МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
БІЛОЦЕРКІВСЬКИЙ НАЦІОНАЛЬНИЙ АГРАРНИЙ УНІВЕРСИТЕТ

СОЦІАЛЬНО-ГУМАНІТАРНИЙ ФАКУЛЬТЕТ

Кафедра іноземних мов

ENGLISH FOR SPECIFIC PURPOSES: LAND SURVEYING IN USE

НАВЧАЛЬНО-МЕТОДИЧНИЙ ПОСІБНИК

для здобувачів вищої освіти
галузь знань – 19 «Архітектура та будівництво»
спеціальність – 193 «Геодезія та землеустрій»

Біла Церква – 2024

УДК 81'243:528.4(075)

Рекомендовано науково-методичною
комісією Білоцерківського НАУ
(Протокол № 9 від 20.06.2024 р.)

Велика К.І. English for Specific Purposes: Land surveying in Use: навчально-методичний посібник для здобувачів вищої освіти галузі знань – 19 «Архітектура та будівництво». Біла Церква, 2024. 296 с.

Навчально-методичний посібник рекомендовано здобувачам вищої освіти немовних спеціальностей першого року навчання та спрямовано на розвиток усіх мовних компетентностей для застосування англійської мови у професійних цілях.

Навчально-методичний посібник було доповнено теоретичним матеріалом, граматичними вправами, англомовним глосарієм з геодезичними термінами та адаптовано до освітнього компоненту «Іноземна мова за професійним спрямуванням» спеціальності 193 «Геодезія та землеустрій».

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ПЕРЕДМОВА

Навчально-методичний посібник “English for Specific Purposes: Land Surveying in Use” розроблений для розвитку мовних навичок, які формуються під час вивчення курсу «Іноземна мова за професійним спрямуванням» і рекомендується студентам першого (бакалаврського) рівня вищої освіти галузі знань – 19 «Архітектура та будівництво», спеціальності – 193 «Геодезія та землеустрій».

Завдяки розробленому навчальному матеріалу у здобувачів вищої освіти формуються загальні компетенції (ЗК 05 – здатність спілкуватися іноземною мовою в усній та письмовій формах) і досягаються результати навчання (РН 1 – вільно спілкуватися в усній та письмовій формах державною та іноземною мовами з питань професійної діяльності), що зазначені у Стандарті вищої освіти.

У процесі складання до навчально-методичного посібника внесено значні зміни. Окрім попередньо створених аудиторних уроків з англомовним тематичним матеріалом (комунікативні вправи, тексти для читання, вправи до текстів, граматичні завдання, відео), було додано

теоретичний матеріал, глосарій англомовних геодезичних термінів, граматичний матеріал для самостійної роботи.

Навчально-методичний посібник “English for Specific Purposes: Land Surveying in Use” структуровано та уніфіковано. Заняття тематизовані і містять тексти із супроводжувальним вокабуляром та вправами лексичного, граматичного, комунікативного характеру. Завершується заняття ситуативними вправами, які максимально наближені до професійних реалій. Перегляд навчальних відео допомагає краще зануритися у мовне середовище, вивчаючи різні теми за професійним спрямуванням.

Навчально-методичний посібник складається із двох частин. Перша частина має 20 практичних аудиторних занять, друга – 10 граматичних уроків для самостійної роботи.

Джерелами навчального матеріалу для створення завдань слугували англомовні тексти з галузі геодезії та землеустрою, а також підручники та посібники для вивчення іноземної мови за професійним спрямуванням.

Завдання розроблені таким чином, щоб досягти основної мети курсу «Іноземна мова за професійним спрямуванням».

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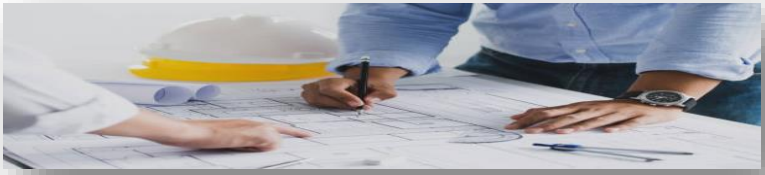
PART ONE. LESSONS

UNIT 1

DISCUSSION: ENGINEERING SPECIALTIES

Engineering is a popular career path with various applications in many industries. As technology and customer needs evolve, new areas of engineering are emerging. Understanding the different engineering specializations can help you decide which one suits you best.



- What professions are considered to be engineering?
- Where do engineers work?
- What skills and knowledge do engineers have?

Words to know:

application	require

industry scientific knowledge equipment responsibility	encounter collaborate societal aesthetically skill

Read and translate the text.

The Engineering Specializations

Engineering specializations are concentrations that engineers may focus on throughout school and in their careers. Engineers often use science and math to design and build structures, equipment, and other products to solve human problems. However, it's common for engineers to pick a specialization, depending on their talents and interests. For example, one engineer may choose to focus on industrial engineering while another may want to build their career in mechanical engineering.

The Foundational Skills for Engineers

Here are some skills you may consider developing to successfully work as an engineer:

Problem-solving skills: Problem-solving skills refer to identifying a problem and designing a suitable solution. The core of an engineer's responsibilities is developing products to solve societal problems.

Communication skills: Engineers often use active listening skills to understand the needs of their clients. Since engineers sometimes supervise a team of staff, it can also be beneficial to have excellent communication skills to direct operations and convey instructions effectively.

Innovation and creativity: Engineers often encounter complex problems which require innovation and creativity to solve. They also apply innovation to make products aesthetically pleasing and comfortable for users.

Attention to detail: Engineers often deal with delicate systems that can malfunction because of minor errors. They require attention to detail to detect issues when they arise and ensure their equipment functions properly.

Teamwork skills: Engineers rarely work alone on projects and usually collaborate with other engineers and professionals. They require teamwork skills to collaborate effectively and develop better ideas.

Answer the following questions:

1. What is an engineering profession?
2. What engineering professions do you know?
3. What skills do you need to possess if you want to work in engineering industry?

Translate the following: to build a career, to require teamwork skills, work on projects, to solve societal problems, to detect issues, to have excellent communication skills, to collaborate with other engineers and professionals, to convey instructions effectively.

How to ask and answer about someone's job

What do you do?	I work in **(+ a place of work or in general)** a civil engineering company / building construction
What's your job?	I'm **(+ the name of a particular job)** a land surveyor / an architect / a land manager / a landscape designer
What do you do for a living?	I work for **(+ a company name)** AB Surveying and Development.

Read the dialogue how to ask about people's occupations then ask your group mates in the same way.

Oleh: *What does your father do*?
Maria: He is a land manager.

A: What does your _____ do?
B: He / she is a / an _____ .

Use the correct verb form.

E.g. Valentyn is an engineer.

Svitlana ___ a builder. Look at Elena and Rose. They _____ civil engineers. I ____ a land surveyor. Vlad ____ an architect. Look at Ivan and Petro. They _____ land managers. Mykola __ a landscape designer.

Watch the videos and try to give your personal information about your name, address, telephone number, occupation. Video reference 8 / 9.

E.g. I am a first year student. My address is .... , my telephone number is … .

Oleh is asking Olha about her family members and their occupations. Write a **or** an **only where it is necessary.**

Oleh: What about your family, Olha?

Olha: Well, my husband is ___ accountant that works for Ukraine International Airlines, and our daughter's ____ student in the third grade. They are in Bila Tserkva with my parents.

Oleh: Do you have any brothers or sisters?

Olha: Yes, two brothers and one sister.

Oleh: What do they do?

Olha: My brother Ruslan and my sister Sofia are __ students. But my elder brother Mykola works with my father. They're __ salesmen.

Oleh: What does your mother do?

Olha: She's __ housewife.

Remember the following:

a man – men
a salesman – salesmen
a woman – women
a saleswoman – saleswomen

an actor – an actress

a host – a hostess
a waiter – a waitress

UNIT 2

DISCUSSION: A CAREER AS A LAND SURVEYOR

- What does a land surveyor do?
- What are the job responsibilities of a surveyor?
- What knowledge is important for a surveyor?

Words to know:

career	problem solving
to interact	to be interested in
outside	education
technology	entry
resource	profession
passion	outdoors
science	math

Watch the video about people who would like to work as a land surveyor. Video reference 2. Be ready to retell about your desire to become a surveyor.

Mark the statements as true or false:

1. ___ You choose the profession of a land surveyor if you are good at math science and problem solving.
2. _____ Land surveyors like working with people and outdoors.
3. _____The career requires mental and physical activity.
4. _____ There are no websites with important information for young people looking for a land surveying career.

Make up word combinations.

important	solving
problem	with people
work	outside
land	field
to be good at	math
math	surveyor
changing	science
to be	technology
mix of	outdoors
interacting	information

Answer the question using the correct word order: s + v+ obj. + ad. mod.:

- What is the video mainly about?
- Who would enjoy a career as a land surveyor?

Imagine you have a job and you work as a land surveyor. I am going to ask you about your job, but first listen to the example about my job and then answer the questions using my examples.

E.g. I have a job. I am a university teacher. I like my job and what I like most about it is communication with students. Unfortunately teachers don't earn a large salary in Ukraine.

T. Do you have a job?
S. Yes,_____

T. What is your job?
A. You _____.

T. Do you like your job?
S. Yes, _____

T. What is most favorite part in your job?

S. It is _____

T. Are you satisfied with your salary?
S. Yes, _____

T. Is your salary high or low?
S. Yes / No_____

T. Do land surveyors earn a lot in Ukraine?
S. Yes / No, _____

T. Is your work safe on the construction site?
S. It _____

T. What do you do to protect yourself?

S. _____

T. What do you wear to protect yourself?
S. _____

Ask your group mates.

S1. Does he / she have a job?
S2. Yes / No, I _____

S3. What is his / her job?
S4. He / she _____

S5. What does he do at work?
S6. He / she _____

S7. What does he do to stay safe at work?
S.8 He / she _____

Read the conversation with a teacher about her job and complete it with the right questions?

A: _____?
B: I usually start at 8: 30 and finish at five.

A: _____?
B: Yes, a bit. On certain courses I work until five o'clock, and then I get paid extra money.

A: _____?
B: Twelve weeks. That's one of the good things about being a teacher.

A: _____?

B: No, we don't, I'm afraid. That's one of the disadvantages of being a teacher. But I suppose money isn't everything.

Transform into the third person singular.

E.g. land surveyors measure and divide boundaries of the land properties – a land surveyor measures and divides boundaries of the land properties.

- Architects design new buildings and are responsible for how they are built –
- Civil engineers plan and build public buildings, roads, bridges –
- Land managers are legally responsible for the maintenance, use and development of resources for a section of land or piece of property –
- Teachers have 15 lessons a week –
- Agricultural engineers specialize in the design, development and installation of agricultural, forestry machinery and advise on rural management of natural resources –
- Mechanical engineers study how machines are designed, built and repaired –

- Builders construct something by putting parts or material together –
- Mayors of the city have beautiful cottages in the countryside –

UNIT 3

DISCUSSION: UNDERGRADUATE PROGRAM FOR SURVEYORS

- Do you know the main task of your future profession?
- What disciplines do you need to know to become land surveyors?

Words to know:

agriculture	legal acts
assessment	interconnected
treasure	aerial shooting
land estimation	draw up
farmland	geodetic
required	valuable
issue	submit to

Translate the following word combinations: natural sciences, in comparison with, poor experience, conducting land reforms, crop rotation, chemical composition of soil, treasure, land surveying, land estimation, land law, cartography, aerial shooting, drawing up of maps, interconnected, graduates, land resource management, land process forecasting, landscape architecture manager, important and claimed, purpose, land protection, agricultural culture.

Read and translate the text.

Studying at Bila Tserkva National Agrarian University

Bila Tserkva National Agrarian University is a higher educational institution of Ukraine that trains students for the agricultural sector. These future specialists are managers of the land which is the most valuable treasure of our country. Therefore, all these professions are important and chosen for the agricultural sector as well as land surveyors. Experts in geodesy and cartography carry out aerial shootings, mapping and measurements of the surrounding environment. Conducting land subdivision and land

estimation, they use the geographic information systems for finding locations and creating registers.

In general, a land surveyor is considered to have an engineering specialty, but also it can be considered a universal one. It deals with land reforms, land properties, farmlands, land distribution, natural resources, natural processes, chemical compositions of soils and etc.

According to it, students that are in the Land Management Department learn geodesy, cartography, topography, land surveying, land ecology, land resource management, land forecasting processes, cadaster. All disciplines studied at the university are essential and interconnected. It is important for these specialties to be aware of geology, land estimation and land law.

In conclusion, land surveying is constantly going on in any developed country. Its purpose is to organize the rational resource use and land conservation to improve agriculture. Therefore, well qualified land surveyors are in great demand these days.

Match the following phrases.

	system maps

land chemical aerial draw agricultural engineering conduct natural make geo information	surveying shooting reform estimation law resources culture specialty soil composition surveyor ecology sector

Fill in the spaces with the needed words.

A. A land surveyor _____ an engineering specialty.

B. Land surveying is constantly ___on the territory of any developed country.

C. The university graduates are well aware of _____.

D. Land surveying ___with natural processes, physical conditions, chemical composition of soils and farmlands.

E. Land is the most valuable _____ of our country.

F. Geo information systems help to make _____.

G. Well qualified land surveyors _____ now days.

Read the dialogue and make up your own.

At the University Coffee Shop

Christine: Hi, Oleh. How are you?

Oleh: Ok. And you?

Christine: I'm fine. Are those photos yours? Can I see them?

Oleh: Yes, of course. Sit down.

Christine: Who's that?

Oleh: My cousin Mykola.

Christine: That's an unusual name. How do you spell it?

Oleh: M-y-k-o-l-a. And that's his wife, Oksana.

Christine: Oh, he's married. How old is he?

Oleh: He is twenty-five. Are you married?

Christine: No, I'm not. Are you?

Oleh: No. Do you have a boyfriend?

Christine: No.

Say if these statements are true or false:

1. Christine is married.
2. Oksana is married.
3. Mykola is twenty-seven.

Ask about marital status. Read the example.

Oleh: Are you married?
Christine: No, I'm not. Are you?
Oleh: No. Do you have any children?
Christine: No.

A: Are you married?
B: _____. Are you?
A: _____ Do you have a boyfriend / girlfriend?
B:_____

There + to be + subject + location. *E.g. there is a point on the map. There are several objects on the construction site.*

There + to be + not + subject + location. *E.g. there is not a point on the map. There are not any objects on the construction site.*

To be + there + subject + location. *E.g. is there a point on the map? Are there any objects on the construction site?*

Fill in the spaces with there is / are.

Bila Tserkva National Agrarian University is conveniently located at 8 Soborna Square. Students can get almost everything they need near the campus.

There _____ a post office on Oleksanriiskyi Boulevard and there _____ banks on Yaroslav Mudryi Street and Druzhba Street.

There _____ a bookstore at the corner of Volodymyr Street and Gagarin Street and there ____ also one on Yaroslav Mudryi Street. There _____ two pharmacies and a supermarket on Yaroslav Mudryi Street. There ___ many restaurants, coffee shops and cinemas near the campus too.

Make up your own sentences about place locations that you can find at the university. To describe the place locations use there is / are and words in the box:

assembly hall, lecture hall, library, laboratory, student canteen, xerox kiosk, cafeteria, conference hall,

classroom, dean's office, rector's office, land measurement department, teacher's lounge, cloakroom, water closet, student council.

Open conversation.

A: Excuse me, is there a / an _____ near here?
B: Yes / No, _____
A: And is there a / an _____ ?
B: Yes / No, _____

Watch the video and try to retell what there is at your dormitory. Video reference 4. *E.g. there is a dormitory near the main campus of the university where I live with my group mates. Our room is small, but it also cozy and comfortable. There are 3 windows in the room that make it quite bright……*

UNIT 4

DISCUSSION: PROFESSIONAL STANDARDS FOR SURVEYORS

- What do you know about professional standards for surveyors?

• What qualification certificate do you need to have to work as a land surveyor?

Words to know:

procedure	agreement
appropriate	assessment
core curriculum	theoretical
confirm	skill
competence	controversial
submits to	issue
application	cancellation
scheme	approve

Read and translate the text.

The Certification Procedure for Land Surveyors

To confirm professional competence, land surveyors must pass a qualification exam. The exam is given at the appropriate accreditation level by the land management faculties at the universities. These faculties have an agreement with the State GeoCadastre. The qualification exam includes both a writing test and an oral test. There are tasks for the

assessment of the theoretical and practical skills, which are required by land management core curriculums and study documentation. During the qualification exam, one cannot use land law documents, any form of written material or any kind of digital help of communication.

The Qualification Commission reports the results of the exam on the day of the exam. The controversial issues are resolved on the day of the qualifying exam after it has been passed by the whole group.

Discuss professional standards for land surveyors with your group mates:

- tell what you think about the qualification exam;
- share your thoughts if you agree or disagree with oral and writing tests .

Read and translate the text.

The Qualification Certificate

To obtain a qualification certificate, a land surveyor submits to the qualification commission:

- an application;

- a copy of their higher education document in the field of land management;

- a document confirming work experience;

- a recommendation letter from the internship head;

- a land management documentation list that is drawn up by a land surveyor and verified by the internship head.

- copies of schemes / land management projects / technical documentation for land assessment in which the land surveyor has participated.

The relevant procedure for the work of the Qualification Commission, the issuance and cancellation of a qualification certificate of a land surveyor and surveyor engineer are approved by the Ministry of Agrarian Policy.

Mark the statements as true or false:

1. All qualified land surveyors must pass the qualification exam _____.
2. The qualification test is passed with the help of computers online ____.
3. To obtain a qualification certificate, a land surveyor submits an application and needed document to the Ministry of Agrarian Policy _____.

4. The relevant procedure of the Qualification Commission work is approved by the Ministry of Agrarian Policy _____.

Write an essay about the things you have liked most about your future profession; name the reason to become a land surveyor. You can read a university advertisement about your specialty; it might help you to write your essay:

Why Become a Surveyor:

1. Surveying provides a great diversity of indoor and outdoor work, meaning you won't be chained to a desk.
2. There is a job variety; you can choose to work in many different industries from it to archaeology.
3. The high demand for surveyors means it's easy to get a job, 95% of students find work within 4 months after graduating.
4. The salaries are excellent; graduates earn an average of $52 p.a.
5. Surveyors have access to the latest technology and equipment.

6. Surveyors can work for themselves, in private firms or in government departments.

UNIT 5
DISCUSSION: SURVEYOR'S WORK

Let's get to know how much you know about your profession.

Say yes or no

- A land surveyor works in the field and in the office – from suits to boots.
- A land surveyor paints the walls of buildings.
- Surveyors are the first people on any construction site, measuring and mapping the land.
- A land surveyor cares about crops in the fields.
- Planning crop rotation in a proper way is one of the main tasks both for agronomists and land managers.
- In the office, surveyors use agricultural equipment to draft plans and to map the onsite measurements.

- Surveyors are among good company, working closely with their peers in the field of engineering, architecture, geology and planning.
- Land surveyors harvests crops.

Words to know:

robotic total station	construction site
theodolite	underpin
evidence	utilities
measurement	land subdivision
computation	landscape
terrestrial	remote sensing

Read and translate the text.

The Surveyors' Work

Land surveyors work in the office and in the field – from suits to boots. Out in the field, they use the

latest technology such as high order GPS, robotic total stations (theodolites), and aerial and terrestrial scanners to map an area, making computations and taking photos as evidence.

In the office, surveyors use sophisticated software, such as auto-cad to draft plans and to map the onsite measurements. Surveyors work on a diverse variety of projects from land subdivision and mining exploration to tunnel building and major constructions, which means no two days are the same. They are experts in determining the land size and measurements. They also give advice and provide information to guide the work of engineers, architects and developers.

Answer the following questions:

- Do surveyors have the same work conditions in Ukraine? Why?
- What work conditions would you like to have?

Let's get to know about the daily routine of two land surveyors Christine and Robert that work and study part time.

1. Complete their positive and negative

sentences in the Present Simple Tense.

Robert's daily routine	**Christine's daily routine**
1. Robert … (get up) early. He … (stay) in bed until 9 o'clock.	1. Christine …. (get up) early.
2. He … (drive) a car.	2. She … (ride) a bike.
3. He … (work) in a building company.	3. She … (work) in an architect company.
4. He … (have) lunch in a restaurant.	4. She … (make) ……. lunch at home.
5. He … (attend) classes in the afternoon.	5. She … (attend) classes in the evening.
6. He … (prepare) for lectures and seminars at home late in the evening.	6. She … (prepare) for lectures and seminars in the library early in the morning.

2. Work in groups of two.

Student A: You are going to interview Robert / Christine. Ask him / her questions about his / her daily routine.

Student B: You are Robert / Christine. Answer the interviewer's questions about your daily routine.

Make up sentences using the tables and translate them.

A.

I	leave (es) for take (es) have (has)	university	at half past 8 at 8 o'clock at half past 7 at a quarter to 8
He		work	
She		practical training	
		a bus	
		a shower	
		breakfast	

B.

It takes	him	10 minutes	to get to	the office
	her	30 minutes		the department
	them	an hour		the university
	me	half an hour		the dormitory
	you	15 minutes		the campus

C.

How long does it take	you	to get to pass to conduct to take to be	home?
	him		to the university?
	her		from the university dining room to the lecture hall?

	us	prepared	a preparatory course?
	them		from the dormitory to the library?
			scientific and research work?
			for seminars?
			for the exam?

Complete the sentences using the words from the box in the correct verb form:

have, go, wake, go, get, wake, have, go, brush

1. She usually ___ up at 7 a.m. when her alarm clock goes off. 2. He usually ____ lunch at noon.

My family and I usually _____ dinner at about 7 p.m. 3. He doesn't live in the village, so he often ____ home by bus. 4. On days off, I _____ to bed later than on weekdays. 5. On Sunday I don't ___ up until I _____ up, usually at about 9 a.m. It's nice to sleep in! 6. I always _____ my teeth before I go to bed. 7. On weekdays, I ____ to work at 8.30 a.m.

Fill in the sentences with the appropriate prepositions.

1.

- When does your roommate usually get __ ?

- He gets up ____ half past seven ___ weekdays and __ a quarter __ nine ___ days off. He wakes ___ half past nine ___ summer. When the alarm clock rings he jumps ____ the bed, switches ___ the radio and does morning exercises ____ music.

2.

- Why do you have red eyes?

- I usually sit __ late brushing ___ my grammar and vocabulary, so I feel excited that I can't fall asleep ___ night.

- My sister says that if we don't go ___ bed ___ time it ruins our health.

UNIT 6

DISCUSSION: MY MAJOR IS SURVEYING

- What is land surveying?
- Why is surveying important?
- What do surveyors do?

Words to know:

to measure	construction
equipment	mapping
subdivision	environment
to underpin	accurately
primary	safely

Read and translate the abstract about your specialization.

The Land Surveying Major

Surveying or land surveying is the measuring and mapping of our surrounding environment using mathematics, specialized technology and equipment. Surveyors measure just about anything on the land, in the sky or on the ocean bed. They even measure polar ice-caps.

We depend on surveying to ensure order in the physical world around us. Surveyors play an integral role in land development, from planning and designing

of land subdivisions to the final construction of roads, utilities and landscaping.

Surveyors are among good company, working closely with their peers in the fields of engineering, architecture, geology and planning. Their role is to underpin these industries. Surveyors are the first people on any construction site, measuring and mapping the land. These primary measurements are then used by architects to understand and make the most of the unique landscape. Surveyors help engineers to plan structures accurately and safely, ensuring buildings not only fit with the landscape but are able to be constructed.

Surveying is related to the broad areas of spatial science or geospatial science. Spatial means “the relative place or location of something”. Spatial science helps to understand the relationship between the community and the environment. Surveying is first done to establish the boundaries and spatial technologies are used to interpret and report data. These data are used whenever we search on Google maps or track a location on a GPS unit. Other spatial professionals will use the data to establish trends or predict changes in the environment. The main types of surveying specializations are land, mining, engineering, hydrographics. Other spatial science fields include

geodesy, topographic surveying, remote sensing, geographic information systems (GIS).

Translate the following phrases: to plan structures accurately and safely, the high demand, government departments, the construction site, spatial science, the onsite measurements, remote sensing, mapping of our surrounding environment, to use mathematics, the specialized technology and equipment, to take photos as evidence.

Translate the following phrases and make up 6 sentences with them about a land surveyor using the Present Simple Tense:

- to plan structures accurately and safely
- the high demand
- government departments
- the construction site
- spatial science
- the onsite measurements
- remote sensing
- mapping of our surrounding environment using mathematics
- the specialized technology and equipment
- taking photos as evidence

Match the following to make sentences:

A. I put a lot of effort	1. on hold for ages.
B. It's not in your interest to	2. of work for over two months now.
C. The secretary's kept me	3. into writing this report.
D. I don't know why you didn't apply	4. business long.
E. I think we're all in agreement	5. in your work.
F. Dean's been out	6. for that position.
G. The shop hasn't been in	7. accept a pay cut.
H. I'm glad you're finally taking an interest	8. work, doesn't he?
I.Jason lives fairly near his place of	9. on this, aren't we?

Write one word in each gap. Use the suggested words and prepositions:

of / in, attend, on, day, of, at, doing / in, does, with / for.

1. Maybe you should write a letter ___ complaint to the manager. 2. When was the last time you had a _____ off? 3. Hardly had the police officer come _____ duty when he had to respond to an emergency. 4. My boss _____ at the moment, I'm afraid. Can you call back later? 5. I am available to _____ an interview at your convenience. 6. He's been _____ this job for over thirty years. 7. Our company _____ a lot of business with Altec Industries. 8. Sol's made an arrangement _____ the wholesalers to deliver more frequently in future. 9. June's got several years' experience _____ with contractors.

Watch the video about personal presentation. Follow the example and try to do the same. Video reference 7.

UNIT 7

DISCUSSION: OFFICE WORK FOR A SURVEYOR

- Have you ever worked at the office?
- Are you working now? If yes, say what your job is.

- What is the daily routine of a surveyor at the office?
- What stuff do people usually use to cope with tasks at the office?
- What do you use for your work at the office?
- What is a dress code for your job at the office?

Let's learn the things you can use in your job.

Words to know:

tripod	helmet
theodolite	rubber boots
measuring tape	protractor
slide ruler	uniform
compass	suit
level	drafting board
gloves	drafting paper

Listen to my example and answer my questions.

E.g. my mother is an accountant. She uses a calculator, a computer and a telephone in her job. She

wears a suit to work at the office. My brother is a security. He uses handcuffs and a radio communication in his job. He wears a security uniform to work at the office.

T. What does an accountant use in her / his job?
S. An accountant _____

T. What does an accountant wear to work at the office?
S. A. An accountant _____

T. What does a security use in his job?
S. A security _____

T. What does a security wear to work at the office?
S. A security _____

T. Does a university teacher use a gun in his / her job?
S. No, a university teacher _____

T. What do I use in my job?
S. You _____

T. What do I wear to work at the university?

S. You _____

T. What do you use to study at the university?
S. We _____

T. What do the students wear at the university?
S. Students _____

T. What does a land surveyor use in his / her job?
S. A land surveyor _____

T. What does a land surveyor wear at the office?
S. A land surveyor _____

Make up 6 sentences about your profession using the following words in the box.

drafting board, drafting paper, graph paper, slide ruler, compasses, wastepaper basket, calculator, computer, monitor, keyboard, mouse, calendar, bulletin board, filing cabinet, folder, drawer, briefcase

Imagine that you work as a land surveyor for a construction company. How much of this work is true or false about your job? How many of these

things would you like to do at work? What do you use to do these work tasks?

Things to do at work:

1. To work in the field or on the construction site ___.
2. To draft plans for construction projects ___.
3. To measure borders in the field ___.
4. To do a lot of general paperwork _____.
5. To arrange meetings with contractors ____.
6. To have quite a lot of meetings _____.
7. To write letters and reports ____.
8. To work at a computer most of the time ____.

E.g. a land surveyor + Vs, he uses … in his job, I would like to …., I don't want to…

Words to remember:

earn	overtime
invoice	income tax
arrange	developer
communication	contractor
deal with	make a phone call
construction site	order

Read about Olha's working day at the office completing sentences with the correct verb form.

The Secretary's Work at the Office

Olha _____ (to work) for a surveying company, which _____ (to provide) fast and accurate service. She _____ (to work) at the office, which _____ (to be) just opposite the construction site where her boss ___ (to be) today. This is how she _____ (to spend) her day:

She _____ (to work) at a computer most of the time, where she ___ (to write) letters and reports. It is her duty _____ (to answer) phone calls, mostly from clients and _____ (to send) invoices to them as well. Olha _____ (to make) phone calls to developers, builders and the contractors that _____ (to construct) buildings, tunnels and bridges.

Olha _____ (to show) visitors around the office and _____ (to do) general paperwork,_____(to prepare) reports, _____ (to write) memos, _____ (to answer) letters. She also _____ (to arrange) meetings for her boss and other surveyors in the company.

Read and translate the text about general labour rights that are truthful in the USA.

The Overtime Payment

An employer who requires or permits an employee to work overtime is generally required to pay the employee premium pay for such overtime work. Employees covered by the Fair Labor Standards Act (FLSA) must receive overtime pay for hours worked in excess of 40 in a workweek of at least one and one-half times their regular rates of pay. The FLSA does not require overtime pay for work on Saturdays, Sundays, holidays or regular days of rest, unless overtime hours are worked on such days.

The FLSA, with some exceptions, requires bonus payments to be included as part of an employee's regular rate of pay in computing overtime.

Extra pay for working weekends or nights is a matter of agreement between the employer and the employee (or the employee's representative). The FLSA does not require extra pay for weekend or night work or double time pay.

Answer these general questions about work in our country.

1. What are working hours for most office jobs in our country?

2. Please, name jobs that are paid well in our country.

3. What job often involves shift work? (Give at least two examples.)

Match the word combinations. Use each word only once.

1. go to	£700
2. work	meetings
3. pay	in a shop
4. earn	income tax
5. deal with	overtime
6. work	clients

Work with a partner and discuss the words that express communication:

- *a chat*
- *a conversation*
- *a discussion*
- *an argument*

Can you give the definition for these words above?

Read and translate the meaning of the conversation.

Conversation – an informal talk in which people exchange news, feelings and thoughts.

Fill in the gap with the right verb of the word *conversation.*

- Be quite! The boss _____ a conversation with contractors now.
- Yesterday, during the meeting the head of the land management department_____ a conversation about student employment not to stir things up (escalate).
- You can _____ a conversation about the surveying company with contractors to sign the agreement.

Fill in the missing prepositions.

1. They were deep _____ conversation.
2. She was engaged _____ conversation.
3. The subject came up _____ conversation.

The most spread conversation pieces at the office are:

- The conversation with a client.
- The office chat.
- The interview with an applicant.

Read all these conversations and make up your own dialogue with a partner.

The Office Chat

- Hey, Oleh! Are you going for coffee?
- Yeah. Sure. Are you going right away?
- Yes, I'm just gonna get Mykola.
- Alright, let me just finish this report and I'll be right with you, guys.
- OK, we'll be waiting at the front.
- I'll be there in a second!

The Conversation with a Client

Salesman: Hello. Welcome to Braxton hardware store. How can I help you?

Customer: Hi, I'd like to buy some geodetic tools.

Salesman: Great. What sort of geodetic tools are you interested in?

Customer: I want some compasses, slide rulers and measuring tapes.

Salesman: I'm sorry. I didn't catch that.

Customer: Compasses, slide rulers and measuring tapes.

Salesman: Got it. You'll get a sale if you buy three items of the same tool type. You'll get 10% off for 3 items.

Customer: No, thanks. I only need one item of each.

Salesman: Well, each item comes for 8 &.

The Job Interview with an Applicant

Interviewer: Good morning. Mr. Kovalenko, I'm Terry Judit.

Job applicant: Nice to meet you, Mrs. Terry Judit.

Interviewer: Nice to meet you too. Please, take a sit and we'll get started.

Job applicant: Thank you. Did you get my resume?

Interviewer: Yes, I did. It looks very good. Tell me about your last work at Gilbane.

Job applicant: Well, I drafted plans for construction projects, for bridges and tunnels.

Interviewer: Interesting. Now, applicants must have experience with modern construction facilities. Have you ever worked with buildings?

Job applicant: Yes, in my previous job. I have worked for CBG company.

Think about the last conversation you have had with a colleague. Work with a partner and discuss these questions in the Past Simple Tense or Past Continuous Tense.

1. Who were you talking to?
2. Did you know your conversationalist well?
3. What did you talk about?
4. Were you satisfied with your English?
5. Who did most of the talking, you or the conversationalist?
6. How was the conversation finished?

Use the following patterns for your answer. *E.g. I talked to…., we were talking about, it was about…….*

Classify the adjectives from the box to describe your last conversation with a client.

Positive	Negative	Neutral

humorous, lovely, interesting, frustrating, recent, compelling, lengthy, captivating, memorable, undistinguished, predictable, embarrassing, one-way, common, meaningful, meaningless.

Make up your own dialogue with a partner about work at the office. Use the Past Simple Tense and the Past Continuous Tense.

UNIT 8

DISCUSSION: SMALL TALK

Read the statement and tell what you think about it. Do you agree or disagree?

If you want to get on well with your colleagues you must be a good conversationalist.

The meaning of the word *conversationalist* in English: someone who enjoys or is good at talking with people.

Read the proverb and try to explain how you understand it.

All doors are open to courtesy.

Read these conversation rules and say what you think of them.

- Talk about things that will interest your colleague.
- Keep to the topic.
- Do not say anything to hurt someone's feelings.
- Be polite.
- Do not begin talking while someone else is talking. Say 'Excuse me' if you must interrupt someone. Then wait for your turn.
- Do not talk too loud.

Who is a good conversationalist to your mind? Work in small groups and discuss these questions:

- What makes a small talk interesting?
- What makes a small talk riveting?
- What's your definition of a good conversationalist?

When answering, use the following patterns:

- *As it seems to me / I think / to my mind (in my opinion) a good conversationalist is + adj.*
- *I tend to think that / to my mind / I believe that (in my opinion) (person's name) is the + most + adj.*

Fill in the blanks with the correct words from the box of words: living, avoid, involve, discuss, flow, marital status**.**

1. John's job _____ mapping and collecting data.
2. What does Allison do for a _____?
3. _____ personal topics with strangers.
4. The conversation with my boss didn't ____.
5. The professor chose not to _____ religion with students.
6. Don't ask your boss about his _____

Here are some subjects in the box to talk about. Read the list and say which of them are most interesting to you and with whom you would like to talk about them:

books, hobbies, sports, university events, films, magazines, radio and television, university news, work problems.

Give your ideas for a friendly conversation:

- Imagine you have a newcomer at work. You know nothing about him / her. Say what questions you would like to ask him / her to find out things about him / her.
- Say how you can make friends with new colleagues at work and what you can tell a new person about you in order to help him / her to feel comfortable.

Read and remember ways to be polite.

Making Requests	
Requests	**Replies**
Please, do...	Yes, certainly
Will you ?	Of course, I will
Would you ?	With pleasure.(Willingly).
Could you ?	I'm sorry I can't

Read the dialogues then find the polite requests in them:

- How can I help you?
- Please, can I have another equipment of the same brand?
- Yes, of course. I'll try to find that you want.

- Would you help me with the report preparation? It's very difficult for me.
- Willingly! What don’t you understand?

- Could you send the photo evidence about this location?
- Certainly, I'll send them by e-mail.

- -Will you help me with these calculations, Mike?
- I’m sorry, I'm afraid I can't. I have a lot of assignments to do.

Read and remember the rule:

Apologies	**Replies**
(I'm) sorry!	Oh, that's all right.

So sorry!	Not at all.
Excuse me	Never mind!

Excuse me is used as a polite apology in various contexts, such as when attempting to get someone's attention, asking someone to move so that one may pass, or interrupting a speaker.

Sorry! is used after we have done something not quite right; to apologize.

Sorry? is also used when we do not hear or understand what people say. It's spoken like a question.

Read these examples and explain the usage of excuse me and sorry:

- ‘Excuse me, could you tell me how to get to the bus station?’
- ‘Oh, sorry! Did I send the wrong photo evidence?’
- ‘I'm very, very sorry about what I have done just now.
- ‘I'm sorry I'm late. I've been waiting for a bus’.
- ‘There's money on the floor’. ‘Sorry? ‘There's money on the floor, I said’.
- ‘Excuse me, would you let me go out?’

Read the situations then make up dialogues. Use apologies in them:

- You are having a meeting with group mates. There is a loud talk and laugh all around. You are saying something very interesting. Suddenly you hear the telephone ring. You have to leave your group mates for a while.
- The drafting class is just going to begin. You suddenly discover that you have left your slide ruler and pencils at home. The lecturer is already entering the classroom.
- You have promised your group mates to bring the photographs to the university that you took during your practical training lessons. But you were in a hurry and left them on your table at home.

Look at these adjectives below. You can use them to describe the discussion you have had with group mates at the class today. You may use the Present Perfect Tense for its description. *E.g. I have had a conversation with (person's name). We have discussed (conversation piece). Our talk was (adj.). I considered my conversationalist (adj.).*

Adjectives to remember:

remarkable, animated, riveting, shot, helpful, enjoyable, amazing, pleasant meaningful, funny, mutual, typical, friendly, normal, tactful, tolerant, entertaining, hilarious, boring, corner, nobble, collar, fascinating.

Remember and name several situations in which it was necessary for you to apologize.

Write an essay about the most impressive and memorable conversation you have had in your life.

UNIT 9

DISCUSSION: A BRIEF HISTORY OF GEODESY

- What do you know about the history of geodesy?
- What are the main discoveries in geodesy?

- What famous scientists do you know in geodesy?
- What did they do for the geodesy development?

Words to know:

sprout	determine
Paleolithic	development
nomadic	complement
heavenly body	achievement
valley	technique
prior	ellipsoid
temple	geophysics
precise	geoid
ancient	geography
gravimetry	geodesy
astronomer	diagram
geometry	

Read and translate the text.

The History of Geodesy

Geodesy is one of ancient sciences, which not only arose, but also developed as people had a great need for

it. Geodesy has evolved over many centuries. The first sprouts of geodesy appeared in the Paleolithic period about 2500 years ago. It was closely connected with the human daily life. Nomadic tribes, that were hunters, depended on the seasonal migration of animals. They were in urgent need to move around the territory with the help of the heavenly bodies.

Over the centuries BC, geophysical measurements had been made not only by Egyptians and Chinese, but also by other scientists to divide our planet Earth into territories, which later were named the continents.

The whole world knows about the irrigation ditches and the channels that were built in the Nile valley. Their construction could not have been carried out without the prior survey, as well as planned and divided construction sites for palaces and temples. The pyramids were the most significant construction in the history of geodesy. The site planning, calculations and measurements were done in a precise manner by gifted students of the ancient special schools. Students measured the land size and the volume of the ponds, drew up diagrams of channels, conducted cadaster and calculated the tax rate. After studying land surveying, Egyptians began to draw up geographical maps. In the third century BC, the radius of the Earth was already determined, but then it was taken for a ball. The

determination of the Earth's shape and size was studied by an ancient Greek philosopher and a scientist like Aristotle, Archimedes, Eratosthenes and others. Later the geodetic works of Egyptians were borrowed by Greeks. Geodetic knowledge began to form the science. The gained knowledge was the beginning of geodesy foundation. Surveying and geometry had complemented and developed each other for a long time. The developed and improved surveying methods contributed the scientific achievements to mathematics, physics and instrumental techniques.

The beginning of the second period of geodesic development refers to great scientific and geographical discoveries of C. Columbus, V. da Gama, F. Magellan, J. Cook, V. Bering. At the same time, remarkable discoveries were made in geodesy. G. Galilei invented the telescope in 1609. A Dutch astronomer and mathematician W. Snellius developed a triangulation method in 1614.

The determination of the Earth ellipsoid was the main scientific and geodesic objectives in 18 – 19th century and it was the third period of geodesy development. During that time, such sciences as gravimetry and geophysics were founded. The geoid concept appeared.

The fourth period (the end of the 19th – the second half of the 20th century) was marked by the fundamental work of a famous scientist M. Molodensky that proved the inability to determine the geoid figure accurately only by measuring the Earth's surface. The beginning of a modern geodesy development period coincides with the launch of the first artificial satellites of the Earth. The artificial satellites of the Earth have opened up new opportunities for solving scientific and practical tasks in geodesy, for instance, the appearance of global positioning systems. From these facts, one may conclude that over the last twenty years, there has been a new qualitative leap, which can be called the second revolution in geodesy.

Translate the following phrases: ancient sciences, the Paleolithic period, nomadic tribes, land management, artificial earth satellites, the Earth ellipsoid, geodesy development, the geoid figure, a triangulation method, channels and irrigation systems, the launch of the first artificial satellite.

Complete the following statements:

1. Geodesy is considered to be ……

2. The first sprouts of geodesy appeared in the …….

3. ……., that were hunters, depended on the seasonal migration of animals, so they were in urgent need of ability to move around the territory with the help of …….

4. …… for over several centuries BC, were made not only by Egyptians and Chinese, but also by other scientists to divide our planet Earth in to territories, which later were named ……

5. The whole world knows about the existence …….. that were built in the Nile valley.

6. Thus, it is possible to note that …….. in the field of geodesy were founded in Ancient Egypt.

7. All these works were carried out using basic surveying instruments: ……

8. Later ……. were borrowed from Egypt by …… and they stated to use them. Geodetic knowledge began to form the science.

9. The beginning of the second period of geodesic development referred to …….. in science when C. Columbus, V. da Gama, F. Magellan, J. Cook, V. Bering made their ……. At the same time there was a series of remarkable discoveries in geodesy. So in 1609 G. Galilei invented the …….. Dutch

astronomer and mathematician W. Snellius developed a ……. in 1614.

10. The determination of …….……. was the main scientific geodesy …… in 18 - 19th century and it was the third period of geodesy development. During that time such sciences like …….. were founded. The ……. concept appeared.

11. The fourth period was marked by the fundamental work of the famous surveyor and scientist M. Molodensky, which proved the inability to determine ……. accurately only by measuring the earth's surface. The beginning of the modern period of geodesy development coincides with the launch of …….. of the Earth. The artificial earth satellites have opened up …… scientific and practical tasks, for instance, the appearance of ……..

Name the main historical periods in the geodesy development.

The first…….
The second……
The third…….
The forth……..

Read the abstract about the historical event in the geodesy of Ukraine. Translate the text.

Ukraine's natural sciences in comparison with Europe have started their development some later. Therefore, we have poor experience in this field as the land reform was realized in 2005. After this important event for our country the specialty of a land manager became very advanced, popular and claimed in all spheres of life, especially in agriculture, as the land is the greatest treasure of mankind.

Comment on the information about the geodesy of Ukraine. Do you have anything to add?

Translate these sentences into Ukrainian.

1. Ukraine's natural sciences in comparison with Europe have started their development some later. 2. The specialty of a land surveyor is very important in the economic life of our state. 3. The land reform was realized in 2005. 4. Land surveying is the branch of agriculture that deals with conducting land reforms, cadaster and distribution of land and other natural resources. 5. Land surveying is considered to be an

engineering specialty. 6. Geodetic works are constantly carried out on the territory of any developed country.

UNIT 10

DISCUSSION: LAND REFORMS IN UKRAINE

Land reform is a form of agrarian reform involving the changing of laws, regulations or customs regarding land ownership. Land reform may consist of a government-initiated or government-backed property redistribution, generally of agricultural land.

- What are the land reforms conducted for?
- Do we have any positive land reforms in Ukraine?

Words to know:

land	enact
resource	domain
efficient	constrain
enterprise	complete
purchase	peasant
ownership	transitional provision

share Land Code	

Read and translate the text.

The Land Reforms in Ukraine

The major effort to change the land relations that could be economically efficient and friendly was made in 2001. But land reforms haven't been completed in Ukraine yet. The land resources and 49.9% of all lands belong to the state, 26.5% of land hectares have been shared and transferred to 12 thousand agricultural enterprises for their collective ownership. The titles to land have been got by about 7 million of citizens. The average size of a land share is 4 hectares. Peasants are leasing over 20.7 million of land hectares. 5.3 million of citizens had leased their lands by October 1, 2001.

The value of farm lands and non-farm lands has been calculated. Consequently, the mechanisms regulating land economics have been introduced. A framework for land purchase and sale has been shaped to provide instruments certifying land ownership.

Nevertheless, a significantly political event was a Land Code presentation by Verchovna Rada and it's signing by the president of Ukraine on the 25th of

October in 2001. A new version of the Land Code of Ukraine enacts farm land privatization and the right to share the land ownership.

The Land Code of Ukraine creates a foundation for further improvement and development of land relations not only in the agricultural sector, but also in the domain of non-farm lands.

The new Land Code introduces a number of constraints that may be unacceptable for countries with developed market economics. But these transitional provisions are conditioned politically first of all. These constraints are expected to be lifted soon.

Translate the following phrases:

1. Financial constraints, to sign the documents under constrains. 2. To calculate the advantages and disadvantages. 3. To transfer money from the deposit to the current account in a bank. 4. Shares in the company can be bought and sold. 5. The opportunity to purchase shares in the company. The purchase of the house agrees, to pay a deposit. 6. To achieve the success, the greatest achievement. 7. To move an amendment, to propose an amendment.

Translate into English:

1. Юристи зараз вносять поправки до Земельного кодексу України. 2. Вони створюють основу для покращення і розвитку земельних відносин. 3. Мої сусіди здають земельну ділянку в оренду. 4. Зараз держава здає ось це с.-г. угіддя в оренду селянам. 6. Наша компанія на даний момент здійснює купівлю акцій на цьому підприємстві. 7. Ми обговорюємо право на землю цих селян. 8. На цьому засіданні Верхона Рада України розглянула новий законопроект про спадщину на землю.

Find the definitions for the following terms:

1. law __ 2. code __ 3. constrain ___	4. privatization ___ 5. lease ___ 6. certificate ___

a) an official written agreement in which land is let to somebody else for a certain period of time in return for rent;

b) an official rule of a country, that says what a person, company may or may not do;

c) an official piece of paper that says something is true or correct;

d) changing the ownership of an organization from the government to a private company;

e) a limit on something or on your freedom to do something;

f) a set of rules for behaviour, a set of standards agreed and accepted by government.

UNIT 11

DISCUSSION: CADASTER

Cadaster is a methodically arranged public inventory of data concerning properties within a certain country or district, based on a survey of their boundaries.

- What is the main function of land cadaster in the state?
- What do you know about land cadaster in Ukraine?

Words to know:

right to	conveyancing
restriction	environmental
responsibility	encompass

description	land tenure
parcel	customary
value	leasehold
equitable	mortgage
fiscal	custody
easement	photogrammetry

Read and translate the text.

The Land Cadaster

A cadaster is normally a parcel based and up-to-date land information system. It contains a record of interests in land (e.g. rights, restrictions and responsibilities). It usually describes the land parcels linked to other records including the nature of the interests and ownership or the control of those interests. The cadaster often indicates the value of the parcel and its improvements. It may be established for fiscal purposes (e.g. evaluation and equitable taxation), legal purposes (conveyancing) to assist in the management of land and land use for planning and other administrative purposes. The cadaster enables sustainable development and environmental protection.

The Land Cadaster encompasses such information as land resource capacity, land tenure, land ownership and different land uses. The Cadaster provides:

- The information identifying those people who have interests in parcels of land;
- The information about their interests, e.g.: land duration of rights, restrictions and responsibilities;
- The information about the parcels, e.g.: location, size, improvement, value.

Land tenure concerns the rights, restrictions and responsibilities that people have with respect to the land. The cadaster may record different forms of land tenure such as ownership, leasehold, easements, mortgages and different types of common, communal or customary land tenure.

The surveyor undertakes different roles in different countries to establish and to maintain the cadaster. The surveyor may be responsible for cadastral surveying and mapping; cadastral information recording; land evaluation; land use planning; management of both the graphic and textual cadastral data bases; resolving land disputes; custody and supply of cadastral information.

Modern technology, such as up-to-date survey instruments, satellite position fixing (Global Positioning System — GPS), aerial photography and

photogrammetry can offer new possibilities to increase the speed and lower the costs for cadastral reform. Computer technology can usually provide better access to information, better manipulation of cadastral data, better quality, and better legal and physical security. It is important to have trained personnel and facilitate the maintenance of the equipment to utilize modern technologies fully.

Translate the word combinations: land cadaster, land parcels, the value of the parcels, land resource capacity, land tenure, land ownership, evaluation and equitable taxation, legal purposes, customary land tenure, sustainable development and environmental protection, modern technologies, up-to-date survey instruments, trained personnel, to maintain the equipment, manipulation of cadastral data, to utilize modern technologies fully, aerial photography and photogrammetry, to provide better access to information.

Answer the following questions:

1. What is the text mainly about?
2. What information does the land cadaster often indicate?

3. What information does the land cadaster encompass?

4. What is land cadaster?

5. What is the main role of a surveyor in the land cadaster?

6. What technology can help to develop the land cadaster?

Complete the conversation. Put in a pronoun and the Future Continuous Form of the verb.

- Daniel: I'm going to go into business when I leave university. Five years from now I'll be running (I / run) a big company. I expect (1) …… (I / earn) lots of money.

- Vicky: I don't know what (2) …… (I / do). What about you, Natasha? What (3) ..... (you / do), do you think?

- Natasha: I'm too lazy to do any work. I'm intended to marry someone very rich. (4) …… (I / give) dinner parties all the time. We'll have a cook (5) ….. (who / do) all the work, of course. And you'll both get invitations.

- Vicky: You're joking, aren't you, Natasha? I expect (6) ……. (you / play) in an orchestra. That's what you really want to do, isn't it?

UNIT 12
DISCUSSION: LAND CADASTRAL SYSTEM. PART 1

- How is the land cadastral system organized in Ukraine?
- Why do we need a well-organized land cadastral system in Ukraine?

Words to know:

prerequisite	corruption
land market relations	state land registry
procedure	maintenance
land parceling	emerging
land owner	legislative
inaccuracy	distribution
obsolescence	irregular
qualitative	inability

Read and translate the text.

The Development of the Land Cadastral System in Ukraine

The development of a productive cadastral system

is among the main prerequisites of stable land market relations as it is a unique state geoinformation system providing information about state land and its borders. It is possible to present the land title guarantee on its basis. According to the land cadaster, land evaluation and distribution are performed as well as land parceling between landowners and users.

The lack of a qualitative system causes problems in the land relations. But for data inaccuracy and obsolescence in the system, it is impossible to identify the title to land. Moreover, the disputes appear between landowners. In case of irregular land and soil monitoring, there is inability of the state to have a control over the land use and protection. In the current situation, the land cadaster almost doesn't play a key role as an information resource in the land management. Also, corruption remains one of the main problems in the land cadaster and land management. It is connected with the state land registry and illegal actions in the administrative procedures, state registration of the title to land.

Based on this, an important task of land management, land economics and land law is to invent a qualitative system of the state land registry for its improvement in Ukraine.

For maintaining of the state land cadaster, the emerging relations are regulated by the Constitution of Ukraine, the Land Code of Ukraine, the Law “On State Land Cadaster”, the Law “On Land Management”, the Law “On Land Evaluation”, the Law “On Cartographic and Topographic Activities”, the Law “On Personal Protection of Data" and by other laws of Ukraine with adapted legislative acts.

The basic legislative acts that explain the content and the main components of the State Land Cadaster in Ukraine are the Land Code of Ukraine (25.10.2001 № 2768-III) and the Law "On the State Land Cadaster" (07.07.2011 № 3613-VI). Thus, in accordance with the paragraph 2 of the Article 193 of the Land Code of Ukraine, the State Land Cadaster is the basis for maintaining all other cadasters.

To prevent mistakes in cadastral registration systems, public access to data and digitalization, we analyzed the latest researches and publications of the domestic scientists that had studied and highlighted this issue. Also it is worth taking into consideration the experience of the developed European countries in the land relations. As a result, there is a possibility to form the main directions in the development of the cadastral system of Ukraine.

In conclusion, the cadaster should be considered as a science that studies the principles and patterns of the cadastral object formation, operation, preservation in the combination of the relationships between natural, environmental, geospatial, socio-economic and legal factors.

That is why the cadaster doesn't have to solve the problems that have no relation to its functioning: the systematic modelling of the land use; the territorial land management planning; agroecosystems, etc.

Make up word combinations.

Constitution	action
legislative	act
cadastral	planning
the Law	registration system
to solve	land cadaster
land	registry
state	cadaster
illegal	land registry
to have	law
cartographic and	mistakes
topographic	control over smth. / smb.
land management	of Ukraine
data	inaccuracy

to prevent	activities evaluation use the problem market relations cadastral system “On the State Land Cadaster

Translate the following into Ukrainian: cadaster, land cadaster, the State Land Cadaster, the Law “On the State Land Cadaster”, land registry, land registry in Ukraine, the state land registry in Ukraine, the cadastral registration system, land management, land management planning, territorial land management planning; land, land law, land economics, land evaluation, land use, modelling of the land use, the systematic modelling of the land use.

Watch the video about the land cadaster twice. Video reference 3. Say if the following statements are true or false:

1. ____ The king Willem I of the United Kingdom of Great Britain and Northern Ireland was crowned in 1813.

2. ___ Later, due to the land cadaster, each parcel in the country, the exact location boundaries were mapped and each piece of land was classified according to its function.

3. ____ According to the king's will all tax rates were levied and all the lands were surveyed and valued.

4. ____ The king didn't recognize the usefulness of surveying and cadaster.

5. ____ Cadaster is a lucrative source of revenue.

6. ___ Later all citizens became equal in land rights and encouraged the more productive use of the land.

UNIT 13

DISCUSSION: LAND CADASTRAL SYSTEM. PART 2

- Are land register and cadaster the same institutions?
- What is the difference between them?

Words to know:

real estate transcription	conveyancer a judicial

property integrated complemented interim	right substantive cadastral georeferenced data base

Read and translate the text.

The Land Registries and Cadaster

Land Registries and Cadaster are different institutions. The Land Registries are the offices where the information relating to real estate is registered and becomes public. The Cadaster is a public S.A. with a main role to conduct the land surveys, provide cadastral data as well as legal information relating to real estate.

The two institutions are not integrated, but the law provides for their future integration, as soon as the land survey is completed and there is cadastral data for the whole national territory. Until then and given that the land survey has not started at the same time for the whole national territory, for every area that is mapped, the Cadaster provides cadastral data to the competent Land Registry which from that point on functions as an interim Cadastral Office using the cadastral system

which replaces the existing person based system of transcription.

The Land Registrar that is by law a conveyancer holding a judicial office (just as a lawyer or a notary), becomes Principle of the Cadastral Office maintaining his/her status. The Land Registry is the office where every act relating to property rights on real estate is registered. This also applies in areas which have been mapped and there is cadastral data. As mentioned above, it is the Land Registry who operates both system, the old one of transcription and the new cadastral system. The registration has substantive force, meaning that any act not registered does not produce legal effects.

In Land Registries which function as Cadastral Offices, plots are described literally but complemented by a plan and also by a cadastral certificate with the description and graphics taken from the cadastral georeferenced data base. In both systems, the description is compulsory in all cases or transmission or any property right constitution.

Translate the following: the new cadastral system, a cadastral certificate with the description and graphics, substantive force, every act relating to property rights, a conveyancer holding a judicial office,

every area that is mapped, transcription and the new cadastral system, data for the whole national territory, the information relating to real estate, to provide for the future integration.

Complete using the correct verb form.

1. I_____ (see) this drafting plan already.
2. Joe and Tommy_____ (have) the land project for about a year.
3. She_____ (not / register) her land property yet.
4. Sue_____ (be) a land manager for three years.
5. This new computer _____ (make) my life a lot easier.
6. _____Paul_____ (ever / estimate) any land property?
7. We_____ (not / decide) yet what to do with this error in the land cadaster.

Circle the correct variant.

1. I think we *have seen / have been seeing* these data before.

2. We *haven't come / haven't been coming* yet but we are going to come soon.

3. Have the land surveyors used / have been using AutoCAD since the morning?

4. Mike *has already invited / have been inviting* Lorence to the land management discussion.

5. *Have you done / been doing* it since morning?

UNIT 14

DISCUSSION: LAND LAW

Land law is about the connections between people and land. It is also about the relationships between people, jostling for space and allocating resources.

- What is the main function of the land law in the land relations?
- How are the land relations regulated in Ukraine?
- How are land disputes regulated in the land cadaster?

Words to know:

tenant	residential

estate freehold lease/ rent usufruct real property / real estate	landlord enforceable authority premises

Read and translate the text.

The Real Property Law

English-speaking jurisdictions generally distinguish between real property (or immovable property) and personal property. *Real property* is a general term for land (freehold estates) and anything affixed to the land, and residential and commercial leases (leaseholds) whereas *personal property* (movable property) refers to everything which does not fall under the heading of real property. The term real estate is often used interchangeably with the term *real property*. Use of the terms is dictated by context and the fact that, generally speaking, real estate is considered to be a broader term. This brief summary addresses key terms in relation to real property.

Freehold estates and leaseholds differ primarily in that freehold estates are unlimited in time and can be

inherited, while leaseholds are fixed in duration or capable of being fixed. The transfer of title in a freehold estate is called a conveyance. The agreement to buy and sell a certain piece of property is contained in a Contract of Sale. Such contracts identify the parties, the relevant property and the purchase price. Normally, the Contract of Sale does not, in and of itself, transfer title in the property. Rather, the transfer of title must be registered by filing a formal document with the appropriate authority. For example, in the UK a transfer of registered title must be filed with the UK Land Registry.

A leasehold is transferred through a lease, which is a contract between a landlord and a tenant for the tenant to take exclusive possession of the leased premises for a term of years, usually for a specified rent or compensation. Leases are usually categorized into residential or commercial leases. This is an important distinction for the landlord, as different laws apply depending on the intended use of the leased premises.

A leasehold should not be confused with a licence. The crucial test for determining whether a lease or license has been created is whether there is exclusive possession. If there is no exclusive possession, there is no leasehold. A good example of this is where the property remains in the control of the grantor, such as

in the case of a hotel room or dormitory. It is important to note that the Statute of Frauds requires that agreements regarding the sale of or interests in land must be in writing to be enforceable. In respect of leases, the Statute of Frauds for a particular jurisdiction will specify that leases for more than a certain number of years must be in writing to be enforceable, e.g. three years in England. There are numerous other areas of real property law which commercial lawyers deal with on a day-to-day basis, which include such things as disputes between landlords and tenants, easements, usufructs, mortgages and other financing measures.

Translate the following into Ukrainian: property, real property, personal property, estate, real estate, freehold estates, it can be inherited lease, a leasehold, residential and commercial leases, the relevant property and the purchase price, tenants, a contract between a landlord and a tenant, the leased premises, easements, usufructs, mortgages and other financing measures.

Give the definition for the following terms:

real property, freehold estate, leasehold estate.

Find them in the previous text.

Match the terms with their definitions.

1. decedent / heir 2. grantor / grantee 3. landlord / tenant

a. person who transfers property / a person to whom property is transferred (in real property law, synonymous with assignor/assignee);

b. person (usually the owner) who gives another person a lease in return for rent / a person to whom a lease is given in return for rent (in real property law, synonymous with lessor/lessee);

c. person who has died / a person who is entitled to inherit property.

Find the extra word in each line.

Living Together in the Society

- ‘Well’, said Jean-Paul Sartre, ‘there are other people, and whether you agree with or not, we are all have to learn to live together’.

- We may not always approve of that other people's behaviour, but we do have to live with it.
- It is impossible to force other people in to behave exactly how we think they should behave.
- Of course, the law bans from all kinds of behaviour and if you can convince to enough people, you might be able to get the government to pass a new law.
- Mostly, though, you have to let off people live their own lives, in the same way you expect them to allow you for to live your life.
- You don't have to pretend it that you like how some other people live, but letting them to be themselves is often the only choice.

UNIT 15

DISCUSSION: BE ENVIRONTMENTALLY FRIENDLY!

- Why is it important to protect environment?
- What way can the construction of any infrastructure harm the environment?
- How can a land surveyor prevent the harm to the environment?

Words to know:

preserve	discharge
unrestricted	fertilizer
emit	neutralize
carbon monoxide	undertaken
sulphur dioxide	dismantle
exude	avert
generous	elaboration

Read and translate the text.

The Nature Protection

The protection of nature has become a primary duty of every citizen in Ukraine. Our common goal is to preserve generous land for the present and future generations.

Because of unrestricted industrialization, the biological balance has been broken. Hundreds of tons of harmful substances are emitted every year into the air. The pollution is a result of the poor technology use. Atmospheric pollutants such as carbon monoxide (CO) are emitted by automobiles, Sulphur dioxide is exuded from coal and oil burning, by-products and dust are discharged from electric power and chemical plants.

With the present-day scientific and technological progress, human influence is changing the biosphere and it is leading to its new state. Human creates new compounds, new substances, chemical elements which are unknown to the biosphere. About a half of the applied chemical fertilizers, herbicides and pesticides are washed off into rivers and oceans. After the accident at the Chornobyl' nuclear power plant there is a big problem with radiation. It must be dismantled as soon as possible as well. Drastic measures have to be undertaken to neutralize its dangerous effect. In order to protect the environment, it also necessary to reduce harmful enterprise discharges according to the norms. That's why the first task of the scientists is to find effective means of protecting the biosphere from pollutants.

A special organ dealing with these problems is the UN Environmental Programme. This decision was set up by the UN General Assembly. And the main trends of this organization are:

- Preventing air and water pollution, averting the pollution of the world ocean;
- Developing technological systems to recycle litter and waste;
- Protecting and increasing the fertility of the soil by land recultivation;

- Elaboration of sanitary-hygienic criteria to determine environmental pollution;

- Making the environment healthier;

- Forecasting the effect of human activities on the ecological systems of various climatic and natural zones.

Much has to be done in Ukraine for bringing up citizens as ecologically educated individuals, true friends of nature. Now, it is time not only to be environmentally conscious but environmentally educated as well.

Match the terms with their definitions.

1. pollution _____ 2. dismantle _____ 3. protect_____ 4. fertility_____ 5. industrialization_____ 6. substance_____ 7. emit_____ 8. pollutants_____ 9. fertilizer_____ 10. environment _____
a) substances that pollute the environment, especially gases from vehicles and poisonous

chemicals

b) a solid, powder, liquid, or gas with particular properties

c) the presence in or introduction into the environment of a substance which has harmful or poisonous effects

d) to stop functioning by gradually reducing its power or purpose.

e) the quality of being fertile; productiveness

f) to keep safe from harm or injury

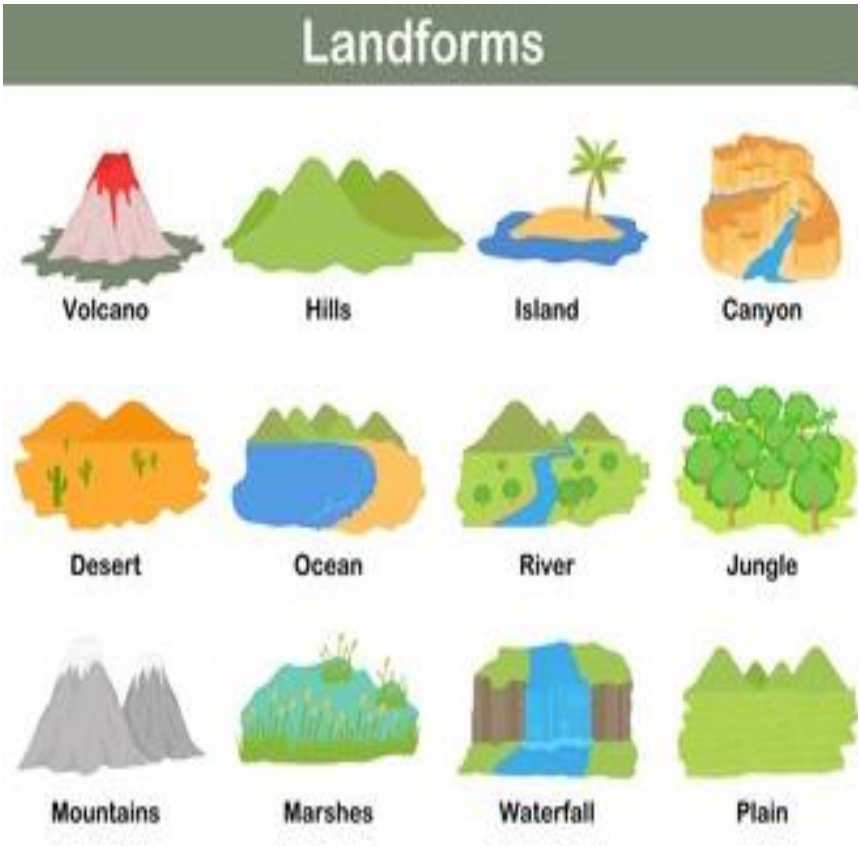
g) the surroundings or conditions in which a person, animal, or plant lives or operates

h) produce and discharge (something, especially gas or radiation)

i) a chemical or natural substance added to soil or land to increase its fertility

j) the process by which an economy is transformed from a primarily agricultural one to one based on the manufacturing of goods. Individual manual labour is often replaced by mechanized mass production, and craftsmen are replaced by assembly lines.

Watch the video twice and try to answer the following questions about the landforms. Video reference 5.



1. What are the parts of the world?
2. What are the landforms?
3. What do we call mountains?
4. What do we call hills?
5. What do we call valleys?
6. What do we call an island?

Describe the landform of the place where you live. How does it look like?

Read the text filling it with the appropriate words.

Soil

Soil is the 1._____ of the Earth on which land plants grow. It is a natural 2._____ that supports plant life. Soil plays a very important role in the life of the world and mankind. It is a highly organized physical, chemical and 3._____. Soil is a mixture of rock, organic materials, living forms, air and water. All of us depend on it. As a supporter of vegetable life, the soil provides food for animals and people. The growth and development of 4._____ depend on the 5._____, continuous supply of water, heat, light and air. No soil is perfectly fertile. If we want to have high yields of crops we must have a fertile soil. If the soil is poor we must apply fertilizers.

biological complex
particles
agricultural crops
fertility of the soil

surface layer
resource

Water Cycle

Earth's water is always in movement, and the water cycle, also known as the 1._____, describes the continuous movement of 2._____ on, above, and below the 3._____of the Earth.

Since the water cycle is truly a "cycle," there is no beginning or ending. When the sun heats the oceans, liquid water from the ocean's surface 4. _____ into water vapour in the air. The sun heats this air so that it rises through the 5. _____and is carried along by 6. _____ .

As this water vapour rises, it cools down again, condensing into droplets of liquid water (or crystals of solid ice). Collections of these droplets are called 7. _____.

atmosphere
evaporates
clouds
wind currents
hydrologic cycle
surface

water

Read and translate the text. Make up the plan for it and try to retell it.

Earthworks

Dial Before You Dig. All onsite contractors must have appropriate Dial before You Dig information onsite and available for on the spot inspections by Council Officers. Failure to do so may result in works being halted until such information can be provided. Any damage to utility infrastructure will be the responsibility of the developer.

Excavated Rocks. Any earthworks, including the removal of excavated rocks, must be in accordance with the Environmental Management Plan for the site. Should excavated rocks need to be removed from the site, it must be ensured that the removal process will not cause major disturbance to adjacent works or the surrounding site. Under no circumstances should rocks be moved into existing waterway reserves without approval from Councils representative. Earthworks on waterways should retain as much embedded and surface material as possible.

Environmental Protection. Any works performed must be in accordance with the site management plan in regard to the protection from sediment movement off the site into waterways and storm water systems. Remnant vegetation is to remain and should be protected prior to work commencing and Council representative advised of protection plan.

Existing Tree Protection. Existing trees to be retained shall be protected on construction sites in accordance with Australian Standard AS4970 “Protection of Trees on Development Sites”. This will include but not be limited to. Erect a temporary tree protection fence 1.8 high temporary chain wire fencing at the drip line of the tree to set up a Tree Protection Zone (TPZ) before work commences.

No access, stockpiling of materials, soil disturbance, excavation works or storage of machinery to be allowed inside the TPZ. The fence should be retained and maintained for the duration of construction. In the case that temporary vehicular movement is required across the TPZ. These should be removed as soon as movement is complete. Where services are to be implemented through the root zone of a tree to be retained, their alignment should be bored rather than placed in open trenches, to ensure that root severance does not occur. New services should be

located in a single bore hole. Should root excavation be required, the work should be carried out by a qualified arborist by hand digging or the use of an air knife. Root cutting should be done by hand, not backhoe or other mechanical equipment, to avoid tearing of roots.

All tree pruning works are to be carried out by a qualified arborist. Any works carried out within the TPZ are to be supervised by a qualified arborist and no signs, fences or other items are to be attached to trees at any time. The Contractor shall cause no damage to trunk or branches of the existing tree unless otherwise specified to be removed or pruned. If damage is caused that affects the health of the tree or results in the death of the tree, the contractor shall be liable for the replacement and / or financial compensation to the values determined by the City of Ballarat's Tree Valuation Template (Burnley's Method).

UNIT 16

DISCUSSION: MAIN DIRECTIONS IN LAND USE PLANNING

Share your ideas about land parceling:

- Do all land laws work in Ukraine?

- What do you know about land subdivision?
- Do you know how to measure the boundaries of land property?

A land subdivision is a legal process that breaks land down into smaller parcels. Land can be subdivided as long as it fulfills the criteria of being vacant and capable of further development. Land can be subdivided for a number of reasons, but it mainly falls under two categories: land development and land investment.

Words to know:

maintenance	activity
border	protection
preparation	substantiation
research	manufacturing
estimation	redistribution

Read and translate the text.

The Rural and Agricultural Land Use Planning

In the broadest meaning of the term, land use planning deals with planning for all types of land use. It is concerned with all activities in rural areas, such as agriculture, pastoralism, forestry, wildlife conservation and tourism. The planning process should be based on the cadastral survey of land resources. The land use planner decides what needs should be changed and how the changes can be made.

National development plans and budget must be also taken into consideration as well as project identification and the allocation of resources for development.

Sectoral agencies involved in land use must be coordinated. Legislation on such subjects as land tenure, forest clearance and water rights should be worked out by all means.

For successful land use planning it is important to determine the best use of the land.

It is necessary to take into consideration efficiency, equity, acceptability and sustainability of the land. At the same time conflicts of interests between land users should be resolved.

Read and translate the following phrases: land use, land use planning, land surveying, a land surveyor, profoundly educated, land information, advanced countries, to sustain life, to pose a question, opposite situation, a simple answer, individual basis, an aspect of survival, land ownership.

Read and translate the text.

The Land Use Planning

The complex of land use planning work in modern conditions provides the actions connected with redistribution of land and formation of new land uses, fixing in nature the borders of the sites, with complex research and estimation of land, creation of land fund for compelled immigrants and granting the sites to them, etc. The main attention now is paid to performance of the following work:

- preparation of materials for the official registration of papers, certifying the right on land (including the proprietors of land shares);
- rendering assistance to the agricultural enterprises in their reorganization (reforming), including development of the land use planning

projects providing economically and ecologically proved formation of new land uses;

- maintenance of all agricultural enterprises with cadastral maps in which quantitative and qualitative indicators of each site of farmland are reflected;
- the analysis of land fund use with the purpose of opportunity definition of granting land sites to citizens for conducting personal part-time farming, gardening, housing construction and other purposes;
- preparation of the materials connected with an establishment of restrictions in land using and giving their rights to other persons.

The main directions of land use planning activity are:

- scientific maintenance and forecasting consequences of planned land transformations;
- substantiation and realization of general state policy in planning and organization of rational land use and protection of all categories of land irrespective of ownership forms and a departmental accessory of the land sites;
- maintenance of target land use, preservation of valuable land sites in agricultural production;
- formation and accommodation of ecologically and economically justified, compact and rational landed properties and land uses;

- creation of territorial conditions for effective functioning the industrial organizations and enterprises;
- a complex of measure developments on improvement of agricultural areas, on increasing soil fertility, maintenance of steady landscapes and protection of land;
- survey the grounds with an establishment in nature administrative-territorial and production borders in a state system;
- manufacturing the documents certifying the right on land.

Answer the following questions:

- What are the main directions in the land use planning?
- What is the main attention paid to in the land use planning?

Translate the word combinations: administrative-territorial and production borders, soil fertility, protection of land, improvement of agricultural areas, creation of territorial conditions, part-time farming, gardening, housing construction.

Read the following information about land parceling. Choose the most important sentences that to your mind describe the main ideas about land parceling. Try to retell them.

1.

- The complex of land use planning work provides the actions connected with redistribution of land and formation of new land uses, fixing in nature the borders of the sites:
- Preparation of materials for the official registration of papers, certifying the right to land.
- Rendering assistance to the agricultural enterprises in their reorganization, including development of the land use planning projects providing.
- Maintenance of all agricultural enterprises with cadastral maps, the analysis of land fund use.

2.

- The main directions of land use planning activity include:

1. Scientific maintenance and forecasting consequences of planned land transformations.
2. Substantiation and realization of general state policy in planning and organization.

3. Maintenance of target land use, preservation of valuable land sites.

4. Formation and accommodation of ecologically and economically justified, compact and rational landed properties and land uses.

5. Creation of territorial conditions for functioning enterprises.

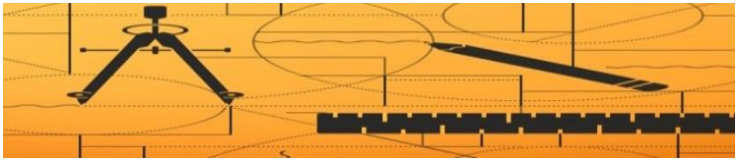
6. A complex of measures development and the maintenance of steady landscapes and protection of land.

7. Survey the grounds with an establishment in nature administrative-territorial and production borders in a state system.

8. Manufacturing the documents certifying the right on land.

UNIT 17

DISCUSSION: MEASUREMENTS



Guess the meaning of the international words.

Location, distance, station, reflector, history, tradition, topography, infrastructure, project, trigonometry, computer, calculation, data, flag, telescope, reform, theodolite, practical, engineer, geometry, companion, drainage, laser, line, horizontal, cabinet, datum, technique, map.

Answer the following questions:

- How does a land surveyor measure distances and objects at the construction sites?
- What do you know about measuring?
- What measuring tools do you know?

Match the words with their meanings.

1. measuring	a) будівництво, спорудження, побудова
2. ruler	b) трубопровід, магістраль
3. protractor	c) вимірювання
4. square	d) лінійка
5. tape	e) квадрат, креслярський трикутник
6. dam	f) рулетка, мірна стрічка
7. pipeline	
8. equipment	
9. tripod	
10. slope	

11. to lay out 12. angle 13. alignment 14. construction 15. trigonometrical 16. tool 17. point 18. to triangulate 19. grid 20. length 21. liquid	g) дамба h) рідина i) крапка j) обладнання k) тринога, штатив, l) схил m) транспортир n) розмічати o) кут p) вирівнювання; q) тригонометричний r) інструмент s) проводити траянгуляцію t) сітка u) довжина

Read and translate the text.

The Measurements in Surveying

We use all kinds of measuring tools in our everyday lives: rulers, protractors, squares and tape measures. This work is fine for small and medium-sized projects, but what if we need to layout something big like a road, bridge, dam or a pipeline?

Today we're talking about one of the civil engineer's most important companions – land surveyors. Any civil engineering project starts with a survey to determine the legal boundaries between parcels of property, the location of existing infrastructure, the topography and slopes of the land.

The main tool for a survey is called a theodolite that measures the angles between two points. Combine those angles with distances from a chain or a tape measure, and you can triangulate the location of any point using trigonometry. Modern theodolites are called total stations and they have on board computers to do the calculations and record the data for later use.

When you see a surveyor peering through a funny telescope, it's probably a total station, and he or she is probably sighting a reflector to record the location of a point. That's just scratching the surface of sophistication with modern surveying equipment.

There are a few ways you can do your own topographic survey with fairly basic and inexpensive tools. The main goal is to perform a levelling survey and to get the relative topography for an area. The grid of points is laid on a map and then you can transfer those points to real life using pin flags. You need to pick your datum or base points and measure the relative difference in height between those points and all the

others. To do this, no sines, cosines, or tangents are required. Use a sight level which is essentially a combination of a telescope and a spirit level. To use it, first of all get a volunteer to hold a surveying rod on the point of interest. Now, look through the sight at a surveying rod and raise or lower the end until the bubble is centered on the line. Once it's centered you know that you're looking at a point that is exactly level to your eyes. Simply subtract the height of your eye line with the height measured on the rod and that's your elevation. It's not a precision technique, but it is cheap and simple which the most you can usually hope for in any part of a home improvement project. The next way is a water level which is literally just a length of clear vinyl tubing filled with a liquid. As long as there are no bubbles the tube will self-level. You keep one end at your hand and fix the height datum then measure the height of the water at the other end. You can use this method around corners or behind trees and again, it's a cheap and simple solution.

The third method works the best and it's a laser level. The laser level creates a perfect horizontal line that can be used to line up cabinets or tile, but it is also easy to read on a surveying rod. You don't need a helper, but you do probably need to wait until your laser is really bright or you have these sweet laser

enhancement glasses. This isn’t the cheapest solution for a DIY land survey, but it is the fastest one.

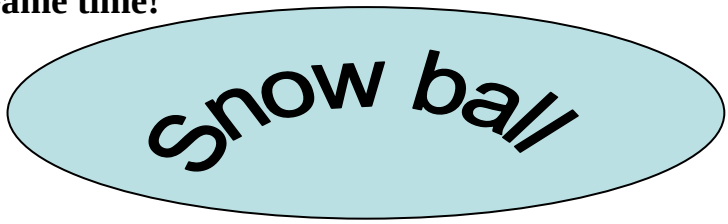
Surveying is one of the oldest careers in the world, and also one of the most important. Why? Because land is important. If you own some, it’s probably your most valuable asset, and even if you don’t, you're pretty much stuck to it no matter where you go. As a career, surveying is a fascinating mix of legal knowledge, field work, and technical challenges. And since most civil structures are too big for conventional measurement tools, the surveyor is one of the most important companions for the civil engineer.

Watch the video. Video reference 6. Say if it is true or false:

1. Grady tells us about computer calculations _____.
2. Land surveyors are most important companions for civil engineers_____.
3. Surveying is essentially the science of taking big measurements_____.
4. This story is about crop rotation_____.
5. Land surveyors don’t use tools and equipment for measurements_____.

6. Modern theodolites are called useless tool for measurements_____.

Game time!



The rule to play: one by one repeat your own phrase and the previous phrases of your group mates.

Complete the following phrases:

1. The tool for a survey is called _____.
2. Modern theodolites are called _____.
3. Surveying is essentially the science of taking big _____.
4. I laid out ___ on a map of my house and then transferred those points to real life using _____.
5. You can use this method around corners or behind trees with no problem, and again, it's a _____.

Translate the word combinations: valuable asset, field work, measuring tools, conventional

measuring tools, equipment on a tripod, surveying rod, unmanned aircraft, to pick the datum, base point, relative difference in height, a combination of a telescope and a spirit level, the point of interest, subtract the height of the eye line, precision technique, a water level, bubbles and kinks in the line, the free surface, a fixed height, distinct advantage, a simple solution, laser level, horizontal line, enhancement glass.

UNIT 18

DISCUSSION: METHODS FOR MEASURING POSITIONS ON THE EARTH'S SURFACE

Let's check your memory! Name the words from the topic "Measurements" recalling the words from the snowball (15 words). What measuring equipment do you know?

- What does a land surveyor need to measure on the Earth's surface?
- What measuring methods do you know?

Words to know:

angle	equal
evidence	reduce
elevation	rough
calculate	estimate
specify	axes
point	length
confine	dimension
establish	interior
azimuth	

Read and translate the text.

The Measuring Methods in Surveying

The goal of any measurement method is to determine the direction and length of the line between points, monuments, and other evidence of the survey. All measurements must be reduced and placed into a common reference system. What the surveyors and their equipment are doing is carefully measuring angles and distances, from which positions and elevation can be calculated. Geographic positions are specified relative to a fixed reference. Positions on the globe may be specified in terms of angles relative to the center of the Earth, the equator and the prime meridian. Land surveyors measure horizontal positions in geographic

or plane coordinate systems relative to previously surveyed positions called control points.

Surveyors measure positions in series. Starting at control points, they measure angles and distances to new locations, and use trigonometry to calculate positions in a plane coordinate system. Surveyors have developed methods, based on separate control networks, for measuring horizontal and vertical positions. In this context, a horizontal position is the location of a point relative to two axes: the equator and the prime meridian on the globe, or to the x and y axes in a plane coordinate system. Measuring a series of positions in this way is known as "running a traverse." A traverse that begins and ends at different locations, in which at least one end point is unknown, is called an open traverse. A traverse that begins and ends at the same point, or at two different but known points, is called a closed traverse.

There are two techniques that surveyors use to create and extend control networks: triangulation and trilateration. Surveyors use triangulation when total stations are equipped with an electronic distance measurement device, the control survey team commences by measuring the azimuth alpha, and the baseline distance AB. These two measurements enable the survey team to calculate position B as in an open

traverse. The surveyors next measure the interior angles CAB, ABC, and BCA at point A, B, and C. Knowing the interior angles and the baseline length, the trigonometric can then be used to calculate the lengths of any other side. Knowing these dimensions, surveyors can fix the position of point C. Having measured three interior angles and the length of one side of triangle ABC, the control survey team can calculate the length of side BC. This calculated length then serves as a baseline for triangle BDC. Triangulation is thus used to extend control networks, point by point and triangle by triangle.

The method of trilateration is easier to perform, requires fewer tools, and it is less expensive. Once a distance from a control point is established, a person can calculate a distance by open traverse, or rely on a known distance if one exists. A single control point and known distance confines the possible locations of an unknown point to the edge of the circle surrounding the control point at that distance; there are many possibilities along this circle for the unknown location. The addition of a second control point introduces another circle with a radius equal to its distance from the unknown point. With two control points and distance circles, the number of possible points for the unknown location is reduced to exactly two. A third

and final control point can be used to identify which of the remaining possibilities is the true location. Trilateration is simpler than triangulation and is a very valuable skill to possess. Even with very rough estimates, one can determine a general location with reasonable success.

Match the words to form word combinations.

1. reference	point
2. prime	device
3. control	angle
4. coordinate	distances
5. total	success
6. measurement	system
7. interior	station
8. calculate	by point
9. point	meridian
10. reasonable	

Complete the sentences.

1. All measurements must be reduced and placed into a common_____. 2. Positions on the globe may be specified in terms of angles relative to the center of the Earth, the equator and the_____. 3.

Land surveyor's measure horizontal positions in geographic or plane coordinate systems relative to previously surveyed. Positions called _____. 4. A horizontal position is the location of a point relative to two axes: the equator and the prime meridian on the globe, or to the x and y axes in a plane _____. 5. Surveyors use_____ when total stations are equipped with an electronic distance measurement device. 6. Trilateration is simpler than ____and is a very valuable skill to possess.

Make up your own sentences using the following word combinations: the horizontal position, the measurement device, the coordinate system, the prime meridian, a point by point, a very valuable skill, to calculate position.

Complete the sentences using the correct verb form.

1. This _____ (to be) an easy text on land cadaster. 2. You_____ (to translate) it without a dictionary. 3. Work_____ (to be) based on sound cadastral survey. 4. Land use planning _____ (to be) connected with different sciences. 5. The computerization _____ (to take) much place in

land use planning. 6. Last year all students _____ (to work) hard during the exam session. 7. Each planning strategy _____ (to have) its own advantages.

Translate the key words.

measuring	slope
ruler	lay out
protractor	angle
square	alignment
tape	construction
dam	trigonometrical
pipeline	tool
equipment	point
tripod	triangulate
grid	length
liquid	

UNIT 19

DISCUSSION: LAND SURVEYING EQUIPMENT

What do you remember from the previous lesson? Translate the proposed words.

measuring	slope
ruler	lay out
protractor	angle
square	alignment
tape	construction
dam	trigonometrical
pipeline	tool
equipment	point
tripod	triangulate
grid	length
liquid	

Answer the following questions:

1. What geodetic tools have you already known?
2. What electronic surveying equipment do you know?
3. How do you think what geodetic surveying tools are considered to be conventional?

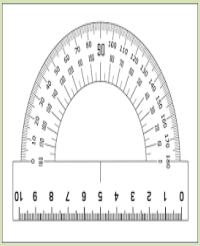
Match words with their meanings.

1.	conventional	a)	вісь
2.	satellite	b)	минати (про час)
3.	control network	c)	супутник

4.	timepieces	d)	сітка опорних точок
5.	eclipse	e)	годинник; хронометр
6.	deflection	f)	затемнення
7.	axis	g)	відхилення
8.	altitude	h)	висота
9.	precision	i)	випромінювати
10.	to emit	j)	нівелювання
11.	spirit levelling	k)	підняття
12.	elevation	l)	випромінювання
13.	elapse	m)	спостереження
14.	emission	n)	сонячний
15.	observation	o)	повертатися
16.	solar	p)	небесний
17.	to recur	q)	точність
18.	celestial	r)	традиційний

Remember!

magnetic needle	solar compass	benchmark	ruler
			

transit with a solar attachment	theodolite	protractor	tripod
			

Read and translate the text.

The Equipment for Measuring Positions on the Earth's Surface

Using the equipment surveyors can measure data accurately and in the proper basis. The tools of conventional surveying are still in use and they are based on the very same concepts that underpin even the most advanced satellite-based positioning. These may include: a magnetic needle, a solar compass, a transit with solar attachment and a direct altitude or an angle observations on the Sun, Polaris or other stars. The use of direct astronomical observations to determine direction is still used. Only the use of the needle compass is prohibited. A standard compass can give

you a rough estimation of angles. Land surveyors rely on theodolites to measure angles. A transit consists of a telescope, two measurement wheels that work like protractors for reading horizontal and vertical angles and bubble levels to ensure that the angles are true. In modern theodolites, some mechanical parts are replaced with electronics.

Other valid equipment for determining direction of lines includes gyroscopic instruments, satellite receivers oriented from the National Spatial Reference System (NSRS). Geodesists produce precise positional data by analyzing radio waves emitted by distant stars. Once a control network is established, surveyors produce positions using instruments that measure angles and distances between locations on the Earth's surface. Land surveyors measure horizontal positions in geographic or plane coordinate systems relative to previously surveyed positions called control points that are indicated with a metal “benchmark”. It fixes the location and may also indicate elevation about sea level. Vertical control points are established by the technique of spirit levelling which is more suited to being conducted along slopes, roads, railways and mountain tops.

Surveyors measure distances more accurately and more efficiently since electronic distance measurement

(EDM) devices have been allowed. To measure the horizontal distance between two points, one surveyor uses an EDM instrument to shoot an energy wave toward a reflector held by the second surveyor. The EDM records the elapsed time between the wave emission and its return from the reflector. It then calculates distance as a function of the elapsed time. Typical short-range EDMs can be used to measure distances from 5 to 20,000 km twice as accurate as taping. Instruments called total stations combine electronic distance measurement and the angle measuring capabilities of theodolites in one unit.

Say if the statements are true or false.

Control points

Land surveyors measure horizontal positions in geographic or plane coordinate systems relative to previously surveyed positions called control points _____ .

Control points are indicated

	physically in the world with a butterfly that fixes the location and it may also indicate elevation about sea level ____
	**Electronic distance measurements** Electronic distance measurement devices allowed to measure the horizontal distance between two planets Jupiter and Earth ____ Surveyors use an EDM instrument to shoot an energy wave toward a reflector held by the second surveyor _____ The EDM records the elapsed time between the wave's emission and its return from the reflector _____

	**Theodolites** Land surveyors rely on theodolites to measure people's height _____. A transit consists of a telescope for sighting distant target objects, two measurement wheels that work like protractors for reading horizontal and vertical angles, and bubble levels to ensure that the angles are true _____
	**Total stations** Instruments called total stations combine electronic distance measurement and the angle measuring capabilities of theodolites in one unit _____

	**Observations** When timepieces were available, astronomers were able to determine longitude only by careful observation of recurring celestial events, such as eclipses of the moons of Jupiter _____

Make up your own sentences about geodetic equipment using the following word combinations: the transit with a solar attachment, a theodolite, a magnetic needle, a solar compass, the gyroscopic instruments, the satellite receivers, the control points, the total stations, the electronic distance measurement, the angle measuring capabilities, the EDM instruments, a metal "benchmark".

Read the example and answer the questions.

Quiz

E.g. What does the term "azimuth" mean?

a. Measurements of direction in terms of degrees, ranging from 0° to 360°.

b. A measurement of distance between a single point and an unknown point that begins and ends at different locations.

c. The segment of the Global Positioning System that is comprised of ground stations that monitor and analyze satellite orbits and send corrections as needed.

d. Errors that result from limitations related to the finite resolution of measuring equipment and its application in an infinite, continuous space.

1. What does the term "combination control segment" mean?

a. Measurements of direction in terms of degrees, ranging from 0 to 360°.

b. The fitness of data for their intended use.

c. An angle less than 90° within a quadrant defined by the cardinal directions.

d. A singular amount that is added to or subtracted from a series of measurements as a means to reduce systematic error.

e. The segment of the Global Positioning System that is comprised of ground stations that monitor and analyze satellite orbits and send corrections as needed.

2. What does the term "combination open traverse" mean?

a. Mistakes, improper use of equipment, and poor judgment that leads to measurement errors.

b. Electronic equipment used in surveying for precise and accurate measuring of angles.

c. How reliably similar measurements can be taken with respect to variation and resolution.

d. Identifying a trend and applying the proper equation to adjust measurements in an attempt to correct inconsistent systematic errors.

e. A measurement of distance between a single point and an unknown point that begins and ends at different locations.

3. What does the term “triangulation” mean?

a. A trigonometric process of determining the position of unknown points based on the angles and distances calculated from a known point and a determined baseline.

b. The smallest measurement unit that can be detected or represented. High resolution refers to smaller units while low resolution refers to larger, and therefore fewer, units of measurement in the same space.

c. An angle less than 90° within a quadrant defined by the cardinal directions.

d. How close or far a measurement is from the true or accepted value. Close measurements are more accurate than those that a further from the real value.

4. What does the term “theodolite” mean?

a. Electronic equipment used in surveying for precise and accurate measuring of angles.

b. Errors in measurement that follow a systematic and calculable trend.

c. The segment of the Global Positioning System that is made up of devices that can receive satellite signals and the humans who operate these devices.

d. Identifying a trend and applying the proper equation to adjust measurements in an attempt to correct inconsistent systematic errors.

e. A surveying instrument that is capable of electronic distance ranging as well as the angle measuring abilities of theodolites.

5. What does the term “total station” mean?

a. Identifying a trend and applying the proper equation to adjust measurements in an attempt to correct inconsistent systematic errors.

b. Surveying instrument that is capable of electronic distance ranging as well as the angle measuring abilities of theodolites.

c. The smallest measurement unit that can be detected or represented. High resolution refers to smaller units while low resolution refers to larger, and

therefore fewer, units of measurement in the same space.

d. Errors that result from limitations related to the finite resolution of measuring equipment and its application in an infinite, continuous space.

e. Mistakes, improper use of equipment, and poor judgment that leads to measurement errors.

6. What does the term “trilateration” mean?

a. Electronic equipment used in surveying for precise and accurate measuring of angles.

b. The use of distances from known points to determine the position of an unknown point. At least three known locations are required for two-dimensional trilateration, while four known distances allows 3-dimensions (horizontal plus elevation).

c. Identifying a trend and applying the proper equation to adjust measurements in an attempt to correct inconsistent systematic errors.

d. Errors that do not follow a trend and are off by various amounts with no discernable pattern.

e. The segment of the Global Positioning System that is made up of devices that can receive satellite signals and the humans who operate these devices.

7. What is the main equipment for a land surveyor?

a. flash-light

b. fork

c. ladder

d. rake

e. theodolite

Read the text then suggest the headline for this text.

– – — – – –

a)

The primary goal of any measurement method is to determine the relative direction and length of the line between specific points, monuments, and other evidence of the survey. It is equally important to report

the measurements properly once a line is measured. All measurements must be reduced and placed into a common reference system that is well defined, understandable, and, more importantly, consistent with the historical record.

The direction of lines of the PLSS has been determined with a variety of instruments. Historically, these include the magnetic needle, solar compass, transit with solar attachment and direct altitude or hour angle observations on the Sun, Polaris or other stars. The use of direct astronomical observations to determine direction is effective and still used. Only the use of the needle compass is unequivocally prohibited. Other valid methods for determining direction of lines include gyroscopic instruments, satellite receivers, orientation from the National Spatial Reference System (NSRS), and identifiable lines between monuments of adjoining official surveys.

b) Mark the statements as true or false:

1._____ The goal of any measurements is to determine the distance between specific points.

2._____ All measurements must be placed into a common reference system.

3. _____ Other valid methods for determining direction of lines include the needle compass.

4._____ The use of direct astronomical observations to determine direction is not used anymore.

c) Look through the text again and name the main tools for measuring.

UNIT 20

DISCUSSION: GEODETIC MEASUREMENTS

- What geodetic methods of measuring have you already known?
- When do you use the Global navigation satellite system?

A geodetic measurement is any method of measuring geographic distance or area that uses a curved (nonplanar) surface to model the Earth. The most common of these use a great circle or a geodesic line. This is in contrast to a planar measurement, which cut through the surface of the earth to provide measurements.

Words to know:

surface	photogrammetry
initial	applicable
assessment	alteration
accuracy	impoundment
slope	obtain

Read and translate the text.

The Geodetic Measurements

Geodetic measurements and remote sensing methods are used for monitoring of large scale surface geometry, as well as deformations and movements of tailing dams, waste rock piles and surrounding areas (ICOLD 2014). Also properties of tailings impoundments and their changes can be surveyed.

These methods create a 3D surface model of the area measured. The 3D model created is compared to the earlier models; changes in the surface may reveal deformations and other kind of concerns in a dam or pile conditions already at early stage. Surface models and mappings are always included into an initial assessment; they need to be done to achieve supportive data for forming an overall picture about the possible

alteration of the dam/pile structure. In addition, they are usable and often also an inexpensive way to gain a lot of information at short notice.

Geodetic measurements are widely used and applied. Remote sensing and instrumentation methods are developing fast and their accuracy is getting better.

For example, laser scanning is replacing photogrammetry, which is an old technology. The information obtained using remote sensing methods can be unified with the data collected by traditional means.

Geodetic measurements are applicable to all kinds of tailings and waste rock areas. Measurements are not only focused to dams or rock piles, but can also cover impoundments and surrounding areas (ICOLD 158).

Stabile reference points or stations are required and these points must be located adequately far from the deformation / settlement area.

The selection of a suitable measurement method depends on a case and the desired accuracy. E.g. in very mountainous areas the traditional levelling may be the best choice, as there may be some “blind areas” for satellites. On the other hand, remote sensing may be the safest choice in areas having very loose ground or steep slopes.

Match the geodetic methods of measuring with their description.

Method	Description
Levelling, traverse surveying	A high vertical resolution surface surveying method creates a 3D map at the intervals of 35 days. Accuracy in millimeters, may be less in mountainous areas. A developing method.
Digital imaging Photogrammetry	A distance / time interval measurement between a receiver's antenna on site and orbiting satellites. The accuracy of the method may be millimeters or less. Satellite signals require a clear horizon. Tolerates unfavourable weather conditions reasonably well. Competitive with respect to precision and costs, depending on a case.
Laser scanning	High-resolution, fast digital 3D mapping technology. New, developing method.

Method	Description
Satellite and ground survey by synthetic aperture radar (SAR / GBInSAR) Permanent scatterer SAR (PS / PS InSAR)	Conventional, well known surveying methods. Horizontal and vertical distances are measured with optical, hydrostatical, laser etc. instruments or tachymeter. Levelling accuracy may be 1-2 mm, varies in other methods. Needs a stabile reference point. Measurement may be dangerous to perform at unstable and/or steep surfaces.
Global navigation satellite system (GPS, GNSS)	Conventional methods, which create 2D and 3D maps from aerial photos. Accuracy may vary. Can be combined with the new remote sensing and other surveying methods.
Light detection and ranging (LiDAR)	Well proven and reliable, still a developing technology. By regular measurements a lot of data can be collected to provide a 3D model on dam/pile/appurtenant surface and their deformation /

Method	Description
	displacements. Also volumes, cross-sections and isolines can be detected. Well defined, accessible and affordable method. Accuracy of the method varies case specifically.

Translate the following: surveying methods, accessible and affordable method, accuracy of the method, conventional and well known surveying methods, horizontal and vertical distances, a high vertical resolution surface surveying method, levelling accuracy.

PART TWO. GRAMMAR RULES AND EXERSICES

UNIT 1

PRONOUNS
(ЗАЙМЕННИКИ)

We use pronouns when we don't use a noun (іменник).

We can say: John is from Scotland or we can say: He is from Scotland. He is a subject pronoun.

The subject pronouns are (особові займенники у прямому відмінку): I – я, you – ти, we – ми, they – вони, he – він, she – вона, it – воно.

Write the answers for the questions using subject pronouns. E.g. *– Is London in France? – No, it is not.*

1. Does your father have a job?
Yes / no he……
2. Does your mother have a car?
Yes / no she……
3. Do dogs eat meat?
Yes / no they……

4. Do Italian people eat a lot of rice?
Yes / no they……

a) Do you have a dog?
Does it eat meat?

b) Do you have a brother?
Does he have a car?

c) What city are you from?
Is it big?

subject + verb + object + adverb

An English sentence usually has a subject – підмет, a verb – дієслово and an object – додаток.

Which word is a subject, a verb, an object?

1. A student has an examination session. 2. He is a first year student.

Subject pronouns (особові займенники у прямому відмінку)	**Object pronouns (особові займенники у непрямому відмінку)**
I	Me – мене

You	You – тебе
We	Us – нас
They	Them – їх
He	Him – його
She	Her – її
It	It – його (с.р)
You	You – вас

Find the subject and the object pronoun.

I see you.
You see me.
They know them.
She likes it.

Change nouns with appropriate pronouns.

E.g. Nikola told Ann to speak to the dean on Monday. He told her to speak to the dean on Monday.

My father is a veterinarian. Nikola and Ann are students. My friend and I usually arrive at the university in time. I saw group mates in the park. Many of our friends are in different faculties. We listened to the professor with a great interest. Put the manual on the table.

Possessive adjectives (приєднувана форма займенника)		**Possessive pronouns (абсолютна форма займенника)**
My	Моє	Mine
Your	Твоє	Yours
His	Його	His
Her	Її	Hers
Our	Наше	Ours
Their	Їх	Theirs
Its	Його (с.р.)	_____

My + noun → this is my book.
Mine + ~~noun~~ :
– Whose book is it?
– The book is mine = it's mine.

Remember: we use pronouns when we don't use nouns!

E.g. this is my test. This is mine (mine = my test). His shoes are cleaner than mine (mine = my shoes).

Write the correct possessive pronoun for each sentence. *E.*g. *that car belongs to me. That car is mine.*

1. That plan of the project belongs to those students. That project plan is….

2. This bicycle belongs to my co-worker Alex. This bicycle is……

3. This uniform belongs to my colleague. This uniform is …..

4. This helmet belongs to you. This helmet is……

5. This apartment belongs to me and my colleague. This apartment is …..

6. These tools belong to my boss. These tools are….

7. Those total stations belong to our company. Those total stations are ….

8. These suitcases belong to you and your wife. These suitcases are …..

9. That measuring tape belongs to me. That measuring tape is…

10. That theodolite belongs to my surveyor and his assistant. That theodolite is….

Choose the correct possessive adjective or possessive pronoun.

1. Where is _____ tool kit?

a) my

b) mine

2. Is this drafting pencil _____?
a) her
b) hers

3. _____ attention is paid to this issue.
a) Our
b) Ours

4. That office stuff is _____.
a) my
b) mine

5. What is _____ contractor's name?
a) your
b) yours

6. The errors on the construction site are _____.
a) their
b) theirs

7. _____ employer is in the main office today.
a) My
b) Mine

8. Is that office car that is in exploitation _____?

a) their

b) theirs

9. When is _____ meeting with colleagues?

a) our

b) ours

10. He likes _____ ideas about bridge construction.

a) her

b) hers

TO BE AND TO HAVE IN PRESENT SIMPLE

Some verbs such as *to be* and *to have* can be used not only as the main verbs but also as the auxiliary verbs in Present Simple. Due to them we can form affirmative, interrogative and negative forms of the sentence. They are declined according to the persons.

To be (бути)

I **am**	I **am not**	**Am** I ?
We You **are** They	We You **are not** They	we? **Are** you? they?
He She **is** It	He She **is not** It	he? **Is** she? it?

Fill in the spaces with *am, is or are.*

1. I …. happy and satisfied with this result. 2. She ... tall enough to get the book from the shelf. 3. We … students in agrobiotechnological faculty. 4. They …. Japanese scientists that ….. interested in geodesy. 5. It …… a hot day for the field survey. 6. Donald …. a well-qualified worker. 7. He …. short to play basketball. 8. I … from India. 9. The student from the land management department …… hungry. 10. We …….. sleepy, because of this gloomy weather.

Complete the description of Hannah, and her family and friends. Use the words from the box: 'm

(am) / 'm not (am not) 's (is) / isn't (is not) 're (are) / aren't (are not).

Hello, I (l)……..Olha. I (2).....British. I (3)……from Canada. My favourite sport (4)…….basketball, but I (5)……. a good player because I (6)…….very tall. This (7) …….my brother, Oleh. He (8)…….. interested in sports. He thinks it… (9) boring. Mark and Steffi (10) …… our friends. They….. (11) at work today because it…… a holiday. It (12) ……. Steffi's birthday today, she (13)…….. 18 years old.

Rose works for a magazine. She is asking a man some questions. Complete the questions and the answers.

What's your name?	Alberto Simonetti.
_____from?	_____Italy.
_____old_____ ?	_____20.
_____job?	_____ a student.
_____here?	Because I want to visit

You are welcome.	your country.

Write what Olha says about her co-worker.

This is my co-worker.
(Steve) _____
(45 years old) _____
(engineer) _____
(interested in cars) _____
(not at work today – sick) _____

Read the answers first then write the questions about the people.

YO*U: (l) Who is that man?*
MARIA: That's my father. He's a landscape designer.
YOU: (2) ……?
MARIA: He' s 58.
YOU: (3)……that ……mother?
MARIA: Yes, it is. She's a landscape designer, too.
YOU: (4)…….?
MARIA: That's my sister, Laura.
YOU: (5)…….. ?

MARIA: She' s 30.
YOU: (6)……. your brother?
MARIA: No, it's Laura's husband.
YOU: (7) ……..?
MARIA: Ferdinand.
YOU: (8)…… their children?
MARIA: Yes. Those are their children, Ella and Francisco.

To have (мати)

I You **have got** They We	I We You **haven't got** They	we? **Have** you **got**? they? I?
He She **has got** It	He She **hasn't got** It	he **Has** she **got**? it

Let's see what we have: 1. I …..… two examination tests this year. 2. You …….. a small salary. 3. She ……..… long blond hair. 4. A tool kit …… a theodolite and tripod. 5. He …..…. specialized

blue goggles. 6. We …… two employees to do this work.

Fill in with HAVE or HAS in the following sentences.

The student …… a dictionary of geodetic terms. 2. My sister ……. a new version of drafting software program. 3. I … a playlist of my favourite music. They …….. gray hair. 4. My brother ..... AutoCard in the office. 5. This house …….. a very big garden. 6. The students …….. an important test tomorrow. 7. My theodolite ….. two electronic protractors. 8. The landscape …….. a nice view. 9. We …… good news for you. 10. You ..… a nice voice.

Choose the correct PRESENT TENSE form of the verb to have for each sentence.

1. My colleagues _____ a workshop today.
- have
- has

2. The student _____ 6 classes a week.
- have
- has

3. My worker _____ a great job.

- has
- have

4. _____ he got any errors in calculations?

- has
- have

5. They _____ got a lot of money.

- have
- has

6. My supervisor and his assistant _____ got three projects.

- has
- have

7. _____ your group mate got a textbook?

- has
- have

8. Yes, my friend _____ got a yellow uniform.

- have
- has

9. They _____ got time to repass this test.

- have not
- has not

UNIT 2

COUNTABLE AND UNCOUNTABLE NOUNS (ЗЛІЧУВАНІ ТА НЕЗЛІЧУВАНІ ІМЕННИКИ)

Countable nouns are those that can be counted.

Examples:

- *I have 2 dogs.*
- *Sandra has 3cars.*
- *Jessie has 10 dollars.*

Uncountable nouns are those that cannot be counted.

Examples:

- *Mack drinks a lot of water.*
- *Cindy gives great advice.*
- *Paul enjoys politics.*

Uncountable nouns take a singular verb and they are not used with a/an/. These are:

- Mass nouns
- Subjects of study
- Languages
- Sports
- Diseases
- Natural phenomena
- Collective nouns.
- Liquids and Gases
- Solid and Granular Substances
- Energy Words and Forces
- Grouped Concepts
- Information and Abstract Concepts

Write down the following words into the right column.

Time, books, sugar, milk, pens, hair, chairs, meat, butter, pencils, bread, jam, friends, fingers, flour, apples, oil, cars, salt, houses, cheese, rice, tea, games, tomatoes, cream, honey, carrots.

Countable	**Uncountable**

We use *how much* with uncountable nouns, *how many* – with countable nouns.

Choose how much **or** how many.

a) _____ cheese do you buy?
b) _____ books are there in your bag?
c) _____ films did Tom see last week?
d) _____ money do you spend every week?
e) _____ friends does Linda have?
f) _____ sugar do we need?
g) _____ tomatoes are there in the fridge?
h) _____ meat are you going to buy?
i) _____ milk did you drink yesterday?
j) _____ apples do you see?

We use *little* with uncountable nouns, *few* – with countable nouns.

Insert little or few.

1. He has got _____ workers to finish the task.
2. I drink_____ coffee in the morning.
3. We must hurry. We have got very_____ time.

4. The Smiths have _____money. They aren’t rich.

5. There was _____lemonade in the bottle.

6. There were _____peaches in the basket.

7. There is _____juice in my glass. Have you got any juice?

8. There is _____ time before the lecture starts.

Complete the sentences with the most appropriate countable or uncountable noun.

1. We drove round for half an hour looking for _____.

A) a parking
B) some parking
C) a parking space

2. I'm afraid I haven't on me _____.
A) a money
B) any moneys
C) some moneys
D) any money

3. I suddenly heard _____ from the room next door.

A) a loud laughter
B) a loud laugh
C) loud laugh

4. Could I have some more _____ please?
A) macaroni
B) macaronis

5. Haven't we done _____!
A) a lot of shoppings
B) a lot of shopping
C) a shopping
D) some shopping

6. Here's _____ that will interest you.
A) a new
B) a piece of news
C) a news

7. What _____!
A) beautiful countryside
B) a beautiful countryside
C) beautiful country

8. A lot of people don't eat _____.

A) pig
B) pork
C) hog

9. I receive _____.
A) all kinds of letters
B) all kind of letters
C) all kinds of letter

10. We sell _____.
A) all kinds of cloth
B) all kind of cloth
C) all kind of cloths

11. While you're at the greengrocery, please get a _____.
A) green
B) salad
C) lettuce

12. We've had _____ lately.
A) very good time
B) very good weather
C) a very good weather
D) good climate

PLURALS
(МНОЖИНА ІМЕННИКІВ)

Singular	**Plural**
a / one bird	two birds

We form the plurals of most nouns by adding -s.

BUT

nouns ending in -s, -ss,
sh- ch,- x or -o +es

Singular	**Plural**
bus	*buses*
glass	*glasses*
dish	*dishes*
torch	*torches*
box	*boxes*
potato	*potatoes*

Nouns ending in – f or – fe
by removing the – f or – fe + ves.

a knife – knives;
a life – lives.

Nouns ending in consonant +y + -ies

a city – cities;
a butterfly – butterflies.

BUT
vowel (a, e, o, u) + y -r –s

a boy – boys;
a day – days.

Write down these nouns in the plural form.

A pen, a class, a story, a road, a day, a bush, a desk, a table, a fox, a lady, a knife, a bus, a match, a way, a house, a family, a wolf, a country, a dictionary, a thief, a key.

Remember!	
a child – children a man – men a woman – women a tooth – teeth	a foot – feet a goose – geese a louse – lice a mouse – mice an ox – oxen

a sheep –sheep
a deer – deer
a swine – swine
a fish – fish

Write down these nouns in the plural form.

A man, the man, a woman, the woman, an eye, a shelf, a box, the city, a boy, the sheep, a sheep, a deer, the life, a tomato, a secretary, the airport, the tragedy, a child, the foot, an ox.

Remember!

This – these
That – those
It – they
Is – are
There is – there are

Write down these word combinations in the plural form.

This magazine, that sticker, this stamp, that sandwich, this poster, this teacup, this egg, that match, this knife, this family, that comedy, this lady.

Write down these sentences in the plural form.

A. This is a difficult mathematical equation. That is an ellipsoid theory. This man is an engineer. That woman is my sister. That goose is big. This mouse is white. This student has a warm coat.

B. That is not a practical task. That Topography manual is not dull. That is not my decision. That is not a goose.

C. Is this a bookcase? Is that a plane? Is the window open? Is the door closed?

D. It is a cigarette. It is a cat. It is a delicious lemon pie for dessert. It is a nice cotton dress for my nice. I have a good pen.

E. It is not a delicious lemon pie for dessert. It isn't a bag. It is not my copybook, it is his. This is not my notebook.

Translate the following word combinations.

A) Ці квіти, багато книжок, улюблені квіти моєї мами, цікаві моменти нашого життя, ці гарні квіти, багато помилок, дві пари взуття, ті журнали, ті дами, ці вікна.

B) Ті чоловіки – агрономи. Ті жінки – мої сестри. Ті гуси – великі. Вони є студентами нашого

університету. Ми використовуємо різні сорти насіння.

ARTICLES
(АРТИКЛІ)

The indefinite article a / an is used with singular countable nouns to talk about indefinite things. E.g. *there is a man waiting for you at the door.*

a + consonant (b, t , c , d, f, 9, h, i , k, l, m, t r, p , g, r, s, t, v, w, x , y, z)

a book;
a sandwich; a lamp;

an + vowel sound(a, e , i, o, u)

an organ;
an idea;
an artist.

Circle the correct variant.

A / an biscuit, a / an cake, a / an apple, a / an pineapple, a / an onion, a / an tomato, a / an egg, a / an

lemon, a / an octopus, a / an orange, a / an watermelon, a / an olive, a / an sandwich.

Write the following words in the correct column with *a* and *an* article.

Atlas, book, eraser, bag, suit, engineer, artist, octopus, elephant, notebook, pan, teapot, ruler, idea, adjective, adverb, seminar, animal.

The definite article the is used with singular and plural nouns, countable and uncountable ones to talk about definite things or when the noun is mentioned for the second time. *E.g.: The green building is my school. There is a car parked in the middle.* When the noun is mentioned for the first time we use the indefinite article an / a.

Write down the article where it is necessary.

1. He hasn't got _____car. But he has got __ computer. _____ computer is new.
2. My_____ friends have got _____ cat and _____ dog. _____dog never bites _____ cat.

3. This is ___ tree. _____ tree is green. I can see _____ three boys. _____ boys are playing.

4. I have _____bicycle. _____ bicycle is blue. My _____ friend has no _____ bicycle.

5. We write _____ dictation yesterday. _____ dictation was long.

6. What _____ surprise! Our ___ parent gave us ____ DVD player for Christmas!

The is used before: nouns which are unique; before ordinal numerals, names of rivers and seas.

Write down the article where it is necessary.

1. Alex is ____ first to come and ____ last to leave. 2. _____ Thames flows in to ____ North Sea. 3. _What is _____ weather like today? – _____ weather is fine. 4. _____ sun is shining so brightly today. 5. _____ sky is grey. 6. You can't see ____ moon in __ sky tonight.

Remember!

in the middle
in the corner

Where is the……? What a nice……!

to the right
to the left
in the morning
in the afternoon
in the evening

Write down the article where it is necessary.

1. Where is_____ cat ?
– _____ cat is on ___ sofa.
2. Where are ____ flowers?
– _____ flowers are in ____ beautiful vase.
3. There is _____ jar of ____ orange ___ marmalade in _____middle of ___ shelf.
4. There is _____ big ___ box of cereal to ___ right of you.
5. There is _____ bunch of _____ bananas on ____ table.
6. There is ___ beautiful picture in my father's_____ study. _____ picture is on _____ wall to _____ left of window. What _____ picture!
7. In ____ morning my brother and I get up at eight o'clock and walk to _____ school.

UNIT 3

WORD ORDER
(ПОРЯДОК СЛІВ У РЕЧЕННІ)

Remember this simple rule:

Positive sentences (твердження)

Subject	Verb	Object
I	speak	English
I	can speak	English

Arrange the words to make affirmative sentences.

1. like / I / you →
2. French / I / speak →
3. hates / pigeons / he →
4. they / song / a / sing →
5. sell / flowers / we →
6. you / see / me / can →
7. buy / milk / he / wants to →

Negative sentences (заперечна форма)

Subject	Ax. verb + not	Object
I	do not speak	English
I	cannot speak	English

Arrange the words to make negative sentences.

1. I watch TV. –
2. We play football –
3. It is boring. –
4. She cleans her room. –
5. You ride your bike every weekend –
6. Sandy takes nice photos –
7. They open the windows –
8. He buys a new CD –
9. I am late –
10. She has a cat –

Interrogative sentences (питальна форма)

Ax. verb	Subject	Verb	Object
Do	you	speak	English?
Can	you	speak	English?

Arrange the words to make questions.

1. do / a dog / you / have
2. you / coffee / do / like
3. speak/ she / English / does
4. he / can / dance
5. play / at / you / the weekends / do / tennis
6. the train / when / leave / does
7. on / they / holiday / are
8. she / Australia / from / is

Subject questions (питання до підмета)

Subject	**Verb**

Who lives here?
What hangs on the wall?
Whose bag lies on the table?

Make up sentences from this table.

Which of you Which of these girls Whose sister	knows French well? studies at the university? works at that plant?

POSITION OF ADVERBIALS (РОЗТАШУВАННЯ ПРИСЛІВНИКІВ У РЕЧЕННІ)

1. An adverbial can be a word *(usually, really, probably, softly) or* a phrase *(at home, once a week, to get a good job, when I was a child).* You generally use an adverbial to provide additional information about a verb or an adjective.

Types of adverbials

Adverbials fulfill a number of functions.

1. You can use them to add information about the verb by:

a) describing how often something happens: *I speak to my mother on the phone every other day.*

b) describing where the action happens: *I was mugged on the way home.*

c) describing when the action happens: *the dinner will probably be ready by then.*

d) telling us how long an action continued for: *he'd been dreaming about it for months.*

2. You can use them to give extra information about adjectives, for example, by grading them: *he was extremely happy to see her. It was fairly hot for the time of year.*

Position of adverbials

You can use adverbials in three positions in a sentence.

1. Initial position: *on the whole I prefer to eat home-made food.*

2. You tend to use one-word adverbials of frequency, emphasis and probability in the mid position. Between the subject and the main verb: I *never trusted him.* Between an auxiliary and the main verb: *I've always loved travelling by train.*

In negative sentences the adverb can be placed either between the subject and a negative auxiliary: I *really don't think you should be doing that. Or* directly after the negative auxiliary: I *don' t really think you should be doing that.*

Adverbs of probability usually follow the first pattern and adverbs of frequency usually follow the second: *they probably didn't mean to offend you. I don't always get along with him.*

3. You tend to use longer adverbial phrases and adverbs of manner in the final position: *they finished the job as quickly as they could.*

Changing the position of the adverb we can change the meaning of the sentence: o*nly Sarah has Pierre's e-mail address,* (no-one else has it). *Sarah only has Pierre's e-mail address,* (and nothing else).

1. Work with a partner. Look at the sentences below. Where would you normally place the adverb *always* in each of them?

- We define ourselves according to our place of birth.
- We have defined ourselves according to our place of birth.
- We would have defined ourselves according to our place of birth.
- We wouldn't have defined ourselves according to our place of birth.

2. Look at this sentence.

(1) We (2) define (3) ourselves (4) according to our place of birth (5).

a) In which position, 1-5, would you normally add these adverbials to this sentence?

- when we are children
- if we live there
- on the whole
- often
- to some extent
- probably

b) Which adverbials would you not use in position 2? In which position can you never add an adverbial?

3. Look at these pairs of sentences. The adverbials in *italics* are in different positions. How does this change the meaning of the sentence?

E.g. A) Actually he's performing in the play tomorrow, (and not doing something else). B) He's actually performing in the play tomorrow, (and not just sitting in the audience).

1 A. *Only* Kate knows how to look after horses.
1 B. Kate *only* knows how to look after horses.
2 A. *Honestly*, I can't speak to her any more.

2 B. I can't speak to her *honestly* any more.

3 A. *Earlier*, I had wanted Rich to come to the meeting.

3 B. I had wanted Rich to come to the meeting *earlier.*

4. Make up your own sentences using the adverbs:

often, seldom, rarely, always, never, ever, once in a blue moon, hardly ever, sometimes, already, yet, very often.

UNIT 4

Grammar questions

She comes from Australia.
She's studying art.

- **What tenses are the two verb forms in these sentences?**
- **What is the difference between them?**

Present Simple	
form statement: **negative:** **question:**	I / you / they / we travel He / she / it travel**s** I / you / they / we **don't** travel He / she / it **doesn't** travel **Does** he / she / it travel? **Do** I / you / they / we travel?
Use	**Example**
Current habits	Tommy walks to work.
To talk how often the things happen	Angela doesn't visit us very often.
Permanent situations	Carlo works in a travel agency.
States	Do you have an up-to-date passport?
General truths and facts	Poland is an European Union.

Present Continuous	
form statement: **negative:**	I **am** travell**ing** he / she / it **is** travell**ing** you / they / we **are** travell**ing** I **am not** travell**ing**

question:	you / they / we **aren't** travell**ing** he / she / it **is not** travell**ing** **Am** I travell**ing**? **Are** you / they / we travell**ing**? **Is** he / she / it travell**ing?**
Use	**Example**
Actions happening now	Toby is walking to work.
Temporary situation	She is working at the museum until the end of the month.
Annoying habits	My brother is always borrowing CD without asking!

Make the following sentences negative and interrogative, use Present Simple.

He meets a lot of people. She looks after passengers. I go to the park every Sunday. We speak English at the English lessons. I sometimes watch hockey matches on TV.

John and Stephie have very different lives. Read about John. Then complete the sentences about Stephie. Use Present Simple in the negative or positive form.

1. John gets up early.	Stephie doesn’t get up early. She … (stay) in bed until 10 o'clock.
2. He drives a car.	She …. (ride) a bike.
3. He works at the office.	She …. (stay) at home.
4. He has lunch in a restaurant.	She …. (make) lunch at home.

Complete the sentences by putting the verbs in. Use Present Simple.

1. My colleague is finding life in Paris a bit difficult. He..... (speak) French. 2. Most students live quite close to the college, so they ..... (walk) there. 3. My sports kit is really muddy. This shirt ..... (need) a good wash. 4 I've got four cats and two dogs. I ..... (love) animals. 5. No breakfast for Mark, thanks. He.....(eat) breakfast. 6. What's the matter? You .....(look) very happy. 7. Don't try to ring the bell. It ..... (work).

Complete the conversation. Put in Present Simple.

Stephie: *Do you like* (you / like) football, John?

John: I *love* (I / love) it. I'm a united fan. (1)……(I / go) to all their games. Stew usually (2) ..... (come) with me. And (3) ..... (we / travel) to games, too. Why (4) ..... (you / not / come) to a match some time?

Stephie: I'm afraid football (5)……. (not / make) sense to me – men running after a ball. Why (6) ..... (you / take) it so seriously?

John: It's a wonderful game. (7) .....(I / love) it.

Stephie: How much (8)……(it / cost) to buy the tickets and pay for the travel?

John: A lot. (9) ..... (I / not / know) exactly how much. But (10)……. (that / not / matter) to me. (11) ..... (I / not / want) to do anything else. (12) ..... (that / annoy) you?

Stephie: No, (13) ..... (it / not / annoy) me. I just (14) …….(find) it a bit sad.

Make up five sentences from each table. Use Preset Continuous.

I	am	(not)	cleaning the room
You	is		playing hockey
We	are		having breakfast

They			reading a newspaper
He			cooking dinner
She			listening to the radio
It			

What	am is are	I	cleaning
		you	playing
		we	watching
		they	reading
		he	cooking
		she	listening
		it	speaking about

Christine is in the computer room at the university. Complete her conversation with Oleh. Use Present Continuous where it is needed.

Oleh: What (►) *are you doing?* (you / do)

Christine: (►) *I'm writing* (I / write) a letter to a friend. He's a disc jockey. Stephie and I (1) ..... (try) to organize a disco.

Oleh: That sounds a lot of work. How (2)……. (you / find) time for your studies?

Christine: Well, as I said, Stephie (3) ..... (help) me. (4)…….. (we / get) on all right. (5)…….. (we / not / spend) too much time on it. (6) ..... (it / not / take) me away from my studies, don't worry about that. Oh, sorry, (7) ..... (you / wait) for this computer?

Oleh: Well, I'm in a hurry.

Christine: (8)…….. (I / correct) the last bit of the letter. I've nearly finished.

How do you spell it? Write the continuous form (-ing) of these verbs in the correct column.

Arrive. Begin. Come. Cry. Dance. Decide. Die. Dig. Forget. Have. Help. Laugh. Listen.
Lie. Live. Make. Play. Put. Rob. Start. Stop. Swim. Tie. Wear. Win. Work. Write.

+ing	nn + ing	e – ing	ie – ying
crying	beginning	arriving	dying

You are talking to your friend Christine on the phone. Ask questions to find out what she and her family are doing.

You	**Your friend, Christine**
E.g. where are you? *what are you doing __ (do)?* _____ (sit)? _____ (laugh)? _____(watch)? _____ (enjoy) it?	*in the sitting room.* *I'm talking to you!* On the floor. Because there's a funny man on TV. A comedy programme. Yes, I am. But I'm listening to you too.
Where _____ Pete? _____(cook) dinner? _____ (talk) to? and where ___ your parents? _____ (talk) to James? _____(make)?	In the kitchen. No, he's talking to someone. His friend, James. In the kitchen too. No, they're making dinner. My mum is cooking fish and my dad is cutting the bread.

Stephie is in the computer room at the university. Complete her conversation with Stew. Use Present Continuous where it is needed.

Stew: What (►) *are you busy with?* (to be busy)

Stephie: (►) *I'm writing* (I / write) an e-mail to our English teacher. We (1) ..... (try) to organize the conference for our faculty.

Stew: That sounds a lot of work. How (2)…. (you / find) time for your conference?

Stephie: Well, as I have told you, our teacher (3) ..... (help) me. (4)…….. (we / get) on all right. (5)…… (we / not / spend) too much time on it. (6) ..... (it / not / take) me away from my examination session, don't worry about that. Oh, sorry, (7) ..... (you / wait) for this computer?

Stew: Yes, but there's no hurry.

Stephie: (8) …… (I / write) the last word in the e-mail. I've nearly finished.

WRITING TEST I

1. Fill in the spaces with the correct verb form.

1. I …. a land surveyor.
2. She ……. an architect that ….. from India.
3. We … students of the land management department and we ….. always present during the practical training.
4. They …. land managers from another department.
5. It …. a high-rise building.
6. Donald …. an engineer from our construction company.
7. Across the river from London Bridge ….. ‘The City of London’, the financial district of the capital.
8. The best way to explore the City ….. on foot.
9. So, even if you …. new to the city, you don’t have to try hard in order to experience the real London.
10. The worker …… responsible for attaching the pipeline to control point.

2. Put the words in the correct order.

1. conducting / the ground survey / Christine and Robert / are .

2. next week / are / they / moving / to another office.

3. I / am / tonight / to the meeting / not going.

4. they / what / are / doing?

5. doing / you / always / this / are / with my land use planning project!

6. is / at / week / contractor's / staying / this / the head of the land management department / office.

7. land surveyors / land parcel / Are / measuring / the?/ now.

8. Lucy / calculating / not / collected data / now / her / is.

3. Fill in the space with an appropriate verb tense form.

1. The worker …… a tripod. 2. A land surveyor ……. an electronic theodolite. 3. I…… two devices. They ….. equipped with an electronic telescope. 4. The employee wears a red helmet. It ……. a protective function. 5. This building …. a very big garden. 6. The students ….. an important qualification test tomorrow. 7. He ….. a long measuring tape. 8. The manual …… a nice cover. 9. We …. good news for you. 10. You……an excellent solution for this problem.

4. Fill in the space with an appropriate verb tense form.

1. Each planning strategy _____ its own advantages.
2. We _____ a friend that works as a land surveyor.
3. Bottom-up land use planning _____ some disadvantages.
4. Next year this student ____ a land use planner diploma.
5. Last year students _____ many interesting disciplines.

5. Write words in the right order to make up sentences.

1. protractors / This / worker / has / two.
2. long measuring tape / This / worker / a / has.
3. Lee / many / has / tools / in the tool kit.
4. rubber boots / many pairs of / have / I.
5. for / ambitions / big / construction/ Mrs. Cohen / has / bridge.
6. have / My group mate and his friend / devices / two.

6. Read and circle.

1. Costas is my / mine employer.
2. This is John's ruler. It's his / her ruler.
3. This equipment is their / theirs.
4. The brown helmet is my / mine.
5. It is Ann's protractor, it's her / hers protractor.
6. Robert is their / theirs executive director.
7. These manuals are your / yours.
8. My / Mine uniform is red.
9. This is our / ours collected data. They're our / ours.
10. These are Jane's compasses. They are her / hers compasses.

Exercise 7. Write the sentences.

E.g. Christine / ruler.
This is Christine's ruler.
It is her ruler.
This ruler is hers.

1. the girls / compasses.
2. Mykola / theodolite.
3. The students / manuals.
4. Mr. Brown / measuring tape.

5. Rose / helmet.

8. Write the correct pronoun for each sentence.

E.g. that equipment belongs to us. That equipment is ours.

1. She is selling …… land property. The best part of this land property is ….. price.
2. My assistant Steve has prepared his report. This report is …. .
3. This conventional research results belong to my colleague Tina. These results are …. .
4. I have good co-workers. Paul and Benet always help …… colleagues.
5. This drafting board belongs to me and my supervisor. This drafting board is …. .
6. These rubber gloves belong to my worker. These rubber gloves are …. .
7. A team of surveyors have got a uniform. This uniform is …. .
8. You and your colleague have designed this tunnel construction. This project is …. .

9. Choose the correct possessive adjective or possessive pronoun.

1. - Is this boss' car?
- No, it is _____ (my / mine).
2. - Whose drafting board is this ____?
- It's (our / ours).
3. (Our / ours) _____ credit test is easy, but (their / theirs) _____ is difficult.
4. That slide ruler is _____ (my / mine) and that is _____ (their/ theirs).
5. What is _____ supervisor's name? (your / yours). _____ (he / his) name is Steve.
6. The construction measurements are _____ (their / theirs).
7. Go to _____ (you /your /yours) office.
8. He likes _____ (her / hers) goggles for working with a laser level.

10. Answer each question, choosing the response which has the correct word order.

1. - Q: What do you think of our client?
- A: I think he's _____.
too arrogant
much an arrogant too

2. - Q: The bank clerk assured us that it was the best thing what we could do in that situation.

- A: he was _____.
totally right
right totally

3. -Q: How much do you know about the tunnel construction?
-A:_____.
I know a lot
A lot I know

4. -Q: Do you always listen to your adviser?
- A: Yes, I _____ to him.
listen to always
always listen to

5. -Q: What do you think about our new manager?
I think he is _____ to finish this project.
smart enough.
enough smart

6. - Q: So, what is your decision? Are you sure?
- A: I'm not going to _____.
repeat it again
again repeat it

7. - Q: Have you ever prepared this report before?

- A: No, I've never tried _____ before.
this to make
to make this

8. - Q: Why did you say it?
A: I was _____ .
absolutely sure
sure absolutely

PAST Simple	
form statement: **negative:** **question:**	I / you / they / we / he / she / it travell**ed** I / you / they / we / he / she / it **didn'**t travel **Did** I / you / they / we / he / she / it travel?
Use	**Example**
Completed action	I saw Toby yesterday.
Repeated action in the past	I went to the theater three times last month.
General truth about the past	Fifty years ago people didn't have the cell phones.
Main events in a story	Mike came in to the room and switched on the light.

PAST CONTINUOUS	
form statement:	I / he / she / it **was** travell**ing** you / they / we **were** travell**ing**

negative: **question:**	I / he / she / it **wasn't** travell**ing** you / they / we **weren't** travell**ing** **Was** I / he / she / it travell**ing**? **Were** you / they / we travell**ing**?
Use	**Example**
The action happening in a moment in the past	Toby was walking to work at 8 o'clock.
Two actions in progress at the same time in the past	I was reading a book while you were writing the e-mail.
Back ground information in a story	It was raining, so Tommy decided to go home.

1. Form Past Simple of the following regular verbs.

to look, to seem, to dress, to love, to cry, to jump, to profit, to enjoy, to hurry, to clear, to regret, to carry, to cook, to repair, to shout, to scatter, to rob, to stir, to compel, to peel.

2. Form Past Simple of the following regular

verbs.

To speak, to hear, to see, to drive, to burn, to fly, to run, to leave, to write, to come, to put, to cost, to cut, to go, to be, to got, to have, to make, to read, think, catch, to buy, to dream, drink.

3. Make up five sentences.

I	spoke	my room
He	wrote	a poem
She	came	home
It	went	to work
We	cleaned	English

I	didn’t	go clean speak come write	my room
He			a poem
She			home
It			to work
We			English

Did	I	speak	my room?

	he	write	a poem?
	she	come	home?
	it	go	to work?
	we	clean	English?

4. Make up sentences using the auxiliary verb to be of the Past Simple Tense.

I / he / she / it	was (not)	at home at the cinema at the airport
You / they / we	were (not)	
Was	I / he /she / it	the last? the first? late? in time?
Were	you / they / we	

5. Choose the right form of the verb from the brackets.

1. He said: “I ..... your friend this morning (see / sees / saw)”. 2. I ..... to my cousin three weeks ago (write / writes / wrote). 3. “It is a very lovely ring”, he said. She looked pleased. “George ..... it to me yesterday”, she said (give / gives / gave). 4. He ... you here about two months ago (see / sees / saw). 5. I ….. you at five, but you weren’t in (call / calls / called). 6. I

..... that girl to drive myself when she was fifteen (teach / teaches / taught). 7. Lucy and I ..... there two years ago (is / are / was / were). 8. His mother ..... three or four years ago (die / dies / died). 9. I should like to tell you what ..... eighteen months ago (happen/happens/happened). 10. I'm not much of a theatre-goer myself, but my wife ..... (go / goes / went) along and .... the play last week (see / sees / saw).

6. Make the following interrogative and negative:

1. She was standing alone before the fire. 2. They were crossing the street at the wrong place. 3. I was listening to their conversation. They were talking about our party. 5. George was preparing for his examination the whole day. 6. She was playing the piano when you came in. 7. The children were doing their homework at six. 8. Their son was going to be a painter.

7. Change the following into Past Continuous.

1. The man is standing near the door. 2. Tom told a story. 3. The children swam in the river. 4. Is Mary wearing a white dress? 5. She went to the cinema. 6. They did not work in the garden. 7. We are not sitting

by the window. 8. The workers built a bridge. 9. The girl tried on a dress. 10. The old man spoke in a low voice.

8. Circle the correct word or phrase.

1. Our boss *owned / was owning* two companies in Europe.
2. What *were you discussing / did you discuss* when I came?
3. When we were on a business trip, we *went / were going* to the cafe almost every day.
4. Denise *practised / was practising* those skills every day until she could measure it perfectly.
5. Richard *read / was reading* the report when the phone rang.
6. I *saw / was seeing* Maria for the first time at the meeting with our boss.

9. Complete using the correct form of the verb in brackets.

1. Where ..... *(you / go)* when I saw you on the bus last night? *2.* ..... *(you / enjoy)* the film? 3.When we shared a room, Zoe ..... *(always / take)* my things. It was so annoying! 4. When I went to get the

tickets, I realized I ..... *(not / have)* any money. 5. When I was young, we ..... *(go)* to France every year on holiday. 6. Elvis ..... *(become)* famous for the song Blue Suede Shoes. 7.When you rang last night, I ..... *(work)* in the garden so I didn't hear the phone.

UNIT 6

Future Simple	
form statement:	I / you / they / we / he / she / it **will** travel
negative:	I / you / they / we / he / she /it **won't** travel
question:	**Will** I / you / they / we / he / she / it travel?
Use	**Example**
Facts about future	The new airport will be the biggest in Ukraine.
Predictions	Angela will have a great time at Christmas.
Offers and requests	We'll help you.
Decision made n	I know! I'll do it now.

Future Continuous

form statement: **negative:** **question:**	I / you / they / we / he / she / it **will** be travell**ing** at this time I / you / they / we / he / she /it **won't be** travell**ing** **Will** I / you / they / we / he / she / it **be** travell**ing**?
Actions in progress at a stated future time	He'll be sunbathing in Hawaii this time next week.
Actions which are the result of a routine (instead of the Present Continuous)	I'll be seeing John tomorrow. (We work in the same office so we'll definitely meet).
When we ask politely about people's arrangements to see if they can do smth. for us	Will you be going to the supermarket? Can you buy me some tea?

With offers which are questions we use shall with I and we, e.g.: Shell I help you?

We don't use will with arrangements: we'll see

our grandma this weekend.

Make up sentences.

What	will	I	do tomorrow?
		he	discuss in the evening?
		she	study next year?
		we	tell her?
		you	sing?
		they	build there?
		it	

I	will	ring you up	tomorrow
He		start	in the morning
She		clean the room	next week
We		go to the circus	on Sunday on Friday
You	will not	visit them	
They		come back	home
		send a telegram	to Kyiv

1. Make the following interrogative and negative.

1. The meeting will begin at eight. 2. They will be in Brussels the day after tomorrow. 3. She will cook breakfast for us. 4. We shall start at dawn. 5. The boy will be seven next year. 6. The plane will take off in five minutes. 7. We shall climb the mountain next week. 8. I shall see you on Monday. 9. I'll buy a camera next month. 10. They'll tell us about it.

2. Change the following into Future Simple.

1. The pupils have dictations twice a week. 2. I spend my summer holidays in the country. 3. Our engineer left for Kyiv on Monday. 4. She agrees with him. 5. Our school year begins on the 1st of September. 6. We do our homework in the afternoon. 7. My brother is a driver. 8. I saw him at school. 9. We sleep in the open air. Her husband worked at the factory. 11. They are at home. 12. I am busy on weekdays.

1. Change the following into Future Continuous.

1. The pupils have dictations twice a week. 2. I

spend my summer holidays in the country. 3. Our engineer left for Kyiv on Monday. 4. She agrees with him. 5. Our school year begins on the 1st of September. 6. We do our homework in the afternoon. 7. My brother is a driver. 8. I saw him at school. 9. We sleep in the open air. Her husband worked at the factory. 11. They are at home. 12. I am busy on weekdays.

4. Complete the conversation. Put in a pronoun and Future Continuous where it is needed.

- Senior surveyor: I'm going to run my own company. Five years from now (►) *I'll be running* (I / run) my own company. I expect (1) …… (I / make) a lot of money.

- Assistant: I know what (2) …… (I / do). What about you, student? What (3) ..... (you / do)?

- Student: I don't want to work at all. I'm intended to win the lottery and start my business. We'll hire a supervisor (4)….. (who / do) all the work, of course. And you'll get a job at my company too. (5) …… (I / travel) all over the world.

- Senior surveyor: Stop believing in fairy tales, dreamer. Come back to work. _____ (you / work) too.

5. Put in the answers. People are saying what they will be doing as part of their routine.

► David: When are you going to the club, do you know?

(Nick goes to the club every Friday.)

Nick: *I'll be going there next Friday.*

– Vicky: Are you likely to see Ilona in the near future?

(Emma sees Ilona every day.)

- Emma: ..... tomorrow.

- Claire: Are you going to France again soon?

(Henry goes to France every summer.)

- Henry: .....

- Jessica: When are you going to play badminton again?

(Matthew plays badminton every weekend.)

- Matthew:.....

- Andrew: When are you having lunch in the canteen?

(Daniel has lunch in the canteen every day.)

- Daniel: .....

WRITING TEST II

1. Circle the correct word or phrase.

1. I *met / was meeting* Maria for the first time at the conference.
2. Richard *spoke / was speaking* on the phone when he came.
3. When we were on holiday, we *went* / *were going* to the business office almost every day.
4. The supervisor *trained / was training* students every day until they could do the task perfectly.
5. The phone was engaged when I called. Who *did you talk / were you talking* to?
6. Mr. Connors *had / was having* five workers at the power plant.

2. **Complete using the correct form of the verb in brackets.**

1. Where____ (you / go) when I saw you on the bus last time?
2. _____ (you / enjoy) the conference?

3. When we worked together, my colleague_____ (always / take) my stuff. It was so annoying!

4. When I went to get the tickets, I realized I_____ (not / have) any money.

5. When I was a vice manager, we _____ (go) to France every year.

7. When you rang, I_____ (work) in the office so I didn't hear the phone.

3. Put the verbs in brackets into the correct tense form.

You 1) ..... (meet) an engineer under the clock at the Leicester Square Station. When she 2) ..... (arrive), she 3) ..... (have) an envelope to give you. Before she 4) ..... (give) it to you, she 5) ..... (give) you the project plan. Take the envelope and go into the station. When the train 6) ..... (come), get on it and go to Waterloo Station. As soon as you 7) .....(reach) Waterloo, take a taxi to the Opera House. By the time you 8) ..... (get) there, our manager 9) .....(be) there. Give him the envelope. Wait until he 10) ..... (drive) off and then go home. We 11) ..... (call) you later.

4. You want to ask a colleague to do something for you or to let you do something. Find out if it is convenient for him / her. Use the verbs in brackets.

► You want to have a look at your friend's project plan tonight (draft).

E.g. will you be drafting your project plan tonight?

1. You want your group mate to take your library book back today, (go to)

_____

2. You want your colleague to send an e-mail to supervisor, (write to)

_____

3. You want to use your colleague's theodolite this afternoon, (use)

_____

4. You want your worker to give some photo evidence to you tomorrow, (see)

_____

5. You want your group mate to give you a lift to the festival, (drive)

_____
_____

6. You want your colleague to give a message to your boss soon, (phone)

_____
_____

5. Make up sentences in Future Simple.

1. Harry / cause / troubles

Positive: _____
Negative: _____
Question: _____

2. you / copy / the map plan

Positive: _____
Negative: _____
Question: _____

3. the clouds / disappear

Positive: _____

Negative:_____
Question: _____

4. he / assess / the land resource / of this territory

Positive: _____
Negative: _____
Question: _____

6. Find and underline the adverbials in the sentences.

The co-workers were discussing the party cheerfully.
I have seen him there before.
We met in London later.
They usually go to work by bus.
Perhaps the weather will be fine.
He is certainly coming to the meeting.

7. Write down the sentences in the plural.

This is a tool kit with a modern theodolite. That was an inspector from the construction site. This will be an aerial shooting. This is a manager. That is an employee. Is the window open? It is a computer

software program. That isn’t a man from our company. This wasn’t my computer mouse. Was it yours?

Present Perfect Continuous	
form statement:	I / you / they / we **have been** travell**ing** he / she / it **has been** travell**ing**
negative:	I / you / they / we / haven't been travelling he / she / it **hasn't been** travell**ing**
question:	**Have** I / you / they / we **been** travell**ing**? **Has** he / she / it **been** travell**ing**?
Use	**Example**
Actions continuing up to now or just before now.	I have been learning Spanish for three years.

Present Perfect	
form statement:	I / you / they / we **have**

	travell**ed** he / she / it **has** travell**ed**
negative:	I / you / they / we / **haven't** travell**ed** he / she / it hasn't travelled
question:	**Have** I / you / they / we travell**ed**? **Has** he / she / it travell**ed**?
Use	**Example**
Situations that started in the past and are true now.	Mrs. Morton has been an English teacher for two years.
Completed action at a time in the past that is not mentioned when.	I've already read the article. I've bought a new dress. I've closed the door.
Completed actions where important thing is the result now.	They've all done their homework.

1. Make the following interrogative and negative.

Mary has switched on the light. Our grandfather has travelled much. The student has passed all his exams. Robert has come back. The director has signed the order.

2. Make the following interrogative and negative.

1. I have been working at this plant for half an hour. He has been learning English for three years. She has been looking for it since I came here. They have been building this factory since 2000. We have been waiting for them for an hour.

3. **Gone to *or* been to*?* Complete the conversation. Put in *gone* or *been.***

Emma: Hi. Where's Rachel?

Vicky: She's (►) *gone* to the supermarket to get something for a meal.

Emma: But I've got some chicken for tonight. I've just (1) ……. to a supermarket on my way home, that new place near the station.

Natasha: I haven't (2) .....to that one yet.

Vicky: Where's Jessica? Isn't she here?

Emma: No, she's (3) …… to London. She'll be back tomorrow.

4. Ever and never. Write the questions and answers. Use the information in brackets.

Matthew: (sailing?) *Have you ever been sailing?*

Natasha: (no, windsurfing) No, *I've never been sailing*, but *I've been windsurfing*.

1. Laura: (San Francisco?) ……..…….

Mark: (no, Los Angeles) .....……but.……

2. Tom: (basketball?)…….

Trevor: (no, volleyball) .....but ……..

3. Daniel: ('Hamlet'?)……

Vicky: (no, 'Macbeth)……but……..

1. Complete using Present Perfect where it is needed.

1. I_____ (see) this comedy already.

2. Joe and Tommy _____ (have) the car for about a year.

3. She_____ (not / pass) her exams yet.

4. Sue_____ (be) a teacher for three years.

5. This new computer _____ (make) my life a

lot easier.

6. _____Paul_____ (meet / ever) famous person?

7. We_____ (not / decide) yet what to give Tom for his birthday.

6. Circe the correct variant.

1. I think *we have seen / have been seeing* him before

2. We *haven't come / haven't been coming* yet but we are going to come soon.

3. *Have the children played / have been playing* computer games since the morning?

4. Mike *has already invited / have been inviting* Lorence to the cinema.

5. Have you done/been doing it since morning?

7. Make up your own sentences using the following tables:

The Present Perfect Tense

Affirmative	Interrogative	Negative
You have seen She has seen	Have you seen? Has she seen?	You haven't seen She hasn't seen

The Present Perfect Continuous Tense

Affirmative	Interrogative	Negative
You have been working She has been working	Have you been working? Has she been working?	You haven't been working She hasn't bee working

UNIT 8

Past Perfect	
form statement:	I / you / they / we / she / it **had** travell**ed**
negative:	I / you / they / we / he / she / it **hadn't** travell**ed**
question:	**Had** I / you / they / we / he / she / it travell**ed**?
Use	**Example**
Actions and states before a moment in	I've finished my homework before my mom came.

the past.	
Finished actions and states where the important thing is the result at a moment in the past.	We were happy because we'd passed the exams.

Pay attention!

Whether we use Past Simple or Past Perfect we can change the meaning of a sentence.

E.g. the lesson started when I arrived (I arrived and lesson started).

The lesson had started when I arrived (The lesson started and then I arrived).

Past Perfect Continuous	
form statement:	I / you / they / we / he / she /it **had been** travell**ing**
negative:	I / you / they / we / he / she / it **hadn't been** travell**ing**
question:	**Had** I / you / they / we / he / she / it **been** travell**ing?**
Use	**Example**

Actions continuing up to or stopping just before a moment in the past.	I had been learning Spanish for over an hour, so we were bored.

1. Make up your own sentences using the following tables:

The Past Perfect Tense

Affirmative	Interrogative	Negative
You had seen. She had seen.	Had you seen? Had she seen?	You hadn't seen. She hadn't seen.

The Past Perfect Continuous Tense

Affirmative	Interrogative	Negative
You had been working. She had been working.	Had you been working? Had she been working?	You hadn't been working. She hadn't been working.

2. Read about each situation and then tick the right answer. *E.g. two men delivered the sofa. I had*

already paid for it. Which came first a) the delivery or b) the payment? (V)

1. The waiter brought our drinks. We'd already had our soup.

Which came first a) the drinks or b) the soup?

2. I'd seen the film, so I read the book.

Did I first a) see the film or b) read the book?

3. The programme had ended, so I rewound the cassette.

Did I rewind the cassette a) after or b) before the programme ended?

4. I had an invitation to the party, but I'd arranged a trip to London.

Which came first a) the invitation or b) the arrangements for the trip?

3. Past Perfect. Add a sentence with Past Perfect using the notes. *E.g. Claire looked very suntanned when I saw her last week. She'd just been on holiday (just / be on holiday)*

1. We rushed to the station, but we were too late.
…… (the train / just / go)
2. I didn't have an umbrella, but that didn't matter.
..... (the rain / stop)

3. When I got to the concert hall, they wouldn't let me in.

..... (forget / my ticket)

4. Someone got the number of the car the raiders used.

..... (steal / it / a week before)

5. I was really pleased to see Rachel again yesterday.

…… (not see / her / for ages)

6. Luckily the flat didn't look too bad when my parents called in.

……(just / clean / it)

7. The boss invited me to lunch yesterday, but I had to refuse the invitation.

…… (already / eat / my sandwiches).

4. Complete the conversation. Put in Past Perfect Continuous.

Rachel: How was your job interview?

Vicky: Awful. I felt terribly nervous. *I'd been worrying* (I / worry) about it all week. And I was tired because (1)…… (I / work) on my project the night before. (2) ..... (I / not look) forward to the interview at all.

Rachel: So what happened?

Vicky: The woman interviewing me was half an hour late because (3) .....…… (she / deal) with an unexpected problem, she said. (4) ..... (I / wait) ages, and I'd got even more nervous.

Rachel: How did the interview go?

Vicky: Well, I tried to sound confident. (5) ..... (I / read) a book that said that's what you have to do in job interviews. But I don't know if I gave the right answers.

5. Complete the sentences using Past Perfect Continuous.

1. She was tired because she_____ (run). 2. They were hot because they _____ (dance). 3. The garden was flooded because _____ (it / rain all night). 4. Did they crash because they _____ (drive / too fast)? 5. When I arrived they (wait / all over an hour).

6. Put the verbs in brackets into Past Perfect or Past Perfect Continuous.

1. A: Why didn't you have some dessert?

B: I _____ (eat) too much already.

2. A: How long _____ (you / live) in Brazil before you moved here?

B: About 10 years.

3. A: Did you watch the comedy on Channel 4 yesterday?

B: No. It _____ (finish) by the time I got home.

4. A: Was she there when you arrived?

B: No, she _____ (already/leave).

5. A: Why was Brad so exhausted last night?

B: He_____ (work) since 9 o'clock in the morning.

6. A: What did he think of the photo exhibition?

B: He loved it. He said he_____ (never / see) such beautiful photos before.

Future Perfect	
form statement:	I / you / they / we / she / it **will have** travell**ed**
negative:	I / you / they / we / he / she /it **won't have** travell**ed**
question:	**Will** I / you / they / we / he / she / it **have** travell**ed**?
Use	**Example**

The Future Perfect is used to denote an action or a series of actions completed before a certain moment in the future.	I'll have left home by this time next week.

1. Make up your own sentences using the following table:

The Future Perfect Tense

Affirmative	Interrogative	Negative
You will have seen.	Will you have seen?	You won't have seen.

Future Perfect Continuous	
form statement:	I / you / they / we / she / it **will have been** travell**ing**
negative:	I / you / they / we / he / she / it **won't have been** travell**ing**
question:	**Will** I / you / they / we / he /

	she / it **have been** travell**ing**?
Use	**Example**
The Future Perfect is used to denote an action or a series of actions begun before a certain moment in the future and are going on at that moment or just over.	When you enter the university we will have been living here for over five years.

2. Make up your own sentences using the following table:

The Future Perfect Continuous Tense

Affirmative	**Interrogative**	**Negative**
You will have been working.	Will you have been working?	You won't have been working.

2. Make the following interrogative and

negative.

I will have done it by that time. He will have written it by five o'clock. She will have translated it before I return. You will have had dinner when he comes back. We will have prepared it by the end of the year.

3. Make the following interrogative and negative.

1. By the time she comes I will have been studying English for two years. 2. When you enter the university we will have been living here for over five years. 3. We will get there at 11. They will have been waiting for half an hour. 4. She will have been working as a bank clerk for two years by this time next month.

4. Put the verbs into the correct form (Future Perfect).

1. By 9 o'clock, we (finish) _____ our homework.
2. They (leave) _____ the classroom by the end of the hour.
3. We (go) _____ home by next week.

4. She (return) _____ from the excursion by 6 o'clock.

5. (buy / he) _____ the new house by October?

5. Put the verb into the correct form (Future Perfect Continuous).

1. By the end of the month I (live) _____ in this town for ten years.
2. By the end of this week we (work) _____ on the project for a month.
3. They (wait) _____ for the president for 5 hours.
4. We (look for) _____ him for 40 days by next Saturday.
5. By 10 o'clock she (watch) _____ TV for 4 hours.

6. Put the verbs in brackets into Future Perfect or Future Perfect Continuous.

1 By 7:00 pm they ..... (play) cricket for eight hours.

2 I ..... (finish) painting your room by the time you get home.

3 By the end of next month, I ..... (live) in London for exactly three years.

4 Tom ..... (write) his third novel by the end of this year.

5 By the time he arrives in London, John ..... (drive) for five hours.

6 This film .....(probably/not/finish) until eleven.

7. Put the verbs in brackets into Future Perfect or Future Perfect Continuous.

Margaret: Do you think everything will be finished when I get back from the store?

Jerry: Don't worry. By the time you get back, I (pick) _____ up the living room and (finish) _____ washing the dishes. Everything will be perfect when your parents arrive.

Margaret: I hope so. They (arrive) _____ around 6 o'clock.

Jerry: Everything (be) _____ spotless by the time they get here.

WRITING TEST III

Exercise 1. Fill the blanks with needed part of speech from the given words.

1. This bag contains all my photographic ___ (equip).
2. Our employee studies civil _____ (engine) at the polytechnic university.
3. Lisa has taken up ____ (photograph) as a hobby.
4. The government is encouraging ___ (invest) in heavy industry
5. Please, give details of your present _____ (occupy).

Exercise 2. Circle the correct word or phrase.

Dear Lina

Thanks for your letter. I (1) just left / had just left for university when I saw a group mate and he (2) gave / had given it to me. It was really funny! I (3) read / had read it during Math and it (4) made / had made me laugh. I almost (5) got / had got into trouble!

Anyway, I'm excited because I (6) had / had had my first drafting class yesterday. I (7) was / had been

late for the class because when I (8) got / had got there, I suddenly realized I (9) left / had left my drafting equipment at home! So, I (10) went / had gone home and when I (11) got / had got back, the class (12) already began / had already begun.

The instructor was really nice, though, and I (13) learned / had learned how to draft a map. Can't wait till next time!

What about you and your topography class? The last time I (14) spoke / had spoken to you, you (15) talked / had talked about giving it up. What (16) did you decide / had you decided?

I think that's all for now. My roommate and I are going shopping shortly, so I'd better post this. Speak to you soon.

Love, Charlotte.

Exercise 3. Complete sentences using the verbs in the box. You may need to use a negative form.

eat • stay • wait • know • write • see • listen • get • have • run

1. By the time he died, Beethoven.....nine symphonies.

2. We chose the Hotel Rio because we.....there before.

3. We …….. for over an hour when the train finally arrived.

4. I was completely out of breath because.....the film before, so knew how it ended.

Exercise 4. Put verbs in the brackets in the correct tense form.

1. By 2018 we (live) _____ in Madrid for 20 years.

2. He (write) _____ a book by the end of the year.

3. _____ you (finish)_____ the field work by next week?

4. He (read) _____ this book for 15 days by the end of this week.

5. They (be) _____ married for 40 years by the end of this month.

Exercise 5. Complete the letter below.

Dear Joanna

I'm sorry to hear that you 1)……. (not/be) well recently. I hope you're feeling better now.

As you know, 2) I..... (not/exercise) the last few months and of course, 3) I..... (put on) some weight. Anyway, 4) I..... (decide) that I really want to lose weight and get fit at the same time, so 5) I ……. (join) the new gym in Greenstone Park. It's got excellent facilities! 6) I…….(be) there several times and I really enjoy it. 7) I ……(make) some new friends there, too! What else? Well, Rebecca and 8)……..(study) really hard for the last two weeks because we have a Surveying exam tomorrow. That's all for now. 9)……(you/think) about where you want to go on holiday this summer? Maybe we can go together!

Best wishes, Paula.

UNIT 9

THE SEQUENCE OF TENSES
(УЗГОДЖЕННЯ ЧАСІВ)

The sequence of tenses is a certain dependence of the tense of the verb in a subordinate clause on that of the verb in the principal clause: if the verb in the principal clause is in one of the past tenses, a past tense (or future in the past) must be used in the subordinate clause. The rule is generally observed in object clauses.

E.g.: I see that you know her well. I saw that you knew her well. She knows that she has met us. She knew that she had met us. She will know that she has met us. I see that you have been looking for a job. I saw that you had been looking for a job. You'll see that I have been looking for a job.

1. Translate the following sentences into Ukrainian.

I felt certain that the man wanted to tell me something. Something that would help him to find what he was looking for. Tommy asked himself if she had sent for him because she knew that he was a doctor. I

knew that Ann was living early next day, that she was packing her things now upstairs and that I should probably never see her again.

2. Complete the following sentences using the words in brackets.

1. You'll understand this book when you (to get older). 2. If the weather (to change for the better) we'll go to the country. 3. He will phone you as soon as he (to wake up). 4. I'll call a doctor if she (to get worse). 5. You will never make this mistake again if you (to learn thing the right way). 6. I won't speak to you again until you (to tell me the whole truth). 7. If she (to go by a fast train) she'll arrive in time.

3. Complete the following sentences using an appropriate form of the verb.

1. Suddenly she gave a loud scream and …… to the ground (fell / had fallen / has fallen).

2. After questioning he…… to go home (allowed / was allowed / had allowed).

3. They would have won if they ……. a bit harder. (played / had played / play).

4. She …….. to say that she disagreed (heard / was heard / had heard).

5. Although they ……. defeated, they did not lose heart (were / are / have been).

6. Our teacher taught us that virtue …… its own reward (is / are / will be).

7. The teacher asked the boys whether they……. the problems (had solved / have solved / will solve).

8. He declared that he would not believe it even if he …… it with his own eyes (see / saw / would see).

REPORTED SPEECH
(НЕПРЯМА МОВА)

Direct Speech gives the exact words someone said. We use inverted comas in Direct Speech. *E.g. 'It's a nice day', she said.*

Reported speech gives the exact meaning of what someone said about not the exact words. We don't use inverted commas in Reported speech. *E.g.: He said it was a nice day.*

Reported statements are usually introduced with

say (that) or tell (that). *E.g. 'He works late every day', she said. ~ She said (that) he worked late every day.*

The usual rule in reported statements is that the verb form moves one tense back:

'I'm leaving. He said (that) he was leaving.

'She went home early'. He said (that) she had gone home early.

TENSE CHANGES

Direct speech	Indirect speech
Present Simple	Past Simple
Present Continuous	Past Continuous
Past Simple / Present Perfect	Past Perfect
Past Continuous / Present Perfect Continuous	Past Perfect Continuous
Future Simple	would + bare infinitive
Future Continuous	would be + verb –ing

Notice that Past Simple and Present Perfect both change to Past Perfect.

Translate.

1. He said he was leaving.
2. She told me that he had gone home.

REPORTED QUESTIONS
(ЗАПИТАННЯ У НЕПРЯМІЙ МОВІ)

In reported questions the word order is not the same as in direct questions.

E.g. 'Where are you going?'– he asked me where I was going.

Translate.

She asked me If I had seen John.

_____

Change the direct speech to indirect.

Present → *Past* 'I love you' → He said he ……. 'I'm going out now' → Ann said she …….
Present Perfect → *Past Perfect*

‘We’ve met before’ ⟶ She said they …….
Past Simple ⟶ *Past Perfect* ‘We met in’ ⟶ He said they …….
Will ⟶ *would* ‘I’ll mend it for you’ ⟶ She said that she …
Can ⟶ *could* ‘I can swim’ ⟶ She said she ……..

Change the direct speech to indirect.

‘Do you like school?’ ⟶ He asked me if I ……
“Have you met my wife?’⟶ He asked me if I …..
‘I was going home’⟶ He asked me where I …..
‘She lived in Rome’ ⟶ I asked her where she ….

Complete the sentences in the reported speech.

1. ‘Where have you been?’, he asked me. He wanted to know _____

2. ’Do you like soccer?’ He asked me _____

3. ‘I always wake up early’, he said. He said _____

4. ‘You should revise your lessons’, he said. He advised the students_____

5. ‘Where have you been?’, he asked me. He wanted to know_____

UNIT 10

INFINITIVE AND THE -ING FORM

It is very common for one verb to be followed by another verb. When this happens, the second verb can have different patterns. Two possible patterns are the infinitive and the -ing form.

Infinitive		**– ing form**	
I want I’d like I hope I’m going	to be a doctor	I like I love I enjoy	cooking

Like doing / would like to do

Like doing expresses a general enjoyment or preference, would like to do expresses a preference now or at the specific time.

Translate.

1. I like swimming.
2. I'm tired. I'd like to go to bed.
3. I'd like to buy a new car next year.

Here are some more examples:

I've decided *I'm trying* *I managed*	*to stop smoking*
She told me *She asked me*	*to ring her*

But: 1. He made me cry. 2. She lets me do what I want.

Translate.

1. She told me to tell you.
2. She asked me to speak about it.
3. He made me do my homework.
4. She lets me watch my favourite sitcom.

Forms of infinitive			**Forms of - ing**	
	Active	**Passive**	**Active**	**Passive**
Present	To type	To be typed	Typing	Being typed
Present Cont.	To be typing	-	-	
Perfect	To have typed	To have been typed	Having typed	Having been typed
Perfect Cont.	To have been typing	-	-	-

The infinitive form is used:

to express: purpose

after certain verbs: agree, appear, decide, expect, hope, plan, promise, refuse, etc.

after: certain adjective: difficult, glad, etc.

after: I would like / love / prefer

after: too / enough

after: be + the first / second / next / last / best

with: it + be +adjective + of + noun/pronoun

in the expressions: for + noun/pronoun + to-inf.

In the expressions: to tell you the truth, to begin with, to be honest, to start with, to sum up.

The -ing form is used:

As a noun

After prepositions: for, of.

After certain verbs: anticipate, appreciate, avoid, consider, continue, delay, deny, discuss, detest, escape, excuse, explain, fancy, finish, forgive, go, imagine, it involves, keep, it means, mention, mind, miss, pardon, postpone, practise, prevent, quit, recall, recollect, report, resent, resist, risk, save, stand, suggest, understand.

After: detest, dislike, enjoy, hate, like, love, prefer, to express general preference.

After: I'm busy, it's no use, it's no good, it's worth, what's the use of, there's no pint in, can't help, can't stand, feel like, have difficulty in, in addition to, as well as, have trouble, have a hard/difficult time.

After: look forward to, be/get used to, be / get accustomed to, admit to, object to, what about / how about?, spend / waste.

Let's read the examples from the following dialogue:

- You seem to be upset. What's the matter? Will you please stop crying?

- I don't know what to do. I've lost my *dog.*

- Do you mind helping me to look for him? Have you thought of putting an advertisement in the newspaper? It's worth trying.

- It's no use doing that. My dog is too young to read.

Pay attention to the italicized words and say why the infinitive or the gerund was used.

Write what each word is followed by: *F.I.* (full infinitive), (bare infinitive) or – *(ing).*

1 want 2 dislike 3 would love 4 it's worth 5 finish 6 will 7 make	8 avoid + 9 see + 10 promise + 11 expect + 12 it's no use + 13 hope + 14 let +	15 shall + 16 can + 17 start + 18 deny + 19 hate + 20 must

The most spread functions of the infinitive and the gerund in the sentences

The subject	
To do the right things is not so easy.	Running is good for your health.
The object	
I saw my friend write a letter. They love to travel.	I suggested learning English. He hates waking up early.
The adverbial modifier	
They stopped to talk to each other.	They stopped talking to each other. Brush your teeth before going to bed.
The attribute.	

The captain was the last to leave the ship.	I don't approve of the idea of his being sent there.

Make up sentences.

I He You We They	saw heard watched noticed made let forced	him her them you me	enter the house leave the room learn the poem do the exercise read it aloud

I He She You	are am is was	glad happy sorry pleased	to meet you to be late to have missed the train

I He She You They	wait(s) waited will wait	for	me him her you them	to speak to go out to answer to send an invitation
It	is	important	for me	to trust

It	was will be	useful dangerous better	you for us him	to buy it to stay here to take a taxi

I You He/she We You They	insisted on objected to finished enjoyed gave up	visiting that museum doing exercises smoking learning English meeting them

After Before On	coming home leaving for Kiev graduating from a university getting there	I he/she we they	had a short rest began to work booked a ticket decided to go there

MODAL VERBS

The modal verbs are: can, may, could, must, might, shall, should, will, would, have to, may.

We use modals to show if we believe something is certain, possible or impossible:

E.g. my keys must be in the car. It might rain tomorrow. That can't be Peter's coat. It's too small.

We also use them to do things like talk about ability, ask permission, and make requests and offers:

E.g. I can't swim. May I ask a question? Could I have some tea, please? Would you like some help?

Look at these examples to see how must, might, may, could, can't and couldn't are used in the past.

E.g. 1. an earthquake? That must have been terrifying! 2. We don't know for sure that Alex broke the coffee table. It might have been the dog. 3. How did she fail that exam? She can't have studied very much.

Read and translate the sentences then try to explain the usage of the modals.

1. Nobody was able to tell the police who that man was, so he can't be someone from here. 3. Be careful when you walk across that old wooden bridge. It might not be very safe. 4. I see you haven't finished your homework yet. It must be very difficult, then. 5. You mustn't/shouldn't touch the oven. It's very hot and you might hurt yourself. 6. They are putting the suspect into the police car. The police must have arrested him. 7. I don't know where he is. Take a look in the garage. He might be there. 8. You shouldn't do any more training today. You look so tried. Take a break!

Complete the sentences with needed modals: must, mustn't or needn't.

1. It’s very warm outside. You _____ take a coat with you.

2. You _____ speak with a full mouth. that’s very impolite.

3. Students _____ be late for school.

4. All candidates _____ send in their application forms by Friday.

5. You _____ be very hungry. I’ll get you something to eat.

Complete the sentences with needed modals: can, can’t, must, mustn’t, may, should, might.

1. You _____ park that car there. It’s a no-parking zone.

2. George has travelled a lot. He _____ speak 4 languages.

3. It’s raining heavily. You _____ take your own umbrella.

4. I _____ come with you now because I’m studying for my test.

5. I’m very tired today. I _____ clean my room now, but I’ll do it tomorrow.

6. _____ I use your phone ?

7. You really _____ see that new documentary. It’s fantastic.

8. We _____ watch TV tonight. We haven’t decided yet.

Complete the sentences with needed modals.

1. When I was younger, I _____ run very fast.

2. Tell your assistant she _____ stay here if she wants to.

3. You _____ be exhausted after your long trip. Come in and have a drink.

4. John _____ taken your car keys. He hasn't even left the house.

5. I won't go out this afternoon because the weather forecast is not very good, and I _____ get wet.

Choose the correct option to complete the sentences.

Why were there no buses yesterday? Maybe it was the snow or they _____ been on strike (must have, might have, couldn't have).

You _____ seen her, surely! She was standing right in front of you (must have, might have, can't have).

Let's ask at reception to see if they have your keys. Someone _____ found them (must have, might have, can't have).

He _____ gone to France. He didn't have a passport (must have, might have, couldn't have).

I explained the homework but she did the wrong page. She _____ misunderstood me (must have, may have, can't have).

It is still a mystery how the robber gained access to the bank. Police are investigating whether the suspect _____ known one of the employees (must have, may have, couldn't have).

I _____ left my wallet in the restaurant. I paid for the taxi home afterwards (must have, could have, can't have).

WRITING TEST IV

1. Complete the following sentences using the words in brackets.

You'll understand this text book when you _____ (to start reading it). If the weather _____ (to change for the better) we'll go to the field. He will phone you as soon as he _____ (to get free). I'll call a surveyor team if she _____(to need help). You will never make this mistake again if you _____ (to learn things the right way). I won't call you until we _____ (find the solution to this problem). If she_____ (to go by a fast train) she'll arrive in time.

2. Change the direct speech to the indirect.

Present Simple ⟶ *Past Simple*

E.g. 'I know his decision' – he said he knew his decision.

1. 'I'm going out now' – a secretary said she…….
2. 'We've met before' – a colleague said they…….
3. 'We met in 1987' – he said they……..

4. ‘I’ll mend it for you’ – she said that she……
5. ‘I can draft a plan’ – she said she ……..

3. Complete the sentences putting in the correct verb form. Use Present Simple.

1. My worker is finding life in Paris a bit difficult. He..... (speak) French.
2. Most students live quite close to the university, so they ..... (walk) there.
3. My uniform is really muddy. This shirt ..... (need) a good wash.
4. I've got all sophisticated soft programs for surveying equipment. I ..... (like) my job.
5. No salary for Mark. He ..... (do) his job yet.
6. What's the matter? You ..... (not look) very happy.
7. Don't try to run the equipment. It ..... (work).
8. I hate telephone answering machines. I just ..... (like) talking to them.
9. Matthew is good at mapping. He ..... (draft) the maps for land subdivision.

10. We always drive a car. We ..... (own) a car.

4. Complete the conversation using the correct tense form.

- *Rita: Do you like (you / like) football, Tom?*

- *Tom: I love (I / love) it.* I'm a united fan. …… (I / go) to all their games. Nick usually (2) ..... (come) with me. And (3) ..... (we / travel) to away games, too. Why (4) ..... (you / not / come) to a match some time?

- Rita: I'm afraid football (5) …….. (not / make) sense to me – men running after a ball. Why (6) ..... (you / take) it so seriously?

- Tom: It's a wonderful game. (7) ..... (I / love) it.

- Rita: How much (8) …….. (it / cost) to buy the tickets and pay for the travel?

- Tom: A lot. (9) ..... (I / not / know) exactly how much. But (10) ..... (that / not / matter) to me. (11) ..... (I / not / want) to do anything else. (12) ..... (that / annoy) you?

- Rita: No, (13).....(it / not / annoy) me. I just (14) ……. (find) it a bit sad.

5. Complete the sentences in the reported speech.

1. John said, ‘I like my job.’
John said _____
2. ‘Do you like your job?’, he asked me.
He asked me _____
3. ‘I can't drive a lorry,’ he said
He said _____
4. ‘Be nice to your colleagues,’ he said
He asked me _____
5.’Don't be nasty,’ he said.
He urged me _____
6. ‘Don't waste company’s money’, she said.
She told the executive director _____
7. ‘What have you decided to do?’, she asked.
She asked him _____

6. Use gerund or infinitive.

1. I don’t fancy_____ (go) out tonight.
2. She avoided_____ (tell) him the truth.

3. I would like_____ (come) to the university with you.

4. She kept _____ (talk) during the lecture.

5. I am learning_____ (speak) English

6. She helped me_____ (carry) my suitcase.

7. Combine the two sentences as in the model.

E.g. I teach English here. I am glad of it – I am glad to teach English here.

1. I study at the university. I am happy about it.

2. I see my group mates. I am glad of it.

3. We didn't understand the task. We were sorry about it.

4. I study French. I am glad of it.

5. He was not invited to the business lunch. He was sorry about it.

8. **Transform the sentences using the gerund instead of the infinitive.** *E.g. my father began to work at this plant 20 years ago – my father began working at this plant 20 years ago.*

1. We continue to study English.

2. They preferred to go there by plane.

3. She tried to open the window but couldn’t.
4. I have just begun to translate the text.
5. I thank you to help me.

IRREGULAR VERBS

be	**was / were**	**been**	бути
beat	beat	beaten	бити
become	**became**	**become**	ставати
begin	**began**	**begun**	починати
break	**broke**	**broken**	ламати
bring	**brought**	**brought**	приносити
build	**built**	**built**	будувати
burn	burnt	burnt	горіти
burst	**burst**	**burst**	вибухати
buy	**bought**	**bought**	купляти
catch	**caught**	**caught**	ловити, хватати
choose	**chose**	**chosen**	вибирати
come	**came**	**come**	приходити
cost	**cost**	**cost**	коштувати
cut	**cut**	**cut**	різати
do	**did**	**done**	робити
draw	**drew**	**drawn**	малювати (олівцем)

drink	**drank**	**drunk**	пити
drive	**drove**	**driven**	керувати (машиною)
eat	**ate**	**eaten**	їсти
fall	**fell**	**fallen**	падати
feel	**felt**	**felt**	відчувати
fight	**fought**	**fought**	битися
find	**found**	**found**	знаходитися
fly	**flew**	**flown**	літати
forget	**forgot**	**forgotten**	забувати
get	**got**	**got**	отримувати
give	**gave**	**given**	давати
go	**went**	**gone**	йти
grow	**grew**	**grown**	рости, вирощувати
hang	**hung**	**hung**	висіти
have	**had**	**had**	мати
hear	**heard**	**heard**	чути
hide	**hid**	**hidden**	ховати
hit	**hit**	**hit**	вдаряти, попадати
hold	**held**	**held**	тримати

hurt	**hurt**	**hurt**	завдавати болю
keep	**kept**	**kept**	зберігати
know	**knew**	**known**	знати
l**earn**	**learnt**	l**earnt**	вчити(-ся)
leave	l**eft**	**left**	їхати, залишати
let	l**et**	**let**	дозволяти
lie	**lay**	**lain**	лежати
lose	**lost**	**lost**	губити
spend	**spent**	**spent**	проводити
spoil	**spoilt, spoiled**	**spoilt, spoiled**	псувати
spread	**spread /**	**spread**	розстеляти
spring	**sprang**	**sprung**	стрибати
stand	**stood**	**stood**	стояти
steal	**stole**	**stolen**	красти
swim	**swam**	**swum**	плавати
take	**took**	**taken**	брати
teach	**taught**	**taught**	викладати, вчити
tell	**told**	**told**	сказати

think	**thought**	**thought**	думати
throw	**threw**	**thrown**	кидати
understand	**understood**	**understood**	розуміти
wake	**woke**	**woken**	прокидатися
wear	**wore**	**worn**	носити
weep	**wept**	**wept**	плакати
win	**won**	**won**	перемагати
write	**wrote**	**written**	писати

GLOSSARY OF TERMS WITH EXPLANATIONS

A

aberration: the deviation of the apparent direction of a light source from its time direction caused by the velocity of light from the source and the velocity of the observer relative to the source.

acre: unit of area in the English system of measure, defined as 10 square chains (l chain equals 4 rods or 66 feet). An acre is exactly equal to 43,560 square feet or 4,840 square yards, and is approximately equal to 4,047 square meters. There are 640 acres in a square mile.

accuracy: closeness of an estimated value to a standard or accepted value of a particular quantity.

adjustment: he process of changing the values of a given set of quantities so that results calculated using the changed set will be better than those calculated using the original set.

absolute zero: the quantity -273.!6°C on the Celsius (formerly centigrade) temperature scale. By definition, the triple-point of water is at +273.16K on the Kelvin (absolute) temperature scale.

Absolute zero is the theoretical condition of complete absence of heat; all molecular motion ceases.

abstract (field survey): a list of values of a certain quantity made for a survey, derived directly from measurements of that quantity and recorded in the field book

abstract, dead-reckoning: a list of all courses and distances made good, together with all data to be used in plotting and adjusting the dead-reckoning line.

abstract of title: a complete summary of all information on public record relating to ownership (title) of a piece of land.

An abstract of title customarily cites the surveys delimiting the land, shows plats made from the surveys, and lists changes of ownership, mortgages, liens, etc.; often referred to simply as "abstract".

alignment: the placing of points along a straight line or in a common vertical plane. The location of points with reference to a straight line or to a system of straight lines.

altitude: the distance of a location above a reference surface. The most usual reference surface is sea level. The distance of a location above the physical surface of the Earth.

angle: a geometric figure formed by (a) a pair of intersecting, straight lines terminated at the point of intersection; a pair of intersecting planes terminated at the line of intersection (called the axis).

axis: any line along which measurements are made in determining the coordinates of a point, or any line from which angles are measured for the same purpose. An axis usually serves as a line of reference such that one of the coordinates of a point lying on the axis is zero.

axis of tilt: a line through the perspective center of a photograph and perpendicular to the principal plane of a photograph.

azimuth: horizontal angle reckoned clockwise from the meridian. In the basic control surveys of the United States of America and in those of many other countries, azimuths are currently reckoned clockwise from south. In military control surveys of most countries, including the U.S.A., azimuths are reckoned clockwise from north.

azimuth, astronomic: at the point of observation, the angle measured from the vertical plane through the celestial pole to the vertical plane through the observed object.

B

backshore: The land zone lying between mean (ordinary) high water and the landward line marked by a change in material or physiographic form, or the line where permanent vegetation begins. The part of a beach

that is usually dry; the part reached only by the highest tides and waves.

backsight: sight to a previously established point of a survey, or the reading or measurement obtained by that sight.

barometer: an instrument for measuring atmospheric pressure.

base: a synonym for base line. An important point in a survey. In particular, a point used as origin or having associated with it a value to which measurements elsewhere in the survey are referred.

base length: the distance, on a photograph, between the principal point of that photograph and the point corresponding to the principal point on another (overlapping) photograph.

base line: line on which markers are placed at intervals so accurately measured that they can be used for calibrating distance-measuring instruments or equipment.

bench mark: relatively permanent, natural or artificial, material object bearing a marked point whose elevation above or below an adopted surface (datum) is known. Sometimes written "benchmark".

boundary, land: a line of demarcation between adjoining politically or legally distinct areas of land.

C

cadaster: an official register of the location, quantity, value, and ownership of real estate, compiled to serve as a basis for taxation. Also spelled cadaster.

cartography: the science and art of making maps. It is customary to distinguish between maps in general and maps used for navigation; the latter are generally called charts. Cartography, however, embraces the making of all kinds of maps.

cartouche: a panel on a map, often with decoration, inclosing the title or other legends, the scale, and so on.

catalog: a compilation of locations of celestial objects such as stars, galaxies, and radio sources, whose directions are relatively fixed.

celestial body: any material object which is observable over a reasonable period of time on the celestial sphere. Specifically, the Sun, Moon, planets, and asteroids and their satellites, and comets of the Solar System; stars; clouds of gas in interplanetary, interstellar or intergalactic space; nebulae; and galaxies.

D

data: a collection of pieces of information. The term is sometimes used to denote only values obtained by measurement or observation.

data base: the data collected for a particular project or organized for a specific purpose.
data bank: specific collection of data, such as the material in the U.S. National Archives and Records Service.
declination (astronomy): the angle at the center of the celestial sphere between the plane of the celestial Equator and a line from the center to a point on the celestial sphere.
deflection anomaly: the difference between a deflection of the vertical calculated from astronomical observations and the deflection calculated from data on gravity.
density (photography): the common logarithm of the reciprocal of the transmittance of a translucent medium such as a photographic negative or transparency.
density layer: the mathematical surface and a function, defined at each point of the surface, whose values degree, square.
direction: the angle between a line or plane and an arbitrarily chosen reference line or plane.

E

earth: the third planet from the Sun in the Solar System. The Earth is an approximately spherical body that revolves about the Sun at an average distance of

about 150,000,000 km in a period of I year. It rotates about its own axis once per day. It has one satellite, the Moon (mass about 118! that of the Earth), that orbits the Earth at an average distance of about 384,000 km.

easement: the right given to a person, a group, or an organization to use land belonging to another.

eclipse: the partial or total shadowing, relative to a designated observer, of one celestial body by another.

elevation: the distance of a point above a specified surface of constant potential.

ellipsoid: a closed surface, whose planar sections are either ellipses or circles.

equation, angle: a condition equation that expresses the relationship between the sum of the measured angles of a closed figure and the theoretical value of that sum, the unknowns being the connections to the observed directions or angles used in the adjustment.

equator, geodetic: the circle on the reference ellipsoid midway between its poles of rotation.

F

focus: the point at which rays of light converge after passing through a lens system.

foot: unit of length defined to be 113 of a yard and equal in the United States of America, since 1866, to

exactly 1200/3937 of a meter. Also known as the survey foot.

force, gravitational: the force of interaction between two bodies because they have mass.

forepoint: he point to which an observation is made, in surveying i.e., the point to which a foresight is directed.

foreshore: according to riparian law, the strip of land between the high and low water marks that is alternately covered and uncovered by the flow of the tide.

frequency: the number of times, per specified unit interval, that a periodic phenomenon recurs, i.e., returns to its original form.

G

gal: a unit of acceleration equal to I centimeter per second per second. The milligal, 0.001 gal, is more commonly used in geodesy. However, neither "gal" nor "milligal" is an approved unit in SI (Systeme International d'Unites).

gamma (photography): the tangent of the angle which the straight portion of the characteristic curve makes with the abscissa. It is a measure of the extent of development and contrast of the photographic material.

gap: a lack of photographs over a small region between two regions which are shown on photographs. The term

may be used to indicate either the region not shown or missing photographs of that region.

gauss: a unit primarily used as a measure of the magnetic flux density of a magnetic field, but also used as a measure of the magnetic field intensity.

geodesic: the line of extremal distance between two points.

geodesy: the science concerned with determining the size and shape of the Earth.

geographic information system: a system of spatially referenced information, including computer programs that acquire, store, manipulate, analyze, and display spatial data

geoid: the equipotential surface of the Earth's gravity field which best fits, in the least squares sense, mean sea level.

H

heading (navigation): the azimuth of the longitudinal axis of a vehicle; the "straight-ahead" direction.

headland: the land mass having a considerable elevation.

hectare: metric unit of area, equal to 10,000 square meters. Equivalent to 2.471 acres in the English system.

height: the distance, in the direction of the zenith, between the top and bottom of an object.

heliotrope: an instrument composed of one or more plane mirrors mounted and arranged so that a beam of sunlight reflected by it may be aimed in any desired direction.

holiday: in hydrographic surveying, an unintentionally unsurveyed part of a region that was to have been completely surveyed.

hologram: a photograph of the interference pattern created by interference between two beams of mutually coherent radiation, one of which is diffracted by an object in its path.

hologrammetry: the techniques associated with making holograms or with reproducing images from holograms.

horizon: the line which separates the region visible from a real or hypothetical observation point, from the region not visible from that point.

hypsometry: the determination, by any method, of elevations of the Earth's surface with respect to the geoid.

I

image: a pattern formed by electromagnetic radiation that approximately duplicates the pattern formed by a real object or a physical field detectable by the radiation.

inclination: the angle, measured positively northward, from a plane of reference to the plane of an orbit. "Northward" here means counterclockwise on viewing inward from the orbit to the center of attraction. The inclination is customarily one of the six elements that completely define an elliptical orbit.

inch: a unit of length defined to be 1136 of a yard and equal in the U.S.A., since !866, to exactly 1139.37 of a meter.

indirect effect: the change in gravity, potential, or the geoid caused by the removal or shifting of masses in the process of reducing gravity from the Earth's surface to the geoid.

inequality (astronomy): the angular deviation of a celestial body from the location it would have if it were moving in an elliptical orbit.

International Gravity Standardization Net (IGSN 1971): a set of adjusted values for the acceleration of gravity, at various places throughout the world, that was adopted by the International Association of Geodesy in 1971 to replace the Potsdam system of gravity as an international system.

International Latitude Service (ILS): an organization, established by the International Astronomical Union and the International Association of Geodesy, that was responsible for determining polar

motion by measuring the astronomical latitudes of the observatories it uses.

J

junction (leveling): the place where two or more liveliness join (are connected together).

junction detail: a sketch or diagram showing the details of the various levelings at a junction.

junction figure: a configuration in a triangulation network in which three or more triangulation arcs meet or two or more arcs intersect.

K

kappa (photogrammetry): an angle of rotation about the z-axis.

kilogram: the SI unit of mass, defined by a platinum iridium body kept at the International Bureau of Weights and Measures near Paris and accepted internationally as the standard of mass.

knot: a unit of speed defined (1978) as 1 international nautical mile per hour.

L

land court: tribunal established to administer legislative statutes relating to land boundaries and titles.

land form: a shape into which the Earth's surface has been sculptured by natural forces.
land information system: a geographic information system that focuses primarily on the land. The data content may relate to either the natural or cultural aspects of the physical environment.
land line: a real or imaginary line drawn on the ground.
landmark: any fixed object (monument or other material mark) used to identify the location of a boundary of a piece of land.
lap: those parts of two aerial photographs, taken from adjacent air stations, that show the same region on the ground.
latitude, astronomic: the angle between the vertical and the plane of the celestial Equator or of the equatorial plane; also defined as the smaller of the two angles between the plane of the horizon and the axis of rotation of the Earth.
leveling: the process of finding vertical distances (elevations) from a selected equipotential surface to points on the Earth's surface, or of finding differences of elevation.
longitude, astronomic: the angle between the plane of the celestial meridian of a point and the plane of an initial, arbitrarily chosen meridian.

magazine (photography): container for photographic film or photographic plates attached to the body of a camera. Aerial camera magazines have a mechanism for advancing the film between exposures. Small magazines are often called cassettes; magazines for photographic plates may be called plate holders.

magnetic anomaly: the difference between the intensity of the magnetic field at a particular place and the intensity predicted for that place by a standard formula, such as that for a magnetic dipole.

magnetic field intensity: the amount of magnetically generated current per linear distance. SI units are ampere per meter.

magnetometer: any instrument used for measuring the intensity of a magnetic field.

magnitude (astronomy): a measure of the brightness of celestial objects.

magnitude, photoelectric: the magnitude of a celestial object determined by measuring the radiation with a photoelectric detector.

map: a conventional representation, usually on a plane surface and at an established scale, of the physical features (natural, artificial, or both) of a part or the whole of the Earth's surface. Features are identified by

means of signs and symbols, and geographical orientation is indicated.

N

navigation, radio: any method of navigation in which location or velocity is inferred from measurements on radio waves.

navigation system: set of equipment and techniques by which the location of a moving vehicle, vessel, or aircraft can be determined and made known sufficiently quickly so the information can be used for navigation.

network: a set consisting of: stations for which geometric relationships have been determined and which are so related that removal of one station from the set will affect the relationships between the other stations; and (b) lines connecting the stations to show this interdependence.

node (general): the intersection of two or more lines normal section. The curve in which a plane through the perpendicular at a given point of a surface intersects that surface.

O

objective (optical system): the lens or assemblage of lenses that focuses light from the object to form the primary image.

observation: the act of deliberately sensing an event or object and noting the circumstances.
obliquity: the angle between a planet's or satellite's axis of rotation and its axis of revolution.
occultation: the disappearance of one celestial body behind another body larger in apparent size offset line (surveying). A supplementary line close to and roughly parallel with a main line, to which it is referred by measured offsets.
one-body problem: the problem of determining the location of a body as a function of time, when the field of force in which the body moves and the initial location and velocity of the body are known.
opposition (astronomy): the configuration taken by the Sun, a planet, and the Earth when apparent geocentric (celestial) longitude of planet and Sun differ by 180°, i.e., the planet, the Earth, and the Sun lie on the same line with the Sun on one side of the Earth and the planet on the other side.

P

pendulum: in general, a body suspended so it can swing freely back and forth under the influence of gravity.

photographed protractor: a plate marked with units of circular measure and having a single point (the center) as the vertex of the angles.
prism (mathematics): polyhedron with two congruent and parallel faces, whose other faces are parallelograms.
projector: an optical instrument that projects an image onto a surface where it may be viewed.
profile: a representation of the intersection between a moving vertical or normal straight line and a portion of the surface of the Earth or of an underlying stratum.
profile leveling: determining elevations at closely spaced points along a survey line to determine the profile of the ground along that line.
public laud: in the United States of America, that portion of the public domain still held by the Federal Government.
public-land state: a state or territory created out of the public domain.

Q

quad: a region, on the ellipsoid, bounded by two meridional arcs and two parallels of latitude all of the same angular extent.

quadrangle: a map or plat of a rectangular or nearly rectangular area usually bounded by given meridians of longitude and parallels of latitude.

quadrant (mathematics): a region on a plane bounded by two mutually perpendicular half lines. Two full lines intersecting at right angles define four quadrants. The quadrants are customarily numbered counterclockwise about the point of intersection, the first being to the quadrant at the upper right.

quadrangle: A map or plat of a rectangular or nearly rectangular area usually bounded by given meridians of longitude and parallels of latitude.

quadrature: the evaluation of a definite integral. The determination of the length of the side of a square having the same area as the area within a given closed curve.

R

reduction: the calculation of theoretical values from observational data.

reflection: the reversal, at a surface or combination of surfaces, of at least one component of the direction of propagation of sonic or electromagnetic energy incident on the surface(s).

resurvey: a retracing, on the ground, of the lines of an earlier survey when all recovered points of the earlier survey are held fixed and used as control.
retracement: a survey made to verify the direction and length of lines and to identify monuments and marks of an earlier, established survey.
retracing: the process of making a retracement.
revolution: the turning of a body about an external point or axis.
rotation: turning of a body about an internal axis.

S

saddle: smooth, curved, portable device used to support a surveying tape at intermediate points.
sag: the vertical distance between the lowest point of a surveyor's tape suspended between two points and the straight line joining those points.
satellite: anybody that revolves about another body. The body about which a satellite revolves is called its primary. All systems of two or more attracting and revolving bodies actually revolve about the center of gravitational attraction of the system-a point that may lie far from either body.
satellite geodesy, dynamic: satellite geodesy in which the forces acting on the satellite must be taken into account in order to determine the satellite's orbit. The

most important of these forces is the gravitational field of the Earth.

scale (verb): to measure lengths, or distances between points on an object. The denominator of a fractional map scale. For example, if the fractional scale is 1/50,000, the scale number is 50,000.

scale factor: the number by which a distance obtained from a map by computation or measurement is multiplied to obtain the actual distance on the datum of the map.

scale of a map: a number, constant for a given map, which is representative of the ratios of small distances on the map to the corresponding actual distances. These ratios vary from point to point on the map. The scale of a map is 'customarily chosen to correspond to the ratio at a given point or along a given line (if constant along that line) multiplied by a suitable factor (usually close to unity).

scattering: the random redistribution of the direction of propagation of light incident upon a small area, from a single direction into a cone of directions.

section: the portion of a level line that is recorded and abstracted as a unit, and constitutes a self-consistent and self-sufficient set of measurements of differences of elevation.

sounding: a measurement of depth in water-usually a measurement of the distance of the bottom below the boat or ship from which the measurement is taken.
station: a physical location or site at which, from which, or to which observations have been made. A point representing the physical location or site at which, from which, or to which observations have been made.

T

tachymeter: a surveying instrument for the rapid determination of distance, usually together with the measurement of direction and difference of elevation.
tangent: straight line which meets a given curve in one and only one point, such that if the tangent is rotated about that point by any amount, however small, it will then intersect the curve in more than one point.
tangent method: a method of determination of the geographic parallel for the survey of a base line or standard parallel by offsets from a great circle initiated at an established township corner and tangent to the base line or standard parallel at that corner.
target: any object at which a telescope is pointed while obtaining a measurement of angle, direction, distance or height.

targeting: the process of marking or otherwise distinguishing ground control points so that they are identifiable on aerial photographs.
telemeter (verb): to measure at one place and send the data to another place some distance away.
telescope: an instrument that collects electromagnetic radiation from a distant object to create an image of that object.
theodolite: a precise surveying instrument consisting of an alidade with a telescope mounted so it can be rotated about a vertical axis; the amount of rotation is measured on an accurately graduated, stationary horizontal circle. The alidade sometimes carries a graduated vertical circle against which rotation of the telescope in a vertical plane can be measured.
traverse: a route and a sequence of points on it at which observations are made; or the route, the points, and the observations at those points; or the process by which the route and sequence are established.
triangulation: a method of surveying in which the points whose locations are to be determined, together with a suitable number (at least two) of points of known location, are connected in such a way as to form the vertices of a network of triangles. The angles in the network are measured and the lengths of the sides are

either measured or calculated from known points and length.

trilateration: the method of extending horizontal control by measuring the sides rather than the angles of triangles.

U

ultraviolet radiation: the portion of the electromagnetic spectrum containing radiation at wavelengths between about 400 nanometers (nm) to 5 nm.

unit, base: one of the units of length, mass, time, thermodynamic temperature, electric current, amount of substance, or luminous intensity; these are the base units of the.

upland: land situated above mean high water. Land situated at a higher elevation than riparian land or land adjacent to riparian areas but remote from the body of water and having no riparian rights.

U.S. Public Laud System: the set of rules by which boundaries of public lands have been established in the United States of America, in particular, the rules according to which subdivisions of the public lands were classified by size and location. The U.S. Public Land System is frequently used for designating the location of a parcel of land.

V

valley crossing: the procedure used to determine differences of elevation between points on opposite sides of a valley into which leveling cannot be carried. The method also is used for water crossing.

value, standard: a number accepted as the value for a particular constant. Also called normal value.

value, true: the value of a quantity which is completely free from errors of all kinds. Since the errors to which physical measurements.

vertical: the direction in which the force of gravity acts. It is the direction indicated by a plumb line of infinite small length.

vibration (pendulum): single movement of a pendulum in either direction, to or from.

vignetting (optical system): the diminution in brightness at the edges of an image caused by obstructions in the optical system that cut off light rays near the edges of the field of view.

vinculum (surveying): a short, horizontal bar placed over the seconds value of a numerically expressed angle or direction to indicate that the seconds value is used with a minutes value I less than is recorded.

vision, binocular: the form of vision which depends on the reception by the brain of signals from two eyes rather than one. It should not be confused with

stereoscopic vision, a particular kind of binocular vision.

vision, stereoscopic: the particular use of binocular vision that enables an observer to form an impression of depth by observing an object from two different perspectives.

W

wavelength: the distance between corresponding points on two successive cycles of a periodic wave. The wavelength of electromagnetic waves varies from hundreds of kilometers for very low frequency (VLF) radio waves to 10 -11 of a meter for gamma rays.

wave number: the reciprocal of wavelength.

wave number, effective: the wave number of monochromatic radiation that would have the same effect as the radiation actually present.

weber per square meter: the unit of magnetic flux density known as the tesla in sr. The geomagnetic field as measured in tesla varies from about 0.25 (10-4) to 0.7 (10-4) tesla.

wedge unit: the interval between two graduations on the scale of the rotary wedge attached to an NI 2 leveling instrument for use in river crossings.

weight (statistics): a factor by which a quantity is multiplied to increase or decrease the effect of that quantity on the results of an adjustment.

wire, surveyor's: metallic wire, usually of invar or similar alloy, with a graduated scale attached to each end; used for measuring distances.

witness mark: material mark placed at a known distance and direction from a property comer, an instrument station, or a survey station, as an aid in its recovery and identification.

World Aeronautical Chart: one of a standard series of charts, scale 1:1,000,000, designed for aerial navigation. For regions outside the United States, these charts have been superseded by the Operational Navigation Charts.

World Geodetic System 1972: a set of quantities, developed by the U.S. Department of Defense for determining geometric and physical geodetic relationships on a global scale, based on a geocentric origin and a reference ellipsoid with semi major axis 6,378,135 and flattening 1/298.26.

World Geodetic System 1984: a set of quantities, developed by the U.S. Department of Defense to replace World Geodetic System.

X

x-correction: the correction to an x-direction.

x-direction: an observed direction in a triangulation figure for which an approximate value is obtained and treated like an observed direction in adjusting the figure. Adjustment of a triangulation figure by the method of least squares sometimes requires the use of an x-direction with an approximate value. Such a value can be obtained by computing distance and direction between two given points, by solving the three-point problem, or by other means. This x-direction is then used in the adjustment to obtain a correction (x·correction) for it, which makes it consistent with the adjusted values of the observed directions.

x-motion (photogrammetry): the adjustment of a stereoscopic plotter by means of linear motion approximately parallel to a line connecting two projector stations in the plotter. Effectively, the path of this motion corresponds to the flight line between the two relevant exposure stations.

x-tilt (photogrammetry): the angle between the y-axis and a horizontal plane, or between the y -axis and the horizontal reference plane of a stereoscopic plotter, given a rectangular Cartesian coordinate system in the plane of an aerial photograph with the x -axis aligned approximately in the direction of flight

Y

yard: a unit of length in the English system equal in the United States since 1866 to exactly 3600/3937 of a meter. Compare with foot, survey. A unit of length defined to be exactly 0.9144 meter.

year, eclipse: the interval of time between two successive conjunctions of the Sun with the same node of the Moon's orbit (approximately 346.6200 days).

y-parallax: the difference between the perpendicular distances of the two images of a point, on a pair of photographs, from the vertical plane containing the air base. The existence of y -parallax is an indication of tilt in either or both photographs, or of a difference between the scales of the photographs; as such, it interferes with stereoscopic examination of the pair.

y-tilt (aerial photogrammetry): the angle between the x-axis and a horizontal plane or between the x-axis and the horizontal reference plane of a stereoscopic plotting instrument, given a rectangular Cartesian coordinate system on a photograph, with the x-axis being more nearly in the line of flight than they-axis.

Z

zenith: the point at which a line opposite in direction from that of the plumb line at a given point on the Earth's surface, meets the celestial sphere. The zenith

and nadir are poles of the horizon. The terms geodetic zenith (geodetic nadir) and geocentric zenith (geocentric nadir) are sometimes used with meanings different from that given.

zenith, geocentric: the point where a line from the center of the Earth through a given point on its surface meets the celestial sphere.

zone: the region between any two concentric circles.

zone, breaker: the region extending from the line of greatest advance of water on shore (except under extreme conditions), to the line marking the outer boundary at which breakers form.

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