
2	reinforced concrete	b	It is a grey powder which is mixed with sand and water in order to make concrete.
3	cement	c	It is concrete that is made with pieces of metal inside it to make it stronger.
4	kiln	d	It is a substance used for building which is made by mixing together cement, sand, small stones, and water.
5	formwork	e	It is a system of steel bars, strands, wires, or mesh for absorbing the tensile and shearing stresses in concrete work
6	reinforcement	f	It is an arrangement of wooden boards, bolts, etc, used to shape reinforced concrete while it is setting

3 Complete the sentences with the words from the table above.

1 His _____s are out of action and it could be weeks before they are lit again.
2 There are _____ bars on all doors.
3 _____ is a hard substance made by mixing cement, sand, and small stones.
4 Concrete is a combination of _____ and an aggregate.
5 _____ is temporary or permanent molds into which concrete or similar materials are poured.
6 In 1904, the architect Auguste Perret used _____ _____ to create a revolutionary new building

4 Correct the mistakes.

1 therty, thirten, siks, nain, tu, for, fife, eigt, tventy, sevente, three hundreds, thosand, milion, ziro
2 nineth, sith, twoth, treeth, ileventh, fiftyth, seventh, four hundreth eightyth oneth

5 Look at the list of residents in the house. Write down who lives on which floor using ordinal numbers.

Example: Kelly lives on the seventh floor.

Floor 8	-	Tom	Floor 4	-	Peter
Floor 7	-	Kelly	Floor 3	-	Sofia
Floor 6	-	John	Floor 2	-	Oliver
Floor 5	-	Diana	Floor 1	-	Amanda

GLOSSARY

aggregate	geosynthetic aggregates	Portland cement
bound	gypsum	precast concrete
bending forces	gravel	prestress
cast	harden	recycled concrete
cast in-situ	in-situ concrete	reinforcement
cement	kiln	reinforcing bars
clay	limestone	reinforced concrete (RC)
concrete	liquid binder	retarder
crushed stone	mineral aggregate	shuttering
fine and coarse aggregate	plaster of Paris	stone-like material
formwork	plasticizer	trapped

UNIT 4 **WOOD**	**WOOD** **HARDWOOD AND SOFTWOOD SPECIES** **COUNTABLE AND UNCOUNTABLE NOUNS** **EXPRESSIONS OF QUANTITY** **COMMUNICATION SKILLS** **SELF-STUDY**

LEAD-IN

KEYNOTES
Among the oldest, or perhaps the oldest, of building materials, **wood** has been used for thousands of years and has properties that make it an ideal building material - even in the days of engineered and synthetic materials. For construction use, wood pieces are machine-planed and cut into standard **dimensions**, so that their measurements can be accurately factored into building plans - this is known as **dimensional lumber**. Wood in larger sizes is usually referred to as **timber** or **beams** and is often used to construct the **frames of large structures** like bridges and **multi-story buildings**. Some tree species are better for some uses and for use in some climates than others. Structural engineers and architects can determine which type of wood is ideal for a construction project.

Questions for discussion:

1 What engineering wooden structures are you familiar with?
2 Do you know about the properties of wood?
3 What are the **advantages** and **disadvantages of wood?**
4 What do you know about the main categories of wood?

Useful language

I know such …
I can say…
I think / suppose …
As for the advantages/ disadvantages of wood …
In respect of the main categories of wood …

VOCABULARY 1

	**WOOD**
adjacent plies	смежные слои
beam	балка
board	доска
derivative	производная
dimensional lumber	габаритные пиломатериалы
dimensions	размеры
engineered wood	спроектированная древесина
fibreboard (MDF)	древесноволокнистая плита
frames of large structures	рамы больших конструкций
glue-laminated section/glulams	клееный профиль
hardwood	твердая древесина
multi-story buildings	многоэтажные дома
particle board/chipboard	ДСП
ply	слой
plywood	фанера
saw dust	опилки
softwood	мягкая древесина
solid wood	твердая древесина
strand board (OSB)	стружечная плита
timber	древесина
wood	дерево
wood sawing	распиловка дерева

1 Match the words 1-7 with the definitions a-g.

1	multi-story buildings	a	It is a material manufactured from thin layers or "plies" of wood veneer that are glued together with adjacent layers having their wood grain rotated up to 90 degrees to one another
2	saw dust	b	It refers to structures that do not have hollow spaces.
3	solid wood	c	It is a by-product or waste product of woodworking operations such as sawing, sanding, milling, planing, and routing. It is composed of small chippings of wood.
4	plywood	d	A type of board made from very small pieces of wood that have been pressed and stuck together, used for making furniture
5	timber	e	It is a building that has multiple storeys, and typically contains vertical circulation in the form of ramps, stairs and lifts.

6	fibreboard (MDF)	f	It is a composite wood, man-made wood, or manufactured board, includes a range of derivative wood products which are manufactured by binding or fixing the strands, particles, fibres, or veneers or boards of wood, together with adhesives, or other methods of fixation to form composite material.
7	engineered wood	g	Wood used for building.

2 Complete the sentences with the words from the table above.

1 Foods are traditionally served containing bread crumbs to represent _____ _____ since Joseph was a carpenter.

2 Vulcanised _____ consists of multiple layers of bonded paper and provides better water resistance and abrasion resistance than leather.

3 My innocence was lost in a _____ castle.

4 _____ _____ products are becoming a bigger part of the construction industry.

5 My family lives in a three-room flat on the third floor of a _____.

6 The most developed industries are _____, mining, chemical, meat and milk and food industries.

7 A _____ _____ floor is a floor laid with planks or battens created from a single piece of timber, usually a hardwood.

READING

1 Read and translate the text, paying attention to the highlighted words. Check their meaning in VOCABULARY 1.

WOOD AS A BUILDING MATERIAL

Wood is one of the most used natural building materials in the world. A number of valuable properties such as low heat conductivity, small bulk density, relatively high strength, amenability to mechanical working etc. makes wood as famous building material. Timber can be used in most economical way without wasting any of the **derivative** of it. Even the **saw dust** obtained during **wood sawing** can also be used to make fiber boards, paper etc.

As a building material wood has several significant benefits:

- It is readily available and an economical natural resource.
- Wood is relatively lightweight and easy to standardize in size.
- It provides good insulation, which is why many architects and engineers like using it for homes and residential buildings.
- Wood has high tensile strength - keeping its strength while bending - and is very strong when being compressed vertically.

There are two main categories of wood:

• **hardwood** - usually from deciduous trees, which lose their leaves in autumn, although some hardwood (for example, tropical hardwood) comes from other types of tree

• **softwood** - from coniferous trees, which remain green throughout the year.

In engineering, wood can be categorized as:

• **solid wood** - softwood or hardwood that has been sawn into specific shapes and sizes, but whose natural structure, consisting of grain and knots, remains intact

• **engineered wood** - made by bonding (sticking together) layers of solid softwood or hardwood, or by mixing quantities of wood particles and bonding them with resin.

Engineered wood covers a range of softwood and hardwood materials. It includes:

• cheap, low-strength boards, such as **particle board** (often called chipboard) and mediumdensity **fibreboard (MDF)**;

• stronger boards suitable for structural use - primarily orientated **strand board (OSB)**, which is made from strands of wood bonded with resin, and **plywood**, which consists of several plies (layers) of solid wood, bonded so that the grain of each ply runs at 90 degrees to that of the **adjacent plies**, to provide increased strength

• glue-laminated sections - sometimes called glulams - which can be used as major structural elements, such as beams, in large buildings.

2 Find words and expressions in the text to match the descriptions (1-9).

is one of the most used natural building materials in the world	
low heat conductivity, small bulk density, relatively high strength, amenability to mechanical working etc – are …	
usually from deciduous trees	
from coniferous trees	
softwood or hardwood that has been sawn into specific shapes and sizes	
made by bonding layers of solid softwood or hardwood	
is made from strands of wood bonded with resin	
consists of several plies (layers) of solid wood, bonded so that the grain of each ply runs at 90 degrees to that of the adjacent plies	
can be used as major structural elements, such as beams	

3 Match the two parts to make correct sentences about wood. In each case, there is more than one possible answer.

1 Engineered wood 2 Softwood 3 Solid wood	a) comes only from coniferous trees. b) comes only from deciduous trees. c) can come from either coniferous or deciduous trees. d) specifically describes single pieces of timber, not multiple pieces that have been bonded together. e) is always made from multiple pieces or particles of wood. f) may have knots in it.

4 Read about the most impressive wooden churches in Russia. Which of these churches would you like to see with your own eyes? Why?

THE MOST IMPRESSIVE WOODEN CHURCHES IN RUSSIA

Centuries ago almost all buildings in Russia were made of wood - many of these structures were like great works of art. Those that have survived are brilliantly ornate and often made with

nothing more than wood, axes, and elbow grease. It's hard to believe that many are still standing without a single nail.

Church of the Transfiguration **in Kizhi, Karelia**

Several centuries ago, there were several villages on the island. Formally, these villages remain but they all now make up part of the museum. Here you can see one of the tallest wooden buildings in the world – the 18th-century Church of the Transfiguration standing at 37 meters, made without a single nail. The architectural ensemble of the Kizhi Pogost is also included in the UNESCO World Heritage List.

St. George's Church in Kolomenskoye Park, Moscow

In this park, you can not only ride a bike and walk along Moscow River's embankment but also go inside a wooden temple from the 17th century. St. George's Church was transported here from the Arkhangelsk region and boasts impressive interior and exterior decoration. Inside are ancient frescoes, which are still being restored.

Church of the Tikhvin Icon in Torzhok, Tver region

The wooden Church of the Tikhvin Icon of the mid-17th century is the only wooden temple here. The church has been repeatedly rebuilt and even moved to another place. However, the remains of early 18th century paintings are still inside. The iconostasis and ancient icons have sadly been lost.

Assumption Cathedral in Kem, Karelia

The magnificent Assumption Cathedral was founded in the early 18th century in honor of the Russian victory over the Swedes in the Northern War. The temple is considered an encyclopedia of wooden architecture: It was built according to all the canons. Nevertheless, only a few old icons have been preserved. The cathedral is now under reconstruction.

4 Find information on the Internet or in print publications about one of these wooden churches. Make a mini report.

VOCABULARY 2

	**HARDWOOD AND** SOFTWOOD SPECIES
birch	береза
cedar	кедр
cherry	вишня
circular saw	циркулярная пила
fir	ель
maple	клен
mechanically stress-graded	отсортированный по прочности механически
oak	дуб
pine	сосна
redwood	красное дерево
rough-sawn	грубо распиленный
saw	пила/пилить
sawmill	лесопилка
spruce	ель
stress-graded	отсортированный по прочности
visually stress-graded	отсортированный по прочности визуально
walnut	грецкий орех

1 Read the text below from a technical handbook about structural timber-wood intended to support loads in a structure. Complete the sentences below using words and expressions from the text.

Generally, timber is cut to the required **section** - the width and depth that determine its crosssection - at a **sawmill**, where a range of section sizes are produced. Timber from sawmills is generally supplied in **rough-sawn** sections. This refers to the surface texture produced by **sawing** timber with a **circular saw**. If the timber needs to have a smooth finish - for example, because it will be visible in the structure- it can subsequently be **planed** to smooth its surface.

Because the strength of wood varies, structural timber must be **stress-graded**. This means its strength is tested in order to give it a **stress grade** - a standard strength value which an engineer can use for design calculations. Timber can be **mechanically stress-graded**, where its strength is checked by machine. It can also be **visually stress-graded**, where the wood is examined by an inspector who looks for potential weaknesses - in particular, the position of knots.

1 Wood has a smooth finish after it has been ....

2 Wood cut with a circular saw is called ..... timber.

3 After timber is tested for strengths and weaknesses, it is given a ....

4 When timber is inspected by a person who looks for weaknesses, it is ..... .

5 When timber is inspected by a machine which tests its strength, it is ..... .

2 Complete the article about the environmental considerations of wood using words from the box.

stress-graded	medium-density fibreboard/MDF	softwood/timber	glue-laminated
	orientated strand board/OSB	plywood	particle

From an environmental perspective, wood has many advantages. Firstly, it comes from a sustainable source. Coniferous trees grow relatively fast, providing a rapidly replaceable source of (1) _____. Secondly, almost all the timber in a tree can be utilized, leaving little or no waste. The best quality wood can be used for structural applications, where solid, (2) _____ sections are required by engineers; for high-strength elements such as (3) _____beams; and in the high-quality plies used to make (4)_____. Smaller strands can be made into engineering wood with structural properties, such as (5) _____ . And small particles and fibres, including those from waste timber, can go into cheaper materials, like (6)_____ board and (7) _____.

3 Read the text and fill in the table below.

HARDWOOD AND SOFTWOOD SPECIES

Builders refer to hardwood, softwood, and engineered wood for construction projects. Of course, only two of these - hardwood and softwood - are natural, or "solid," woods. Engineered wood is a manufactured material that contains wood product, as well as additives such as adhesives or resin.

Hardwoods are angiosperm trees, or plants that produce seeds with a covering. They're fertilized by birds and insects that carry the pollen to other trees, and when they're fertilized, the trees form fruits, nuts, or seeds.

In general, hardwood trees are deciduous, which means that they lose their leaves annually. They tend to grow more slowly than softwoods, so they are usually denser. In construction, we use hardwoods for projects that might be exposed to the elements or that need to last. Think: decks, flooring, beams, paneling, and high-quality furniture.

Common characteristics of hardwoods

- Slower growing than softwoods
- Generally durable and less likely to decay than softwoods
- Low sap content, which increases its fire resistance
- Have a broad, flat leaf (as opposed to coniferous or needled tree)
- Often (but not always) higher in density than softwoods
- Produce a seed with a covering

Some of the most common species of hardwoods in North America include:

- **Walnut:** One of the most common woods used for furniture in the United States, walnut is a versatile wood because of its dimensional strength and shock resistance. Its density varies from medium to somewhat lightweight. You'll find it in cabinetry projects, but it's also used in high-end furniture and flooring.
- **Maple:** Maple wood is native to Asia but is also found in Europe, North America, and North Africa. It is a good choice for furniture, flooring and millwork, because it is moderately hard, but very strong and resists splitting. The grain pattern is close and generally straight.
- **Oak:** There are more than 600 species of oak recorded around the world. The most common in lumberyards are red oak and white oak; both varieties have straight grains and visible growth rings. A popular option for cabinets, furniture, flooring, moldings, and paneling, it's hard and strong and also resistant to fungal attack.

- **Birch:** Birchwood is widely available and affordable - and is closely related to oak, but harder. Because of its hardness and stability, it's often used for cabinets, seating, interior doors, and turned objects.
- **Cherry:** the wood of the cherry fruit tree, cherrywood is a light pinkish brown when it's freshly cut and darkens to reddish brown color over time. It is a flexible wood with a smooth grain, so ideal for furniture pieces. It is also used for veneer, cabinets, interior millwork, and specialty items like musical instruments.

Softwood trees are gymnosperm trees, which reproduce by forming cones whose pollen is spread by the wind to other trees. Pollinated trees form what are known as "naked seeds," which drop to the ground or are spread by the wind and grow elsewhere.

These trees usually have needles and cones, so you'll recognize them as conifers such as spruce or pine trees. Other examples of softwood trees include cedar, Douglas fir, juniper, redwood, cypress, and larch.

Because they grow more quickly than most hardwoods, most softwoods have a lower density than most hardwoods—and are therefore easier to cut. They're also generally less expensive to harvest. Because softwoods can be soft and light and take a nail easily without splitting, they can be great for general construction.

Still, softwoods don't take their name from the quality of softness. It is true that some varieties of hardwood are extremely hard, but in fact, the three softest woods recorded are also technically hardwoods. When we talk about softwood, we're making the distinction about its mode of reproduction only - and within the category, allowing for generalizations.

Common characteristics of softwoods

6 Faster growing than hardwoods (and for that reason, often less expensive)
7 They grow tall and straight, which makes it easy to cut dimensional lumber
8 Come from conifers, which have needles and cones
9 Pollinated trees form "naked seeds," which are spread by the wind
10 Often (but not always) lower in density than hardwoods
11 Absorb adhesives and stain quickly
12 Lower resistance to fire than hardwood

Some of the most common species of softwoods in North America include:

- **Spruce:** Spruce is strong and moderately hard, and can be used as a construction lumber, for making crates, and millwork. Because it's lightweight, it's a great wood for ship masts, aircraft, and ladders. It has a fine grain that runs straight.
- **Pine:** There are many species of pine, such as lodgepole pine, eastern white pine, pitch pine and scot pine, and it's one type of wood that is extremely common in North America. Pine has a yellow color, which varies to light brown and pale yellow. It's a versatile wood, which can be used for making construction lumber, doors and windows, furniture, moldings, and for other uses. It has straight grains with growth rings that are visible as dark brown lines.
- **Cedar:** Many people know cedar because it is high aromatic, and its smell is thought to repel pests and moths, so it's a popular wood for lining closets and storage chests. Red cedar is the common name for the cedar species found throughout the eastern United States. It has a hard texture, but the wood is lightweight, with straight grains and knots. It is considered to be rot resistant and can withstand outdoor weather, so it's a good choice for decks, patio furniture, fencing, and decorative siding.
- **Redwood:** Redwood trees are indigenous to the Pacific United States and can grow to more than 300 feet tall. The best quality redwood comes from the heartwood—the dense inner part of the trunk. It contains a chemical inside its pores that makes it resistant to insects, weather, and rot. It is a premium building wood because it will last much longer than most types of wood when exposed to the elements.
- **Fir:** Douglas fir is known for its strength and performance, which is why it's a great choice for woodworking and construction. It has the highest modulus of elasticity value of all the North

American softwoods, which means that the wood resists deforming under a load. It's stable and holes nails well, which makes it easy to work with.

Hardwood - ….. (definition)			**Softwood …..** (definition)		
THE NAMES OF THE SPECIES	KEY FEATURES	USED FOR	**THE NAMES OF THE SPECIES**	KEY FEATURES	USED FOR
1					
2					
3					
4					
5					

4. Match the words 1-6 with the definitions a-f.

1	sawmill	a	It is the wood from trees such as pines, that grow quickly and can be cut easily.
2	hardwood	b	Specification of the stress limits that apply to timbers used for structural applications.
3	circular saw	c	It is a tool for cutting wood, which has a blade with sharp teeth along one edge. Some saws are pushed backwards and forwards by hand, and others are powered by electricity.
4	softwood	d	It is the wood such as oak, teak, and mahogany, which is very strong and hard.
5	saw (n)	e	It is a factory in which wood from trees is sawn into long flat pieces.
6	stress-graded	f	It is a round metal disc with a sharp edge which is used for cutting wood and other materials.

LANGUAGE SKILLS

COUNTABLE AND UNCOUNTABLE NOUNS

When talking about different materials and tools we also need to know whether these nouns are countable or uncountable. Material nouns are usually uncountable. Examples are: gold, silver, iron, glass etc. But sometimes a material noun can be used as a countable noun to refer to something made of the material.

Compare:

I need to buy some typing paper. (Here paper is used as an uncountable noun.)
I am going to buy a paper. (= a newspaper)
Have you got any coffee? (Uncountable)
Two coffees, please. (Countable)

Many abstract nouns can have both countable and uncountable uses. The countable form is used with a ‘particular’ meaning. The uncountable form is used with a ‘general’ meaning.

Compare:

Experience is the greatest teacher. (Uncountable)
I had **a** strange **experience** last week. (Countable)

A/an with uncountable nouns

Note that most uncountable nouns cannot be used with **a/an** at all. But with certain uncountable nouns referring to human emotions we have to use **a/an** when we are limiting their meaning in some way.

I want my children to have **a good education**. (NOT I want my children to have good education.)
She has **a deep distrust** of strangers. (NOT She has deep distrust of strangers.)

EXPRESSIONS OF QUANTITY

When we talk about different materials and we want to express how much of them we need, we use different expressions of quantity, such as:

some (We need some water to cool this tool.),
any (We don’t need any more raw materials at present.),
a lot of (There’s a lot of valuable steel available.),
much/many/more (How much time do we need to finish this project? There are many engineers involved in this project.),
several (We need several new machines to modernise our production.),
a huge amount of (We require a huge amount of plastic to pack all of our finished products.),
a little/a few (We need a little more time. A few of our workers are on sick leave.),
half (We will invest half of our profits into buying new premises.).

1 Choose the correct option.

1. (Many, much) people
2. (few, little) money
3. (a few, a little) juice
4. (many, much) hope
5. (few, little) light
6. (a few, a little) visitors
7. (much, many) stories

2 Choose a/an/some for nouns listed below.

1 Music
2 Toothpaste
3 Oil
4 Game
5 Idea
6 Silver
7 Lemonade
8 Man
9 Chocolate
10 Bird
11 Coffee
12 Paper
13 Bread
14 Shelf
15 Information

3 Complete the sentences “a / an”, “some” and “any”

1 There isn’t _____ electricity at the campsite.
2 There aren’t _____ sunglasses in the shop.
3 I´ve got _____ apple in my bag.
4 There are _____timber.
5 I’ll buy _____ bottle of water at the beach.
6 I haven’t got _____ radios in my room.
7 Is there _____ internet café in your town?
8 There aren’t _____ computers in my classroom.
9 Have you got _____ brothers and sisters?
10 My teacher’s got _____ new car.
11 There’s _____ water in the bottle.
12 I’m going to buy _____ chips.
13 There is _____ camera.
14 She’s got _____ pear.
15 You can have _____ potatoes.
16 Have you got _____ lemons?
17 I’ve got _____ cherries.
18 We need _____ water.
19 We’ve got _____ cement.
20 We don’t need _____ strawberries.
21 Have we got _____ cheese?
22 Have you got _____ apple?
23. We need _____ banana.
24. I’ve got _____ orange juice.
25. They haven’t got _____ hamburgers.

4 Put these nouns into three groups: countable, uncountable and both.

tip, trip, clothing, work, glass, case, baggage, fact, news, research, job, advice, travel, accommodation, chocolate, costume, equipment, spaghetti, stone, rubber, athlete, patience, tea-bag, concrete, coal, braces, traffic-lights, knife, iron, rain, hair

countable	uncountable	both

5 Are the sentences below correct? If they aren’t, correct them.

1 I’ve just heard a wonderful news.
2 I’ve just heard (some) wonderful news.
3 I need an pen. Can I borrow yours?
4 The contents of the house were sold after his death.
5 Physics were always my favourite subject.
6 I need scissor to cut this paper.
7 She has done some research on the life of dolphins.
8 The people who works there is very well-paid.
9 The police is looking for a suspect.
10 He likes playing billiard.
11 My knowledges in that area are very poor.

12 In the north of the country most houses are made of stones while in the south bricks are more common.
13 I have a new leather jacket.
14 This railing is made of irons.

6 What is the meaning of the word (countable or uncountable). Translate the sentences.

1 There is a **paper** on the table.
2 Used **paper** is another important source of paper fiber.
3 My **hair** is long.
4 There is a **hair** in my salad!
5 The house is built of **stone**.
6 My son always has a lot of **stones** in his pockets.
7 Rhythm is important in **painting** as well as in music.
8 His **paintings** are rather amateurish.
9 I simply adore **chocolate**.
10 Put a **chocolate bar** into your bag.
11 **Petrol** is becoming more expensive.
12 Have a safe **journey**!
13 Choosing to be a nurse is a great **decision**.
14 **Trade** involves the transfer of goods or services from one person to another, often in exchange for money.
15 We import **flour** from America.

7 Look around and try to find as many countable and uncountable nouns as you can.

COMMUNICATION SKILLS

1 Read the information from the furniture company's marketing brochure.

Wood cabinets are a classic feature in any kitchen. When stained or kept natural, wood cabinets pair with nearly every decorating style, making them a popular cabinetry choice for homeowners.

Types of Wood Cabinets

Wood cabinets range in color and style based on the material. Our options include oak, cherry, birch, and pine. Check out our guide to wood cabinets below to see the differentiating factors for each material type.

Oak Wood Cabinets

Red oak is strong, durable, and relatively inexpensive for wood kitchen cabinets. Available in a wide range of styles and finishes, it features pronounced grain patterns and is most often used for traditional cabinet styles. This wood is an option for stock, semi-custom, and custom-made cabinets.

Cherry Wood Cabinets

Cherry wood kitchen cabinets are hard enough to withstand knocks and marring. Elegant and formal when used for certain traditional styles, cherry's design versatility can also give a kitchen a contemporary personality. The smooth, fine-grain wood has a red to reddish-brown tone that darkens with age. This cabinet material is often stained for uniformity of color.

Birch Wood Cabinets

Birch is a durable, fine-grain wood that is slightly darker than maple. It takes finishes well and can masquerade as a more expensive wood. When stained, it can achieve a good "faux" cherry or maple look. Prone to some irregular coloring, birch is a relatively inexpensive wood choice in both stock and semi-custom lines.

Pine Wood Cabinets
Pine is the only softwood species commonly used for cabinetry, and it dents more easily than hardwoods. This pale yellow wood, featured on this kitchen's island and ceiling, can be stained, and it often features knots used to underscore traditional and country styles. Eastern white pine and Western white pine are found in select semicustom lines. 

Wood Cabinet Features to Consider

When deciding between several options, take these factors into consideration to help you choose the best cabinet material.

• **Grain:** Except at the very high end, veneered cabinets are likely to give you better grain-matching than solid wood cabinets.

• **Color:** You're not always wedded to a wood's natural color. Stain can replicate the color of Red Oak on a birch base, for example. Painting wood cabinets is also always an option.

• **Construction:** Wood cabinet drawers can be constructed using dowels or rabbets, as well as dovetails. Drawers with dovetails generally last longer but consume more wood to produce, and therefore are more expensive.

2 Which of the presented furniture did you like the most? Which of the presented furniture did your neighbor like the most? Find out which one did your neighbor like the most? Justify your choice by presenting the pros and cons. Use the following phrases and expressions:

I think….	I believe….
I feel….	I suppose….
I guess….	According to me….
In my view….	In my opinion….
In my eyes….	It seems to me that….
From my perspective….	From my point of view….
From my view point….	As far as I'm concerned….
Personally, I think….	I'd like to point out that….
What I mean is….	Generally it is thought that….
Some people say that….	Well, it is considered that….
It is generally accepted that….	My impression is that….
It goes without saying that….	I hold the view that….

SELF-STUDY

1 Complete the extract about wood using the words and phrases in the box.

material engineered from wood	as a construction material	an organic material
water and nutrients	plant materials	furniture and paper
porous and fibrous structural tissue		

Wood is a 1_____found in the stems and roots of trees and other woody plants. It is 2_____– a natural composite of cellulose fibers that are strong in tension and embedded in a matrix of lignin that resists compression. Wood is sometimes defined as only the secondary xylem in the stems of trees, or it is defined more broadly to include the same type of tissue elsewhere such as in the roots of trees or shrubs. In a living tree it performs a support function, enabling woody plants to grow large or to stand up by themselves. It also conveys 3_____ between the leaves, other growing tissues, and the roots. Wood may also refer to other _____with comparable properties, and to 4_____, or wood chips or fiber.

Wood has been used for thousands of years for fuel, 5_____, for making tools and weapons, 6_____. More recently it emerged as a feedstock for the production of purified cellulose and its derivatives, such as cellophane and cellulose acetate.

2 Match the words with their definitions.

1	solid wood	a	It is a factory in which wood from trees is sawn into long flat pieces.
2	engineered wood	b	Specification of the stress limits that apply to timbers used for structural applications.
3	circular saw	c	It is a by-product or waste product of woodworking operations such as sawing, sanding, milling, planing, and routing. It is composed of small chippings of wood.
4	saw dust	d	It is a round metal disc with a sharp edge which is used for cutting wood and other materials.
5	stress-graded	e	Wood used for building.
6	sawmill	f	It is a composite wood, man-made wood, or manufactured board, includes a range of derivative wood products which are manufactured by binding or fixing the strands, particles, fibres, or veneers or boards of wood, together with adhesives, or other methods of fixation to form composite material.

3 Complete the sentences with the words from the table above.

1 Ideally, the cabinet should be made from _____or a quality furniture grade of plywood.
2 Timber can be mechanically_____, where its strength is checked by machine.
3 Surface texture is produced by sawing timber with a _____.
4 There were oil puddles and _____ on the floor.
5 _____ covers a range of softwood and hardwood materials.
6 In the twenties and thirties, my grandfather had a _____ on his farm.

4 Translate in English using: many, much, few, little, a few, a little.

1. много воды, мало воды, немного воды
2. много проблем, мало проблем, несколько проблем
3. много друзей, мало друзей, несколько друзей
4. много еды, мало еды, немного еды
5. много надежды, мало надежды, немного надежды
6. много людей, мало людей, немного людей
7. много времени, мало времени, немного времени

5 Write (C) countable or (U) uncountable:

1. sugar	11. house
2. bird	12. glass
3. pen	13. boy
4. gold	14. iron
5. housework	15. timber
6. ball	16. food
7. soap	17. dog
8. bridge	18. furniture
9. water	19. weather
10. silver	20. sausage

GLOSSARY

adjacent plies	frames of large structures	saw
beam	glue-laminated section/glulams	saw dust
birch	hardwood	sawmill
board	maple	softwood
cedar	mechanically stress-graded	solid wood
cherry	multi-story buildings	spruce
circular saw	oak	strand board (OSB)
derivative	particle board/chipboard	stress-graded
dimensional lumber	pine	timber
dimensions	ply	visually stress-graded
engineered wood	plywood	walnut
fibreboard (MDF)	redwood	wood
fir	rough-sawn	wood sawing

PROGRESS TEST (Units 1-4)

1 Match the words 1-7 with the definitions a-g.

1	reinforced concrete	a	a substance used for building which is made by mixing together cement, sand, small stones, and water
2	wood	b	an alloy formed by mixing iron and carbon
3	blacksmith	c	to make solid, rigid, or firm
4	alloy	d	the hard fibrous material that forms the main substance of the trunk or branches of a tree or shrub, used for fuel or timber
5	concrete	e	a person whose job is making things by hand out of metal that has been heated to a high temperature
6	steel	f	concrete that is made with pieces of metal inside it to make it stronger
7	harden	g	a metal made by combining two or more metallic elements, especially to give greater strength or resistance to corrosion

2 Complete the sentences with the words from the table above.

1 The concrete is strengthened with _____ rods.
2 Brass is an _____ of copper and zinc.
3 Having invented _____ _____ our designers have got one of the strongest building materials.
4 Every _____ who has ever swung a hammer will thank him for this creation.
5 Mahogany is a hard _____ and pine is a soft _____.
6 The foundation of the house is built from rubble overlaid with_____.
7 In the summer, remaining minerals in the lake _____ to form natural "walkways" around and between the spots.

3 Fill in the gaps with the comparative or superlative forms of the adjectives in brackets to complete the following sentences in English.

1. Steel is _____ (hard) than wood.
2. A blacksmith is _____(strong) person in the village, because only he has regular physical activity.
3. The alloy has _____ (good) properties than iron.
4. Wood is _____(environmentally friendly) building material.
5. Reinforced concrete structures are _____ (strong) than concrete structures.
6. Concrete is (heavy) than wood.

4 Read the text and complete the sentences with the correct forms of the verbs in the Passive voice

The time period during which concrete 1_____first _____ (invent) depends on how one interprets the term “concrete.” Ancient materials were crude cements made by crushing and burning gypsum or limestone. Lime also refers to crushed, burned limestone. When sand and water 2_____ _____ (add) to these cements, they became mortar, which was a plaster-like material

used to adhere stones to each other. Over thousands of years, these materials 3_____ _____ (improve) upon, combined with other materials and, ultimately, morphed into modern concrete.

Today's concrete 4____ _____(make) using Portland cement, coarse and fine aggregates of stone and sand, and water. Admixtures are chemicals added to the concrete mix to control its setting properties and 5____ _____ (use) primarily when placing concrete during environmental extremes, such as high or low temperatures, windy conditions, etc.

The precursor to concrete 6_____ _____ (invent) in about 1300 BC when Middle Eastern builders found that when they coated the outsides of their pounded-clay fortresses and home walls with a thin, damp coating of burned limestone, it reacted chemically with gases in the air to form a hard, protective surface. This wasn't concrete, but it was the beginning of the development of cement.

Early cementicious composite materials typically included mortar-crushed, burned limestone, sand and water, which 7_____ _____ (use) for building with stone, as opposed to casting the material in a mold, which is essentially how modern concrete 8____ _____ (use), with the mold being the concrete forms.

5 Turn from Active into Passive

1 We built this house in 1999.
2 We will build this house in 2035.
3 We are building this house at the moment.
4 The builders used cheap finishing materials.
5 Builders use cheap finishing materials.
6 The builders will use cheap finishing materials.

6 Write in words the cardinal numbers and form ordinal numbers from them.

	cardinal numbers	**ordinal numbers**
1		
4		
7		
11		
25		
38		
50		

7 **Arrange sentences in a table according to the meanings of the highlighted words (whether they are countable or uncountable)**

Countable use	**Uncountable use**

1 We bought **a** new **iron** and an ironing board.
2 People believed that ships made of **iron** would sink.
3 I broke **a glass** yesterday.
4 The table was made of hardened **glass**.
5 Would you **like a chocolate**?
6 Would you like **some chocolate**?
7 Let's get **a paper** and see what's on at the cinema.
8 The printer has run out of **paper**.
9 'Hamlet' is one of Shakespeare's most famous **works**.
10 I had **work** to do so I couldn't go out.

MODULE 4

ON SITE

UNIT 1 **CONSTRUCTION SITE**	**ON-SITE CONSTRUCTION** **WORD FORMATION** **COMMUNICATION SKILLS** **SELF-STUDY**

LEAD-IN

KEYNOTES
A **construction site** is an area where the construction process is being **carried out**. Sometimes the term "building site" is used instead of the term "construction site" to indicate that buildings are being constructed. The construction works usually start with such **preliminary activities** as site clearance and **securing the site area**, setting up **site facilities**, **demolition** (if it is needed), and **ground works**. When ground works are over, the **structural frames** grow and **cladding** is installed. Finally, **internal fit outs** are undertaken and **finishing work** is carried out. A construction site becomes a non-construction site when it is handed back to the client. A number of facilities are required on site to **provide welfare** for its workers such as sanitary conveniences, a site canteen, changing rooms, facilities for rest, meeting rooms, car parking, etc. In order that the site can **operate efficiently**, it is necessary to properly lay out all the facilities.

Questions for discussion:

1 What is a construction site?

2 What stages do the construction works consist of?

3 What facilities are usually provided on site?

4 Have you ever been on aconstruction site? If yes, what did you do? What were your responsibilities? If not, what can students usually do during their practical work on the construction site?

Useful language

I worked as a… (bricklayer / (house)painter / carpenter / general worker/ loader…)
I dealt with… (putting pipes, bricks, windows and doors… in place)
I was involved into ... (digging trenches, …)
I was responsible for… (assembling wooden frames, …)
I enjoyed / didn't like working on site because …

VOCABULARY 1

design	проект, проектировать
carry out	выполнять
cladding	покрытие, облицовка, обшивка
construction site	строительная площадка
demolition	снос, демонтаж
employee	работник, сотрудник
ensure	гарантировать, обеспечивать
finishing work	отделочные работы
follow safety regulations	соблюдать правила безопасности
ground works	земляные работы
internal fit outs	внутренние отделочные работы
investigate the conditions	исследоватьусловия
meet the requirements	соответствовать требованиям
operate efficiently	эффективно работать
preliminary activities	подготовительные мероприятия
provide security	обеспечивать безопасность
provide welfare	обеспечивать благополучие
risk assessment	оценка рисков
secure the site area	обеспечивать безопасность на строительной площадке
site facilities	объекты строительной площадки
structural frame	конструктивный каркас
unauthorized access	несанкционированный доступ
welfare accommodation	обеспечения проживания

1 Match the words 1-10 with the definitions a-j.

1	demolition	a	a person who is paid to work for a company or another person
2	ground works	b	do or complete some activity
3	site facilities	c	destroying a building
4	carry out	d	entering a particular place illegally, without official permission
5	risk assessment	e	satisfy the necessary conditions
6	unauthorized access	f	give a range of facilities to support somebody, especially in a social or financial way
7	employee	g	places on the construction site providing adequate welfare for workers
8	meet the requirements	h	examine particular things
9	investigate the conditions	i	work done as a preparation for the future construction
10	provide welfare	j	the process of examining risks involved in a planned activity

2 Match the sentences with words from the box.

safety regulations	ground works	fit outs	preliminary activities
meet the requirements	demolition	efficiently	employees

1 The number of _____ in the company has increased over the past decade.
2 They tried unsuccessfully to stop the _____ of the old historical building.
3 This construction project does not _____ of the local authorities.
4 The committee will meet today to discuss the _____ before starting the construction process on site.
5 We should follow _____ to keep ourselves safe and to avoid accidents and death on site.
6 We tried to accelerate internal _____ in order to put the object into operation as fast as possible.
7 The construction process starts with _____ such as securing the site area, setting up site facilities, demolition and ground works.
8 It is necessary to provide all the necessary facilities for the employees working on site in order to operate _____.

3 Choose the correct option a-c to complete the sentences 1-8.

1 The actual construction process starts with _____.
a finishing work b preliminary activities c internal fit outs
2 The necessary excavation for utilities, power, water and sanitation lines, as well as _____ for workers are prepared.
a site facilities b cladding c structural frame
3 Often pre-construction activities include _____ works when old buildings or structures are destroyed.
a construction b ground c demolition
4 _____ is done to protect a building against the weather or for aesthetic purposes.
a finishing work b cladding c structural frame
5This construction project meets all the _____ of cost-effectiveness and energy-saving technologies.
arequirements b security c welfare
6 Before starting the construction process, you need to _____ the site area to avoid accidents.
aprovide b save c secure
7 _____ work is a concluding stage of construction, including flooring (and parquetry), painting, wallpapering, after which the building is put into service.
aground b finishing c starting
8 The contractor should _____ suitable facilities to meet the labour protection requirements.
a secure b carry out c ensure

READING

1 Read the text and write the number of the paragraph 1-6 that give the information about the following.

Who works on site	Paragraph _____
How the construction process starts	Paragraph _____
What equipment is used on site	Paragraph _____
How employees' welfare is provided on site	Paragraph _____
Where the construction site is located	Paragraph _____
What rules to follow on site	Paragraph _____

ON-SITE CONSTRUCTION

[1] Once contractors and other relevant professionals have been appointed and designs are sufficiently advanced, work may commence on the construction site. A construction site is primarily where the project of a commercial building, a housing estate or a piece of infrastructure is being built. Typically, a construction site includes a secure area to restrict unauthorized access, site access control points, office and welfare accommodation for personnel and other firms involved in the project team, and storage areas for materials, machinery and equipment.

[2] A typical construction site has a range of workers onsite. They could be manual labourers, scaffolders, crane drivers, electricians, safety managers, or anyone involved in the construction project. Generally, on-site construction techniques are labour and time intensive.

[3] Construction starts with geotechnical and ground works. This is when soil mechanics and rock mechanics investigate the conditions of the grounds where the structure will be placed to make sure it is safe and suitable. Sometimes, demolition of a previous structure or something inhibiting the work must be carried out. Necessary excavations, leveling, and filling can be done to prepare the site. This is followed by an inspection from the government officials.

[4] Heavy construction equipment is used for various purposes in large projects. Selection of different types of heavy equipment depends on the size of the work and economy of the project. These make construction process easier and faster.

[5] Because construction sites can be busy places, it is important to follow all the safety regulations to provide security on site. The site manager is responsible for employees' health and safety, completes risk assessments and ensures people onsite follow health and safety policies.

[6] In order to meet the requirements and provide welfare of the employees working on site, suitable and sufficient facilities should be ensured by the contractor and appropriately located. The minimum welfare facilities required include sanitary conveniences, washing facilities, changing rooms and lockers, facilities for rest, a canteen, and others, provided at easily accessible locations. They should have adequate ventilation and lighting. An adequate supply of drinking water is also required. If employees need to change into special clothes, separate male and female changing facilities with secure areas for storing personal clothing and protective clothing are required.

2 Read the text again. Are these statements true or false?

1 You cannot access the construction site without permission of the contractor.
2 Only manual labourers work on site.
3 On-site construction process is usually fast and easy.
4 Construction usually starts with finishing works.
5 Heavy construction equipment is used on site to perform ground and construction works.
6 It is important to follow all the safety rules to avoid injuries.
7 It is enough to provide only sanitary conveniences on site.

3 Find the words in the text that mean the following.

1 a company supplying building materials and workers to the construction site
2 a place to live, work, stay, etc.
3 a group of large machines or the parts of a machine that make it work
4 a person whose job involves physical work
5 removing earth or digging the ground, especially with a heavy construction machine
6 something that you must do or something you need
7 facilities such as toilets, sinks, showers or baths
8 an installation in a building providing a supply of fresh air

VOCABULARY 2

1 Label the pictures 1-8 using words from the box.

Grader Excavator Tower crane Bulldozer Loader Pile boring machine Dump truck Concrete mixer

1 _____

2 _____

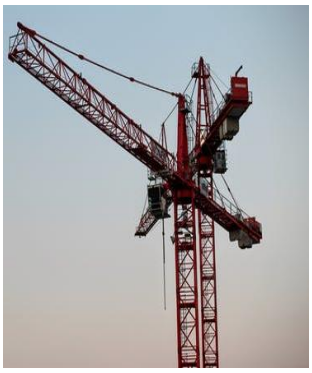
3_____

4_____

5 _____

6 _____

7 _____



8 _____

2 Translate into Russian the names of heavy construction equipment.

excavator	crane
loader	conveyor system
grader	forklift truck
bulldozer	hoist
dumper	tunnel boring machine
truck (lorry)	concrete mixer
trailer	compactor
paver	spraying and plastering machine
road roller	stone crusher

3 Match types of heavy construction equipment 1-8 with their application on site a-h.

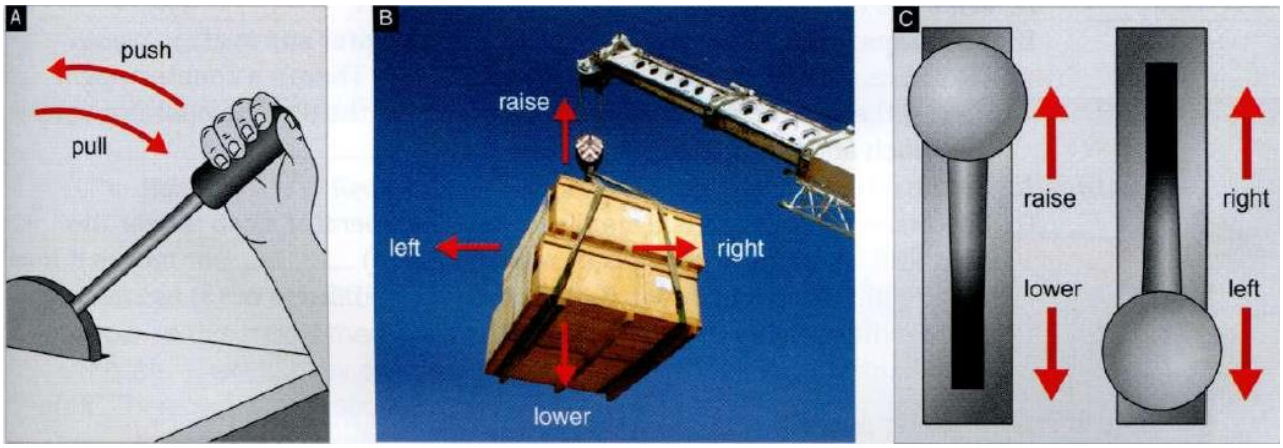
1	Excavator	a	Soil excavating equipment used to remove the topsoil layer up to particular depth
2	Bulldozer	b	Equipment used in construction site to load the material onto dumpers, trucks, etc.
3	Pile boring machine	c	Equipment used in construction of tall structures. Heavy materials like concrete blocks or steel frames can be easily lifted to required height using this type of equipment
4	Tower crane	d	Equipment used for excavation, heavy lifting, demolition, cutting of trees, etc.

5	Loader	e	Equipment used to carry the material in larger quantities from one site to another. They contain large wheels which enable them to carry huge quantity of material in any type of ground conditions
6	Dump truck	f	Equipment that homogeneously combines cement, aggregate such as sand or gravel, and water to form concrete
7	Grader	g	Equipment used in construction to level the soil surface, remove snow or dirt, flatten the surface of soil before construction
8	Concrete mixer	h	Equipment used to make bore holes in the construction site to install precast piles

4 Complete the sentences.

1 The main types of heavy construction equipment include ...
2 Construction workers use machines called tower cranes to...
3 Graders are used to ...
4 Construction crews often use loaders to ...
5 To carry large amounts of building materials, workers use ...
6 To mix cement with aggregates in order to form concrete, …is used.

5 A crane driver is describing to an apprentice how to operate a crane. Look at the pictures a-c and complete this text.

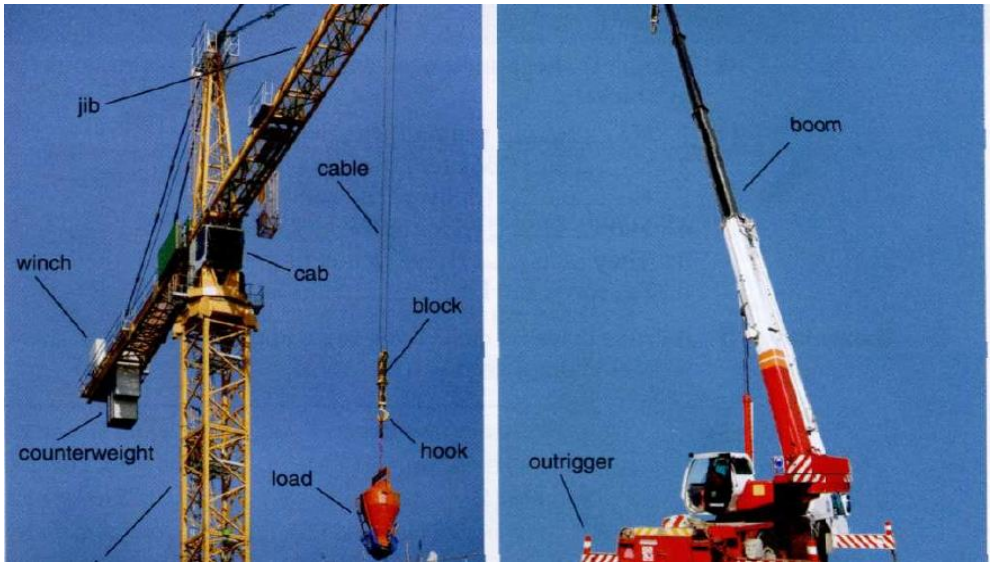


There are two levers. First, the lever on the left. Push it away from you to (1)_____ the load. Pull it towards you to (2)_____ it. OK? Second, the lever on the right. This moves the load (3)_____ or right. To move the load to the left, pull it (4)_____ you. To move the load to the right, push it (5)_____ from you. Any questions?

6 Write the opposites.

1 pull – … 2 raise– … 3 right– …

7 Look at the photos of the two cranes and complete the conversation.



– What are the differences between these two cranes?

– The crane on the left is a tower crane. The operator sits in a (1) _____ near the top of the (2) _____.There's a counterweight behind the cab. The load is on the other side of the jib. The operator uses the winch and block to lower or raise the (3) _____.

– I see.

– The crane on the right is a mobile crane. The operator's cab is near the ground. The operator extends or retracts the (4) _____, or moves it from left to right or up and down. Both cranes use stabilizers or (5) "_____" and counterweights to maintain stability.

–OK. Now I see the difference. Thank you.

–You're welcome.

8 Match 1-5 to a-e to make expressions about cranes.

1 operator's	a crane
2 extend	b cab
3 mobile	c the boom
4 raise	d the load
5 tower	e crane

LANGUAGE SKILLS

Word formation: suffixes

Suffixes are used at the end of certain words to form another part of speech (verbs, nouns, adjectives or adverbs).

V → N:	-tion / -sion (correct – correction)
	- er / -or (build – builder)
	- ee (employ – employee)
	- ment (develop – development)
	- ance / -ence (perform – performance)
V → Adj:	- ive (act – active)
N → Adj:	- al (industry – industrial)
	- ous (poison – poisonous)
	- ive (expense – expensive)
	- ful (harm – harmful)
	- less (harm – harmless)
	- able (reason – reasonable)
Adj → V:	- en (broad – broaden)
	- ize (modern – modernize)
Adj→ N:	-ity / ty (real – reality, safe – safety)
Adj → Adv:	- ly (efficient – efficiently)

1 Arrange the words according to the parts of speech (nouns, adjectives, adverbs).

Construction, equipment, building, quickly, structure, usually, worker, trailer, slightly, horizontal, operator, slowly, vertical, position, widen, grader, scraper, fairly, excavation, movable, sewer, natural, excavator, loader, employee, modernize, useless, costly, acceptable, efficiently, demolition, poisonous, employee.

Noun	*Adjective*	*Adverb*
…	…	…

2 Transform verbs into nouns using appropriate suffixes.

1 to construct – …
2 to direct – …
3 to excavate – …
4 to create – …
5 to move – …
6 to prepare – …
7 to demolish – …
8 to work – …
9 to excavate – …
10 to drive – …
11 to mix – …
12 to convey – …

3 Complete the sentences 1-8 with the correct form of the words in brackets.

1 The site _____ should monitor the compliance of all on-site works with the project requirements. (MANAGE)

2 For their own _____ visitors of the construction site are required to keep from the heavy equipment. (SAFE)

3 _____ equipment is essential on the construction sites. (PROTECT)

4 The construction site is inspected by the contractor _____. (WEEK)

5 Our _____ designers will perform all fitting outs to make your house look cozy and modern. (CREATE)

6 Significant efforts had been made in all regions to _____ all the hospitals. (MODERN)

7 You can visit our website to get some additional _____ about the works being done on site. (INFORM)

8 Students from our University helped with clearance of the construction site and _____ of structural frames for a new school. (INSTALL)

4 Complete the text transforming words in bold.

Heavy construction _____ is designed for carrying out tasks involving earthwork operations or other large construction tasks. EQUIP

_____ of different types of heavy construction machines depends on the size of the work and economy of the project. SELECT

An _____ is a machine widely used in construction industry for many purposes like heavy lifting, _____, cutting of trees, etc. EXCAVATE DEMOLISH

Bulldozers are considered one of the strongest and most _____ machines. RELY

A bulldozer is a _____ and extremely heavy machine which is used to move dirt along large open tracts of land. POWER

Dump trucks come in many _____ sizes for specific capacity and load needs. DIFFER

A heavy equipment _____ drives or controls heavy construction machines. Exact duties can depend on a heavy equipment operator's _____. OPERATE SPECIALIZE

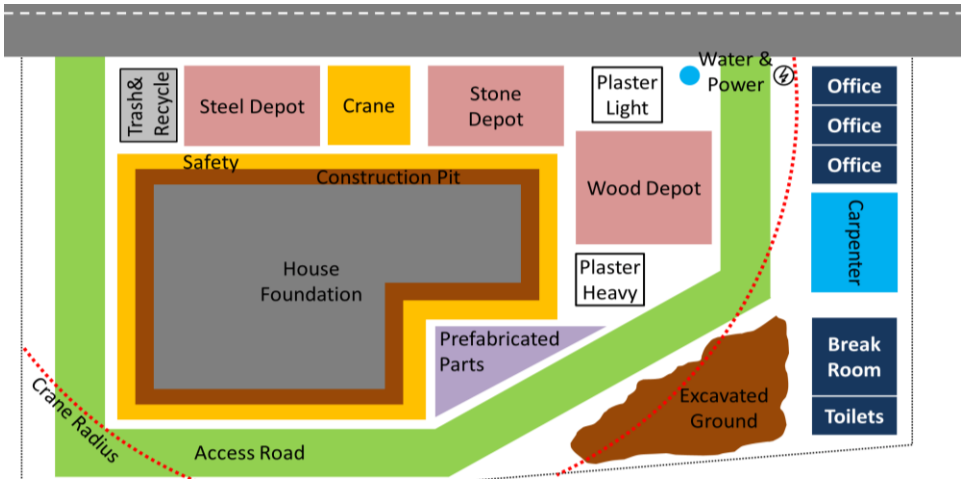
The main_____ include operating heavy equipment in compliance with the company's safety regulations and providing recommendations for maintaining and improving environmental _____. RESPONSIBLE PERFORM

Construction site work is a hazardous job where workers are involved in many activities that might expose them to _____ risks. VARY

While working on heavy construction machines it is necessary to follow all safety _____ to provide security on site and operate _____. REGULATE EFFECIENT

COMUNICATION SKILLS

Directions



Useful language

Asking for directions

- *Can you help me? I am looking for the site manager.*
- *Could you tell me where the exit is?*
- *Could you give me some directions?*
- *Excuse me, how can I get to the construction site?*

Giving directions

- *Take the next right/left turn.*
- *Take the second right/left turn.*
- *Go straight on till the end of the road.*
- *Keep walking for about 100 meters.*
- *It's on the other side of the road.*
- *Cross the road.*
- *It's on the corner.*
- *It's on your left /right.*

1 Read the dialogue and complete the dialogues with the words from the box.

turn	looking miss	tell	between	straight

Dialogue 1

– Excuse me, could you _____ me where the office is?

– Go _____ on till the end of the road. Take the first right _____. It's next to the carpenter. You'll see the sign.

– Thank you.

Dialogue 1

– Can you help me? I am _____ for the steel depot?

– You should drive past the house foundation. It's _____ the Trash&Recycle area and the crane. You won't _____ it.

– Thanks a lot!

2 Work in pairs. Practise giving directions using the map above. Start with the blue point.

Example:

– *Can you tell me where the break room is?*

– *Yes. Go along Access Road past excavated ground. It's on your right.*

SELF-STUDY

1 Complete the sentences with the words from the box.

demolish	design	construction	risk assessment	unauthorized access
accommodation	security	investigate	facilities	requirements

1 They invited an architect to _____ a new library.

2 Are there procedures in place to restrict, detect and report _____ to storage and loading area?

3 According to safety regulations, the company management staff needs to explore ways of improving on-site _____.

4 We are going to _____ the old building and construct the new one.

5 We want to upgrade the existing _____ to provide welfare for our staff.

6 The company will provide temporary _____ for all employees.

7 He performs on-site safety and _____ consultations for government and organizations.

8 Their project does not meet the _____ of the local authorities.

9 The Government set up a commission to _____ the accidentandviolation of safety rules.

10 The workers on the _____ site should put on their safety helmets before starting to work.

2 Match the words in the columns to make up phrases.

1	concrete	a	activities
2	construction	b	mixer
3	sanitary	c	works
4	ground	d	requirements
5	structural	e	frame
6	dump	f	truck
7	welfare	g	crane
8	tower	h	accommodation
9	preliminary	i	site
10	meet	j	conveniences

3 Give the names of heavy construction equipment according to the following descriptions.

1 _____ is a heavy equipment machine used in construction to load building material onto another type of machinery.

2 _____ is heavy construction equipment consisting of a boom, stick, bucket and cab on a rotating platform and are used to dig the ground.

3 _____ is a construction machine with a long blade used to create a flat surface.

4 _____ is a tractor equipped with a blade used to push large quantities of soil, sand, or other such material during construction work.

5 _____is a vehicle designed for carrying bulk material.

6 _____is a type of machine, generally equipped with a hoist, wire ropes or chains, used for lifting heavy things and transporting them to other places.

7 _____ is a device that homogeneously combines cement, aggregate such as sand or gravel, and water to form concrete.

8 _____is a machine used to bore through anything from hard rock to sand.

4 Complete the sentences with the correct form of the words in bold.

There's no doubt that construction industry has some very impressively sized and _____ machines. Depending on their_____, construction machines are classified into _____ categories.	POWER APPLY VARY
The first cranes were invented by the Greeks and were used for constructing high _____.	BUILD
During the _____ revolution, the cranes were constructed from wood and steel. These cranes were named _____ cranes.	INDUSTRY CONSTRUCT
There are several types of cranes, such as telescopic cranes, construction cranes and mobile cranes which have completely different _____.	EQUIP
Each mobile crane has a _____ lifting capacity depending on the vehicle to be mounted on.	DIFFER
All the above types of cranes are _____ important as they are largely used in construction and heavy industry.	EQUAL

5 Complete the dialogue with the words from the box.

problem	walking	directions	straight	help	entrance	turn	exactly

– Excuse me, could you give me some _____?

– Yes, sure. What _____ areyou looking for?

– I need to know where the _____ to the construction site is.

– OK. Go _____ on till the end of the road. Then take the second right _____ and keep _____for about 150 meters. The entrance will be on your left.

– Thank you for your _____.

– No _____.

GLOSSARY

bulldozer	follow safety regulations	provide welfare
carry out	forklift truck	risk assessment
cladding	grader	road roller
compactor	ground works	safety regulations
concrete mixer	heavy construction equipment	sanitary conveniences
construction site	hoist	secure the site area
conveyor system	internal fit outs	site facilities
demolition	investigate the conditions	spraying and plastering machine
design	loader	stone crusher
dump truck	meet the requirements	structural frame
employee	operate efficiently	tower crane
ensure	paver	trailer
excavator	pile boring machine	tunnel boring machine
finishing work	preliminary activities	unauthorized access
fit outs	provide security	welfare accommodation

UNIT 2 PROBLEMS ON SITE	**WEATHER PROBLEMS ON CONSTRUCTION SITES** **PREPOSITIONS (time, place, movement)** **COMMUNICATION SKILLS** **SELF-STUDY**

LEAD-IN

KEYNOTES
While working on site, different problems may be encountered with: from extreme **weather conditions** to **delivery** problems. Bad weather may cause long delays on construction sites. Rain, **sleet**, and snow **slow down** a project's **schedule** and cause the contractor to **fall behind**. Building materials behave differently under different weather conditions. Moreover, equipment needs **protection** in cold weather, as well as heavy snow fall, mud or strong wind can be a big problem. People also **suffer from** bad weather conditions: injuries happen much more often, people may **get sun burnt** in hot days and **frostbite** in cold days. In short, extreme weather can be expensive for construction companies which pay for the **downtime**. So, it is important to **plan ahead** all possible problems and **mention** them in the contract to **avoid disputes** or **conflicts**.

Questions for discussion:

1 What may cause problems on the construction site?
2 How do on-site workers suffer from extreme weather conditions?
3 How does the weather affectthe budget of the construction project?
4 How may problems connected with extreme weather be solved?
5 Have you ever suffered fromsevere weather? Describe your experience.

Useful language

I was caught in a heavy rain(a hurricane, thunderstorm, etc.…)
I was hit by lightning, …
Iwas soaked to the skin, …
I suffered a light earthquake, …
I got stuck in the mud, …
I managed to get out of the mud (snow, etc.…)
I was able to escape …

VOCABULARY 1

avoid disputes / conflicts	избегать споров / конфликтов
climate	климат
cold	холод, холодный
delay	задержка, опоздание; задерживаться, опаздывать
delivery	доставка, поставка
downtime	простой, время простоя
earthquake	землетрясение
fall behind	отставать, запаздывать
frostbite	обморожение
get sunburnt	получить солнечный ожог
hail	град
hurricane	ураган
heavy rain	сильный дождь, ливень
hot	жаркий, горячий
humid	влажный
lightning	молния
mention	упоминать
mud	грязь
plan ahead	запланировать заранее
protection	защита
schedule	расписание, график
severe	суровый
sleet	слякоть, мокрыйснег, дождьсоснегом
slow down	замедлить
snow	снег
sufferfrom smth.	страдать от чего-л.
sunny	солнечный
thunderstorm	гроза
weather conditions	погодные условия
wet	мокрый, сырой
wind	ветер

1 Label the pictures 1-8using words from the box.

snowy	windy	sleetrainy	cloudy	lightning	freezing	heat

1 _____

2 _____

3_____

4 _____

5_____

6 _____

7_____

8 _____

2 Put the words from the box into the correct column. Sometimes more than one word is possible.

rain	snow	mud	frost	sunburn	wind	heat	lightning	sunny
dehydration	hail	humid	sleet	cloud	dry	fog	warm	storm

Hot	*Cold*	*Wet*
…	…	…

3 Make up a word connected with weather and climate from the mixed up letters given in brackets. Complete the sentences 1-10 with these words.

1 A mixture of snow and rain is called _____. (tesle)

2 Pieces of ice that fall like rain are called _____. (hali)

3 A _____ climate is one that is hot and wet. (imduh)

4 A flash in the sky produce by electricity between clouds and the ground is called _____. (glnithign)

5 The weather when the air temperature is rather low is called _____. (lodc)

6 Shaking of the ground causing great damage is called _____. (aeakrtqhue)

7 An extremely violent wind or storm is called _____. (rhnueriac)

4 Choose the correct option to complete the sentences 1-8.

1 There was *wet / heavy / dense* rain in the early hours this morning.
2 We watched as a *fresh / thick / strong* fog filled the streets.
3 Water levels *rose / raised / poured* after the river burst its banks.
4 The building caught the fire, but there was no extreme / severe / serious damage.
5 Emergency services helped to *recover / evacuate / escape* the building.
6 The hurricane blew *over / away / out* everything in its way.
7 The volcano *exploded / erupted / blew* last night.
8 A major earthquake *shook / moved / touched the ground* in northern California two days ago.

5 Match the words 1-10 with the definitions a-j.

1	delay	a	an injury caused by severe cold
2	fall behind	b	plan smth in advance
3	frostbite	c	a list of planned activities showing time and dates when they are intended to be done
4	plan ahead	d	have one's skin burnt by the sun being in the heat for too long
5	delivery	e	waiting longer than expected
6	avoid disputes	f	experience physical or mental pain from smth
7	schedule	g	to be less active or do smth more slowly
8	get sunburnt	h	prevent from conflicts
9	sufferfrom	i	taking goods, letters, parcels, etc. to people's houses or places of work
10	slow down	j	fail to do smth fast or on time

6 Match the words 1-7 with the definitions a-g.

1 Why can't you work on the roof?	a) Because the ground is too soft for big cars.
2 Why do you need more sheeting?	b) Because it's too cold. We need better clothing.
3 Why can't you work outside?	c) Because of the sun. It's very bright.
4 Why can't you use the crane?	d) Because of the rain. It's too slippery at the top of the building.
5 Why do you need sunglasses?	e) Because the paint can't dry well in the rain.
6 Why can't you unload the sand closer on your dump truck?	f) Because of the sand. We need to cover the equipment.
7 Why don't you paint the fence?	g) Because it's too windy. It's difficult to handle the loads.

READING

1 Read the text and match the paragraphs 1-6 with their headlines a-g. One headline is extra.

a Precaution measures as a necessary part of the construction process
b Risks to construction sites from ground shaking
c Strong wind may cost construction companies a lot
d Severe weather conditions may cause serious problems on site
e Training the construction crew how to prepare for a disaster on site
f Construction sites are at higher risk for lightning strikes
g Construction sites suffer the most from extreme weather

WEATHER PROBLEMS ON CONSTRUCTION SITES

A wide variety of construction projects may be damaged by snow, ice, extreme cold, strong winds, hurricanes, tornadoes, flooding or wildfires. Some weather risks are obvious, as well as precautions taken against damage, while others may surprise those who manage the construction site. Construction best practice, however, is based upon risk awareness and the implementation of suitable precautions to minimize the risk of damage.

Construction sites are at higher risk than regular buildings during disaster times for a number of reasons. First, the standard measures that would protect a building from a disaster, such as earthquake-proof structures or internal fire reduction systems, are not yet in place. This means the damage could be far more extensive to a building under construction than for the same building after the construction is complete.

Every construction site needs to identify the risks that are dominant in the area, whether they are hurricanes or floods. They then need to create an emergency plan to help reduce the risk associated with these threats. Finally, construction site managers need to ensure that their team members are properly trained and know what to do in a disaster. With these three steps, the cost of a natural disaster will be much lower, and everyone on the site will be protected.

When you live near a coast, being prepared for hurricanes is essential. Hurricanes cause widespread damage by the storm. The damage estimates around $30 billion per year. After a hurricane, while companies try to recover from a disaster, the cost of building materials can increase, and it can be difficult to cover all the costs and get back on track. Large equipment can be damaged or completely destroyed due to the high winds of a hurricane.

Lightning strikes can also cause damage to construction equipment and construction sites. While most finished buildings have a plan for lightning, those plans may not be in place at the beginning of the project. Many construction managers forget about the realities of lightning, but every year there are about 25 million lightning strikes in the USA. That’s a significant number, and the tall equipment on a construction site is at high risk.

Hurricanes and lightning storms often have some warning, but earthquakes do not. Every day, between 50 and 80 earthquakes occur around the globe. Thankfully most of these are either under the water or are mild enough not to cause problems, but each year there are around 100 earthquakes around the globe strong enough to cause damage. While seismologists do try to predict coming earthquakes, they cannot predict them accurately enough for construction sites to plan ahead.

2 Read the text again. Are these statements true or false?

1 Some disaster can take the construction management by surprise and do a lot of damage on site.
2 It is impossible to prepare for extreme weather conditions which may cause damage to the construction site.
3 The disaster damage will be more expensive to cover if the site will be protected in advance.
4 Hurricanes cause an increase in prices for construction materials.
5 It is necessary to remember about lightning damage to avoid high risks on site.
6 An earthquake can be easily predicted by scientists.
7 People often do not feel ground shaking, so it does not cause any problems.

3 Find the words in the text that mean the following.

1 a disaster when an area is covered with a large amount of water
2 actions taken to prevent some unpleasant or dangerous situations
3 loss or harm resulting from injury to a person or property
4 reduce something to the least possible level or amount
5a dangerous situation that happens unexpectedly and needs fast actions to avoid negative or harmful consequences
6 a situation happening in the nature such as a flood, a hurricane, or an earthquake that causes a lot of damage
7 return to a normal state after being damaged or having problems
8 be the reason for something, especially something bad
9 a scientist studying the sudden and violent movements of the earth connected with earthquakes
10 make a plan in advance

VOCABULARY 2

1 Complete the sentences 1-10with the words from the box.

manufacturers suppliers packing delivery inconvenience complaint replace faults quality order

1 I would like to make a _____ regarding the recent delivery which arrived late than it was expected.
2 We placed the _____ at your website two weeks ago, but the item hasn't come yet.
3 While checking the contents of our _____, we noticed that some of the items have been damaged.
4 We regret to say that some of the material is of very poor _____.
5 The damage may have resulted from inadequate _____.
6The mistakes were due to _____ in our computer.
7 We have taken up the matter with the _____ who have assured us that they will tighten their quality control procedures.
8 We are sending you 20 bags of poor quality cement to _____ it by the end of the week.
9 We apologize for any _____ caused by this delay.
10 We always stick to the delivery dates, but in this particular case we received the goods from our _____ only last week.

2 Choose the correct option a-c to complete the sentences.

1 They cancelled their_____ for cement because of heavy rain.
a goods b order c materials
2 In order to _____ any problems I suggest replacing the goods for new ones.
a avoid b cancel c delay
3 I won't complain to your boss, if you make a full _____.
a cancel b return c refund
4 We'd like to order some more steel frames if they are still available in _____.
a office b stock c workshop
5 My _____ was cancelled and I want to know what's wrong with it.
a delivery b goods c purchase
6 All our equipment has a three-year _____ period.
a quality b warranty c delivery
7 I'll contact the _____ and see if I can get the paint you want by Friday.
a manufacturers b employees c suppliers
8 The manager complained about poor _____ of the bulk material and high prices.
a quality b defects c order

3 Match the delivery complaints 1-8with the responses a-h.

1	The concrete we ordered hasn't arrived yet.	a	It sounds like we put the wrong items intothe box.
2	You sent us thebill for $5000. It should be $500.	b	Just ignore it. Sorry about that.
3	You sent us the bill for $5000, butwe paid it last week.	c	I'll sort it out now and send you a new bill today.
4	We need another bag of cement. Do you have any in stock?	d	I think so, yes. Let me check and I'll get back to you. What's your number?
5	We ordered 14 bags. You only sent us 12.	e	Thank you for your message. We'll check the material, perhaps it was defective.
6	The catalogue number on the package is different to the one on the delivery note.	f	It sounds like the driver gave you the wrong package ... or the wrong paperwork.
7	The catalogue number on the package is different to the one on the item.	g	Did you say concrete? Just one moment, please. I'll put you through to the right department.
8	The material arrived from you is of low quality.	h	We'll send you two more this afternoon.

LANGUAGE SKILLS

Prepositions: time, place, movement

Prepositions of time	
on	on the 5th of May, on Monday
in	in August, in winter, in the morning, in 1996, in an hour
at	at night, at the weekend, at half past nine
before	before midnight, before 2004
after	after 11 o'clock
during	during the meeting
since	since 1980
for / over	for / over the last few months
to /till /until	from Monday to / till / until Friday
by	by six o'clock
Prepositions of place	
at	at the station, at work, at the corner
in	in the room, in hospital
on	on the wall, on site
by, next to, beside	by / next to / beside the crane
under	under the table
between	between the crane and the excavator
below	below the surface
above	above the ground
behind	behind the car park
Prepositions of movement	
across	across the river
along	along the road
around	around the town
to	to the office
through	through the tunnel
past	past the workshop

1 Complete the sentences 1-8 with prepositions of time.

1 The briefing will start _____ 7 am.
2 Reinforced concrete was invented _____ 1849 by Joseph Monier.
3 The construction site is closed _____ the weekend.
4 Do you work _____ Wednesdays?
5 I'm busy right now, but I'll call you _____10 minutes.
6 I'll have finished painting the fence _____ 5 pm, so we can meet _____ 6 pm.
7 The manager was checking the site _____ 4 _____ 6 o'clock yesterday.
8 It's difficult to work outside in rainy weather _____ the evening.

2 Complete the sentences 1-8 with prepositions of place.

1 His signature is _____ the end of the paper.
2 I don't know where my clothing is. Perhaps I left it _____ the break room.

3 She lives _____ the ground floor.
4 Tom is ill. He wasn't _____ work today. He stayed_____ home lying _____ bed.
5 If you walk to the end of the street, you'll see our office_____ the corner.
6 Hurricanes and tsunamis are frequent _____ coasts.
7 Let's meet _____ the entrance to the supermarket.
8 Despite the hazards of working at almost 200 meters_____ the ground, my grandfather loved his job.

3 Complete the sentences 1-8 with prepositions of movement.

1 The truck was coming _____ the road at great speed.
2 A new bridge will be constructed _____ the river.
3 The helicopter lifted up the steel panel and transported it _____the site.
4 Cranes are erecting skyscrapers on the east and west sides, and all _____ the town.
5 If you need to find our manager, you should go _____ our main office.
6 A new road _____ the tunnel will be the longest one in this area.
7 Go straight on the street, walk _____ the gas station and you will see the place you need.
8 Come_____ or we'll be late for the meeting.

4 Complete the sentences 1-10 with prepositions of time, place and movement.

1 I work _____ early morning _____ late _____ night.
2 I had been reading this documents _____ 6 o'clock yesterday and understood nothing.
3 It was quite difficult to dig a tunnel _____ the river.
4 "Can I speak to Clare, please?" – "I'm afraid, she's not here _____ the moment."
5 A hurricane flew _____ our construction site but luckily it did little damage.
6 A new shopping mall is being constructed_____ the waste ground of the abandoned factory.
7 After the accident almost all members of the construction crew were _____ hospital.
8 The delivery was late this morning but it's usually _____ time.
9 The tunnel was some 300 feet _____ the surface.
10 We travelled overnight to Paris and arrived _____ 5 o'clock _____ Friday morning.

COMMUNICATION SKILLS

Making complaints	**Asking for clarification**
• I have a complaint about… • I'd like to complain about…	• Excuse me, could you repeat that, please? • Could you say that again? • Pardon? • Just to clarify,... • Do you mean that...? • Did you say...?
Responding to complaints	**Asking for details**
• What seems to be the problem? • What's wrong with…? • Let's clear it out… • Would you prefer a replacement or shall wefully refund the money?	• What do you mean? • Could you clarify that?

• Please, accept our apologies. • I'm terribly sorry for the inconvenience caused…	

1 Complete the dialogue with the phrases given above.

– Good morning! Customer Complaint department?

– Good morning! Yes, Jack Smith speaking. Can I help you?

– Hello. My name is Bob Stanley and I'm the site manager at Construction Industries. I _____ about the order we received last night.

– _____ with your order?

– Well, I ordered the delivery of 30 white plastic windows from your factory and instead of them you sent me 25 brown ones.

– Oh, sorry about that. Could you tell me your order number, please?

– It's 2235 from the 23th of September.

– Excuse me, _____ the number, please?

– It's 2235.

– Thank you, Mr. Stanley. Now I can see the details of your order. It must be a packaging error. Please, _____. Would you prefer a replacement or shall we_____?

– I prefer a replacement if the goods are still available in your stock.

– Yes, they are. We'll deliver your order to your site immediately. I'm terribly _____, Mr. Stanley. It won't happen again.

– Well. I hope it won't. I have never had any problems with your factory before. Please, make sure that all the items are of good quality and have no defects.

– I'm sure you'll be satisfied with the quality of the purchase. Besides, our goods have a one-year warranty.

– OK. See you later then.

– Goodbye.

2 Make up a dialogue using the situations given below.

1 You received the wrong items from your supplier and you are calling to find out the problem.

2 You received the goods of inadequate quality and you are calling the manager to complain about it. Ask for replacement or full refund.

3 You are waiting for the urgent delivery but it hasn't come yet. You are calling to your supplier to clear out the reason for delay.

SELF-STUDY

1 Complete the text with the words from the box.

hot	damage	cold	lightning	protection	wind	wet	delays

Bad weather often causes long (1) _____ on construction sites. Building materials behave differently, equipment needs (2) _____ and injuries are more common.

In (3)_____ weather, paint and concrete dry too fast, sand gets into machines and other equipment, and injuries included ehydration and sunburn. In (4) _____ weather, a big problem is mud. Strong (5) _____ blows things away. (6) _____ strikes can even kill people. And in (7) _____ weather, workers require special clothing and fingers stick to metal. In extreme weather, accidents and injuries happen very often and the (8) _____ costs a lot of money.

2 Match the words1-10 and a-j to make up phrases.

1	big	a	sunburnt
2	strong	b	problem
3	special	c	wind
4	wet	d	down
5	long	e	rain
6	avoid	f	delays
7	fall	g	weather
8	heavy	h	disputes
9	get	i	clothing
10	slow	j	behind

3 Choose the odd word out.

1 high – low – freezing – good *temperatures*
2 bitterly – quite – heavy – really *cold*
3 dry – extreme – strong – bad *weather*
4 wet – heavy – light – torrential *rain*
5 foggy – strong – cold – chilly *wind*
6 strong – thick – dense – heavy *fog*
7 cold – fresh – thick – freezing *air*

4 Complete the sentences 1-8 with prepositions.

1 I started working _____ the age of 16, so I've been working _____ 5 years.
2 She got her first job in construction _____ 2006.
3 Can you put all the documents _____ the table? I'll check them later.
4 I haven't met him _____ last Friday.
5 Let's discuss all the details _____ our next meeting. I'm busy now.
6 I suggest going _____ our construction site and see everything themselves.
7 You need to go _____ the road to get to the place.
8 It took me long to find a job. _____ the end I got a job in a design company.

5 Complete the sentences 1-10 with the words from the box.

manufacturers	delivery	complaint	cancelled	quality
warranty	order	stock	refund	faults

1 I'd like to make a _____ about the noise on your construction site.
2 Products with low_____ standards should be detected before reaching the market.
3 Can I have your_____ number, please?
4 Car _____ have been accused of flooding the market with cheap cars.
5 We'll _____ your money if you aren't satisfied.
6 The company offers free _____ to your site.
7 We cannot give a specific _____ for the work done on your property.
8 That particular model is not currently in _____.
9 The report says design _____ in both vessels contributed to the accident.
10 All flights have been _____ because of bad weather.

6 Write the words in the correct order to form sentences.

1 with / the / wrong / sand / What's?
2 you / What / do / mean?
3 we / you / Are / that / saying / sent / truckloads / you / three?
4 I'd / complain / to / like / my/ about / order
5 that / clarify/ you / Could?
6 you / Could / that / repeat / please?

GLOSSARY

avoid disputes / conflicts	hail	refund
cancel	heavy rain	replace
climate	heat	schedule
cold	hot	severe
complaint	humid	sleet
dehydration	hurricane	slow down
delay	inconvenience	snow
delivery	lightning	storm
downtime	manufacturer	sufferfrom smth.
earthquake	mention	supplier
fall behind	mud	sunny
fault	order	thunderstorm
fog	packing	wind
freezing	plan ahead	wet
frostbite	protection	weather conditions
get sunburnt	quality	

UNIT 3 SITE COMMUNICATION	EFFECTIVE COMMUNICATIONMETHODS IMPERATIVE SENTENCES COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
Effective communication is **essential** to the success of any **working environment**. Communication is especially **crucial** on construction sites where safety, **productivity**, **cost-effectiveness**, and **efficiency** are very important. Good communication on the construction site **improves** the project budget and schedule. It also helps to improve the working relationships between the contractors and subcontractors. Communication can be performed through emails, phone calls, messages, radios, signal, meetings, signs, or hand signals. No matter what **means of communication** is used, the **final aim** is to develop a culture of **collaboration** within the **construction crew** and management. The three major problems why communication **fails** on construction site are: • **Lack of** respect and honest • **Miscommunication** • Lack of listening skills In short, clear communication on the construction site is the key factor to improving the project quality.

Questions for discussion:

1 How important is communication in construction?
2 What means of communication can be used on site?
3 How can effective communication make the construction process more productive?
4 Why can communication fail on the construction site?
5 Can you name the ways to improve on-site communication?

Useful language

I think the most effective means of on-site communication is…, because…
I my opinion, … is the fastest / most effective / most reliable means of communication, because…
In my view, the construction process will be more productive, if …
I believe communication fails on the construction site because of… (due to…)
To my mind, to improve on-site communication, managers / workers should…

VOCABULARY 1

collaboration	сотрудничество, совместная работа
communication failure	коммуникативная неудача, сбой связи
construction crew	строительная бригада
cost-effectiveness	рентабельность
crucial	ключевой, крайне важный
effective communication	эффективная коммуникация
efficiency	эффективность
essential	существенный
face-to-face	лицом к лицу, тет-а-тет
fail	потерпеть неудачу
final aim	конечная цель
improve	улучшать
lack of	отсутствие чего-л.
lead to	привести к чему-л.
means of communication	средства связи
miscommunication	недопонимание
productivity	продуктивность
quality check	проверка качества
report to	сообщить, доложить кому-л.
streamline	совершенствовать, упрощать
working environment	рабочая среда

1 Match the words 1-10 with the definitions a-j.

1	productivity	a	good value for the amount of money paid
2	improve	b	improve the effectiveness of something making it simpler and more efficient
3	collaboration	c	the rate at which a person, team, or company does useful work
4	failure	d	make something better
5	means	e	cause something, be the reason for something
6	streamline	f	not available or not enough
7	lack	g	conditions you live or work in and the way that they influence how you feel or how effectively you can work
8	lead to	h	working together to create or achieve the same result
9	environment	i	a method or way of doing something
10	cost-effectiveness	j	having no success while doing something

2 Complete the sentences 1-10 with the words from the box.

streamline	productivity	collaboration	improve	lack
cost-effectiveness	failure	means	lead	environment

1 He did a lot to _____ the welfare conditions for on-site workers.
2 The two companies are working in close _____ with each other.

3 Increasing the cost of building material can _____ to an increase in the project budget.

4 The main reason of communication _____ on site is connected with stress anddisinformation.

5 We cannot ignore face-to-face interaction as one of the most effective _____of communication on site.

6 To assess _____ of the project, it is necessary to analyze the state of construction industry in this area and then decide whether to invest or not.

7 We're taking steps to _____ operations and increase productivity.

8 The office is light and spacious, it's a pleasant working_____.

9 _____ of information can be the main reason of miscommunication.

10 A pleasant working environment increases_____.

3 Match the words1-10 and a-j to make up phrases.

1	communication	a	check
2	construction	b	aim
3	work	c	signals
4	final	d	conflicts
5	quality	e	failure
6	hand	f	budget
7	effective	g	environment
8	listening	h	crew
9	interpersonal	i	skills
10	project	j	communication

4 Choose the odd word out.

1 improve – increase – collaborate *productivity*
2 effective – successful – failure *communication*
3 environment – management – listening *skills*
4 construction– aircraft – office *crew*
5 productive – final – main *aim*
6 working – successful – pleasant *environment*

READING

1 Read the text and match the paragraphs 1-6 with their headlines a-g. One headline is extra.

a What can be the results of communication failure on site
b How modern technologies can help to provide effective communication on site
c What leads to communication failure on site
d How to control on-site communication
eWhat means of communication are used on the construction site
f Why communication fails on the construction site
g How can communication failure be avoided

EFFECTIVE COMMUNICATION METHODS

1 The most common reasons behind communication failure on construction sites are interpersonal conflicts and miscommunication which can badly affect the project health and profit. Some of the specific issues leading to communication failure are lack of respect and honesty, misunderstanding, lack of listening skills.

2 The major reasons of communication failure on site are connected with stressful working environment, lack of information or disinformation of on-site employees who do not know where to find information regarding their work, and poor management.Miscommunication also happens when the communication process is one-directional, that's why it is important to create a culture of shared goals and collaborate.

3 Miscommunication in a construction project is not only inconvenient but brings huge losses. In 2018 it was found that miscommunication cost $177 million each year. This is caused due to project delay when the time is consumed unnecessarily for searching project information and resolving conflicts on the construction site.Besides, poor communication on site often leads to conflicts.

4 In order to solve the problem of on-site miscommunication, it is necessary to employ a formal communication chain, deliver messages quickly and to the point to the members and co-workers, use the right platform for effective communication, as well aslet the crew members ask any questions about their work. At the same time, the management staff should not ignore face-to-face meetings.

5 Quality checks are a must before starting a job or doing a final check on the construction site. Similarly, quality checks can be implemented on the crew's communication. This demands the members of the crew to maintain proper documentation of their communication and perform regular checks. Communication frequency is measured in terms of the number of meetings or accuracy of documentation performed.

6 Construction technology is constantly improving the industry in all aspects. It has a great influence in developing good communication within the industry. Drones are used inspect the project site within a short time, building information modeling (BIM) software improves communication within the construction industry by incorporating 3D modeling, wearable technologies are used by the crew members to record their activities and track the location of site workers. Certain construction apps are also used to streamline project communication, report and note-taking.

2 Read the text again. Are these statements true or false?

1 Arguments and quarrels among employees may cause misunderstanding and influence badly the on-site work.

2 Effective communication between the crew members helps to improves individual productivity and collaboration.

3 Frustrating working environment and disinformation does not affect the construction project success.

4 Every crew member should handle all the problems on their own without disturbingthe management staff.

5 Miscommunication can cause big financial problems.

6 It is enough for the site manager to give commands to the construction crew using messages on any platform.

7 Regular control of the crew's communication is implemented to check their presence at work.

8 To improve on-site communication, hi-tech technologies can be used.

3 Find the words in the text that mean the following.

1 connected with relationships between people
2 money earned after paying all the necessary costs (e.g. production, selling, taxes)
3 false information
4 solve a problem or difficulty
5 a person who you work with
6 pay no attention to something or somebody
7 require something
8 keep in a good condition
9 the fact of being exact or correct, without any mistakes
10 have an effect on something

VOCABULARY 2

1 Label the pictures 1-8 using words from the box.

smartphone	two-way radio	webcam	drone	charger
headphones	sat nav	tablet		

1 _____

2 _____

3_____

4 _____

5_____ 6 _____

7_____ 8 _____

2 Complete the text with the words from the box.

send	connect	drone	fax	smartphones	sat navs radios	scan devices

Construction companies use various (1) _____ to communicate on site.

Modern two-way (2) _____ are easy to use. Their range covers any job site, large or small. Construction crews find them very convenient on site.

Truck drivers use (3) _____ in their cars for getting directions.

There is no doubt that (4) _____are the most useful and effective devices which improve and accelerate communication and allow employees to (5) _____with each other, (6) _____or receive emails and documents, find information online, or confirm directions with just a touch of a button.They can also (7) _____QR codes on any item and send them to the office making work easier. With a smartphone they do not need to (8) _____ a document again!

Another modern useful device on the construction site is a (9) _____ which is used to monitor the construction progress, weather changes and provide the big picture view.

3 Match the words 1-6 with their definitions a-g.

1	contact	a	make an electronic copy of something
2	fax	b	make sure a statement is true
3	consult	c	the sharing of information with someone
4	communication	d	watch and control something carefully
5	confirm	e	begin exchanging messages with someone
6	scan	f	use a machine that sends a document's information by phone
7	monitor	g	ask someone for their opinion or advice

LANGUAGE SKILLS

Imperative sentences are used to make requests, demands, instructions or even warnings, or to make a wish and express a desire. Usually imperative sentences used for delivering a warning or command or even request, may end with an exclamation mark (!).

Any imperative sentence contains an imperative verb, which serves the purpose of giving command or order (close, open, move, let, stay, listen, etc.).

Imperative Sentences don't have a proper subject and begin with an imperative verb. The subject (*you*) is only understood and not mentioned.

Expressing a command	Move aside!
Making a request	Please leave the door open!
Making a wish	Have a safe journey!
Giving instructions	Let the water boil for fifteen minutes.
Sharing an invitation	Let's go to the meeting together.

1 Choose the correct option to complete the sentences 1-8.

1_____ the truck go.
a) Please b) Can c) Mr. James, please let
2_____your work properly.
a) Do b) Does c) Doing
3_____ off the lights, please.
a) Switches b) Switched c) Switch
4 _____ not enter the construction site. It is dangerous!
a) Must b) Should c) Do
5_____ more sugar to the cement.
a) Add b) Adds c) Added
6_____ at home if you feel unwell.
a) Should stay b) Please c) Stay
7_____ up or we'll be late!
a) Hurry b) Must hurry c) Don't hurry
8 _____ those tools, please!
a) Pass b) Passed c) Passing

2 Transform the sentences 1-10 into imperatives.

1 The manager shouted to them to keep quiet. _____
2 The secretary said not to lose the project documents._____
3 He asked me to open the door._____
4 The sign said to be careful._____
5 The colleague asked to help him. _____
6 The driver asked to close the window._____
7 It is necessary to pay attention to the safety rules all the time. _____
8 You should use drones to monitor the construction site. _____
9 Our team should collaborate to meet deadlines. _____
10 It is convenient to use a sat nav to find the necessary route. _____

3 Put the words in brackets into the gaps. Mind the positive or negative forms.

1 _____ upstairs. (to go)
2 _____ the hot engine. (not / to touch)
3 _____ the instructions carefully. (to read)
4 _____ all the necessary information. (not / to miss)
5 _____ late for the meeting. (not/to be)
6 _____ all the documentation via email. (to send)
7 _____ safety rules on site. (not / to ignore)
8 _____ confirm the date of your flight. (not / to forget)
9 _____ your car near the construction site. (not / to park)
10 _____ right to find our office. (to turn)

4 Write the words in the correct order to form sentences.
1 hands / your / wash / dinner / before / !
2 find / let's / compromise / a / .
3 please / aside / step / .
4 forget / email / to / send / don't / the / .
5 straight / turn / go / left / and / on / then / .
6 talk / so / don't / fast / . I / you / understand / can't / .
7 mobile / don't / phone / use / your / the / roof / on / .
8 site / two-way / communicate / use /to / on / radios / .
9 find / QR / the / to / the / scan /item / code / in / list / .
10 to / the / press / open / the / button / door / .

COMMUNICATION SKILLS

Communication between the construction company owner and the manager

1 Read a conversation and say who is the owner and who is the manager.

– Good morning, Jane.
– Good morning, Mr. Blake.
– Do you have everything you need for today?
– Hopefully. I'm just not sure how big the kitchen should be.
– Don't you have the blueprint of the house?
– I do, but the architect might change the sizes. He said he would contact you.
– OK. How should I give you this information?
– You could call me on my smartphone or send me a PDF of the blueprint via email.
– I'll send youthe blueprint, and then you'll see the change clearly.
– Good idea. I'm on my way to the site now. Let me know if there are any changes.
– OK. Goodbye.
– Goodbye.
–

2 Read the conversation again and choose the correct option.

1 What problem do the speakers discuss?
a They cannot find the blueprints.
b The size of the kitchen may change.
c They do not know the client's phone number.
d An employee cannot be reached at the job site.

2 How can the owner connect with the manager?
a make her a phone call or send an email
b leave her a message
c meet her at the job site
d the manager will call him herself

3 What will the manager likely to do next?
a call the client
b measure the kitchen
c leave for the job site
d change the blueprint

3 Work in pairs and make up a dialogue. Use the situations given below.

Student A	Student B
You are a construction company owner. Talk to Student B about: a possible change in a plan options to tell Student B about the change what option you will use	You are aconstruction site manager. Talk to Student A about a possible change in a plan. Express you opinion about the change.

Useful language

I'm just not sure about…
How should I…
You could… or…

SELF-STUDY

1 Choose the correct option a-c to complete the sentences 1-10.

1The company is building the centre in _____ with the Institute of Offshore Engineering.
a communication b collaboration c construction
2 Communication _____can lead to big financial losses while implementing the construction project.
a failure b success c efficiency
3When he was first admitted into the construction_____, he learned ironwork.
a environment b crew c office
4 Following safety rules is _____ to avoid accidents.
a effective b productive c essential
5 Regardless means of communication used, the final _____is to develop collaboration within the construction crew.
a productivity b success c aim
6 A comfortable working _____will increase productivity.
a environment b efficiency c communication
7 The company management aims to _____ welfare accommodation for all employees.
a increase b improve c streamline
8 If the subcontractors _____ to meet the deadlines, they will have to pay a penalty.
a fail b succeed c lack
9 This decision will inevitably _____to big changes in the project.
a report b lead c go
10 _____of qualifications is an obvious disadvantage for any employee.
a fail b presence c lack

2 Complete the sentences 1-6 with the words from the box.

PDF	email	connect	smartphone	cover	two-way radio

1 Write a(n) _____ to the site manager.
2 Scan the QR code as a(n) _____.
3 A(n) _____ has a smaller range than smartphone.
4 A(n) _____ has many more functions than a cell phone.
5 It is easy to _____ your smartphones to the commuter.
6 Two-way radios do not _____ large areas.

3 Match the words1-10 and a-j to make up phrases.

1	send	a	the manager
2	communicate	b	a QR code
3	receive	c	an arrangement
4	scan	d	to the Internet
5	make	e	progress
6	launch	f	an email
7	monitor	g	a phone call
8	confirm	h	a drone

9	consult	i	a fax
10	connect	j	via two-way radios

4 Transform the sentences 1-10 into imperatives.

1 The manager asked him to cancel all the works because of the coming hurricane.
_____
2 You mustn't move the tower crane to this area.
_____
3 Helmets are required on the construction site.
_____
4 She asked him to call her after office hours.
_____
5 You must follow the rules while visiting the construction site.
_____
6 No Parking here is available.
_____
7 You should respect elderly people.
_____
8 You mustn't walk on the top of the roof. It's dangerous.
_____
9 It is prohibited to switch off the lights on the construction site at night.
_____
10 It is a non-smoking area. Smoking is banned here.
_____

5 Complete the conversation with the phrases a-e.

a Any other problems
b No problem
c How are the things going
d Can you replace them
e What's the matter

– Hello, Mr. Baker.
– Hello, Stan.
– (1) _____ on the construction site?
– In general, everything is fine, but there are small problems that require your attention.
– (2) _____?
– It is necessary to agree on some changes in the blueprints and clarify the sizes.
– We'll clear it out. Let's wait for the architect. (3) _____?
– Yes, our two-way radios are out of order. (4) _____for new ones? It's quite difficult to communicate without them on site.
– Sure. We'll buy them today.
– Thank you, Mr. Baker.
– (5) _____.

GLOSSARY

charger	essential	productivity
collaboration	face-to-face	quality check
communication failure	fail	report to
confirm	fax	satnav
connect	final aim	scan
construction crew	headphones	smartphone
consult	improve	streamline
cost-effectiveness	lack of	tablet
crucial	lead to	two-way radio
drone	means of communication	webcam
effective communication	miscommunication	working environment
efficiency	monitor	

UNIT 4 CONSTRUCTION SITE SAFETY	HOW TO MAKE A CONSTRUCTION SITE SAFE MODAL VERBS COMMUNICATION SKILLS SELF-STUDY

LEAD-IN

KEYNOTES
A construction site is often a dangerous place with many different types of **hazards** which need to be identified, assessed and planned for. Sometimes accidents may happen which involve various injuries. That is why it is very important to follow safety rules which include general requirements that **apply** to all construction projects. Construction safety rules on site are usually checked by **inspectors**. Construction workers are provided with information about **emergency actions** and hazards and the ways how to avoid and **deal with** them. It's important to make sure that the workers are **prepared for** working in the hot and cold weather to avoid sunburn, dehydration or frostbite. A wide range of **personal protective equipment** can be used to **protect** people against risks, such as helmets, gloves, knee pads, protective goggles, and so on. Site rules should be clear and easily understandable and should be **brought to the attention** of everyone working on site.

Questions for discussion:

1 Why is a construction site considered a dangerous place?
2 What is necessary to do in order to avoid accidents and injuries?
3 Is there any control of following safety rules on site?
4 How do workers protect themselves while working on site?
5 Do you think it is important to follow all safety rules on site? Why?

Useful language

A construction site is a dangerous place because…
To avoid accidents and injuries, one should…
To protect yourself on site, you should wear…
In my opinion, it is important to follow safety rules because…

VOCABULARY 1

apply	применять
be on alert	быть начеку
bring to the attention	доводить до сведения
deal with	иметь дело с чем-л.
ear plugs	беруши
emergency	чрезвычайная ситуация
evaluate	оценивать
face mask	защитная маска для лица
first aid kit	аптечка для оказания первой медицинской помощи
hazard	опасность, угроза
hazardous	опасный
helmet	шлем, каска
identify	определять, выявлять
increase awareness	повысить осведомленность
inspector	инспектор
knee pads	наколенники
minimize risks	минимизировать риски
personal protective equipment	средства индивидуальной защиты
prepare for	подготовить к чему-л.
prevent accidents	предотвращать несчастные случаи
protect	защищать
protective goggles / glasses	защитные очки
safety gloves	защитные перчатки
safety harness	ремни безопасности
work boots	рабочая обувь

1 Label the pictures with the correct names of protective equipment.

safety gloves	helmet	knee pads	protective goggles	ear plugs
	face mask	safety harness	work boots	

1 _____

2 _____

3_____

4 _____

5_____

6 _____

7_____

8 _____

2 Match the names of protective equipment with their description.

1	safety harness	a	a device worn over the nose and mouth to prevent a person from breathing in harmful substances
2	safety gloves	b	strong glass or plastic glasses that fit tightly to a person's face to protect their eyes from dangerous chemicals or machines
3	work boots	c	a strong hard hat covering and protecting a person's head
4	ear plugs	d	protective equipment with straps and belts designed to protect a person, animal, or object from injury or damage
5	knee pads	e	shoes covering the whole foot and the lower part of the leg and protecting a person from hazards
6	helmet	f	small pieces of soft material put into a person's ear to protect from noise or water
7	face mask	g	clothing worn on hands for protection
8	protective goggles	h	protective gear worn on knees to protect them against injury from falling to the ground or extended kneeling

3 Complete the sentences 1-10 with the words from the box.

apply	on alert	deal	minimize	prevent	attention
protect	hazard	inspector	emergency		

1 Do you know how to _____*with* hazardous substances?
2 This information must be brought to the _____ *of all employees immediately.*
3 You should _____ *your eyes by using safety goggles.*
4 When the paint is completely dry, _____ another coat.
5 Systematic evaluation and control can _____*risks of accidents on site.*
6 Air pollution is a serious health _____.
7 The _____ *will check* if the crew follows the safetyrules on the construction site.
8 Emergency services were put _____.
9 The construction crew must be able to react very fast in case of _____.
10 Self-discipline is necessary to _____*accidents* and maintain a safe environment.

4 Choose the correct verb to complete the advice.

1 *Follow / Take / Name* the instructions.
2 *Take / Give / Receive* proper precautions.
3 *Take / Break / Remember* your time.
4 *Take / Use / Keep* the equipment.
5 *Keep / Handle / Wear* your hard helmet.
6 *Use / Follow / Keep* the recommendations.

READING

1 Read the following safety instructions and match the headings a-h to the instructions 1-8.

a Enclosing of construction site
b Hazardous materials
c Training courses
d Scaffold and roof safety
e Construction site inspection
f Emergencies
g Protective equipment
h Power tools safety

HOW TO MAKE A CONSTRUCTION SITE SAFE

Construction sites are hazardous by nature. To make your construction site safe, you can minimize risks, train employees in safe work practices and increase awareness in construction site safety.

(1) _____ Identify and evaluate all workplace hazards by inspecting the site and write sown everything that may be unsafe. Determine ways to correct any problems to make the construction site safe.

(2) _____ Educate all personnel in work site safety and safe operating actions both on site and at a training course. The course should include proper lifting techniques to help reduce common back injuries while doing the job.

(3) _____ Identify and mark all hazardous materials. Determine any risk involved to personnel. Label and store such materials in proper containers and keep them in a safe location.

(4) _____ Inspect equipment to be sure it is working properly. Be on alert for unusual noises and movements. Report any problems immediately and do not operate the machinery until repairs are made.

(5) _____ Use safety equipment when performing dangerous work like roof work, welding, high-rise or scaffold works.

(6) _____ Provide personal protective equipment to all employees, including helmets, protective goggles and boots, work gloves, ear plugs and face masks. Inspect all equipment and replace any items that are in poor or unsafe condition.

(7) _____ Prepare for an emergency. Operators and site workers should know what to do in case of electrical, mechanical or power failures.

(8) _____ Protect the public by barricading the construction site during work hours. After hours, lock down all points of entry.

2 Read the text again and answer the questions.

1 What are the potential hazards on the construction site?
2 How can workers get ready for accidents on site?
3What protective equipment should workers use on site?
4 What are the basic instructions for safe construction practices?

3 Match the sentence halves.

1	Inspect the construction site to	a	repair them and prevent accidents
2	Delivery safety courses to	b	prevent scaffold and roof accidents
3	Identify and mark hazardous materials to	c	train the personnel in lifting techniques
4	Inspect power tools safety to	d	evaluate any potential hazards
5	Use harnesses to	e	protect the public
6	Provide and inspect protective equipment to	f	prepare workers in case of electrical, mechanical or power failures
7	Train for emergencies to	g	keep them in a safe location
8	Enclose the construction to	h	replace it when they are in poor condition

VOCABULARY 2

1 Look at the hazard signs. What are they for? Why do they have different shapes?

Match the signs with their meaning.

1	Flame	a	
2	Generic caution	b	
3	Poison	c	
4	High voltage	d	
5	Ground works	e	
6	Crane working	f	
7	Biological hazard	g	

2 Read the sentences and choose the appropriate sign given above.

1 There are some hazardous substances on site. _____
2 There are power cables near the fence. _____
4 There is a crane working on site. _____
5 There are excavating works in process. _____
6 Be careful! It is a highly flammable liquid. _____

3 Read the text about construction site safety signs and match the types of signs with their description.

a Prohibition signs
b Mandatory signs
c Warning signs
d Safe condition signs
e Firefighting equipment signs

Health and safety signs are displayed everywhere on construction sites, from the site hoarding and entrance points to various locations throughout the site. They come in bright colours, like red, green, blue and yellow.

Construction site safety signs are not put up for decoration. Each sign has a meaning, and each colour represents a different message. Knowing what construction health and safety signs mean is important because they could be warning you about a danger, or telling you to do something. And if you don't understand the sign, and fail to follow the message, you could get hurt, or worse.

(1) _____
The first sign you might be familiar with is a red danger sign. You will see this type of sign at the entrance to nearly every construction site. These signs have a red circle with a crossbar on a white background. Any letters are black.

(2) _____
These signs tell you what you must do, for example, "Safety helmets must be worn" or "Keep out". These signs have a solid blue circle with a white symbol and/or letters.

(3) _____
These signs are used to make you aware of a danger or a hazard. They have a solid yellow triangle (pointing up) with a black border. Any symbols or letters are also black on yellow.

(4) _____
These signs show you a safe place. You might see this type of sign on a construction site to let you know where the first aid kit is, where the fire exits are, or who to report to. They have a solid green square or oblong, with a white symbol or symbol and text.

(5) _____

These signs let you know where fire equipment is. They have a solid red rectangle with white symbols and/or lettering.

Now you should be able to understand construction site safety signs, and importantly, make sure that when you see one, you can follow the health and safety message and comply with the instruction.

LANGUAGE SKILLS

Modal verbs of necessity and advice

MODAL VERBS of necessity and advice are a small group of verbs that are used to express obligations or give advice.

MODAL VERBS of necessity are **HAVE TO, NEED and MUST**.

We use MUST and HAVE TO to say that it is necessary to do something. Sometimes it doesn't matter which you use:

Oh, it's later than I thought. I must go. or I have to go.

But there is a difference between MUST and HAVE TO and sometimes this is important.

MUST is personal. We use MUST when we give our personal feelings.

'You must do something' = 'I (the speaker) say it is necessary':

HAVE TO is impersonal. We use HAVE TO for facts, not for our personal feelings.

'You have to do something' because of a rule or the situation:

You can't turn right here. You have to turn left. (because of the traffic system).

MUSTN'T and DON'T HAVE TO are completely different:

You mustn't do something = it is necessary that you do not do it (so, don't do it): *You must keep it a secret. You mustn't tell anyone.* (= don't tell anyone)

You don't have to do something = you don't need to do it (but you can if you want): *You can tell me if you want but you don't have to tell me.* (= you don't need to tell me)

You can use 'HAVE GOT TO' instead of 'HAVE TO'. So you can say:

I've got to work tomorrow. orhave to work tomorrow.

'You NEEDN'T do something' = it is not necessary that you do it, you don't need to do it:

You can come with me if you like but you needn't come if you don't want to. (= it is not necessary for you to come)

Instead of NEEDN'T, you can use DON'T/DOESN'T NEED TO: *We needn't hurry. or We don't need to hurry.*

Remember that we say 'don't need to do', but 'needn't do' (without to).

NEEDN'T and DON'T NEED TO are similar to DON'T HAVE TO:

We've got plenty of time. We don't have to hurry.

MODAL VERBS of advice are **SHOULD and OUGHT TO**.

You SHOULD do something = it is a good thing to do or the right thing to do.

You can use SHOULD to give advice or opinion: *You look tired. You <u>should</u> go to bed.*

'You SHOULDN'T DO something' = it isn't a good thing to do: *You <u>shouldn't</u> believe everything you read in the newspapers.*

SHOULD is not as strong as MUST: *You <u>should</u> apologize*. (= it would be a good thing to do).

You can use OUGHT TO instead of SHOULD in the following sentence:

Do you think I <u>ought to</u> apply for this job? (= Do you think I <u>should</u> apply ...?)

We also use OUGHT TO to talk about a social, traditional rule. It expresses moral obligation. While SHOULD indicates a suggestion, an advice, a recommendation.

1 Complete the sentences 1-10 with modal verbs in a positive or negative form.

1 You _____park here – it's illegal.

2 He _____drive children to and from school every morning and afternoon and then come back to work.

3 You _____ to know how to operate fire-fighting equipment.

4 We _____ hurry or we'll miss the bus.

5 You _____ sort out materials and pile them up safely.

6 Whatever you do, you _____ touch that liquid. It's very dangerous.

7 You _____ to provide sufficient lighting.

8 You _____ always wear protective equipment on site to avoid injuries.

9 Your employer _____ ensure a risk assessment is carried out for your activities.

10 It's raining heavily outside. You _____climb onto the roof. It can be dangerous!

2 Choose the answer that best fits the sentences 1-8.

1 Construction site workers _____keep passages clear all the time.

a. have to b. mustn't c. shouldn't

2 Materials _____ be sorted out.

a. have to b. don't have to c. shouldn't

3 Floor openings _____ be covered.

a. mustn't b. don't have to c. have to

4 Stacks _____ be too high.

a. must b. shouldn't c. doesn't have to

5 Construction site workers _____ know how fire-fighting equipment works.

a. must b. mustn't c. don't have to

6 You _____ store things near flammable objects.

a. must b. don't need to c. shouldn't

7 You _____ wear shoes in this area. Shoes aren't allowed here.

a. shouldn't b. mustn't c. must

8 I work in an office. I _____ to send emails and offers to all our clients.

a. ought b. must c. have

3 Paraphrase sentences 1-6 using modal verbs.

1 We are forbidden to leave our car here.
2 I recommend this book to you. It's fantastic.
3 It's not necessary to come to work tomorrow but you can come for overtime if you want.
4 It is forbidden to smoke here.
5 Protective equipment is necessary to use while working on site.
6 It is important to follow safety rules when visiting the construction site.

4 Complete the sentences 1-6 using should + one of these verbs.

ask be leave listen say worry

1 It's strange that she _____ late. She's usually on time.
2 It's funny that you _____that. I was going to say the same thing.
3 It's only natural that parents _____about their children.
4 Isn't it typical of Ron that he _____without saying goodbye to anybody?
5 I was surprised that he _____me for advice. What advice could I give him?
6 It's very important that everybody _____very carefully.

COMMUNICATION SKILLS

A MEETING ON CONSTRUCTION SAFETY RULES

1 Read a conversation from a meeting on construction safety rules and name the rules which the speaker mentions.

– Today we are having a meeting on construction safety rules. There are some important things I'd like to speak about. First of all, it's hazardous waste. It needs to be sorted properly and dealt with properly. Do you follow all the instructions and take proper precautions on site?

– Of course, we always follow all safety rules when dealing with hazardous waste.

– Good. Next, falls. This is one of the most common accidents. People fall of scaffolding, ladders or roofs. Don't climb the things which aren't fixed properly. Don't forget height can kill!

– Cranes and loads are dangerous, too. Last year we had an accident when one of our workers was injured when he had fallen from the crane. Fortunately, he was able to recover.

– Yes, it was an unpleasant and dangerous situation. People can either fall off things or things fall on them. So, keep your eyes open!

– And what about PPE?

– We'll provide you with the new personal protective equipment this month to keep safe. But remember to use this equipment, wear your helmets and follow all the recommendations. Any questions?

– No, everything is clear. Thank you for instructions. It's always important to remind the construction crew about them to avoid injuries.

2 Match the questions 1-5 with the answers a-e.

1	What did the speaker say about hazardous waste?	a	Follow all safety rules and wear protective equipment
2	What is one of the most common accidents?	b	It needs to be sorted properly and dealt with properly
3	What accident happened last year?	c	Falls
4	What is necessary to do on site to keep safe?	d	PPE
5	What did he call protective clothing?	e	The worker was injured while falling from the crane

3 Study site safety rules below and give a talk on safety instructions.

Useful language

You must wear…
You are not allowed / mustn't…
It is prohibited / banned to…
You should/shouldn't…
It is necessary to…

SELF-STUDY

1 Read an email on safety equipment and complete the gaps with the words from the box.

earplugs	helmets	equipment	injury	avoid	goggles
	knee pads	face	aid	protective	

To:site_manager@constructionindustries.com
From: owner@constructionindustries.com
Subject: Safety equipment
Dear Mr Jackson,

Last week one of our employees got an _____. A cement block fell from the height and broke his leg. We want to _____ these injuries in the future. So we kindly ask you to remind all our employees to wear their personal protective _____ while working on site.

To enter the construction site everyone needs _____ boots, hard _____ and safety _____ for their eyes. Employees need to wear protective gloves when doing electrical work or cutting wood. _____ masks or shields are also essential to wear. _____ are necessary when working with loud equipment. To protect knees when working on the ground,_____ must be worn.

Finally, keep first _____ kits on site and make sure everyone knows where they are. If we follow these guidelines, injuries won't be a problem.

Thanks.
Tom Duke,
Owner, Construction Industries

2 Choose the correct option a-c to complete the sentences 1-10.

1 It is necessary to _____ all safety rules while using construction equipment.
a evaluate b protect c follow
2 When you work on height, you should be on _____ to avoid injuries.
a alert b attention c awareness
3 Personal protective _____ must be used by all site workers.
a emergency b equipment c kit
4 To _____ accidents on site, the company holds safety instruction meetings every month.
a identify b deal c prevent
5The safety instruction meetings increase employees' _____.
a awareness b risks c protection
6 Protective _____ are used to protect your eyes from particulates, water or hazardous chemicals.
a ear plugs b helmets c goggles
7Safety _____ is a form of protective equipment designed to protect a person from injury or damage and is usually fabricated from rope.
a harness b boots c pads
8 If you _____ with hazardous chemicals at work, follow the instructions.
a identify b deal c prepare
9 In case of _____, use back doors.
a risk b accident c emergency
10 If any of employees is injured, use the first _____ kit and call an ambulance.
a help b aid c emergency

3 Match the groups of signs 1-5 with their definitions a-e.

1	mandatory signs	a	instruct the staff and visitors of potential hazards and contain symbols and words on a yellow background
2	firefighting equipment signs	b	show a safe place, exit or equipment and have a solid green square or oblong
3	safe condition signs	c	indicate what you must do by law
4	prohibition signs	d	provide information on the identification or location of firefighting equipment (coloured red)
5	warning signs	e	instruct the staff and visitors of actions that must not be taken to ensure a safe and secure workplace

4 Complete the sentences 1-15 using modal verbs in the positive or negative form.

1 My employee _____ prepare all the presentations to instruct on site workers on safety rules.

2 We _____ leave yet. We've got plenty of time.

3 You _____ park in that street. It is not permitted.

4 You look pretty tired. I think you _____ go to bed early tonight.

5 Maria is such a hard worker. She _____ work 24/7 to provide for her family.

6 You _____ forget to turn off the lights when you go to bed.

7 I _____ take a taxi because the bus is on time.

8 She _____ take care of children when their parents aren't at home.

9 You _____ smoke near the flammable objects. It's extremely dangerous!

10 She has flu. She _____ stay at home.

11Our delivery man is always on the move. He _____ deliver all the letters on time.

12 You_____ open the door when the crane is moving.

13 You _____come to the party if you feel unwell.

14 I _____ go to the bank yesterday to get some money.

15There's a lot of crime on the streets and he _____ protect good people from the bad ones.

5 Write the words in the correct order to form sentences.

1 Safety / in / come / colours / bright / signs/ .

2 signs / warn / dangers / about / Warning/ you / .

3 are / aware / used / These / to / make/ hazard / you / of / a / signs /.

4 lets / This / you / aid / sign / know / the /where / first / is / kit/ .

5 These / where / you / know / signs / is / let / equipment / fire/ .

6to / should / able / safety / understand / be / site / construction / You / signs/.

GLOSSARY

apply	generic caution	poison
be on alert	hazard	prepare for
biological hazard	hazardous	prevent accidents
bring to the attention	helmet	prohibition sign
deal with	high voltage	protect
ear plugs	identify	protective goggles / glasses
emergency	increase awareness	safe condition sign
evaluate	inspector	safety gloves
face mask	knee pads	safety harness
firefighting equipment sign	mandatory sign	warning sign
first aid kit	minimize risks	work boots
flame	personal protective equipment	

PROGRESS TEST (Units 1-4)

1 Complete the sentences 1-10 with the words and phrases from the box.

unauthorized access	demolition	facilities	ground works	risk assessment
requirements	employee	investigate	safety regulations	accommodation

1 The parking _____ are inadequate for a busy shopping centre.
2 The purpose of _____ is to identify the risks and assess the threats.
3 Each _____ will receive an annual bonus for the good job during the year.
4 The contractor must take necessary steps to prevent _____ to the construction site.
5 Before starting the construction process we should do _____ using heavy equipment machines.
6 The company provides _____ (usually hostels) for all employees.
7 The project required the total _____ of the old bridge.
8 Our construction activities meet all legal _____.
9 The company set up a commission to _____ the details of the accident.
10 It's against _____ to fix these doors open.

2 Match the heavy equipment machines 1-8 with their description a-h.

1	excavator	a	widely used for the removal of topsoil layer or rock strata, lifting of soil, etc.
2	tower crane	b	contains a large sized bucket at its front with shorter moving arm and used to load the material onto dumpers, trucks, etc.
3	dump truck	c	used to make bore holes in the construction site to install precast piles
4	grader	d	contains a long arm and a cabinet for a machine operator and used mainly for digging the ground
5	pile boring machine	e	used to mix cement with aggregates, including sand or gravel, and water to form concrete
6	bulldozer	f	contains a horizontal blade and mainly used to flatten the soil surface or remove snow or dirt from the roads
7	loader	g	consists of a mast, jibs, and an operator cabin and used for hoisting purposes in construction of tall structures
8	concrete mixer	h	contains large wheels with huge space and used to carry the material in large quantities from one site to another

3 Complete the sentences 1-10 with the correct form of the words in bold.

1 Detroit is renowned for the _____ of cars. (PRODUCE)
2 If you make a good _____ at the interview, you will get the job. (IMPRESS)
3 You are never told to go to college and gain some _____. (QUALIFY)
4 My greatest _____ was graduating from the university. (ACHIEVE)
5 The weather man said there is a strong.....of rain today. (POSSIBLE)
6 Some building materials are no longer _____ in modern construction. (EFFECT)
7 The hospital has the best medical _____ and fast ambulances. (EQUIP)
8 The _____ looked dark, so it is required to install more lights. (ENTER)

9 We need to know your _____ as soon as possible. (DECIDE)
10 We're not going to change our suppliers as they always do everything on time _____.(RELY)

4 Complete the sentences 1-6 with the correct option in italics.

1 It's 33 degrees over zero. It's *hot / cold / freezing*.
2 Put these warm clothes on. It's *cloudy / cold / sunny*.
3 We can't see anything. Put the headlights of the car on. It's *cloudy / rainy / foggy*.
4 She's wearing sunglasses. It's *cloudy / foggy / sunny*.
5 Take the umbrella. It's heavy *snow / rain / fog* outside.
6 It's blowing everything away. It's a strong *rain / hail / wind* outside.

5 Write a word that is similar in meaning to the underlined part.

1 Wear a partial face covering that protects your mouth and nose when you work with wood.
_____
2 When installing floors, wear equipment that protects your knees.
_____
3 He wore small pieces of plastic so that the noise from the machinery didn't hurt his ears.
_____
4 To avoid head injuries from failing objects, wear a hat made of plastic or metal.
_____
5 He wasn't hurt when he dropped the wood because he was wearing shoes that have extra reinforcement.
_____
6 While working with hazardous substances, you should use protective eyewear that shields your eyes and area around them.
_____

6 Complete the sentences 1-8 with the correct preposition.

1 We have briefings _____ Tuesdays.
2 Nick is _____ work at the moment.
3 You can find the blueprints _____ my desk.
4 The truck is moving _____ the road.
5 Our delivery is going _____Moscow_____St. Petersburg.
6 We are planning to put a new house into operation _____ November.
7 How many misprints are there _____ this document?
8 I prefer doing all necessary work _____ the morning.

7 Transform the sentences 1-4 into imperatives.

1 You mustn't worry. These are just routine enquiries. _____
2 Safety rules are required to follow on the construction site._____
3 The manager asked her to send him an email. _____
4 It is prohibited to discharge waste into the sea. _____

8 Complete the sentences 1-10 using modal verbs in the positive or negative form.

1 I can stay in bed tomorrow morning because I _____ work.
2 You've got plenty of time. You _____ hurry.
3 Ann was feeling ill last night. She_____ leave the party early.
4 You've been coughing a lot recently. You _____ smoke so much.
5 You _____ buy the tickets. I got two for free from dad.
6 Her eyesight is very bad, so she _____ wear glasses all the time.
7 You _____ stay in bed when you have a high temperature.
8 You _____ sit so near the TV. It's bad for your eyes.
9 It's going to rain. You _____ take an umbrella.
10 I'm sorry I couldn't come yesterday. I _____ work late.

СПИСОК ИСПОЛЬЗОВАННЫХ ИСТОЧНИКОВ

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KEYS

MODULE 1

SELF-STUDY UNIT 1					
1	1 career skills 2 technical knowledge 3 course 4 bricklaying 5 technician 6 seminar 7 qualifications 8 technician 9 full-time 10 hands-on	**2**	1 students 2 building 3 skills 4 projects 5 hands-on 6 detail 7 styles	**3**	1 d 2 g 3 a 4 e 5 b 6 c 7 f 8 i 9 h
4	1 is 2 is 3 is, is 4 is 5 is 6 are 7 are 8 am	**5**	1 B 2 C 3 D 4 A		
UNIT 2					
1	1 manage 2 prepare 3 solve 4 facilities 5 library 6 part 7 deal 8 lack *9* freshman	**2**	1 b 2 a 3 c 4 c 5 a 6 c 7 b 8 b	**3**	1 are 2 is 3 is 4 are 5 are 6 some 7 some 8 any
4	1 Are there any minuses about studying here? 2 Is there a laptop on the table? 3 Are there any ways of solving this task? 4 Will there be two more students in this room? 5 Is there somebody who knows the answer?	**5**	1 d 2 a 3 c 4 b		

UNIT 3					
1	1 civil engineer 2 crane operator 3 glazier 4 bricklayer 5 painter 6 land surveyor 7 concrete finisher 8 project manager 9 foreman 10 architect	**2**	1 b 2 c 3 a 4 b 5 a 6 c 7 a 8 b	**3**	1 j 2 e 3 g 4 a 5 f 6 b 7 i 8 d 9 h 10 c
4	1 comes 2 has 3 leaves 4 does not like 5 Does your company raise 6 Do they pay 7 offer 8 are 9 have 10 orders	**5**	1 d 2 g 3 h 4 a 5 f 6 c 7 e 8 b		
UNIT 4					
1	1 efficiency 2 environment 3 restore 4 friendly 5 recycling 6 renewable	**2**	1 c 2 a 3 e 4 b 5 d	**3**	1 I am standing in the classroom now. 2 Pete is not reading a book now. 3 The pupils are listening to the teacher now. 4 They are playing games now. 5 My friend is not helping now. 6 Is she dancing with Fred now? 7 What are Bruce and Loretta doing? 8 What are Sam and Carla looking at?
4	1 do new neighbours come 2 reads 3 am doing 4 am eating 5 Do you want 6 are watching 7 do not like 8 is sleeping 9 cooks 10 writes	**5**	1 is bringing 2 often listens 3 are writing 4 is making 5 gives 6 is reading 7 grows 8 are building 9 drinks 10 is running		

MODULE 2

SELF-STUDY					
UNIT 1					
1	1 a semi-detached house 2 a cottage 3 a block of flats 4 a church 5 a detached house 6 a dwelling	**2**	1 construction 2 dwellings 3 functional 4 durability 5 perishable 6 development 7 buildings 8 contractors	**3**	1 They constructed this building many centuries ago. 2 People used to live in dwellings. 3 Clay and stone were popular natural materials. 4 The change in energy available to the construction process was important. 5 The modern state of construction is complex. 6 The construction process is highly organized. 7 Consultants specialize in construction management, quality control and insurance. 8 The agricultural revolution gave a great impulse to construction.
4	1 made 2 dried 3 used 4 appeared 5 marked 6 developed 7 was 8 moved	**5**	1b 2d 3e 4a 5c 6f		
UNIT 2					
1	1 deals with 2 timber 3 cement 4 a tile 5 commercial 6 construction	**2**	1 manufacturing 2 residential 3 construction 4 brick 5 industrial 6 different 7 commercial 8 building	**3**	1 When did they finish the construction of the bridge? 2 Why did they sell the houses at such a low price? 3 Did the construction industry start in 2015? 4 How many structures did they build last year? 5 Did they construct many blocks of flats two years ago? 6 Did the construction industry include five sectors in the past? 7 Where did he work last month? 8 Did you buy a flat yesterday?
4	1 They didn't found the construction company	**5**	1c 2d		

	last year. 2 She didn't buy two flats last week. 3 The construction industry didn't include two sectors in the past. 4 They didn't make a huge profit last year. 5 She didn't know much about the residential sector of the construction industry. 6 He didn't decide to begin producing building materials a few years ago. 7 This sector didn't deal with the construction of bridges and tunnels in the past. 8 They weren't glad to see so many changes in the construction industry of the country.		3a 4e 5b		
UNIT 3					
1	1 budgeting 2 logistics 3 supervises 4 coordinates 5 assemble 6 execution 7 responsible for 8 environmental	**2**	1 execution 2 environmental 3 coordination 4 planning 5 implementation 6 height 7 width 8 construction	**3**	1 a 2 - 3 a 7 a 8 a 9 a 10 the 11 the 12 - 13 the 14 - 15 the 16 a
4	1 took 2 measurements 3 weighed 4 large 5 mostly 6 long 7 formed 8 pointed	**5**	1d 2f 3b 4e 5c 6a		

UNIT 4					
1	1 snow load 2 essential 3 objectives 4 settlement 5 displacement 6 bearing capacity; foundation 7 soil 8	**2**	1 settlements 2 displacement 3 deformation 4 acceleration 5 stability 6 rectangular 7 reinforced 8 bearing	**3**	1 has written 2 have seen 3 have known 4 Have ….. finished 5 has built 6 have finished 7 Have …... discussed 8 has started
4	1 They haven't done it recently. 2 She hasn't met the construction engineer today. 3 I haven't already spoken to our partners. 4 We haven't known each other for ages. 5 They haven't just returned from abroad. 6 He hasn't finished his report today.	**5**	1 finished 2 have concluded 3 has solved 4 went 5 started; haven't finished 6 Have …… known 7 saw 8 have dealt		

MODULE 3

SELF-STUDY UNIT 1					
1	1 must be chosen 2 can be classified 3 can be divided 4 can be used 5 is used 6 is added 7 are used 8 is used 9 are made 10 is used	**2**	1 b 2 c 3 a 4 f 5 d 6 e 7 h 8 g	**3**	1 d 2 e 3 a 4 b 5 f 6 c 7 g
UNIT 2					
1	1 alloy 2 carbon 3 stronger 4 corrosion 5 structural framework 6 strength-to-weight	**2**	1 e 2 g 3 b 4 c 5 a 6 f	**3**	1 Spanner A is longer than spanner B. 2 Spanner A is wider than spanner B. 3 Spanner B is shorter than spanner A.

	7 concrete 8 decoration		7 d		4 Spanner B is narrower than spanner A. 5 Spanner B is lighter than spanner A. 6 Spanner B/A is cheaper than spanner A/B. 7 Spanner A is thicker than spanner B. 8 Spanner A is thinner than spanner B. 9 Spanner A is heavier than spanner B 10 Spanner A/B is more expensive than spanner A/B.
4	1 the happiest 2 best 3 cheaper 4 the most delicious 5 more beautiful 6 better 7 the prettiest 8 more famous 9 hotter 10 more expensive 11 cleaner 12 the hardest	**5**	1 big – bigger – the biggest 2 clever – cleverer – the cleverest 3 good – better – the best (искл.) 4 pleasant – more pleasant – the most pleasant 5 poor – poorer – the poorest 6 bad – worse – the worst (искл.) 7 funny – funnier – the funniest 8 important – more important – the most important 9 sunny – sunnier – the sunniest 10 far – farther – the farthest (искл.) 11 comfortable – more comfortable – the most comfortable 12 wise – wiser – the wisest	**6**	1 The Mona Lisa is the most famous painting in the world. 2 The Volga is longer than the Don. 3 Spain is more beautiful than Germany. 4 London is the biggest city in England. 5 Adam is the worst player in the team.
UNIT 3					
1	1 prestressing 2 reinforcement 3 pounng 4 precast 5 in-situ 6 formwork	**2**	1 d 2 c 3 b 4 a 5 f 6 e	**3**	1 kilns 2 reinforcement 3 concrete 4 cement 5 formwork 6 reinforced concrete
4	1 thirty, thirteen, six, nine, two, four, five, eight, twenty, seventy,	**5**	1 John lives on the sixth floor. 2 Diana lives on the		

	three hundred, one thousand, million, zero 2 ninth, sixth, second, third, eleventh, fifteenth, seventh, four hundred and eighty-first		fifth floor. 3 Peter lives on the fourth floor. 4 Sofia lives on the third floor. 5 Oliver lives on the second floor. 6 Amanda lives on the first floor. 7 Kelly lives on the seventh floor. 8 Tom lives on the eighth floor.		
UNIT 4					
1	1 porous and fibrous structural tissue 2 an organic material 3 water and nutrients 4 plant materials 5 material engineered from wood 6 as a construction material 7 furniture and paper	**2**	1 e 2 f 3 d 4 c 5 b 6 a	**3**	1 solid wood 2 stress-graded 3 circular saw 4 saw dust 5 Engineered wood 6 sawmill
4	1 much water, little water, a little of water 2 many problems, few problems, a few problems 3 many friends, few friends, a few friends 4 much food, little food, a little of food 5 much hope, little hope, a little of hope 6 many people, few people, a few people 7 much time, little time, a little of time	**5**	1 u 2 c 3 c 4 u 5 u 6 c 7 u 8 c 9 u 10 u 11 c 12 u 13 c 14 u 15 u 16 u 17 c 18 u 19 u 20 c		

SELF-STUDY					
UNIT 1					
1	1design 2 unauthorized access 3 security 4 demolish 5 accommodation 6 facilities 7 risk assessment 8 requirements 9 investigate 10 construction	**2**	1 b 2 a 3 d 4 c 5 e 6 f 7 h 8 g	**3**	1 A loader 2 An excavator 3 A grader 4 A bulldozer 5 A dump truck 6 A tower crane 7 A concrete mixer 8 A pile boring machine
4	powerful application various buildings industrial construction equipment equally	**5**	directions exactly entrance straight turn walking help problem		
UNIT 2					
1	1 delays 2 protection 3 hot 4 wet 5 wind 6 lightning 7 cold 8 damage	**2**	1 b 2 c 3i 4 g 5 f 6 h 7 j 8 e 9 a 10 d	**3**	1 good 2 strong 3 heavy 4 wet 5 foggy 6 strong 7 thick
4	1 at, for 2 in 3 on 4 since 5 during 6 to 7 across 8 at	**5**	1 complaint 2 quality 3 order 4 manufacturers 5 refund 6 delivery 7 warranty 8 stock 9 faults 10 cancelled	**6**	1 What's wrong with the sand? 2 What do you mean? 3 Are you saying that we sent you three truckloads? 4 I'd like to complain about my order. 5 Could you clarify that? 6 Could you repeat that, please?
UNIT 3					
1	1 collaboration	**2**	1 email	**3**	1 f

	2 failure 3 crew 4 essential 5 aim 6 environment 7 improve 8 fail 9 lead 10 lack		2 PDF 3 two-way radio 4 smartphone 5 connect 6 cover		2 j 3 i 4 b 5 g 6 h 7 e 8 c 9 a 10 d
4	1 Cancel all the works. Hurricane is coming. 2 Don't move the tower crane to this area. 3 Put on your helmets on the construction site. 4 Please, call me after office hours. 5Follow the rules while visiting the construction site. 6 Don't park here! 7 Respect elderly people. 8 Don't walk on the top of the roof. It's dangerous. 9 Don't switch off the lights on the construction site at night. 10 Don't smoke here!	**5**	1 c 2 e 3 a 4 d 5 b		
UNIT 4					
1	injury avoid equipment protective helmets goggles face earplugs kneepads aid	**2**	1 follow 2 alert 3 equipment 4 prevent 5awareness 6 goggles 7 harness 8 deal 9 emergency 10 aid	**3**	1 c 2 d 3 b 4 e 5 a
4	1has to 2 needn't 3 mustn't 4 should	**5**	1 Safety signs come in bright colours. 2 Warning signs warn you about dangers.		

	5 has to 6 mustn't 7 don't need to 8 has to 9 mustn't 10 should 11has to 12 mustn't 13 needn't 14 need to 15 has to		3 These signs are used to make you aware of a hazard. 4 This sign lets you know where the first aid kit is. 5 These signs let you know where fire equipment is. 6 You should be able to understand safety site construction signs.		

ЗАКЛЮЧЕНИЕ

Пособие «English for construction» позволяет овладеть коммуникативной компетенцией на английском языке на уровне B1 – B2.

В результате освоения материала данного пособия, обучающиеся могут участвовать в обсуждении различных профессиональных проблем, возникающих в сфере строительства, на английском языке, опираясь на достаточный запас профессиональной лексики и навыки выбора и применения соответствующей грамматики в зависимости от ситуации общения, находить и использовать необходимую профессиональную информацию из иностранных источников, читать тексты профессиональной направленности, общаться с зарубежными партнерами.

Основными целями данного пособия являются:

- расширение профессионально-ориентированного лексического запаса;
- закрепление грамматического материала;
- совершенствование умений контактировать в устной форме с собеседниками;
- развитие умений выражать собственную точку зрения и отстаивать свою позицию;
- формирование умений анализировать ситуации, создавшиеся в профессиональной сфере, и предлагать пути решения проблем;
- развитие навыков ведения переговоров с несколькими участниками, делать выводы на основе полученной и проанализированной информации, выражать согласие или несогласие с представленными позициями;
- совершенствование чтения аутентичных текстов профессиональной тематики;
- формирование умений самостоятельной работы по овладению английским языком;
- развитие у обучающихся профессиональных компетенций в области профессионального английского языка.

Для закрепления и мониторинга полученных знаний и умений, студентам предлагаются задания после каждого юнита, а также тест в конце каждого модуля, что представляет возможность самостоятельной или коллективной оценки прогресса или регресса в освоении определенного материала в частности и делового английского языка в целом.

Таким образом, успешное изучение представленного в пособии материала и выполнение предложенных заданий содействует формированию и развитию коммуникативной компетенции в области профессионального общения, совершенствованию речевых умений и навыков, а также применению этих знаний в конкретных ситуациях профессионального общения.

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АНГЛИЙСКИЙ ЯЗЫК В СФЕРЕ СТРОИТЕЛЬСТВА

ENGLISH FOR CONSTRUCTION

Учебник

Редактор _____

Компьютерное макетирование: _____

Подписано к изданию _____
Заказ № _____