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АНГЛИЙСКИЙ ЯЗЫК ДЛЯ СТУДЕНТОВ КОМПЬЮТЕРНЫХ СПЕЦИАЛЬНОСТЕЙ

ENGLISH FOR COMPUTING

Учебное пособие

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Пособие ориентировано на достижение практического результата при изучении английского языка специальности. Целью пособия является формирование иноязычной коммуникативной компетенции, способности иноязычного общения в профессиональных, деловых и научных сферах.

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UNIT 1. LIVING IN A DIGITAL AGE

By the end of unit 1 will be able to:		
Reading 1	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Identification of writer`s idea • True/False/Not given
Reading 2	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Identification of writer`s idea • Sentence completion
Listening	Target Listening Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Choosing headings • Sentence completion
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • To express opinions • To express agreement • To express disagreement • To express uncertainty • To make predictions • To ask for clarifications
	Format	Discussion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas)
	Format	Individual long turn
Writing		To revise an essay structure
Use of English		To understand and use the vocabulary of technologies and technological changes. (Key Vocabulary, Vocabulary 1, Vocabulary 2, Vocabulary*)
Scenario	Target Speaking Skills	To express opinion
	Format	Discussion
	Writing skills	To write a formal e-mail

UNIT 1. LIVING IN A DIGITAL AGE



“The fantastic advances in the field of electronic communication constitute a greater danger to the privacy of the individual.”
— Earl Warren

KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

Read the text and find Russian equivalents for the words and expressions in bold type.

The Digital Age

The Information Age, also called the Computer Age, **the Digital Age** and the New Media Age, **is coupled tightly** with **the advent of personal computers**, but many computer historians **trace** its beginnings to the work of the American mathematician Claude E. Shannon. At age 32 and as **a researcher** at Bell Laboratories, Shannon published a landmark paper proposing that **information can be quantitatively encoded as a series of ones and zeroes**. Known as the "father of Information Theory," Shannon showed how **all information media**, from **telephone signals** to **radio waves** to **television**, could **be transmitted** without **error** using this **single framework**.

By the 1970s, with the **development of the Internet** by the **United States Department of Defense** and the **subsequent adoption of personal computers** a decade later, **the Information or Digital Revolution** was underway. More **technological changes**, such as the development of **fiber optic cables** and **faster microprocessors**, **accelerated the transmission and processing of information**. **The World Wide Web**, used initially by companies as **an electronic billboard for their products and services**, **morphed into an interactive consumer exchange for goods and information**. **Electronic mail (e-mail)**, which permitted **near-instant exchange of information**, was widely adopted as the **primary platform for workplace and personal communications**. The **digitization of information** has had **a profound impact** on **traditional media businesses**, such as **book publishing**, the **music industry** and more recently the **major television and cable networks**. As information is increasingly described in **digital form**, businesses across many industries have sharpened their focus on how to capitalize on the Information Age.

Companies whose businesses are built on digitized information have become valuable and powerful in a relatively short period of time. In "The companies that **define** the Information Age are the ones that know **consumers** the best," author Larry Allen of Real Media Group **points out** that just as land owners held the wealth and wielded power in the Agrarian Age and **manufacturers** such as Henry Ford and Cyrus McCormick **accumulated fortunes** in the Industrial Age, the **current** Information Age has spawned its own breed of wealthy influential brokers, from Microsoft's Bill Gates to Apple's Steve Jobs to Facebook's Mark Zuckerberg.

READING 1

OBJECTIVES:

- I. Target Reading Skills
 - to skim the text for general information
 - to scan the text for relevant information
- II. Question types
 - identification of writer`s idea
 - True/False/Not given

1. In pairs, discuss these questions. Use "Useful expressions" for the discussion.

OBJECTIVES:

- I. Target speaking skills: to express opinions.
- II. Format: discussion.
 1. What does a term "smart machine" mean?
 2. Do smart machines make our life better or worse?
 3. Do you use smart machines in your everyday life?
 4. If a machine makes a decision, what happens if it gets it wrong? Who is responsible?

USEFUL EXPRESSIONS

Expressing opinion	In my opinion, ... Speaking personally, ... From my point of view, ... As for me / As to me, ... In my experience... As far as I'm concerned...
Expressing agreement	I agree with you / him ... I share your view. I think so. I have no objection.
Expressing disagreement	I don't agree. I disagree. I don't think so. You are / he is wrong.

2. *Skim the text quickly to find out what it says about the following:*

1. What smart machine is.
2. What smart machines include.
3. Where smart machines could trace their roots.
4. Where smart machines can replace humans.

CONSIDER THIS: SKIMMING

Skimming means quickly reading the text to get only its main idea. To skim effectively, you need to read only a part of the material.

How to skim?

1. Read the first paragraph attentively to get an idea of what will be discussed in the text.
2. Read the first (and sometimes the second) sentence of each paragraph - they give the main idea of the paragraph.
3. After you have read the first sentences, your eyes should drop down to the end of the paragraph, looking for important pieces of information, such as dates and names.
4. Read the last paragraph attentively as it may contain the summary.

Smart machines

Smart machine is a **device** embedded with machine-to-machine (M2M) and/or cognitive computing technologies such as **artificial intelligence** (AI), machine learning or deep learning, all of which it uses to reason, problem-solve, make decisions and even, ultimately, take action.

Smart machines include robots, self-driving cars and other **cognitive** computing systems that are designed to work through tasks without human intervention.

Smart machines are digital **disruptors** because of the positive and negative impact they have, and will continue to have, on society. In business, the competitive advantages these technologies are capable of providing are expected to bring higher **profit margins** and lead to more efficient manufacturing processes. However, smart machines are also expected to displace workers and dramatically change the nature of work and other societal norms.

Today's smart machines might seem revolutionary, like something out of science fiction, with capabilities on par with the iconic robots of space-age movies, like C-3PO in *Star Wars*.

However, smart machines are the next step in a long history of incremental **advancements** in machines and computing. Indeed, smart machines could trace their roots back to early mechanization and the first Industrial Revolution, when, in the 18th century, rudimentary machines were used to automate some human tasks.

The advent of computers in the 20th century laid the modern groundwork for smart machines. Related technological advancements such as the internet, data storage systems and sensors, gave computer developers the ability to collect and analyze an unprecedented volume of data toward the turn of the century, further speeding the rise of smart machines.

Smart machines draw heavily on other modern technological advancements, too, such as the development of neural **networks**, voice recognition and natural language processing.

Many smart machines can replace humans in completing a task; robotic automation in manufacturing facilities, for instance, can and does replace human workers. But some smart machines, such as those used to diagnose diseases and recommend the best treatments, work for humans (i.e., doctors).

One of the earliest visible examples of smart machines was Deep Blue, a chess-playing computer developed by IBM that gained attention when it defeated world chess champion Garry Kasparov in 1996.

3. Scan the text “Smart machines”. Do the following statements agree with the information given in Reading Passage? write TRUE if the statement agrees with the information FALSE if the statement contradicts the information NOT GIVEN if there is no information on this. See Useful information section.

CONSIDER THIS: SCANNING

Scanning means searching for specific phrases in the text to answer some questions.

Underline! It's a very good idea to underline those key words while reading, so you could find the answers in the text more easily.

How to scan?

1. Underline the important information while reading the text (dates, numbers, names etc.)
2. When you read the question, identify the key word and scan the text for it. This way you'll find the answer more quickly

1) Smart machine is an integral part of the artificial intelligence.	
2) Robots do not function without human intervention.	
3) Use of smart machines can lead to a high rate of unemployment.	
4) Smart machines stem from the First Industrial Revolution.	
5) Computers were introduced to the public in the 20th century.	
6) Garry Kasparov trimmed at chess Deep Blue in 1996.	

USEFUL INFORMATION:

- Questions follow the order of the text.
- Questions repeat key words from sentences.
- If question contains information NOT stated in the text, it has "Not Given" answer.

Answering strategy:

1. Read the first passage.
 2. Look up for answers for the first few questions.
 3. If you found an answer - read the whole sentence carefully, and only then answer the question.
 4. When there are no answers left - move on to next paragraph, and repeat this strategy.
- If you prefer, you can read the whole text and only after that answer the questions.

Tips:

1. This type of questions needs attention to details. Don't just look for key words – read the whole question and the whole sentence with answer.
2. Words like often, always, never, some can completely change the meaning of the question. Be careful!
3. The order of questions can help you. Answer for question 4 will be between answers for questions 3 and 5 in the text.
4. If you can't find answer for some question, don't spend too much time on it and return to it in the end. Probably, this information is just not given in the text.

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

1. Find words and expressions in the text “Smart machines” that are in bold type for the following definitions.

1. Relating to, or involving conscious mental activities (such as thinking, understanding, learning, and remembering)
2. An object, machine or piece of equipment that has been made for some special purpose
3. A system of interconnected computer systems, terminals, and other equipment allowing information to be exchange
4. An act of moving forward
5. The ratio gross profits divided by net sales
6. Weapon

7. Intelligence exhibited by the machines.

2. Find English equivalents for the following expressions.

1. Принимать решения (par. 1)
2. Вмешательство человека (par. 2)
3. Негативное воздействие (par. 3)
4. Замещать рабочих (par. 3)
5. Общественные нормы (par. 3)
6. Научная фантастика (par. 4)
7. Простые машины (par. 5)
8. Системы хранения данных (par. 6)
9. Объем данных (par. 6)
10. Распознавание голоса (par. 7)

READING 2

OBJECTIVES:

- I. Target Reading Skills
 - to skim the text to get the general information
 - to scan the text for relevant information
- II. Question types
 - sentence completion
 - identification of writer`s idea

1. In pairs, discuss these questions. Use “Useful expressions” for the discussion.

OBJECTIVE:

- I. Target speaking skills
 - to express opinions
 - to express agreement
 - to express disagreement
 - to express doubt
- II. Format: discussion
 1. What does a smart city mean?
 2. What are smart city`s characteristic features? Make a list.
 3. Do you know any smart cities?
 4. Do you live in a smart city?

USEFUL EXPRESSIONS

Expressing opinion	My view/ opinion/ belief/ impression/ conviction is that ... I hold the view that ... I would say that ... It seems to me that ...
Expressing agreement	I approve of it. I have come to the same conclusion I hold the same opinion. We are of one mind / of the same mind on that question.
Expressing disagreement	I think otherwise. I don't think that's quite right. I don't agree with you/him. I am afraid that is not quite true.
Expressing doubt	I don't know. I find it difficult to believe. I'm not sure.

2. Skim the text quickly to find out what it says about the:

1. Infrastructure
2. Wi-Fi deployment
3. 5G network

Hard work, big prize: Bristol is shaping what it means to be a smart city

How do cities get smarter? It's a more difficult idea to quantify than you might first think, even if the concept of a city with intelligent systems for transport, energy and more is easy enough to grasp.

UK Smart Cities Index puts Bristol at the top of the UK pile in terms of its development and capability.

Dimitra Simeonidou is a specialist in smart city infrastructures and chief technology officer of Bristol is Open. She has contributed much of the architecture that makes up BiO's programmable citywide testbed and begins by painting a picture about just what's been involved.

"In terms of infrastructure, we took on a huge challenge with Bristol is Open. Bringing together an open infrastructure for experiments at a city scale is as big as it gets. To get things on the right footing from the start, we decided we needed to be technology-agnostic and to build our systems from the bottom up, using multiple, best-of-breed suppliers and technologies.

"At times, that has made our progress slower than it would have been with a more narrowly focused supplier base, but we've also created something that's adaptable: a software-defined network with a heterogeneous infrastructure," she says.

Along the ways, adds Simeonidou, Bristol has also managed to set some of the terms for what a smart city means. "The concept of 'city experimentation as a service' is ours, as is the idea of a 'programmable city'. The terms have been widely adopted by others now, but they were born in Bristol," she says.

"All our fibre network and all our cloud infrastructure is in place now and working perfectly for our city center site," says Simeonidou. "Our Wi-Fi deployment is also there and deploying numerous small services. For the fibre in the ground, what's powerful is how we can control and 'slice' it for the purposes of different experiments."

One project that used the infrastructure successfully earlier this year was networking tech firm InterDigital's trial of a mobile edge computing (MEC) 5G network architecture around Bristol's Harbourside area.

For Simeonidou, what is following on the heels of the experiment is even more exciting. "By the end of November, we should have finalised a small cell deployment that is part of the 5G trials that are also here in Bristol, funded by government rather than Bristol is Open. So, we can be a 5G leader, too – and we got the opportunity because of our existing testbed."

It means that by March 2018, Simeonidou estimates, a demonstration 5G network delivered in partnership with Nokia and spectrum from BT will be switched on.

3. Complete the sentences. Choose no more than 3 words from the text "Hard work, big prize: Bristol is shaping what it means to be a smart city" for each answer.

1. The concept of a smart city means intelligent _____ systems.
2. Dimitra Simeonidou specializes in _____ at BiO.
3. Best-of-breed suppliers and technologies were used to build the systems from _____.
4. The idea of _____ originated in Bristol.
5. InterDigital's trial of a 5G network architecture used _____ around Bristol's Harbourside area.
6. It is expected that a _____ will be switched on by March 2018.

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

1. Complete the gaps with the appropriate words from the box.

programmable	progress	testbed	deployment
development	research	network	experimentation
fibre	machines	systems	capability

1. Sharing of information will be critical for acceleration of development and of _____ CCS and other low-carbon technologies, which requires unprecedented effective collaboration worldwide.
2. The development of the global _____ infrastructure provides unprecedented prospects for the global reach of data communication networks.
3. ABB offers a full range of automation products like _____ logic controllers and HMIs.
4. The _____, systems and tools must therefore be state-of-the-art and meet the most varied demands of IT field _____.
5. The current condition of the project requires further _____.
6. This _____ is developing e-learning for higher education in villages and remote areas of the following region.
7. She spent almost eight years establishing network _____ for USC/ISI at the ISI-East location, where her work included directing an open membership WAN _____ called CAIRN.
8. The computer has the _____ to beat humans at chess.
9. It had been established in response to the risk of widespread disruption which would follow any attack on the information technology _____ vital for all aspects of everyday life.
10. Technological _____ has changed the whole world.

2. Write Russian equivalents for the following words and expressions.

1. To grasp
2. Chief technology officer
3. Right footing
4. Best-of-breed
5. Adaptable
6. Software- defined
7. Heterogeneous infrastructure
8. To adopt
9. Trial
10. To switch on

VOCABULARY*

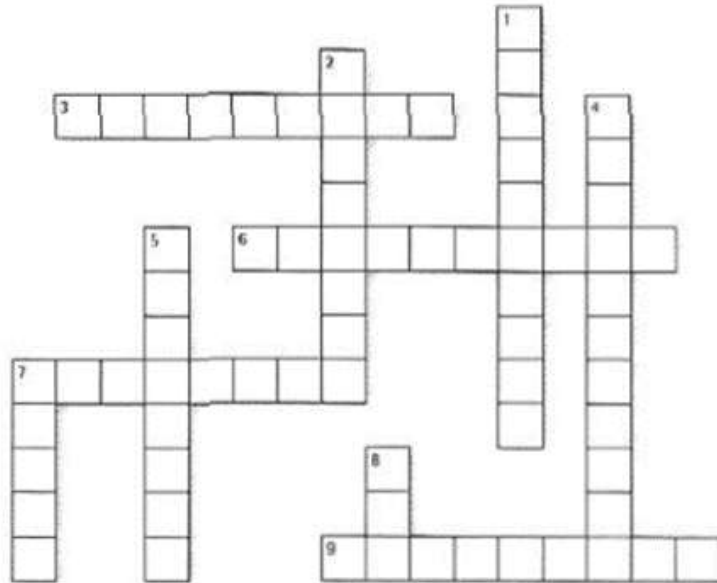
OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

1. Read texts A and B. Solve the clues and complete the puzzle¹ with words from the following texts.*

Text A	Text B
<p>Domotics, from the Latin word domus plus robotics, also known as automation, involves the use of information technology applied to domestic appliances in order to create intelligent systems inside the house.</p> <p>Basic intelligent devices, traditional devices with an embedded processor, have been with us for a while, e. g. microwave ovens and washing machines with computerized controls.</p> <p>Intelligent homes are a wider concept: all the systems and devices are connected in a LAN, local area network, where they communicate with each other and are controlled by a central computer, sometimes installed in one of the machines.</p>	<p>Intelligent homes are controlled with different types of interfaces, devices that facilitate communication between the user and the system: physical switches, touch screens, IR (infrared) remote controls, computers either at home or at a distance, telephony.</p> <p>The different elements perform one of these two functions: they are either command initiators, e. g. a brightness sensor that is programmed to send an instruction when it gets dark, or command receivers, e. g. a light that turns on when it receives an instruction sent by the sensor.</p> <p>Household appliances, sound and video systems, optical and thermal sensors, etc. can be linked with wired and wireless systems. Wired LANs use different types of cables and also electrical wiring.</p> <p>WLANs, wireless networks, use radio-frequency systems: Bluetooth, a short-range radio system used to communicate between portable devices (laptops, PDAs, mobile phones), is now frequently used to design PANs (personal area networks) inside the home.</p>

¹ From Cambridge Professional English in Use ICT



Across

3. A wireless standard used for PANs.
6. Touch screens, remote control and computers are different types of ...
7. The adjective which describes networks without cables.
9. A smoke sensor is an example of a command

Down

1. the automatic operation of a system or process
2. The term domotics comes from domus and ...
4. The adjective used to describe homes and devices that use IT technology.
5. A light switch can be used as a command ...
7. LANs where the devices are connected with cables or electrical wiring are ...
8. Personal Area Network.

2.* Write down Russian equivalents for the words and expressions in bold type.

LISTENING

OBJECTIVES:

- I. Target Listening Skills
 - skimming
 - scanning
- II. Question types
 - choosing headings
 - sentence completion

1. Watch a Video 1. Choose a heading A, B, C or D that best suits the video.

- A. A Computer Fairy Tale.
- B. The Microchip that Changed the World.
- C. It`s not Magic, It`s Science.
- D. Advanced RISC Machines.

2. Watch the Video 1 again. Complete the sentences below. Write no more than three words and/or a number for each answer.

1. By the eighties, the computers itching _____.
2. Computers are _____ and if you squeeze too much processing into small a space, they just _____.
3. Meanwhile, in a laboratory in _____, a group of engineers are trying to solve a different problem, making a faster, _____.
4. Their chip is _____ it was working off just the residual power from the other _____.
5. The world takes note when the Apple Newton results a hand-held _____.
6. Meanwhile, _____, the mobile phone is very popular.

SPEAKING 1

OBJECTIVES:

- I. Target Speaking Skills
 - to express opinions
 - to express agreement
 - to express disagreement
 - to express uncertainty
 - to make predictions
 - to ask for clarification
- II. Format: discussion

1. In pairs, answer the following questions.

1. Give definitions of the words “gizmos and gadgets”.
2. Could you give any examples of gizmos and gadgets? What are they for?

2. Read the texts A, B and C. In pairs, answer the questions.

1. What are the following texts about?
2. Are they gadgets? Are they useful?
3. Would you like to have any of these gadgets? Why/ why not?



A.

Welcome to the future! A place where robots clean your floors so you don't have to. The iRobot Braava series are a robot that are designed to either dry or wet mop your floors. It works on a GPS system, and the Robot will map out your floor layout and remember where it has been and not been, avoiding obstacles on the way. Attach the desired cloth to the bottom of the Braava 380t and away it goes. You can even set it to a sweep mode!



B.

OK not only is this Rainbow shower head cool to look at, if you like rainbows and fluffy stuff, but it's cool in another way! It requires no electricity or power. Well, it does require power, but from the water. Yes, that's right water pressured power LED Rainbow shower head.

Simple installation! Unscrew the old shower head, screw in this one and away you go with pretty rainbow lights that cost you no electricity! Finished in Chrome, and has an adjustable connector so you can swivel the Rainbow LED showerhead in any direction.



C.

Feel the power as you slip in to these Giant Robot Limited Edition slippers by Think Geek. These are awesome; in fact they are that awesome they come complete with sound effects! You have to act fact those as these are only a limited-edition product. The space on the inside of the slipper where your foot goes measures approx. 8" wide x 13" long even if they are a little too big, they have designed them in a way that the slippers hug your calves so they should stay on quite well. Impress friends and family with the robot slippers!

3. Work in pairs. Look at the pictures 1-4. Discuss the following questions. Use "Useful expressions" for the discussion.

1. What are the following gadgets for?
2. Guess their names.
3. What kind of person might buy it?
4. How would you advertise these gadgets?



1.



2.



3.



4.

USEFUL EXPRESSIONS

Describing the pictures	<p>The first picture shows ...</p> <p>We can see</p> <p>That strikes me about the first picture is...</p> <p>This picture reminds me of...</p> <p>Judging from the picture ...</p> <p>This device appears to be...</p> <p>From what we can see here...</p> <p>When you give it a closer look it reveals...</p>
Making predictions	<p>Many people strongly suspect this will...</p> <p>It is commonly believed ...</p> <p>From a personal opinion/view ...</p> <p>It is probable that...</p> <p>It is likely that...</p> <p>It is possible that...</p> <p>It is unlikely that...</p> <p>It is doubtful that...</p>

5. Work in pairs:

1. Think of your own gizmos and draw them.
2. Exchange your gizmos with another pair:
 - guess what they are
 - guess their names
 - think about their functions and characteristics
 - think about a person who might buy it
 - think how to advertise them.
3. Check with the designers to see if the ideas are correct.
4. Use “Useful expressions” for the discussion.

USEFUL EXPRESSIONS

Making your point	Personally speaking, I reckon ... If you ask me, ... I'd say that ... I feel that ... My feeling is that ...
Expressing agreement	I completely/totally agree ... I quite agree ... That's (just) what I think, too. That's a good point. I'll go along with that. Absolutely.
Expressing disagreement	No, you are missing the point. That's not the point. I can't see your point at all. But that's not always the case. I am not sure I agree with you. I am afraid I don't really agree. I don't really think you are right. Not necessarily.
Expressing uncertainty	I am undecided ... I am unsure ... I am in two minds about ...
Asking for clarification	You mean ... Sorry, I don't really see what you are getting at Sorry, I don't quite follow you

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue. Use "Useful expressions" for the answer.

Describe your favorite gadget.

You should say:

- What is it
- When did you get it
- How often do you use it

and say why is it so important to you.

USEFUL EXPRESSIONS. LINKING WORDS

Adding more information	And Also As well as Another reason is
Time phrases	At present Right now These days Nowadays
Comparison and contrast	Although Though Even though While Whereas However On the other hand On the contrary By (in) comparison In contrast

CONSIDER THIS:

1. Use natural spoken English. The best form of English to use in the test is natural spoken English. Here are some examples of what works: short forms like it's and not it is; words like quite that we use a lot in speaking; common spoken phrases like I guess and I suppose.

2. Correct yourself – if you can do it immediately. If you make a mistake and you can correct it immediately, do so. This will show the examiner that you have control over the language.

3. If you don't understand something – ask. This is a speaking test and not a listening test. If you don't understand the question, ask the examiner to repeat or explain it – you should not be penalized for this.

4. Learn to use a range of functional vocabulary such as opinion language.

5. Don't worry too much about using clever language. When we speak a language we don't have much time to choose our words and that means that we often use far fewer

words when we speak than when we write.

6. Don't be afraid to repeat yourself. Part of your score in speaking is fluency and coherence. One way to make yourself more coherent is in fact to repeat yourself. This is something professional speakers do a lot.

7. Speak about what you know and what you think. This perhaps should be point number one. One of the best ways to impress an examiner is to talk personally about what you think and what you know.

8. Think about detail – that's interesting and good for your vocabulary. Another way to learn to say more is just to add detail. You should remember that this is a language test and there more language you use the better.

WRITING. REVIEW ON WRITING SKILLS

OBJECTIVES:

To revise an essay structure.

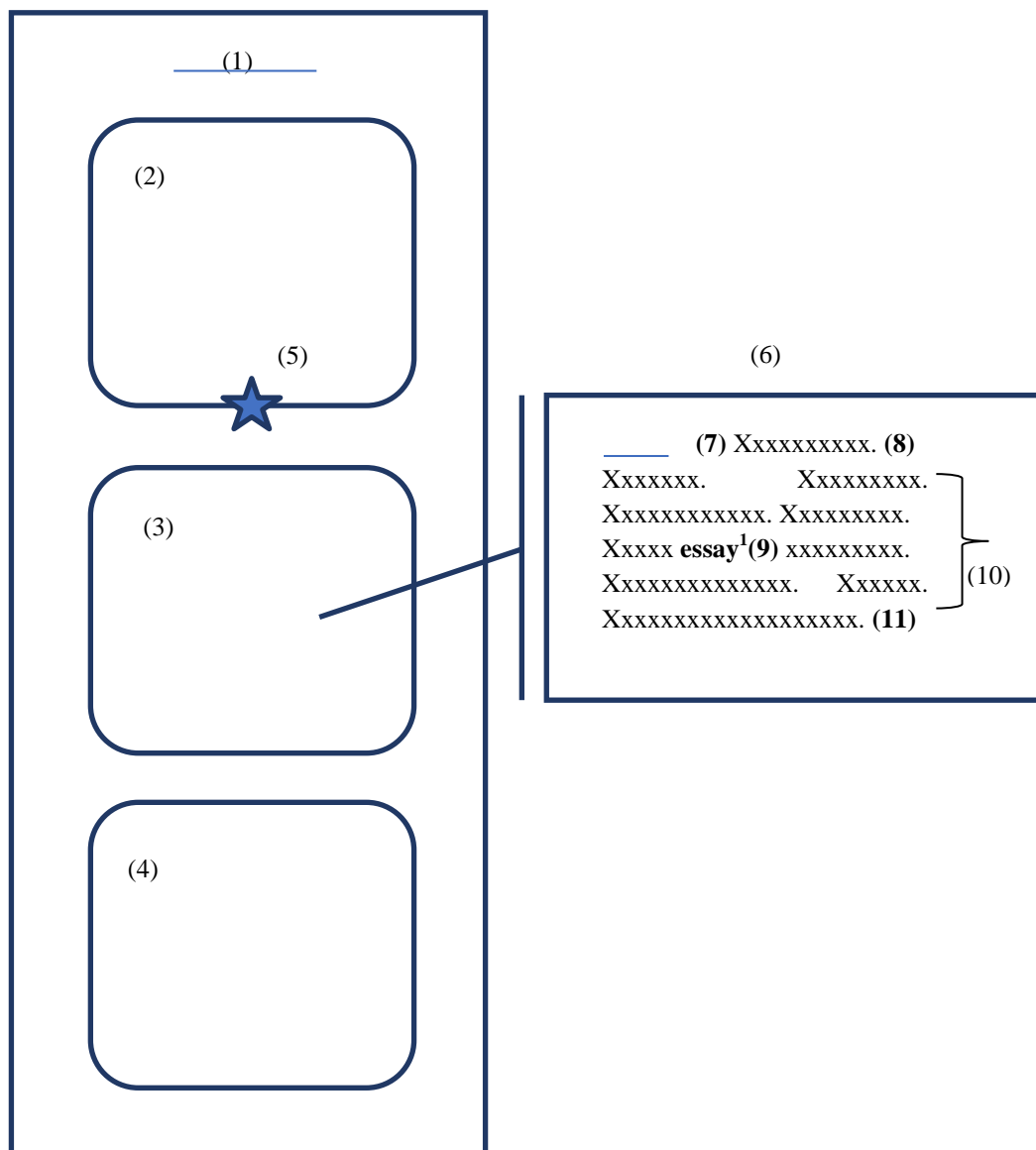
PRACTICE:

1. Decide if these statements are true or false. Correct false ones.

1. When you freewrite, you write whatever comes into your head about your topic.
2. Mapping is the best way of brainstorming.
3. One paragraph contains two or more topics.
4. A paragraph has one basic part.
5. There are several types of supporting sentences.

2. Name basic parts of an essay. Use terms from the box given below. Explain these terms.

indent	paragraph	topic sentence	footnote
thesis statement	the main body	supporting sentences	the introduction
title	the conclusion	concluding sentence(s)	



3. Complete the table with suitable features given below (some can be used several times).

1. Use facts and opinions to support the main idea.
2. Use such connectors as *because, since, so, therefore*.
3. Discuss how objects are similar.
4. Discuss how objects are different.
5. Discuss advantages and/or disadvantages.
6. Describe and discuss a problem issue.
7. Use phrases like *In order to, To meet this need* etc.

Comparison and contrast essay	Problem and solution essay	Argumentative essay	Opinion-Led essay	Cause and Effect essay

HOME TASK:

Choose the topic of your course essay. It should be researchable.

SCENARIO

- Target Speaking Skills: to express opinion.
- Format: discussion.
- Writing skills: to write a formal e-mail.

1. Read about Asseco company.

Company profile	
	<ul style="list-style-type: none"> • Our mission is to build the trustworthy and profitable global IT company providing our customers with high quality software and services. • Asseco Group specializes in the production and development of software. • Asseco Poland is the largest IT company listed on the Warsaw Stock Exchange. It has developed technologically advanced software solutions for all key sectors of the economy for more than 25 years. • Today, Asseco Poland stands at the forefront of the multinational Asseco Group. • They are the number one provider of state-of-the-art IT solutions in Central and Eastern Europe. Moreover, Asseco is one of the largest software vendors in Europe, taking the sixth place in the Truffle 100 ranking. They are present in more than 50 countries worldwide and employ over 22,300 people. • Asseco makes continuing efforts to develop its business globally.

2. Work in groups. Answer the following questions.

1. What does this company specialize in?
2. Where are they present?
3. How many people do they employ?

3. Read the e-mail.

To: ASSECO line directors
From: Adam Goral, President of the Management Board
Subject: How to keep our smart devices on eavesdropping on us?
<p>Dear colleagues,</p> <p>As you know our company has bought 4K UHD TVs listed on Samsung's website for all our branches and departments. All the 4K UHD TVs listed on Samsung's website are Smart TV models.</p> <p>With the recent Wikileaks revelation that the government could spy on you and me through our Smart TV's, suddenly that internet connectivity that was so exciting two years ago is looking a bit creepy to me.</p> <p>There may be such a thing as "too smart" when it comes to present-day devices.</p> <p>A recent report says Samsung's Internet-connected Smart TV might be listening in on your conversations and transmitting them to a third party via a voice control feature meant to change channels, adjust volume, browse apps and more.</p> <p>So, please be aware that if your spoken words include secret or other sensitive information, that information will be among the data captured and transmitted to a third party through your use of Voice Recognition. That is kind of scary.</p> <p>But the good news is that there are some things you can do if you're concerned, that is why I want you to organize a line manager's meeting to find a solution to the following problem.</p> <p>Sincerely yours, Adam Goral. President of the Management Board</p>

4. In groups, answer the questions.

1. Who wrote the e-mail?
2. What is the problem?
3. Do you know any solutions to the problem?

5. Asseco line managers advised the following options. Read the options below.

Option 1	According to a video from Samsung, you need to hold a button on your Smart TV remote to activate voice recognition. When it's active, a microphone icon appears on the TV screen. In theory, if you don't hold that button and the microphone isn't displayed, you shouldn't worry that your television is listening to whatever elaborate conspiracy you're plotting in the room.
Option 2	Return all the 4K UHD TVs and buy "dumb" TVs.
Option 3	Depending on your Samsung TV, you might be able to disable the Wi-Fi altogether. This will stop the device from picking up voice commands. (Some models have had trouble shutting off Wi-Fi.) Doing, this will make your Smart TV about as dumb as a normal TV, and while that kind of defeats the purpose of buying one in the first place, at least you won't feel paranoid about it eavesdropping on you. This, however, will void your warranty and could even render your TV useless. We don't recommend it.
Option 4	Do not connect TVs to the Internet at all. The internet functions can go through old Blu-Ray players.
Option 5	It turns out you allow data collection on some Smart TV's when you agreed to the TV's privacy policy during setup. Now if you're concerned with what your TV might be recording or sharing, the best thing to do is get into the TV's settings. On an LG set, you need to go to "Options", then "LivePlus", and click "off." But I have no idea how to deal with Samsung models.
Option 6	Some newer Samsung's have added "Voice Recognition," which utilizes a built-in microphone. You can shut that off if you find it.
Option 7	The risk of anyone deliberately spying on average people through their TV's is next to zero. So, there must be no worries.
Option 8	But if it makes you sleep better, turn off sharing and interactivity.
Option 9	Another way to protect yourself is to make sure your TV is running the latest software. You can do this by turning on automatic updates or regularly checking for them in Settings.

6. You are a member of Asseco management team. Work in small groups.

1. Evaluate the practicability according to the following scale: very high/high/medium/low.
2. Discuss the options and consider the advantages and disadvantages of each one.
3. Which option seems to be the best?
4. Meet with other groups to discuss your idea.

7. Writing task.

As a member of the Asseco management team, write an e-mail for Adam Goral analyzing the options you considered. (100-120 words)

CONSIDER THIS: USEFUL TIPS FOR E-MAIL WRITING.

Traditionally e-mails are divided into two types:	
Informal e-mail which is when you e-mail your friends, family and people you know very well.	Formal e-mail which is official communication at work, with various institutions and people you don't know.
<p>Emails are generally shorter than letters.</p> <p>Emails may contain the following elements:</p> <ul style="list-style-type: none">– Subject line. This shows the reader the exact subject of the email.– (Salutation)– Reason for writing– Main point– (Closing) <p>How to write an email</p> <ol style="list-style-type: none">1. Use a descriptive subject line. Say what the email is about in a few words.2. Keep your emails short.3. Write simple, direct English. Here are some ways of writing simple English:<ul style="list-style-type: none">– use active forms instead of passive forms– write short sentences rather than long ones (if in doubt, stick to a simple "who did what to who, how, where and when" type word order)– don't use idioms– use common words rather than technical or jargon words if your reader is not in the same field as you4. Make sure your reader knows what to do next. Help your reader act on your email.5. Be careful what you write in your email. Try to make your emails informative and polite, and use a neutral tone. Avoid using emoticons and smilies in business emails, or too many exclamation marks.6. Check your email before you send it.	
Greetings	
Dear [followed by name], Hi [followed by name],	Dear Mr/Ms [followed by surname],
<p>If you are writing to a group of people, you could use a collective noun: "Dear customers", "Dear partners".</p> <p>If you are writing to a group of people who work in the same company or department, you could write "Dear All", "Dear colleagues", or "Hello everyone".</p> <ul style="list-style-type: none">– Writing to a group of bosses in your company. Here you could write "Dear Managers", "Dear Directors" or "Dear Board members".– No greeting. Often in companies, you write quick emails to colleagues. Using email in this way is almost like using the telephone. In these situations, you don't need to write any greeting or name, but just start the message.	

<p style="text-align: center;">Opening phrases</p> <ul style="list-style-type: none"> • Sorry for the late reply, I have been... • In relation to the e-mail I received • I am writing in relation to • With reference to..., I would like to inform you that... 	
<p style="text-align: center;">Providing information</p> <ul style="list-style-type: none"> • I would like to inform you that... • According to the information available to me, ... • I regret to inform you that... • I am pleased to inform you that... 	
<p style="text-align: center;">Asking for information/favors</p> <ul style="list-style-type: none"> • I would be grateful if you could... • I was wondering if you could... • I am sorry to ask you this on such short notice, but... 	
<p style="text-align: center;">Making promises</p> <ul style="list-style-type: none"> • I can assure you that... • I will look into the matter as soon as possible ... and I will inform you in due course 	
<p style="text-align: center;">Closing phrases</p> <ul style="list-style-type: none"> • If you require any further information, please do not hesitate to contact • I am looking forward to hearing from you soon • Please let me know if you... 	
<p style="text-align: center;">Complimentary close (followed by your name)</p>	
<ul style="list-style-type: none"> • Best Regards, • Kind Regards, • Regards, 	<ul style="list-style-type: none"> • Sincerely, • Faithfully,

UNIT 2. COMPUTER ESSENTIALS

By the end of unit 2 will be able to:		
Reading 1	Target Reading Skills	Scanning
	Question types	Table completion
Reading 2	Target Reading Skills	<ul style="list-style-type: none"> • Scanning • Understanding main ideas
	Question types	Multiple choice questions
Listening	Target Listening Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Short-answer questions • Table completion
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • To give reasons • To keep to the point • To compare and contrast • To speculate
	Format	Discussion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas)
	Format	Individual long turn
Writing		To revise information on research and evaluation of sources
Use of English		To understand and use the vocabulary of computing. (Key Vocabulary, Vocabulary 1, Vocabulary 2, Vocabulary*)
Scenario	Target Speaking Skills	<ul style="list-style-type: none"> • To make proposals • To express opinion • To express agreement • To express disagreement
	Format	Discussion

UNIT 2. COMPUTER ESSENTIALS



KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of computing.

Read the text "How Do Computers Work?" and find Russian equivalents for the words and expressions in bold type.

How Do Computers Work?

Computer Basics



To accomplish a task using a computer, you need a combination of hardware, software, and input.

Hardware consists of devices, like the computer itself, the monitor, keyboard, printer, mouse and speakers. Inside your computer there are more bits of hardware, including the motherboard, where you would find the main processing chips that make up the central processing unit (CPU). The hardware processes the commands it receives from the software, and performs tasks or calculations.

Software is the name given to the programs that you install on the computer to perform certain types of activities. There is operating system software, such as the Apple OS for a Macintosh, or Windows 95 or Windows 98 for a PC. There is also application software, like the games we play or the tools we use to compose letters or do math problems.

You provide the input. When you type a command, or click on an icon, you are telling the computer what to do. That is called input.

How They Work Together



First, you provide input when you turn on the computer. Then the system software tells the CPU to start up certain programs and to turn on some hardware devices so that they are ready for more input from you. This whole process is called booting up.

The next step happens when you choose a program you want to use. You click on the icon or enter a command to start the program. Let's use the example of an Internet browser. Once the program has started, it is ready for your instructions. You either enter an address (called a URL, which stands for Uniform Resource Locator), or click on an address you've saved already. In either case, the computer now knows what you want it to do. The browser software then goes out to find that address, starting up other hardware devices, such as a modem, when it needs them. If it is able to find the correct address, the browser will then tell your computer to send the information from the web page over the phone wire or cable to your computer. Eventually, you see the web site you were looking for.

If you decide you want to print the page, you click on the printer icon. Again, you have provided input to tell the computer what to do. The browser software determines whether you have a printer attached to your computer, and whether it is turned on. It may remind you to turn on the printer, then send the information about the web page from your computer over the cable to the printer, where it is printed out.

READING 1

OBJECTIVES:

- I. Target Reading Skills: reading for specific information
- II. Question types: table completion

1. Answer the QUIZ questions. Check if you have any correct answers.

1. Doing sums is very boring. The same applies to repetitive calculations. The chief Babylonian accountant had a similar problem, so he asked his technicians to come up with something that would help him with his calculations. What was the name of the computing device that first appeared in Babylon?
 - a) Succubus
 - b) Abacus
 - c) Harquebus
 - d) Aardvark

2. War always creates opportunities, and World War II was no exception. There was a need for storing information about new weapons and tests that were performed with them. What was the name of the computer that was built at the Moore school of Electrical Engineering of the University of Pennsylvania in 1942?
 - a) ENIAC
 - b) CANE
 - c) MANIAC
 - d) ACNE
3. The first computer that was used for anything other than military purposes was introduced on June 14, 1951. What was the name of the computer that was designed by J. Presper Eckert and John Mauchly?
 - a) DA VINCI
 - b) VACUUM
 - c) UNIVAC
 - d) VICA
4. It wasn't long before IBM stepped into the commercial computer market with the IBM 650 which was described as the "Workhorse of Modern Industry". By the way what does IBM stand for?
 - a) Idiots Became Managers
 - b) It's Better Manually
 - c) International Business Machines
 - d) Incontinent Bowel Movement
5. In 1981 IBM introduced the first personal computer (PC) that revolutionized the computer industry. What was the original code name of the product that conjures visions of mightiness, before it was renamed to IBM PC?
 - a) Pine
 - b) Rice
 - c) Barley
 - d) Acorn

2. Read the text “History of Computers” and fill the table below. Write **NO MORE THAN TWO WORDS** for each answer.

History of Computers

Obviously one of the great inventions of our time has been the computer. Today, billions use computers in their daily life. While the first computers were extremely large and took up entire rooms, today, computers are extremely small and can not only fit on your **desktop**, but in your phone and on **chips the size of grains of rice**. Throughout the years, the computer has evolved from an extremely expensive, **cumbersome and slow device** to today’s extremely smart and quick machines with **incredible processing power**.

The First Computer

While there was no single person that is widely credited with inventing the computer, many view Konrad Zuse and his Z1 machine as the first in a long line of innovations that have given us the computer of today. Konrad Zuse was a German whose claim to fame is the creation of the first freely programmable mechanical computing device in 1936. Many would see Zuse’s Z1 as the first of a long line of calculators. Zuse found that one of the most difficult aspects of **completing large calculations** on the calculation devices of the day (a **slide rule** or **mechanical adding machine**) was the ability to keep track of the many results that would then have to be recomputed to give a final answer. Zuse’s Z1 was created with a focus on 3 basic elements that are still necessary in today’s calculators – it is necessary to have a control, it is necessary to have a memory **to store results** of each step and it is necessary **to perform calculations**.

The Harvard Mark I Computer

With World War II blazing on, the US government realized that it needed to be more innovative than ever in order to gain the upper hand. At major universities across America, many scientists and mathematicians worked hard on innovating **new ways to keep up with the technology** that was quickly **advancing**. Much of the focus was on making rockets and **ballistics** more precise – which required complex calculations. At Harvard, the first of the MARK series computers were being built. The MARK I began in 1944. This computer was absolutely huge and filled a room that was 55 feet long by 8 feet high. It contained an amazing array of components. In fact, in all it had over 760,000 parts. It was loud and clicked and clanged like a huge factory. However, the MARK 1 turned out to be a success. It was utilized by the US Navy for calculations of ballistics. It performed well for the next 15 years, being in service till 1959.

The MARK I could perform a wide variety of calculations including **addition, subtraction, multiplication** and **division** and it was able to hold and reference a previous result used in its calculations. It even had the capability to compute numbers with up to 23 **decimal** places.

The ENIAC Computer

The ENIAC computer is known as being one of the most important achievements in computing. The computer was commissioned during WWII and it was originally commissioned and used by the US military for ballistics research for computing tables. The ENIAC stands for Electrical Numerical Integrator and Calculator. It was developed by John Mauchly and J Presper Eckert. While John Mauchly created several previous calculating machines, this machine would be different. The ENIAC would use **vacuum tubes** instead of electric motors and levers **to speed up calculations**. ENIAC was originally designed starting in 1943, however it wasn't built and ready for operation until 1946. The total cost of the ENIAC was \$500,000. While it was originally built for ballistics it was used for a whole host of issues including weather, **random number studies** and even **wind tunnel design**. The ENIAC had an enormous amount of vacuum tubes – over 14,000 and included 70,000 resistors and over 5 million soldered joints. It covered a space of 187 square meters and weighed over 30 tons. This computer was enormous.

Regarding speed, the ENIAC was blazing fast for the technology in those times. The speed of the ENIAC was about 1,000 times faster than any other calculating device during that era. The ENIAC stayed in operation until 1955.

	Year of creation	Country	Inventor	Functions
ZI machine	1) _____	4) _____	7) _____	9) _____
The Mark I	2) _____	5) _____		10) wide variety of _____ 11) calculations of _____
The ENIAC	3) _____	6) _____	8) _____	12) for _____ 13) studies of _____, 14) random _____, 15) _____ design _____

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of computing.

1. Find Russian equivalents for the words and expressions in bold type from the text “History of Computers”.

2. Complete the sentences with the missing words from the box.

desktop	device	calculation	vacuum
technology	components	achievement	joints
programs	folder	mathematician	cumbersome

- The signal was digitalized and recorded on the hard disk of a _____ personal computer for later offline analysis.
- He created a new _____ on his desktop.
- The _____ has a single button, allowing for easy operation.

4. Squad members, already decked out in _____ chemical suits, put on masks and rubber gloves.
5. The pipe is leaking at the _____.
6. When doing the _____ by hand, the sum came out as a different figure.
7. Microsoft can bundle Windows NT at discounted prices with its popular desktop application _____.
8. The spinning turbine creates a _____.
9. Getting the project done on time was a real _____.
10. ... “Eureka!” the Greek _____ Archimedes is said to have ejaculated upon discovering a method for determining the purity of gold...
11. He sells spare computer _____.
12. This new system represents the utmost in modern _____.

READING 2

OBJECTIVES:

- I. Target Reading Skills
 - scanning
 - understanding main ideas
- II. Question types: multiple choice questions

1. In pairs, answer the questions.

1. Have you ever heard about supercomputers? What are they for?
2. Can supercomputers be adjusted to a small room?
3. Can supercomputers be compared with any of the normal or high-end computers?

2. Read the text “Supercomputers” and check your answers to the questions from exercise 1.

Supercomputers

Roll back time a half-century or so and the smallest computer in the world was a gargantuan machine that filled a room. When transistors and **integrated circuits** were developed, computers could pack the same power into **microchips** as big as your fingernail. So, what if you build a room-sized computer today and fill it full of those same chips? What you get is a supercomputer – a computer that's millions of times faster than a desktop PC and capable of crunching the world's most complex scientific problems. What makes supercomputers different from the machine you're using right now?

What is a supercomputer?

Before we make a start on that question, it helps if we understand what a computer is: it's a general-purpose machine that takes in information (data) by a process called **input**, stores and processes it, and then generates some kind of **output** (result). A supercomputer is not simply a fast or very large computer: it works in an entirely different way, typically using parallel processing instead of the serial processing that an ordinary computer uses. Instead of doing one thing at a time, it does many things at once.

Serial and parallel processing.

A typical modern supercomputer works much more quickly by splitting problems into pieces and working on many pieces at once, which is called **parallel processing**. It's like arriving at the checkout with a giant cart full of items, but then splitting your items up between several different friends. Each friend can go through a separate checkout with a few of the items and pay separately. Once you've all paid, you can get together again, load up the cart, and leave. The more items there are and the more friends you have, the faster it gets to do things by parallel processing – at least, in theory. Parallel processing is more like what happens in our brains.

Why do supercomputers use parallel processing?

Most of us do quite trivial, everyday things with our computers that don't tax them in any way: looking at **web pages**, sending emails, and writing documents use very little of the processing power in a typical PC. But if you try to do something more complex, like changing the colors on a very large digital photograph, you'll know that your computer does, occasionally, have to work hard to do things: it can take a minute or so to do really complex operations on very large digital photos. If you play computer games, you'll be aware that you need a computer with a fast processor chip and quite a lot of "working memory" (**RAM**), or things really slow down. Add a faster processor or double the memory and your computer will speed up dramatically – but there's still a limit to how fast it will go: one processor can generally only do one thing at a time.

Now suppose you're a scientist charged with forecasting the weather, testing a new cancer drug, or modeling how the climate might be in 2050. Problems like that push even the world's best computers to the limit. Just like you can **upgrade** a desktop PC with a better processor and more memory, so you can do the same with a world-class computer. But there's still a limit to how fast a processor will work and there's only so much difference more memory will make. The best way to make a difference is to use parallel processing: add more processors, split your problem into chunks, and get each processor working on a separate chunk of your problem in parallel.

Here are some examples of supercomputers:

1953: IBM develops its first general-purpose **mainframe computer**, the IBM 701. The 701 is arguably the first off-the-shelf supercomputer.

1957: Seymour Cray co-founds Control Data Corporation (CDC) and pioneers fast, transistorized, high-performance computers, which seriously challenge IBM's dominance of mainframe computing.

1993: Fujitsu Numerical Wind Tunnel becomes the world's fastest computer using 166 **vector processors**.

1997: IBM's Deep Blue supercomputer beats Gary Kasparov at chess.

2018: China now dominates. The Sunway TaihuLight remains the world's most powerful machine.

3. Choose TWO letters A-E. Which two of the following statements are true according to the text?

- A. 50 years ago, a normal computer filled the room.
- B. A supercomputer is an ordinary, but a very fast computer that does many things at once.
- C. Parallel processing means an ability of the computer to deal with many problems at once.
- D. Parallel processing can be compared with our intellectual processes.
- E. Quite a lot of “working memory” slows down your computer.

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of computing.

1. Write down words and expressions that are in bold in the text “Supercomputers” for the following definitions.

1. is a central processing unit (CPU) that implements an instruction set containing instructions that operate on one-dimensional arrays of data called vectors, compared to scalar processors, whose instructions operate on single data items
2. electrical circuit which contains different electronic components (as in transistors) imprinted on a single chip
3. volatile computer memory that can be accessed in any order, memory that temporarily stores data which is currently in use, most common type of computer memory
4. electronic equipment consisting of a small crystal of a silicon semiconductor fabricated to carry out a number of electronic functions in an integrated circuit
5. enter data into a computer
6. simultaneous processing of several computer commands
7. information sent out from a computer
8. HTML file with a unique URL that can be accessed and displayed via the World Wide Web
9. improve, raise the quality of, exchange something for another of better quality
10. a large digital computer serving 100-400 users and occupying a special air-conditioned room

2. What do the following abbreviations stand for?

1. CPU
2. MAC
3. OS
4. PC
5. PDF
6. RAM
7. ROM
8. VGA

VOCABULARY*

OBJECTIVES:

To understand and use the vocabulary of computing.

1. The person describing their computer in this passage is not very familiar with computer terminology. Replace the phrases in bold with more appropriate words and phrases from the box.

base unit	chat rooms	components	crashed
download	email	files gaming	hardware
keyboard	laptop	load	log on
monitor	mouse	PC	printer
scanner	software	virus	websites
wireless	Internet	stream	

OK, here's my **new desktop computer which has been designed to be used by just one person** (1) _____. As you can see, it has five **parts which make up the whole thing** (2) _____. Now, **the large box with the slots and sliding disc carrier** (3) _____ is the most important part. It carries all the **stuff that makes the computer work** (4) _____. You can also **put in** (5) _____ your own games and other **programs used by computers for doing particular jobs** (6) _____ like photo processing and office suites. Next to it there is **the thing that looks like a small television** (7) _____ so you can see what the computer is doing. To the right of that, there **is the machine that lets you make colour copies of the documents and other things that you create on the computer** (8) _____ (this particular one incorporates **a machine you can use to copy pictures on to your computer**, a bit like a photocopier (9) _____). You control the computer using the **rectangular flat thing with all the letters and numbers on** (10) _____ or the **object with the little wheel on the top which you can move across the desk** (11) _____. These usually have a lead connecting them to the computer, but as you can see, **mine is not physically connected to the computer, and instead sends electronic signals through the air** (12) _____.

It's a very useful machine, of course. Once you **start using it by entering a password** (13) _____, you can **create information that you store under a particular name** (14) _____ and documents, **move** (15) _____ pictures from your camera and, well, loads of things really. The best thing, however, is that you can access the **thing that links computers from around the world** (16) _____. You can check out millions of **special computer pages created by companies, organizations and individuals all over the world** (17) _____ go shopping, play games (I really enjoy **playing games on my computer** (18) _____), **play** (19) _____ music and videos, and **send electronic letters to** (20) _____ your friends and family. It's also great for contacting people using **online places where people communicate with each other in real time** (21) _____ and other social networking sites.

Unfortunately, I can't let you use it at the moment because it **stopped working** (22) _____ at the weekend, and I can't get it to work again. I'm rather worried that it's got a **technical fault that someone created on purpose to affect my computer** (23) _____ However, you can have a go on my **small computer that I can carry around with me** (24) _____ if you like. If I can find it. The last time I remember seeing it was last night on the bus, when I was coming home from my office at the Ministry of Defence.

2. Read these quotations and say which computer essential they refer to.

1. "Accelerate your digital lifestyle by choosing a Pentium at 4.3 GHz."
2. "Right-click to display a context-sensitive menu."
3. "You will see vivid, detailed images on a 17" display."
4. "This will produce high-quality output, with sharp text and impressive graphics."
5. "Use it when you want to let the grandparents watch the new baby sleeping."
6. "Press any key to continue."

3. Match the following idioms with their meanings.

CONSIDER THIS: WHAT IS AN IDIOM?

An idiom is a commonly used expression whose meaning does not relate to the literal meaning of its words. Idioms are classified as figurative language, which is the use of words in an unusual or imaginative manner. *Example: to be caught red-handed – to be caught in the act of doing something wrong.*

- | | |
|-------------------------|--|
| 1. bells and whistles | A. when something suddenly stops working |
| 2. to blow a fuse | B. it means that as a group you all get on well together and things seem to run very smoothly without problems |
| 3. a well-oiled machine | C. something that has lots of cool features |
| 4. to pull the plug | D. it means that you stop thinking and developing that idea immediately |

LISTENING

OBJECTIVES:

- I. Target Listening Skills: scanning
- II. Question types
 - short-answer questions
 - table completion

1. Listen to/ watch the video “Listening. Unit 2” and answer the questions. Write no more than THREE WORDS AND/OR a NUMBER.

CONSIDER THIS:

When you have to complete short-answer questions, remember that the questions are in the same order as the information in the recording. Remember to stick to the word limit.

1. Where is the world fastest computer located? _____
2. How many people with adding machines would be needed for calculations instead of the Sunway TaihuLight? _____
3. Where will it be operated and maintained? _____
4. Why do supercomputers need a cooling system and a power supply installed above the mainframe? _____

2. Listen to/ watch the video “Listening. Unit 2.” And complete the table. Write NO MORE THAN THREE WORDS for each answer.

The Sunway TaihuLight Supercomputer

Number of calculations per second	1) _____
2) _____	125.436 peta-FLOPS
Computing power	Provided by 3) _____
Number of processors	4) _____
It is used to support	<ul style="list-style-type: none"> • 5) _____, • Biology • 6) _____ • Advanced manufacturing projects

SPEAKING 1

OBJECTIVES:

- I. Target Speaking Skills
 - giving reasons
 - keeping to the point
 - comparing and contrasting
 - speculating
- II. Format: discussion

Step 1. In groups, choose a laptop. Describe to each other why they like this particular computer.

Step 2. Students leave their groups and pair up with someone from a different group. Each partner argues for his favorite color and tries to convince the other one of its qualities. Use “Useful expressions” for the discussion.

USEFUL EXPRESSIONS

Giving reason	The reason for this is ... This is due to ... On account of ... Since ... (так как) I base my argument on ... I'm telling you all this because ...
Keeping to the point	It would be more to the point, if ... What we are discussing here is has nothing to do with ...
Comparing and contrasting	Both of these ... Neither of these ... One of these ..., while the other ... This one ..., but on the other hand that one ... This model ... whereas the other ...
Speculating	It's hard to say, but I think ... As far as I can see ... It looks like a ... I'd say ... It must be ... It might/ may/ could/ can't be ... I don't think it ... because ...

	ASUS ROG Zephyrus GX501 15.6" Full-HD 120Hz Ultra-Portable Gaming Laptop, GTX 1080, Intel Core i7, 512GB PCIe SSD, 16GB DDR4	Alienware AW17R4-7352SLV-PUS 17" QHD Laptop (7th Generation Intel Core i7, 32GB RAM, 256SSD + 1TB HDD, Silver) VR Ready with NVIDIA GTX 1080
Price	\$2592.00	\$2599.00
Brand	Asus	Alienware
Screen	15.6 Inches	17.3 inches
Screen Surface	Matte	Matte
Touchscreen	No	No
Pixels	1920 x 1080	2560 x 1440
Storage	1024 GB (All HDs and SSDs combined)	1256 GB(All HDs and SSDs combined)
Solid State Drive	1024 GB	256 GB

Ram	16 GB	32 GB
CPU	Intel Core i7-7820HK 2.9 GHz (7th gen Kaby Lake Quad-Core with Hyper-Threading)	Intel Core i7-7820HK 2.9 GHz (7th gen Kaby Lake Quad-Core with Hyper-Threading)
GPU	NVIDIA GeForce GTX 1080	NVIDIA GeForce GTX 1080
Operating system	Windows 10	Windows 10
Weight	4.9 pounds	9.7 pounds

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue. Use "Useful expressions" for the answer.

Tell three really good things about computers.

You should say:

- Thing №1 with your reasoning.
- Thing №2 with your reasoning.
- Thing №3 with your reasoning.

USEFUL EXPRESSIONS. LINKING WORDS

Expressing opinion	I am of the opinion that ... My impression is that ... I dare say that ... I guess that ... It is my belief, For my part,
---------------------------	--

WRITING. RESEARCHING, EVALUATION OF SOURCES

OBJECTIVES:

To revise information on research and evaluation of sources.

CONSIDER THIS:

Researching. The principal problem today for researchers is not about finding the relevant material to support their argument, but about dealing with the massive amount of information and deciding which source is the most reliable.

Before you begin a search, you should have a clear idea of what you are looking for, consider whether you are looking for facts or opinions, and evaluate the reliability of sources that you find and the accuracy of information.

Searching for a general term will probably give too many results to be useful. Nevertheless, a general online search is a good place to start with. There are some hints how to narrow your results:

- Identify your key words carefully.
- Use quotation marks to group words together. Then the results will only show pages where they occur as a group and you will get fewer sites than if you search your key words separately.
- Use the + sign to make sure all words are included.
- Use the – sign to exclude words you don't want (no space between the – sign and the next word).
- Use different forms of words if necessary.
- Use OR to search for different word forms at the same time.
- Change the order of your key words.
- Add more key words.

Evaluating of sources. Of the thousands of Internet sites you will find when you search, how do you know which ones to use? Of course, you want to find the facts and opinions that you can use to support your arguments. But how do you know if the information is true or important?

Any website that you use should have at least:

- The name of the organization (or person) who created the site, and some basic information about that organization (or person).
- The date the information was posted.
- The qualifications of any person whose opinions are cited; an explanation of how the information was gathered.

Also look for:

- The purpose of the site (To inform? To persuade? To tell something?)
- Any advertisements on the site (What is being advertised? Why?)
- Any links to other sites (Visit a few of them. What are they like?)
- Strong or emotional language that may indicate a bias. Sometimes you will be looking for opinions, but you should be aware of the point of view of the site. In addition, some sites with exaggerated language could actually be ironic or intentionally humorous.

NB: In general, you should not use information that is more than five to seven years old, unless you are writing about a historical topic.

NB: Many teachers don't trust Wikipedia as a reliable source, but it can be a good point for finding sources. Look at the references at the bottom.

NB: Document your sources! Information online comes and goes. When you find information make sure you write down:

- The complete URL where you found the information and the date you accessed it.
- The title of the article.
- The name of the organization and/or author.
- The date it was written.

HOME TASK:

Carry out the research into your topic (correct your topic if necessary). Make the outline and prepare the first draft of your essay.

SCENARIO

OBJECTIVES:

- I. Target Speaking Skills
 - making proposals
 - expressing opinion
 - expressing agreement
 - expressing disagreement
- II. Format: discussion

1. In groups, answer the following questions.

1. Have you heard about Silicon Valley? What is it?

2. What have you heard about the Skolkovo Innovation Centre? What is it famous for?
3. Can you name any companies that are located in Silicon Valley?
4. Do you know any companies that are in Skolkovo business area?

2. Read about Foxconn and answer the following questions.

1. Who established the company and when?
2. What does the company deal with?
3. What is the price range of their products?
4. Can they be called an environmentally concerned company?
5. What are their focus fields?



Guided by a belief that the electronics products would be an integral part of everyday life in every office and in every home, Terry Gou founded Hon Hai Precision Industry Company Ltd, the anchor company of Hon Hai / Foxconn Technology Group in 1974 with US\$7,500, a devotion in integrating expertise for mechanical and electrical parts and an uncommon concept to provide the lowest "total cost" solution to increase the affordability of electronics products for all mankind.

Today, Hon Hai / Foxconn Technology Group is the most dependable partner for joint-design, joint-development, manufacturing, assembly and after-sales services to global Computer, Communication and Consumer-electronics ("3C") leaders. Aided by its legendary green manufacturing execution, uncompromising customer devotion and its award-winning proprietary business model, Hon Hai has been the most trusted name in contract manufacturing services in the world.

Focusing on fields of nanotechnology, heat transfer, wireless connectivity, material sciences, and green manufacturing process, besides from cooperating with the establishment of the research institution for nanotech, new material, and optical electric, Hon Hai also sets up several research centers and testing laboratories for mechanism, material, electronics to conduct the services of science research and technology development worldwide.

3. Terry Gou understands that he has a lot of competitors worldwide. He tries to keep his company right on the cutting edge and develop a rubber-covered wire of ultra-high strength. At the moment he is looking for a company to collaborate with. He has directed his eyes on two business propositions from the Skolkovo Innovation Centre and one Silicon Valley company.

The following options are of primary importance:

- ***Environmental awareness***
- ***Quickness***
- ***Price***
- ***Image and reliability of the partner***

You are the line managers of the company. Read the business propositions. In groups, discuss and choose the most appropriate business proposition. Use "Useful expressions" for the discussion.

 <p>As a market-leading equipment supplier, Lam Research works closely with customers to deliver the products and technologies needed to enable their success. By offering critical chip-processing capabilities, our products provide a vital link between the visionary designs for the latest electronic devices and the companies that produce them.</p> <p>Through collaboration and drawing on multiple areas of expertise, Lam continues to develop the new capabilities required to manufacture increasingly complex devices with shrinking dimensions. Our innovative technology and productivity solutions for transistor, interconnect, patterning, advanced memory, and advanced packaging applications deliver a wide range of wafer processing capabilities needed to create the latest chips.</p>	 <p>The Russian Quantum Center conducts scientific research that could lead to a fundamentally new class of technologies in the near future. Among the potential results of this research are safe data transmission networks, new materials with superior properties, optical sub-micron transistors, high-frequency optical electronics, new systems for ultrasensitive imaging of the brain and accurate clocks for navigation systems. The Center brings together about a dozen research groups, totaling about one hundred scientists of both Russian and international origin.</p>
<p>Location: Fremont, CA, USA Foundation: 2010 Price of a contract: \$9, 000,000 Period of work execution: 18 months Field experience: 15 years Environmental awareness: no information</p>	<p>Location: Moscow, Russia Foundation: 1980 Price of a contract: \$25, 000, 000 Period of work execution: 24 months Field experience: 8 years. Environmental awareness: use eco-friendly and biodegradable materials</p>

USEFUL EXPRESSIONS

Making proposals	<p>I would like to put forward a proposal that ...</p> <p>I would like to propose that...</p> <p>I've got an idea! If... / we could ... / why not ...</p>
Expressing opinion	<p>I am under the impression that ...</p> <p>I have no doubt that ...</p> <p>I am sure / I am certain that ...</p> <p>I think/consider/find/feel/believe/suppose/presume/assume that</p>
Expressing agreement	<p>I am at one with him on that point.</p> <p>It is true.</p> <p>That is right.</p> <p>That's just it!</p>
Expressing disagreement	<p>I take a different view.</p> <p>I don't share his/her/your view.</p> <p>This argument does not hold water.</p>

	Not at all!
Expressing doubt	<p>I'm not certain.</p> <p>I'm not sure whether he's telling the truth.</p> <p>Perhaps...</p> <p>I doubt if he'll reach there in time.</p> <p>That can't be true.</p>

UNIT 3. THE OPERATING SYSTEMS

By the end of unit 3 will be able to:		
Reading 1	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Gaps completion • Short-answer questions
Reading 2	Target Reading Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Putting paragraphs into correct order • Gaps completion
Listening	Target Listening Skills	Scanning
	Question types	Summary completion
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • To express opinions • Comparing and contrasting
	Format	<ul style="list-style-type: none"> • Discussion • Table completion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas) • To give reasons
	Format	Individual long turn
Writing		To revise information on academic language and style
Use of English		To understand and use the vocabulary of computing and operating systems. (Key Vocabulary, Vocabulary 1, Vocabulary 2, Vocabulary*)
Scenario	Target Speaking Skills	<ul style="list-style-type: none"> • To make proposals • To express opinion • To express agreement • To express disagreement
	Format	Discussion
	Writing skills	To write a memorandum

UNIT 3. THE OPERATING SYSTEMS

UNIX is a user-friendly operating system. It just picks its friends more carefully than others.

David Wolfe



KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of computing and operating systems.

Read the text “Operating systems” and find Russian equivalents for the words and expressions in bold type.

Operating systems

An **operating system** or OS is a **software on the hard drive** that **enables** the computer hardware to communicate and operate with the computer software. Without a computer operating system, a computer and software programs would be useless.

As computers have progressed and developed, so have the operating systems. Many computer operating systems will fall into more than one of the below types.

GUI – Sort for **Graphical User Interface**, a GUI operating system contains **graphics and icons** and is **commonly navigated** by using a **computer mouse**. Examples of GUI operating systems are: System 7.x, Windows 98, Windows CE.

Multi-user – a **multi-user operating system** allows for multiple users to use the same computer at the same time and different times. See the multi-user definition for a complete definition. Examples of operating systems that would fall into this category are: Linux, Unix, Windows 2000.

Multiprocessing – an operating system capable of supporting and utilizing more than one computer processor. Examples of operating systems that would fall into this category are: Linux, Unix, Windows XP.

Multitasking – a operating system that is capable of allowing multiple software processes **to run at the same time**. Examples of operating systems that would fall into this category are: Linux, Unix, Windows 8.

Multithreading – operating systems that allow different parts of a software program **to run concurrently**. Examples of operating systems that would fall into this category are: Linux, Unix, Windows XP.

READING 1

OBJECTIVES:

I. Target Reading Skills

- to skim the text for general information

- to scan the text for relevant information
- II. Question types
 - gaps completion
 - short-answer quest

1. Skim the text quickly and fill the gaps with the appropriate names of the tasks from the list below:

- a) User interface.
- b) Device management.
- c) Processor management.
- d) Application interface.
- e) Memory storage and management.

What operating systems do

A computer's operating system is one of the most important “parts” of the computer. Almost every type of computer – including mobile telephones, video game systems, E-book readers, and DVRs – needs an operating system in order to operate properly. When one turns on a computer, the operating system tells the computer what to do by controlling the system resources such as the processor, memory, disk space, etc. The operating system allows the user to work on the computer without having to know all the details about how the hardware works.

When choosing an operating system for a business, the primary considerations should be the hardware platform used, the number of users and attendant system security requirements, the ease of administration, the adaptability toward different uses, and the different applications that will be employed.

One of the operating system's main tasks is to control the computer's resources – both the hardware and the software. The operating system allocates resources as necessary to ensure that each application receives the appropriate amount. In addition to resource allocation, operating systems provide a consistent application interface so that all applications use the hardware in the same way. This is particularly important if more than one type of computer uses the operating system or if the computer's hardware is likely to change. By having a consistent application program interface (API), software written on one computer can run on other types of computers. Developers face the challenge of keeping the operating system flexible enough to control hardware from the thousands of different computer manufacturers.

Operating systems must accomplish the following tasks:

1. _____. The operating system needs to allocate enough of the processor's time to each process and application so that they can run as efficiently as possible. This is particularly important for multitasking. When the user has multiple applications and processes running, it is up to the operating system to ensure that they have enough resources to run properly.
2. _____. The operating system needs to ensure that each process has enough memory to execute the process, while also ensuring that one process does not use the memory allocated to another process. This must also be done in the most efficient manner. A computer has four general types of memory. In order of speed, they are: high-speed cache, main memory, secondary memory, and disk storage. The operating system must balance the needs of each process with the different types of memory available.

3. _____. Most computers have additional hardware, such as printers and scanners, connected to them. These devices require drivers, or special programs that translate the electrical signals sent from the operating system or application program to the hardware device. The operating system manages the input to and output from the computer. It often assigns high-priority blocks to drivers so that the hardware can be released and available for the next use as soon as possible.
4. _____ Programmers use it to control the computer and operating system. As software developers write applications, they can insert these API functions in their programs. As the operating system encounters these API functions, it takes the desired action, so the programmer does not need to know the details of controlling the hardware.
5. _____ It sits as a layer above the operating system. It is the part of the application through which the user interacts with the application. Some operating systems, such as Microsoft Windows and Apple Macintosh, use graphical user interfaces. Other operating systems, such as Unix, use shells.

2. Answer the questions below. Write NO MORE THAN THREE WORDS for each answer.

1. Why does every type of computer need an operating system? _____
2. What is vital for multitasking? _____
3. What does additional hardware require? _____
4. What do drivers interpret? _____
5. What does a user need to interact with an application? _____

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of computing and operating systems.

1. Match the following words with their definitions.

adaptability	driver	processor	allocation	application	hardware
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1. the part of a computer (a microprocessor chip) that does most of the data processing
2. the mechanical, magnetic, electronic, and electrical components making up a computer system
3. the ability to change (or be changed) to fit changed circumstances
4. the assignment of particular areas of a magnetic disk to particular data or instructions
5. a program that determines how a computer will communicate with a peripheral device
6. a program that gives a computer instructions that provide the user with tools to accomplish a task

2. Translate the following expressions from English into Russian.

1. Main memory
2. Secondary memory
3. Disk storage
4. Hardware platform
5. To run the process

READING 2

OBJECTIVES:

- I. Target Reading Skills: to scan the text for relevant information
- II. Question types
 - putting paragraphs into correct order
 - gaps completion

1. Scan the text "History of operating systems". The paragraphs are mixed up. Put the paragraphs into the correct order.

History of operating systems

A. The earliest electronic digital computers had no operating systems. Machines of the time were so primitive that programs were often entered one bit at time on rows of **mechanical switches (plug boards)**. Programming languages were unknown (not even **assembly languages**).

B. The systems of the 1960's were also batch processing systems, but they were able to take better advantage of the computer's resources by **running several jobs at once**. So operating systems designers developed the concept of multiprogramming in which several jobs are in main memory at once; a processor is switched from job to job as needed to keep several jobs advancing while keeping the **peripheral devices** in use.

C. With the development of LSI (Large Scale Integration) **circuits**, chips, operating system entered in the system entered in the personal computer and the workstation age. Microprocessor technology evolved to the point that it become possible to build desktop computers as powerful as the mainframes of the 1970s.

D. By the early 1950's, the routine had improved somewhat with the introduction of **punch cards**. The General Motors Research Laboratories implemented the first operating systems in early 1950's for their IBM 701. The system of the 50's generally ran one job at a time. These were called **single-stream batch processing systems** because programs and data were submitted in groups or batches.

E. Operating systems have evolved through a number of distinct phases or generations which corresponds roughly to the decades.

F. Another feature present in this generation was time-sharing technique, a variant of multiprogramming technique, in which each user has an on-line (i.e., directly connected) terminal. Because the user is present and interacting with the computer, the computer system must respond quickly to user requests, otherwise user productivity could suffer. Timesharing systems were developed to multiprogram large number of simultaneous interactive users.

G. Another major feature in third-generation operating system was the technique called spooling (simultaneous peripheral operations on line). In spooling, a high-speed device like a disk interposed between a running program and a low-speed device involved with the program in input/output. Instead of writing directly to a printer, for example, outputs are written to the disk.

2. Complete the sentences below. Write NO MORE THAN THREE WORDS for each answer.

1. Operating systems _____ through a number of different stages.
2. By the early 1950`s _____ were introduced.
3. Single-stream batch processing systems could _____ at once.
4. In 19601s batch processing systems were able to _____ at a time.

5. A variant of a multiprogramming technique was _____.
6. Multiprogramming technique means that each user has _____.

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of computing and operating systems.

1. Find Russian equivalents in the text "History of operating systems" that are in bold type.
2. Complete the gaps with the appropriate words from the box.

user	microprocessor	capacity	mainframe
operating system	printer	hardware	on-line
processing	operations		

1. Tonight, I will update my _____.
2. This computer works at a much faster _____ speed than my old one.
3. A disk drive contains a _____ to handle the internal functions of the drive.
4. The way the system works will be transparent to the _____.
5. The company offered customers a single computer solution, bundling together _____ and software.
6. This _____ is compatible with most PCs.
7. If a problem does occur, a signal is automatically sent to the _____.
8. _____ instruction is a useful adjunct to the real thing.
9. Personal computers now have much increased memory _____.
10. A computer can perform millions of _____ per second.

VOCABULARY*

OBJECTIVES:

To understand and use the vocabulary of computing and operating systems.

1. Fill the gaps with the appropriate words from the box.

Quotations about Computers

Windows	mercy	binary	submarines	imagination
living	computer	functions	password	Man
rules	network	danger	windows	

1. Home computers are being called upon to perform many new _____, including the consumption of homework formerly eaten by the dog. (Doug Larson)
2. Treat your _____ like your toothbrush. Don't let anybody else use it, and get a new one every six months. (Clifford Stoll)
3. Computers are like Old Testament gods; lots of _____ and no _____. (Joseph Campbell)
4. Computing is not about computers anymore. It is about _____. (Nicholas Negroponte)
5. Computers have lots of memory but no _____. (Author Unknown)

6. _____ is still the most extraordinary computer of all. (*John F. Kennedy*)
7. I had a life once. Now I have a _____. (*Author Unknown*)
8. Yesterday it worked/Today it is not working/_____ is like that. (*Margaret Segall*)
9. The question of whether computers can think is just like the question of whether _____ can swim. (*Edsger W. Dijkstra*)
10. The real _____ is not that computers will begin to think like men, but that men will begin to think like computers. (*Sydney J. Harris*)
11. There are 10 types of people in this world: those who understand _____ and those who don't. (*Author Unknown*)
12. There are three kinds of death in this world. There's heart death, there's brain death, and there's being off the _____. (*Guy Almes*)
13. Computers are like air conditioners. They work fine until you start opening _____. (*Author Unknown*)

LISTENING

OBJECTIVES:

- I. Target Listening Skills: scanning
- II. Question types: summary completion

1. Listen to the recording “Understanding operating systems” and complete the summary. Write NO MORE THAN THREE WORDS for each answer.

Your computer speaks in 1) _____. OS lets you 2) _____ with your computer. Together, OS and 3) _____ form a complete system that determines what your computer can do. The most popular OS are 4) _____ and 5) _____. Mobile devices also run 6) _____ like Apple iOS or Google Android. They are designed for interactions 7) _____. Downloaded applications must be 8) _____ your OS.

SPEAKING

1. In pairs, discuss the following questions.

OBJECTIVES:

- I. Target Speaking Skills: expressing opinion
- II. Format: discussion

1. What OS do you use? Why do you like it?
2. What are the minuses of your OS?
3. Have you heard about computer viruses? Can you name any?
4. Why are viruses harmful for your computer?

USEFUL EXPRESSIONS

Expressing opinion	Personally, I think... Speaking for myself... Personally, I believe (feel)...
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2. Listen to the recording “Operating systems. How they compare against each other.” (0.00 – 4.35) and fill the following table.

OBJECTIVES:

- I. Target Listening Skills: scanning
- II. Question types: table completion

	WINDOWS PC	MAC	LINUX
Use	> _____%	< _____%	_____%
Pluses	any program 1) _____ on Windows, every application 2) _____, 3) _____	<ul style="list-style-type: none"> • first successful 6) _____ OS • it has 7) _____ systems • this system does not get 8) _____ 	<ul style="list-style-type: none"> • it is 13) _____ • it gets very few 14) _____ on account of its size
Minuses	one major concern is 4) _____, like trojans and 5) _____	<ul style="list-style-type: none"> • a virus 9) _____ that has spread over 10) _____ Apple computers • lastly very few programs 11) _____ on Mac • almost no 12) _____ will run on it as well 	<ul style="list-style-type: none"> • it's not a 15) _____ OS • it is what people call 16) _____ • Linux is very 17) _____ and a person would need to have a good amount of background knowledge with 18) _____ and 19) _____ development to use it effectively • a very few 20) _____ will run on it

3. In groups, compare operating systems from the exercise above.

OBJECTIVES:

- I. Target Speaking Skills: comparing and contrasting
- II. Format: discussion

CONSIDER THIS: TIPS FOR COMPARING AND CONTRASTING

Start with an Introduction Sentence. To begin your answer, you need an introduction sentence. If the question directly asks about the differences between two things (this kind of question usually begins with what and how), you can start the answer with *There are quite a few/some/a lot of/a number of differences between ...and....* If the question is a yes or no question, you need to state your opinion first. For example, you may say *Yes/No, I believe that they have a lot of similarities/differences.*

Use comparatives. Then you can list two or three details to explain more. The most common way is to use comparatives. You can either use *as...as* or *than* to compare and contrast two things. – *Sending letters is not as convenient as sending emails.*

You can also add adverbs such as *much, quite, even, a lot, far, still* and *considerably* before the *than* structure to strength the comparative. – *A house has much more space than an apartment.*

Use expressions. Compare and contrast expressions are great tools to structure your answer as well. Here are several useful expressions to contrast two things!

- *Unlike*
- *Different from*
- *By/in contrast*
- *Compared to*
- *On the contrary*

Different from women, men are more rational when purchasing a product.

If you want to describe the similarities between two things, you can use the following expressions.

- *Just like*
- *Likewise*
- *Much the same*
- *Similar to*
- *Similarly*

Just like the elders, young people also like listening to news radios because they want to know more about the current world.

Pay Attention to the Tense. If you are asked to compare and contrast the past and the present, always pay attention to the tense. Though the rules are easy to follow, some students forget to use the correct tense when they feel stressed. – *Decades ago, only a small number of people had private cars in my town. However, the increasing number of cars causes a lot of traffic and environmental problems today.*

SPEAKING 2

OBJECTIVES:

I. Target Speaking Skills

- to sustain a long turn without interlocutor support
- to manage language (organization and expression of ideas)
- giving reasons

II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue. Use "Useful expressions" for the answer.

Tell about three things that you would change in Windows X

You should say:

- Thing №1 with your reasoning.
- Thing №2 with your reasoning.
- Thing №3 with your reasoning.

USEFUL EXPRESSIONS. LINKING WORDS

Giving reasons	<p>Firstly...</p> <p>Secondly....</p> <p>One reason is....</p> <p>Another is....</p> <p>To start with....</p> <p>Added to that....</p> <p>For one thing....</p>
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WRITING. ACADEMIC LANGUAGE

OBJECTIVES:

To revise information on academic language and style.

Work in a group; remember the features of formal and informal styles.

CONSIDER THIS: ACADEMIC STYLE

Academic style, in addition to being formal, includes being precise. The more clearly your vocabulary expresses what you mean, the better the chance your reader will get your points. It is natural to have a larger reading vocabulary than an active writing vocabulary. As you edit your first draft, look for places where your language is weak or imprecise. You can strengthen these sentences by substituting stronger, more descriptive words, or by adding explanations and examples

You may find as your research progresses that you still believe your original thesis, but that your argument is not quite as black and white as you first thought. You might have found information that weakens your claim, so you'd like to take a less absolute position on your argument. Use hedging to refine the shape of your argument:

- Use an adverb or adverbial expression to soften the impact of what you are saying and make it less absolute.
- Use modal verbs to soften your message, e.g. can, could, may, might, ought to, should etc.
- Use quantifiers.
- Use qualifying phrases.
- Use qualifying conditionals.

NB: Phrasal verbs and idioms are good for conversational language, and might not be appropriate in an academic context.

HOME TASK:

Work at the narrative style and vocabulary of your draft. Make it more academic.

SCENARIO

OBJECTIVES:

- I. Target Speaking Skills
 - making proposals
 - expressing opinion
 - expressing agreement
 - expressing disagreement
- II. Format: discussion

1. In groups, discuss the following statement about HarrisData Company.

HarrisData doesn't spend countless hours playing ping pong and riding scooters around the office. Instead, we spend our time collaborating, constructing and developing software for our family of customers.

2. In groups, read company's profile and answer the questions below.

1. Is HD a successful company?
2. What does this company deal with?
3. Do they try to perform excellent customer service?
4. Does HD think about its reputation?
5. Does the company have any partners?



Company profile

For over three decades, **HarrisData** has provided mid-market companies essential applications to run their business.

Unlike other software development companies, HarrisData provides products and services that are so good, that it has been able to sustain a ninety-five percent retention rate of its clients.

By realistically addressing Customer business requirements, HarrisData is the only Software Development Company that provides an "Omni-License" ensuring that the client will receive services that are unavailable from any other vendor. The HarrisData Omni-License provides a 99-year license that includes 5 years of "unlimited" quality support. Its applications include upgrades and version changes, unlimited user deployment, as well as the right to the source code.

HarrisData also assures its customers that they have appropriate software transfer rights, unlimited document duplication capability, and most importantly, **NO HIDDEN COSTS**.

HarrisData's suite of applications runs on IBM's iSeries platform. It is deployed on a browser based state-of-the-art configuration that allows users to "drill down" to any level of their business management processes to retrieve information that is not easily obtained in competitor's systems. The strength of this platform helps drive simplification of processes, reduction in operational costs, as well the elimination of unnecessary and redundant systems

HarrisData has been an IBM Business Partner with over 40 years of successful software implementations on the IBM platform. HarrisData teams with IBM and the IBM network to provide you with the best and most adaptable technology for your business.

3. You work for HarrisData. You received an e-mail with a notification from a company PR Director. Read it.

From: Lisa Barret
To: HD line managers
Subject: company development
Dear colleagues, Due to our company`s inevitable expansion to the Indian and Asian markets an urgent meeting will take place on Monday. Every line manager must be ready with effective business propositions.

4. You discussed the notification with your colleagues. Read what your colleagues think about it. In groups, discuss the following statements.

Opinion 1	Asia comprises largely of developing nations. So, people there have low salaries compared to western countries. they upload a large number of pirated torrents.
Opinion 2	There is piracy in India. if something costs just \$100 in US, the same thing costs nearly Rs. 4,500 in India. It is too pricy. If we price our products according to the Indian and Asian markets, they can completely sweep our branches. The prime example is the car makers in India like Suzuki, who have priced their products so low, that they are having an astonishing 54% market share in the Indian Car market.

Opinion 3	An average Indian or Asian lower middle-class family cannot afford to buy a computer. Most of the money they earn they spent on food, clothing and shelter, whatever savings they do are spent on doctors and medicine. Therefore, when they manage to buy a computer spending about 20 to 25 thousand rupees it is very difficult for them to spend another 5 to 7 thousand rupees to buy our software. So, if we enter these markets, we should bring down our prices drastically. We can certainly do that and it is going to be a good business sense. HD is going to earn much more than what we are doing now.
Opinion 4	Most people in Asia are still using computers as a toy/entertainment such as Facebook, chatting, playing games etc. and not for serious business.
Opinion 5	The piracy is so widespread there that they don't even know that they should pay for software. They take software for granted as we take hardware (electronics, pc's) for granted in here.
Opinion 6	In my views, there are mainly two reasons. One is that the legal system there is not very effective. Those who produce pirated Windows could often escape punishment. So, to them producing pirated software is a profitable and low risk business. Moreover, the high price encourages more people to buy pirated windows. It's a vicious circle.

5. Think if you are for or against this expansion. You have to prepare a memorandum for your boss and colleagues.

CONSIDER THIS: MEMO

What is a memorandum? A memorandum or a memo can be simply defined as a short official note or message that a person in an organization or company sends to another person or group of people within the same organization or company.

A memorandum is popularly known as ‘memo’. The singular form is ‘memorandum’. The plural for memorandum can be ‘memoranda’, ‘memorandums’ or even ‘memos’.

For example, in a company, you can have a memo from your managing director to all heads of the department within the same company.

How to write a memo (memorandum)? Writing a memo is quite simple and straightforward because memos are generally very short. In writing your memo, your degree of formality will largely depend on the recipient or recipients of the memo.

The first section of the memo, the heading section has four main components. These are:

- 1) The ‘To’ field. Here, the recipients’ names and job titles must appear.
- 2) The ‘From’ field. In this field, the sender’s name and job title appears.
- 3) The ‘Date’ field.
- 4) The ‘Subject’ field. The subject of the memo should be a short sentence that carries the entire purpose of the memo.

The second step is the opening paragraph. This first paragraph should clearly state the purpose of the memo and a detailed but short overview of what you are going to talk about in the body of the memo.

The third step is to talk about the issue. Go straight to the point. Memos are meant to be short and concise, yet informative.

Your **conclusion** should also be short and straight to the point. You should include anything that you think the recipient(s) need to do before summarizing all that you have said.

Sign your memo. You can append your signature to your memo. This is however optional in some businesses. But I strongly recommend that you do this.

Tips for writing a memo:

- 1) Always use clear and concise language in writing your memo.
- 2) Memos are generally written with single line spaces.
- 3) In outlining your main points in the memo, you should use bullets or headings.
- 4) Make sure that you proofread your memo before sending it. It is very important that you do this in order to get rid of all mistakes such as grammatical errors.

The purpose of a memo. The following are some of the reasons why a person or group of people will write a memo:

- 1) To convey information
- 2) To remind someone or a group of people about something important
- 3) To make a request
- 4) To make a suggestion
- 5) To present an informal report
- 6) To give a response to a question

NB: a memo from a superior worker such as a manager to a subordinate staff usually begins with FROM in the header section whereas a memo from a subordinate worker to a superior officer normally begins with TO in the header section.

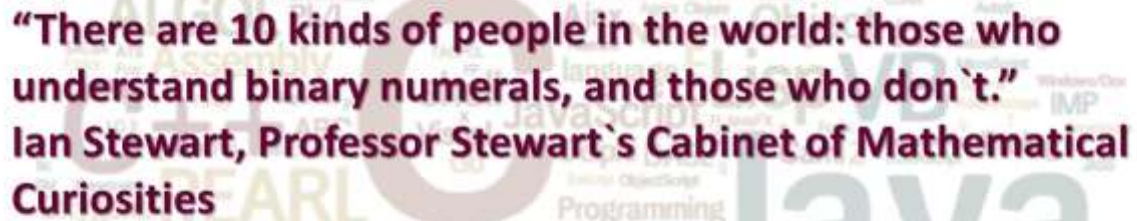
Examples of memos from superior officer to subordinate officer and vice versa:

A MEMO FROM A SUPERIOR OFFICER TO A SUBORDINATE OFFICER	A MEMO FROM A SUBORDINATE STAFF TO A SUPERIOR STAFF
FROM: Writer's name plus title.	TO: Recipient's name plus title.
TO: Recipient's name plus title.	FROM: Writer's name plus title.
DATE: The day the memo was written.	DATE: The day the memo was written.
SUBJECT: Subject of the memo.	SUBJECT: Subject of the memo.

UNIT 4. PROGRAM DESIGN AND COMPUTER LANGUAGES

By the end of unit 4 will be able to:		
Reading 1	Target Reading Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Identification of writer`s idea • True/False/Not given
Reading 2	Target Reading Skills	Scanning
	Question types	Table completion
Listening	Target Listening Skills	Scanning
	Question types	Answering questions
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • To solve problems • To code • To decode
	Format	Discussion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas) • To persuade someone
	Format	Individual long turn
Writing		To study quotations and paraphrasing
Use of English		To understand and use the vocabulary of program design and computer languages. (Key Vocabulary, Vocabulary 1, Vocabulary 2, Vocabulary *)
Scenario	Target Speaking Skills	To express opinion
	Format	Discussion

UNIT 4. PROGRAM DESIGN AND COMPUTER LANGUAGES



“There are 10 kinds of people in the world: those who understand binary numerals, and those who don’t.”
Ian Stewart, Professor Stewart’s Cabinet of Mathematical Curiosities

KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of program design and computer languages.

Read the text and find Russian equivalents for the words and expressions in bold type.

Important traits for a programming language

The following traits are important for constituting a programming language:

- **Function:** a programming language is a language used to write computer programs, which involve a computer performing some kind of computation or **algorithm** and possibly control external devices such as printers, robots, and so on.
- **Target:** programming languages differ from natural languages in that natural languages are only used for **interaction** between people, while programming languages also allow humans to communicate instructions to machines. Some programming languages are used by one device to control another. For example, PostScript programs are frequently created by another program to control a computer printer or display.
- **Constructs:** programming languages may contain **constructs** for defining and manipulating data structures or controlling the flow of **execution**.
- **Expressive power:** the theory of **computation** classifies languages by the computations they are capable of expressing. All **Turing complete languages** can implement the same **set of algorithms**. ANSI/ISO SQL and Charity are examples of languages that are not Turing complete yet often called programming languages.

Some authors restrict the term "programming language" to those languages that can express all possible algorithms; sometimes the term "computer language" is used for more limited **artificial languages**.

Non-computational languages, such as **markup languages** like HTML or formal grammars like BNF, are usually not considered programming languages. A programming language (which may or may not be Turing complete) **may be embedded** in these non-computational **(host) languages**.

READING 1

OBJECTIVES:

- I. Target Reading Skills: to scan the text for key information
- II. Question types
 - identification of writer`s idea
 - true/ false/ not given questions

1. In pairs, discuss these questions. Use “Useful expressions” for the discussion. Scan the text “Programming languages” and check your answers.

OBJECTIVES:

- I. Target speaking skills
 - to express opinions
 - to predict answers
- II. Format: discussion
 1. What is a computer language?
 2. How does a computer language differ from natural language?
 3. Does a universal computer language exist?
 4. Are there any trends in the development of programming languages?

USEFUL EXPRESSIONS

Expressing opinion	(I form / adopt an opinion.) As far as I am concerned, ... As far as I understand/ can see, ...
Making predictions	I reckon I will ... It is commonly believed ... It is doubtful that... It is likely that... It is possible that...

Programming languages

Programming languages (sometimes also known as computer languages) differ from most other forms of human expression in that they require a greater degree of precision and completeness. When using a natural language to communicate with other people, human authors and speakers can be ambiguous and make small errors, and still expect their intent to be understood. However, figuratively speaking, computers "do exactly what they are told to do", and cannot "understand" what code the programmer intended to write. The combination of the language definition, a program, and the program's inputs must fully specify the external behavior that occurs when the program is executed, within the domain of control of that program.

Programs for a computer might be executed in a batch process without human interaction, or a user might type commands in an interactive session of an interpreter. In this case the "commands" are simply programs, whose execution is chained together. When a language is used to give commands to a software application (such as a shell) it is called a scripting language.

Many languages have been designed from scratch, altered to meet new needs, combined with other languages, and eventually fallen into disuse. Although there have been attempts to design one "universal" computer language that serves all purposes, all of them have failed to be generally accepted as filling this role. The need for diverse computer languages arises from the diversity of contexts in which languages are used:

- Programs range from tiny scripts written by individual hobbyists to huge systems written by hundreds of programmers.
- Programmers range in expertise from novices who need simplicity above all else, to experts who may be comfortable with considerable complexity.
- Programs must balance speed, size, and simplicity on systems ranging from microcontrollers to supercomputers.
- Programs may be written once and not change for generations, or they may undergo nearly constant modification.
- Finally, programmers may simply differ in their tastes: they may be accustomed to discussing problems and expressing them in a particular language.

One common trend in the development of programming languages has been to add more ability to solve problems using a higher level of abstraction. The earliest programming languages were tied very closely to the underlying hardware of the computer. As new programming languages have developed, features have been added that let programmers express ideas that are more remote from simple translation into underlying hardware instructions. Because programmers are less tied to the complexity of the computer, their programs can do more computing with less effort from the programmer. This lets them write more functionality per time unit.

2. Scan the text “Programming languages”. Do the following statements agree with the information given in Reading Passage? write TRUE if the statement agrees with the information FALSE if the statement contradicts the information NOT GIVEN if there is no information on this.

1. Programming languages are similar to all the means of communication.
2. Communicating a natural language, speakers do not require a high degree of precision and completeness.
3. Some computers can understand, what code a programmer intended to write.
4. All computer programs can be executed without human interaction.
5. Not all the computer languages can be combined with other languages.
6. One common trend in the development of programming languages has been to add the diversity of context in which they are used.

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of program design and computer languages.

1. Define the following expressions.

1. Batch processes
2. Human interaction
3. Software applications
4. A scripting language
5. Individual hobbyists
6. To be designed from scratch

2. Complete the gaps with the appropriate words from the box.

ambiguous	software	functionality	hardware
supercomputer	networks	programmer	environment

1. Unfortunately, the instructions were _____ and we didn't know which part of the program to run.
2. Applications here focus on using gigabit _____ to combine the processing power of multiple _____ for climate and chemical reaction modeling.
3. The module provides the _____ needed to run a Unix client with a Unix server in a local network _____.
4. Alternatively, all three persons, _____, database developer and user, might be considered to be joint authors.

5. It may also be superseded because the is replaced with _____ that is not compatible with the _____.

READING 2

OBJECTIVES:

- I. Target Reading Skills: reading for specific information.
- II. Question types: table completion.

1. Scan the text “Early developments” and fill the table below with the relevant information.

Early developments

The first programming languages predate the modern computer. The 19th century had "programmable" looms and player piano scrolls which implemented what are today recognized as examples of domain-specific programming languages. By the beginning of the twentieth century, punch cards encoded data and directed mechanical processing. In the 1930s and 1940s, the formalisms of Alonzo Church's lambda calculus and Alan Turing's Turing machines provided mathematical abstractions for expressing algorithms; the lambda calculus remains influential in language design.

In the 1940s, the first electrically powered digital computers were created. The first high-level programming language to be designed for a computer was Plankalkül, developed for the German Z3 by Konrad Zuse between 1943 and 1945.

The computers of the early 1950s, notably the UNIVAC I and the IBM 701 used machine language programs. First generation machine language programming was quickly superseded by a second generation of programming languages known as Assembly languages. Later in the 1950s, assembly language programming, which had evolved to include the use of macro instructions, was followed by the development of three higher-level programming languages: FORTRAN, LISP, and COBOL. Updated versions of all of these are still in general use, and each has strongly influenced the development of later languages. At the end of the 1950s, the language formalized as Algol 60 was introduced, and most later programming languages are, in many respects, descendants of Algol. The format and use of the early programming languages was heavily influenced by the constraints of the interface.

The period from the 1960s to the late 1970s brought the development of the major language paradigms now in use.

Date/ Period	Development	Developer
19th century		
	Punch cards	
		Alonzo Church Alan Turing
1940`s		
1943-1945		
	UNIVAC I IBM 701 ...	
1960-1970		

2. In pairs, use information from the table above and tell your partner about “Early developments”.

USEFUL EXPRESSIONS

At the beginning (of the article) ...

... the text says that / tells about / describes / characterizes / gives statistics (examples)
 / cites = quotes / explains / analyses / underlines / comments on / reveals / touches
 upon ...
 Then / Next ... / Further on ...
 At the end ...

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of program design and computer languages.

1. Match the following terms with their definitions.

- | | |
|-----------------------------|--|
| 1. Loom | A. a piece of stiff paper that can be used to contain digital data represented by the presence or absence of holes in predefined positions |
| 2. Punch card | B. in mathematics and computer science, it is an unambiguous specification of how to solve a class of problems |
| 3. Mathematical abstraction | C. a frame or machine of wood or other material, in which a weaver forms cloth out of thread; a machine for interweaving yarn or threads into a fabric, as in knitting or lace making |
| 4. Algorithm | D. a formal system in mathematical logic for expressing computation based on function abstraction and application using variable binding and substitution |
| 5. Lambda calculus | E. a process of extracting the underlying essence of a mathematical concept, removing any dependence on real world objects with which it might originally have been connected, and generalizing it so that it has wider applications or matching among other abstract descriptions of equivalent phenomena |
| 6. Turing machine | F. a mathematical model of computation that defines an abstract machine, which manipulates symbols on a strip of tape according to a table of rules |

VOCABULARY*

OBJECTIVES:

To understand and use the vocabulary of program design and computer languages.

1. Study the following information.

Programming is the process of writing a program using a computer language/ A program is a set of instructions which a computer uses to do a specific task.

The only language a PC can directly execute is machine code, which consists of 1s and 0s. This language is difficult to write, so we use symbolic languages that are easier to understand. For example, assembly languages use abbreviations such as ADD, SUB, MPY to represent instructions. The program is then translated into machine code by software called an assembler.

Machine code and assembly languages are called low-level languages because they are closer to the hardware.

High-level languages, however, are closer to human languages; they use forms resembling English, which makes programming easier. The program is translated into machine code by software called a compiler. Some examples are:

- FORTRAN – used for scientific and mathematical applications
- COBOL – popular for business applications
- BASIC – used as a teaching language; Visual BASIC is now used to create Windows applications
- C – used to write system software, graphics and commercial programs
- Java – designed to run on the Web; Java applets are small programs that run automatically on web pages and let you watch animated characters, and play music and games

The languages used to create Web documents are called markup languages; they use instructions (markups) to format and link text files. Examples are:

- HTML – the code used to create Web pages
- VoiceXML – it makes Internet content accessible via speech recognition and phone. Instead of using a web browser on a PC, you use a telephone to access voice-equipped websites. You just dial the phone number of the website and then give spoken instructions, commands, and get the required information.

2. Match the terms with their definitions.

- | | |
|------------------------|--|
| 1. programming | a. basic language which consists of binary codes |
| 2. machine code | b. programming language such as C, Java or Visual BASIC |
| 3. assembly language | c. writing computer programs |
| 4. high-level language | d. low-level language translated into machine code by an assembler |
| 5. Java applet | e. software which converts a source program into machine code |
| 6. compiler | f. language used to create and format documents for the Web |
| 7. markup language | g. small self-contained program written in Java |

3. Complete this article about the VoiceXML application language with the words from the box.

HTML	dial	VoiceXML	commands	speech recognition
------	------	----------	----------	--------------------

Internet: Voice recognition takes off

You don't need a sophisticated cell phone to surf the Internet when you're on the road – just your own voice. That's the idea behind a new breed of voice service that is popping up all over the place. Subscribers 1. _____ a toll-free phone number and use spoken 2. _____ to listen to anything from weather conditions to stock quotes, or flight information to new stories. Half a dozen of these services – such as Audiopoint, BeVocal and TelSurf Networks – have already gone live or are testing their systems.

These launches are all happening because two crucial technologies have come of age. 3. _____ software from companies such as Lucent, Nuance and Speechworks can now understand a wide range of accents and diction without having to be trained to a specific voice. And computer languages such as VoiceXML make it as easy to write voice services as 4. _____ has made it to write web pages. With 5. _____, the human voice becomes a substitute for a computer mouse and the spoken command for a click. It doesn't, however, call up conventional web page, but content which is specially composed for a telephone: sound clips, numbers, music, spoken texts.

The Economist

LISTENING

OBJECTIVES:

- I. Target Listening Skills: scanning
- II. Question types: answering questions

1. In pairs, answer the following questions.

OBJECTIVES:

- I. Target Speaking Skills
 - to express opinions
 - to make predictions
- II. Format: discussion

1. What is the only thing a computer understands?

2. What is a source code?
3. How can a source code be written?
4. What is a compiling process?
5. What is revision control?
6. What do “bugs” mean?
7. Why does software have updates and new versions?
8. What is “proprietary”?
9. What is “open source”?

2. Listen to/ watch the video “Listening. Unit 4” and check your answers to the questions above.

SPEAKING 1

OBJECTIVES:

- I. Target Speaking Skills
 - to solve problems
 - to code
 - to decode
- II. Format: discussion

1. Read the guide to codes and discuss it with your group until you are sure you understand how the two codes work.

Here are two different ways to code the same message.

- Real message: **CARS ARE DESIGNED BY COMPUTER**
- Coded message using method 1: **EDE BYC UTE SAR OMP NED CAR RXY SIG**
- Coded message using method 2: **XVMNV MZYZN DBIZY WTXJH KPOZM**

How do they work?

Method 1. Real message: CARS ARE DESIGNED BY COMPUTER

CAR	SAR	EDE	SIG	NED	BYC	OMP	UTE	RXY
1	2	3	4	5	6	7	8	9
3	6	8	2	7	5	1	9	4
EDE	BYC	UTE	SAR	OMP	NED	CAR	RXY	SIG

Key: 123456789 (real message) → 368275194 (coded message)

Procedure:

- 1) Divide the message into groups of three letters.
- 2) Add ‘dummy’ letters (e.g. X, Y or Z) at the end to complete a group/
- 3) Change the order of the groups, using the key.

Method 2. Real message: CARS ARE DESIGNED BY COMPUTER

CARSA	REDES	IGNED	BYCOM	PUTER
XVMNV	MZYZN	DBIZY	WTXJH	KPOZM

Key: Move the alphabet forward by five characters:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z (real message)
V W X Y Z A B C D E F G H I J K L M N O P Q R S T U (coded message)

Procedure:

- 1) Divide the message into groups of five letters.
- 2) If necessary add 'dummy' letters (e.g. X, Y or Z) at the end to complete a group (not needed here).
- 3) Change each letter to another letter, using the key.

2. In groups, solve these coded messages.

1 IDE ERA PUT DDE NXZ SIG COM
2 DMA URI ERA NGZ ACT PUT COM IDE NUF
3 FRPSX WHUQX PHULF DOFRQ WUROO HGZAX
4 EQORW VGTKP VGITC VGFOC PWHCE VWTKP IZAZB

3. With your group, devise a new code system. Write your system out clearly like the ones. Make sure you write out the procedure and the key.

4. Write a short sentence (approximately 20-25 letters) in your new code. Remember to add 'dummy' letters if the last group of letters is too short. Give your coded message to one of the other groups, and time how long they take to 'crack' the code.

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
 - to persuade someone
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue. Use "Useful expressions" for the answer.

You are an unemployed programmer. You have to persuade an interviewer that you are a right candidate for Google.

You should say:

- Tell about your education and qualifications.
- Tell about your personal qualities.
- Tell about your achievements.

USEFUL EXPRESSIONS. LINKING WORDS

Persuasive expressions	<p>It's obviously that ...</p> <p>I am absolutely sure that...</p> <p>It would be pity if ...</p> <p>You must agree that ...</p> <p>There is no doubt that ...</p> <p>I feel that ...</p> <p>I believe that ...</p> <p>Another reason why,</p>
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WRITING. AVOIDING PLAGIARISM, IN-TEXT CITATIONS

OBJECTIVES:

To study quotations and paraphrasing.

CONSIDER THIS: PLAGIARISM

Plagiarism /'pleɪdʒə,rɪzəm/ – 1) (uncountable) the process of taking another person's work, ideas, or words, and using them as if they were your own. Someone who does this is called plagiarist. 2) (countable) an idea, story, words, or music that you use in your work without explaining that you took them from someone else. (Macmillan English Dictionary)

You can see that plagiarism isn't easy to define precisely. Furthermore, different cultures have different definitions of what constitutes plagiarism in an academic setting.

Certainly, buying a research paper online and putting your name on it and pretending you wrote it is not honest. However, what if you read a well-known idea from a noted expert, but had thought of the same idea yourself before you read it? Should you mention the expert? Is it plagiarism to use one paragraph from a newspaper or online article? One sentence? A few words?

You are allowed to use the words and ideas of others in your work as long as you give credit to the original source by saying who the author was and where you found the information.

If you are writing in English, it is important to give credit in these cases:

- **When you quote someone directly**, even if it is just a special phrase.
- **When you use an idea that you didn't know before you did your research**, especially if it is one that an average person would not have known without doing research (e.g. some statistics).

- When you want to offer support for surprising information. Showing that your information came from a respected source helps you make readers believe that what you are saying is true or at least possible.

You don't need to give credit:

- When you have expressed your own idea in your own way, in our own words.
- For information that is considered "common knowledge". In many universities, something is considered "common knowledge" if it is easily available from at least five sources (e.g. capital cities).

NB: It is not easy even for professional writers, to always know what should be cited. It is better to ask your instructor 20 questions about 20 sentences than make one mistake!

CONSIDER THIS: QUOTING AND PARAPHRASING

There are two ways to use ideas from other sources and not to plagiarize them:

1. **Quoting:** Using the exact words of another person by enclosing them in quotation marks. – *"By failing to prepare, you are preparing to fail". (Benjamin Franklin)*

NB: There are two types of quoting. A **dropped quote** is an entire quoted sentence put between original ones with no words or phrase to link them together. An **integrated quote** is blended smoothly in your own writing.

2. **Paraphrasing:** Saying the same idea in another way. – *Benjamin Franklin urged not to neglect preparation in order to do well.*

NB: When you paraphrase, you don't need to give credit if the idea is common knowledge, but you do still need to give credit if it isn't.

NB: To paraphrase effectively you need to understand the main idea of a phrase.

NB: Both quoting and paraphrasing take skill. All writers, regardless of their age, experience level, or ability, work hard to quote and paraphrase effectively.

Try to paraphrase the following statements:

1. Success is the ability to go from failure to failure without losing your enthusiasm. (Sir Winston Churchill)
2. The biggest risk is not taking any risk. In a world that's changing really quickly, the only strategy that is guaranteed to fail is not taking risks. (Mark E. Zuckerberg)
3. Success doesn't come to you... you go to it. (Marva D. Collins)
4. Everything takes longer than you think. (Murphy's law)
5. To be, or not to be: that is the question. (William Shakespeare)
6. Knowledge is power. (Sir Francis Bacon)
7. Never make fun of someone who speaks broken English. It means they know another language. (H. Jackson Brown, Jr.)
8. Teachers open the door, but you must enter by yourself. (Chinese proverb)

HOME TASK:

Add some quotations/paraphrasing to support your research arguments, be meticulous about sources and references. Get your essay ready for editing.

SCENARIO

OBJECTIVES:

- I. Target Speaking Skills: to express opinion
- II. Format: discussion

1. In pairs, answer the questions.

- 1. What do you know about the Boeing company?
- 2. Read the company profile below and tell if you would like to work for the following company? Why?

Company profile



Boeing is the world's largest aerospace company and leading manufacturer of commercial jetliners, defense, space and security systems, and service provider of aftermarket support. As America's biggest manufacturing exporter, the company supports airlines and U.S. and allied government customers in more than 150 countries. Boeing products and tailored services include commercial and military aircraft, satellites, weapons, electronic and defense systems, launch systems, advanced information and communication systems, and performance-based logistics and training.

2. Executive Council of the company got a message from Dennis A. Muilenburg (Chairman, President, CEO). Read the message. In groups, discuss knowledge and qualifications a potential candidate must have.

To: executive_council@gmail.com

From: denmuilenberg@gmail.com

Subject: new programmers

Dear colleagues,

As you know the number of GPS devices increases globally, so does our dependence on GPS, but satellites wear out. So, we are bringing innovations from our airplane assembly lines to GPS production. Our company is helping to make GPS service available wherever, whenever it is needed.

That means that we must hire a number of talented and qualified computer programmers who are able to work with the most popular computer languages. Be very quick with recruiting matters.

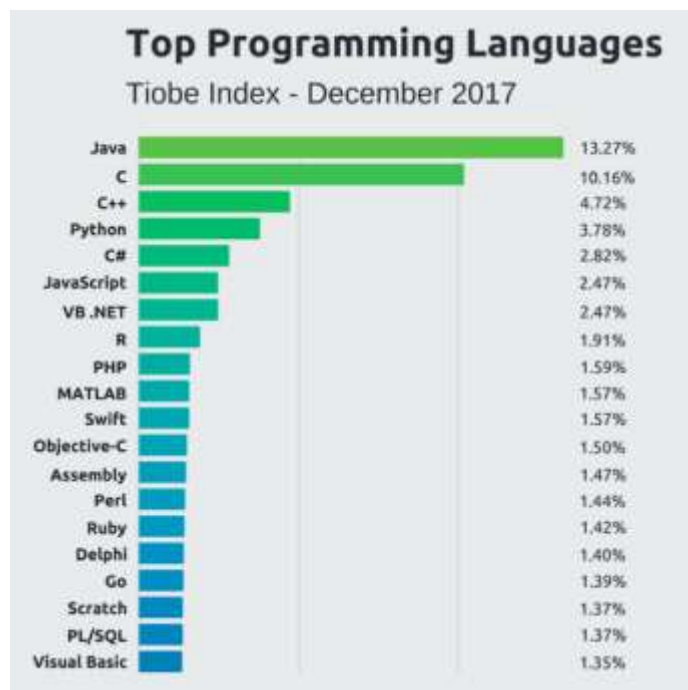
Looking forward to receiving new candidates' profiles soon.

Best regards,

Dennis A. Muilenberg.

3. In groups, study the following table. What are the most popular computer languages nowadays? Why are these languages so important and influential? What are they for? (Search information about them on the Internet).

**Tiobe (the software quality company) has generated an index of the most popular programming languages. They update this list monthly, pulling in data from hundreds of sources around the world.*



4. You are Executive Council representatives. In groups, make a portrait of an ideal candidate for the following position.

USEFUL EXPRESSIONS

Expressing opinion	<p>I am sure/certain/convinced that...</p> <p>I hold the opinion that ...</p> <p>I'd say that...</p>
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UNIT 5. THE INTERNET

By the end of unit 5 will be able to:		
Reading 1	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	Filling gaps
Reading 2	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Choosing a heading • Answering questions
Listening	Target Listening Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Answering questions • Answering multiple-choice questions
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • Problem solving • Giving instructions
	Format	Dialog
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas)
	Format	Individual long turn
Writing		To edit tips
Use of English		To understand and use the vocabulary of the Internet.
Scenario	Target Speaking Skills	<ul style="list-style-type: none"> • To express opinion • To give instructions
	Format	<ul style="list-style-type: none"> • Discussion • Individual long turn

UNIT 5. THE INTERNET



KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of the Internet.

Read the text and find Russian equivalents for the words and expressions in bold type.

The Internet has revolutionized the computer and communications world like nothing before. The invention of the telegraph, telephone, radio, and computer **set the stage** for this **unprecedented integration of capabilities**. The Internet is at once **a world-wide broadcasting capability**, **a mechanism for information dissemination**, and **a medium for collaboration and interaction between individuals and their computers without regard for geographic location**. The Internet represents one of the most successful examples of **the benefits of sustained investment** and commitment to research and **development of information infrastructure**. Beginning with the early research in **packet switching**, the government, industry and academia have been partners in evolving and deploying this exciting new technology.

The Internet today is **a widespread information infrastructure**, the initial prototype of what is often called the National (or Global or Galactic) Information Infrastructure. Its history is complex and involves many aspects – technological, organizational, and community. And its influence reaches not only to the technical fields of computer communications but throughout society as we move toward increasing use of **online tools to accomplish electronic commerce, information acquisition, and community operations**.

READING 1

OBJECTIVES:

- I. Target Reading Skills
 - to skim the text
 - to scan the text for relevant information
- II. Question types: filling gaps

1. Skim the text “What is the Internet?”. What do the following dates in the article refer to?

1. October 1969
2. January 1983
3. 1985
4. 1991

2. Read the text “What is the Internet?” and fill the gaps with the appropriate sentences from the box.

What is the Internet?

The Internet is a global network of computers that communicate via TCP/IP protocol. 1) _____ The Internet is the basis for the World Wide Web, Email, P2P applications, VOIP, and hundreds of other uses. Although the basic data being transmitted in each of these cases may be virtually identical, each case requires special treatment of the data in regard to data integrity, speed, redundancy, and error correction. The success of the Internet is therefore attributed to its flexibility in providing a platform for the differing data protocols and their individual needs.

The roots of today's Internet date back to October 1969, when the US Defence Department's ARPAnet first came online. 2) _____ This was in stark contrast to the more common circuit-switching methods that demanded a fixed, dedicated path between two communicating computers. However, the TCP/IP protocol was not implemented until January 1983, when the United States' National Science Foundation established their university network. With the introduction of domain names in 1985 and Tim Berners-Lee's invention of the World Wide Web in 1991, the Internet gained public interest. 3) _____ Additionally, individual users could be given non-administrative accounts on web servers to build your own website which could be globally accessible.

4) _____ Browsing the Web is done via a web browser such as Firefox or Internet Explorer. Email is commonly accessed in one of four ways: POP3, IMAP, hosted exchange provider, or web-based. POP3 and IMAP both require dedicated Email clients, such as Thunderbird or Outlook. Exchange is commonly accessed via Microsoft Outlook, additionally there are third party implementations of the application. Web-based Email is accessed via the World Wide Web, and thus requires nothing more than a web browser. In order for one to access the Internet, he must connect via a service (or access) provider, called an ISP. While most of the developed world can access the Internet via high-speed broadband connections, many places rely upon comparatively slow dial-up solutions. 5) _____.

- 1) Today, the most popular uses of the Internet are browsing the World Wide Web and Email communication.
- 2) Also, many new cellular phones come equipped with a web browser and modem interface, and many cellular carriers now provide Internet access.
- 3) While the uncapitalized term "internet" refers to bridged networks in general, the capitalized term "Internet" refers to the global network of networks that is publicly accessible and administratively unmoderated.
- 4) While this was not the first long-range computer network, it was the first to use packet-switching methods to ensure data integrity, optimized bandwidth utilization, and reliability.
- 5) The World Wide Web made possible the publication of documents that could be accessed (and inter-linked) in a simple manner with no need for opening an account on each machine accessed.

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of the Internet.

1. Find Russian equivalents for the following words and expressions.

- 1) communicate via TCP/IP protocol
- 2) data integrity
- 3) redundancy
- 4) circuit-switching methods
- 5) introduction of domain names
- 6) be globally accessible
- 7) via a web browser
- 8) high-speed broadband connection
- 9) dial-up
- 10) cellular carriers now provide Internet access
- 11) administratively unmoderated

2. What do the following abbreviations stand for?

- 1) TCP
- 2) IP
- 3) P2P
- 4) VOIP
- 5) ARPAnet
- 6) POP3
- 7) IMAP
- 8) ISP

READING 2

OBJECTIVES:

- I. Target Reading Skills
 - to skim the text for general information
 - to scan the text for relevant information
- II. Question types
 - choosing a heading
 - answering questions

1. Skim the text. Choose the correct heading for paragraphs A-D from the list of headings below.

1. Breaking down 'Identity Theft'
2. What is 'Identity Theft'
3. Identify Theft Protection
4. High-Tech Identity Theft

Identity Theft

A. _____

Identity theft is the crime of obtaining the personal or financial information of another person for the sole purpose of assuming that person's name or identity to make transactions or purchases. Identity theft is committed in many different ways. Some identity thieves sift through trash bins looking for bank account and credit card statements; other more high-tech methods involve accessing corporate databases to steal lists of customer information. Once they have the information they are looking for, identity thieves can ruin a person's credit rating and the standing of other personal information.

B. _____

Types of identity theft include criminal, medical, financial and child identity theft. In criminal identity theft, a criminal misrepresents himself as another person during arrest to try to avoid a summons, prevent the discovery of a warrant issued in his real name or avoid an arrest or conviction record. In medical identity theft, someone identifies himself as another person to obtain free medical care. In financial identity theft, someone uses another person's identity or information to obtain credit, goods, services or benefits. This is the most common form of identity theft.

C. _____

Identity thieves increasingly use computer technology to obtain other people's personal information for identity fraud. To find such information, they may search the hard drives of stolen or discarded computers; hack into computers or computer networks; access computer-based public records; use information gathering malware to infect computers; browse social networking sites; or use deceptive emails or text messages.

D. _____

Many types of identity theft can be prevented. One way is to continually check the accuracy of personal documents and promptly deal with any discrepancies. Lots of businesses provide products that help people avoid and mitigate the effects of identity theft. Typically, such services provide information helping people to safeguard their personal information; monitor public records, as well as private records such as credit reports, to alert their clients of certain transactions and status changes; and provide assistance to victims to help them resolve problems associated with identity theft. In addition, some government agencies and nonprofit organizations provide similar assistance, typically with websites that have information and tools to help people avoid, remedy and report incidents of identity theft.

2. Read the text “Identity theft” and answer the following questions.

1. What is identity theft?
2. How can identity theft be committed?
3. What do types of identity theft include?
4. Can identity theft be prevented?

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of the Internet.

1. There are several common kinds of identity theft. Match the examples 1-6 with the definitions a-f.

- | | |
|-----------------------|---|
| 1. bin raiding | a. stealing credit/debit card numbers by using special storage device when processing cards |
| 2. skimming | b. fraudulently gaining access to personal information from financial institutions, telephone companies and other sources |
| 3. phishing | c. taking wallets, mail and other items containing personal information without permission |
| 4. changing addresses | d. pretending to be a financial institution or company and sending spam or pop-up messages to get people to reveal personal information |
| 5. stealing | e. sending someone's billing statements to another location by completing a change of address form |
| 6. pretexting | f. looking through rubbish for bills or other paper containing detailed information |

2. Fill the gaps with the appropriate words from the box.

defence	high-tech	hard drive	database	software	were infect
---------	-----------	------------	----------	----------	-------------

1. We ventured into the world of _____ and bought a supercomputer
2. Somebody hacked into the company's central _____.
3. They hacked into US _____ computers.
4. I lost the document when the _____ crashed.
5. You'll need to upgrade your hard drive to 4Mb before running this _____.
6. All the computers in the office _____ by the same virus.

VOCABULARY*

OBJECTIVES:

To understand and use the vocabulary of the Internet.

1. Choose the correct alternatives to complete this newspaper article.

Sharing your broadband connection with your neighbours is either the best way of making friends or fastest way to lose them. Thanks to new European legislation, 1. **modem/ wireless/ telephone** technology and a firm called MyZones, several households within 300 metres of each can now share the cost of fast 2. **broadband/ dial-up/ phone** access. But the more people using your network, the slower it gets. If four people are using it at once, the surfing speed is 128k/ Clive Mayhew-Begg, chief executive of MyZones, says: 'Sharing broadband is just the start of a new generation of consumer-based Internet services.' It starts on July 25 when MyZones will start selling £ 150 starter kits. These include a wi-fi point and ADSL 3. **3G/ modem /Web TV** but not the wi-fi adapters and you and your neighbours will need. These will cost an extra £60 or so for each computer logged on to the wireless network.

The Mirror

2. Complete these instructions about how to navigate with the words in the box.

client	web page	surf	web browser
search engine	web server	website	URL

1. Start up your computer and connect to the Internet.
2. Open your _____.
3. Type the _____ to access a website.
4. Your web browser sends the request to the correct _____.
5. The server looks for the document and sends it to the _____ computer.
6. Your web browser displays the selected _____ on the screen.
7. From the home page of the _____ you can _____ to other pages by clicking on hyperlinks.
8. If you want to find more websites, use a _____.

3. Match the words in the box with the correct definition.

DSL	wireless	satellite	cable	dial-up
-----	----------	-----------	-------	---------

1. It is used to be the most common way to access the Internet. This type of connection requires you to use a landline telephone connection and a modem connected to your computer. In order to establish the connection, you must dial a telephone number provided by the ISP. Nowadays it represents the cheapest but slowest way to connect to the Internet. Another disadvantage of this type of connection is that you cannot make or receive phone calls while connected to the Internet.
2. A digital subscriber line is another way to connect to the Internet through a telephone connection, but the quality and speed of the connection is significantly greater than a dial-up connection.
3. In order to have this type of connection you must subscribe to an account with a local cable television provider and connect a cable modem to your computer. This connection is very fast and does not interfere with your telephone line.

4. This type of connection allows a user to access the Internet via a satellite that orbits the earth. Because of the enormous distances signals must travel, this connection is slightly slower than terrestrial connections through cables. It represents an excellent option for people living in rural areas where other types of connections are not available.

LISTENING

OBJECTIVES:

- I. Target Listening Skills: scanning
- II. Question types
 - answering questions
 - answering multiple-choice questions

1. Listen to the recording (Unit 5. Listening. Task 1.) and answer these questions.

1. Phishing can involve sending email to a person in order to get them to reveal personal information. What other example of phishing is given?
2. Why may banks refuse to compensate people a second time for losses caused due phishing?
3. How are banks contributing to the problem of phishing?

2. Listen to the recording (Unit 5. Listening. Task 2.) and answer these questions.

1. The stolen laptop contained information on how many Hewlett Packard employees?
 - a. 196,000
 - b. 19,600
 - c. 1,960
2. Why might the stolen information be inaccessible?
 - a. It is impossible to extract the data.
 - b. The thieves do not have encryption key.
 - c. The encryption key can no longer be used.

SPEAKING 1

OBJECTIVES:

- I. Target Speaking Skills
 - problem solving
 - giving instructions
- II. Format: dialog

Work in pairs.

STUDENT A

1. You are a Computer Hotline Technician. Read the extract from your troubleshooting guide. A customer phones you with problems. Give the customer advice and instructions.

Problem:

The installation CD does not start automatically.

Solutions:

Recommended close other Windows programs first.

Essential click START and then click RUN. Type in D:\install.exe

Problem:

The installation software cannot locate the wireless router.

Solutions:

Recommended close down any firewall and anti-virus program first.

Essential switch off power to the router for ten seconds, and then switch on again. Check the power light is on.

Recommended shut down and restart computer.

Essential re-start installation CD.

2. You are trying to set up a wireless network to link your notebook computer to a wireless router but you are having problems. Phone the computer hotline technician and note down the solutions he/she suggests.

For example:

- *My notebook computer can't connect to the Internet wirelessly. What should I do?*
- *My notebook connects to the Internet, but the signal strength is very low. What's the solution?*

STUDENT B

1. You are trying to set up a wireless network to link your notebook computer to a wireless router but you are having problems. Phone the computer hotline technician and note down the solutions he/she suggests.

For example:

- *When I put the installation CD into the drive, the CD doesn't start automatically. What can I do?*
- *The installation software is running, but it can't find the wireless router. What should I do?*

2. You are a Computer Hotline Technician. Read the extract from your troubleshooting guide. A customer phones you with problems. Give the customer advice and instructions.

Problem:

The notebook computer is unable to connect wirelessly to the Internet.

Solutions:

Recommended close down wireless program and reopen. Check if there is a connection.

If there is, move the notebook to a location where the connection is made.

Essential move notebook nearer router.

Problem.

The notebook computer connects to the Internet, but the signal strength is very low.

Solutions:

Recommended use notebook max. 30m from router.

Essential use notebook max. 60m from router.

Recommended move metal cabinets out of the way.

Essential move wireless telephone handsets away from router.

USEFUL EXPRESSIONS

Asking for instructions	<p>How do I...?</p> <p>Can you show me how to...?</p> <p>Do you know how to...?</p> <p>How do I go about...?</p> <p>What do you suggest?</p> <p>What is the first step?</p> <p>What is the best way to...?</p>
Giving instructions	<p>First, you...</p> <p>Then, you...</p> <p>Next, you...</p> <p>Lastly, you...</p>
Starting out	<p>The first thing you do is...</p> <p>Before you begin, (you should...)</p> <p>The best place to begin is...</p> <p>I would start by...</p>
Continuing	<p>After that,</p> <p>The next step is to...</p> <p>The next thing you do is...</p> <p>Once you've done that, then...</p> <p>When you finish that, then...</p>
Finishing	<p>The last step is...</p> <p>The last thing you do is...</p> <p>In the end,...</p> <p>When you've finished,...</p> <p>When you've completed all the steps,...</p>

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue. Use "Useful expressions" for the answer.

Talk about the Internet

You should say:

- Tell three positive things about the Internet.
- Tell three negative things about the Internet.
- Tell what you use the Internet for.

USEFUL EXPRESSIONS. LINKING WORDS

Expressing opinion/ giving reasons	Taking into account ..., It was clear that ... The most important point seems to me that ... It seems obvious that ... It is important that because I am sure that ... I have no doubt that ... I think / consider / find / feel / believe / suppose / presume that ... I guess that ... I bet that I gather that ... It goes without saying that ...
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WRITING. PEER EDITING, EDITING, PROOFREADING

CONSIDER THIS: EDITING TIPS

A peer is someone who is in the same position as you. When students are asked to exchange papers and comment on their groupmates' writing someone who isn't used to working like this can be puzzled – *How can he judge my paper? He's only a student like I am. / I don't think I write as well as he does. How can I give him any useful advice?* – But a peer can help a lot.

It is important to understand that your writing exists separate from you. Can readers understand what you wrote without any further help from you? A peer reviewer is close to the type of reader you will encounter after you finish your studies – someone pretty much like you, who you don't know, who will read what you write for information, and will not judge your ability and assign a grade (as your teacher does).

Moreover, you can see how someone else handled the same assignment and get some ideas for yourself.

How to review a groupmate's work:

- Look for the standard sections of an essay.

- Make sure you can identify thesis statement, topic sentences, and methods of support.
- Note any parts of writing you didn't understand.
- Note what the writer did well.
- Don't worry about spelling and grammar. Look at content, organization and ideas.
- Be kind. (E.g. use I didn't understand this argument instead of You didn't argue this very clearly).
- Give reasons. Just writing Good conclusion! doesn't tell the writer anything unless you say why it is a good conclusion.

NB: Remember that suggestions from a peer reviewer are just suggestions not orders. Make your own decision.

The next step is proofreading your essay for possible errors in grammar, sentence structure, spelling and punctuation:

- Check each sentence for correctness and completeness. You should have no fragments and no choppy or run-on sentences.
- Check each sentence for a subject and a verb, subject-verb agreement, correct verb tenses, noun plurals, articles, and so on.
- Check the mechanics: punctuation, spelling, and capitalization.
- Check for incorrectly used or repeated words.
- Check for contractions.

Put it together:

1. Meet with your peer reviewer. Discuss first one essay and then the other. Remember to take notes on your essay about anything you want to change.
2. Read your essay again. Make notes about anything you would like to add, delete, change or move.
3. Revise your essay and write the final draft.
4. Proofread your essay by following these steps:
 - 4.1. Run your computer's spell check program. (NB: It can't catch correctly spelled words that are used incorrectly)
 - 4.2. Read your essay out loud, to someone or to yourself. This will help you catch missing words.
 - 4.3. Check to see that your essay is formatted correctly
5. Make a back-up copy of your work on a flash drive or a second computer, email it to yourself or use an online back-up system.

HOME TASK:

Give your essay to a groupmate for peer editing. Edit your groupmate's essay.

SCENARIO

OBJECTIVES:

- I. Target Speaking Skills
 - to express opinion
 - to give instructions
- II. Format

- discussion
- individual long turn



Headquartered in Southwest Florida, Global Solutions is an independent stocking distributor of commercial through military level electronics components.

1. Scott Smith, CEO of Global Solutions is concerned about cyberthreats and Internet security of the company. Read 2017 Cybercrime report.

- The year 2017 saw some of the biggest cyberthreats in recent history, with millions of consumers and thousands of businesses affected by everything from the WannaCry attack to the Equifax and Uber data breaches.
- Cybersecurity Ventures predicts that a business will fall victim to a ransomware attack every 14 seconds by 2019, increasing from every 40 seconds in 2017.
- According to the FBI's Internet Crime Complaint Center (IC3), the BEC (Business Email Compromise) scam has seen an increase of 1,300 percent in identified exposed losses, totaling over \$3 billion, since Jan. 2015.
- Cisco put the total amount of loss due to BEC — from Oct. 2013 through Dec. 2016 at more than \$5 billion, and the losses continue to mount.
- A global survey conducted last year indicates two out of three people have experienced a tech support scam in the previous 12 months, according to the Microsoft Digital Crimes Unit.
- Cyber criminals are creating an average of around 1.4 million phishing websites every month with fake pages designed to mimic the company they're spoofing.
- 91 percent of attacks by sophisticated cybercriminals start through spear phishing emails.

2. In groups, answer the questions.

1. Have you heard anything about WannaCry attacks and Uber data breaches?
2. Have you been a victim of a ransomware attack?
3. Have you met any phishing websites on the Internet?
4. Do you follow any precautions while surfing the Internet?

3. Scott Smith wants to protect the company from cybercrime. He asked a group of Internet security specialists to compile a list of predictions highlighting new and evolving threats to watch out for and protect against in future.

1. Read the list.

2. In groups, decide which threats are the most dangerous for the company and add more threats to the list.

1. We will see an increase in PowerShell-based attacks.

Earlier this year, entities of the Saudi Arabian government were compromised using a macro in Microsoft Word to infect the target's computer with an information-stealing Trojan. Rather than retrieving a binary payload, the attack relied on malicious scripts to maintain persistence on the device and to communicate with compromised websites acting as proxies for the command and control server. These malicious script-based attacks, specifically PowerShell-based attacks, are incredibly difficult to identify. They can easily evade antivirus engines, making it that much more appealing to cybercriminals. It is predicted that many more PowerShell attacks in the year to come.

2. The cybercriminal underground will continue to evolve and grow.

While it may seem like we are already overwhelmed by the amount of cyberattacks occurring daily, this will not slow down in future. In fact, with a recent increase in cybercriminal tools and a lower threshold of knowledge required to carry out attacks, the pool of cybercriminals will only increase. This growth is a likely response to news media and pop culture publicizing the profitability and success that cybercrime has become. Ransomware alone was a \$1 billion industry last year.

3. Security software will have a target on its back.

Cybercriminals will target and exploit more security software. By targeting trusted programs and the software and hardware supply chain, attackers can control devices and wholeheartedly manipulate users. Hackers will leverage and exploit security products, either directly subverting the agent on the endpoint, or intercepting and redirecting cloud traffic to achieve their means.

4. More cyber criminals will use worms to launch malware.

In 2017, we saw WannaCry and Trickbot use worm functionality to spread malware. More malware families will use this technique because network compromise from worms spread faster than many other methods. If hackers can figure out how to use worms without being too noisy (a traditional downfall of this approach), this tactic can amass a large number of victims very quickly.

4. Imagine that you are Internet security professionals. Make a list of instructions for Global Solutions to enhance awareness/education/training of its employees and IT staff.

CONSIDER THIS: GIVING INSTRUCTIONS

Sequencers help order your instructions. It is like the 1, 2, 3, 4 of your actions. The most common are: First(ly).. Then... / Next.. After that.. Finally...	Tell people what is necessary, what is wrong, what is not necessary You (don't) need to.. You have to.. You must/mustn't.. You should/shouldn't...
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UNIT 6. NETWORKS

By the end of unit 6 will be able to:		
Reading 1	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Gaps filling • True/False statements • Table completion
Reading 2	Target Reading Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Answering questions • Diagram completion
Listening	Target Listening Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	Table completion
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • Expressing ideas • Planning
	Format	<ul style="list-style-type: none"> • Individual long term • Discussion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas)
	Format	Individual long turn
Writing		To make a draft
Use of English		To understand and use the vocabulary of networks
Scenario	Target Speaking Skills	<ul style="list-style-type: none"> • To express opinion • To interview
	Format	<ul style="list-style-type: none"> • Discussion • Interview
	Writing skills	To write a resume

UNIT 6. NETWORKS

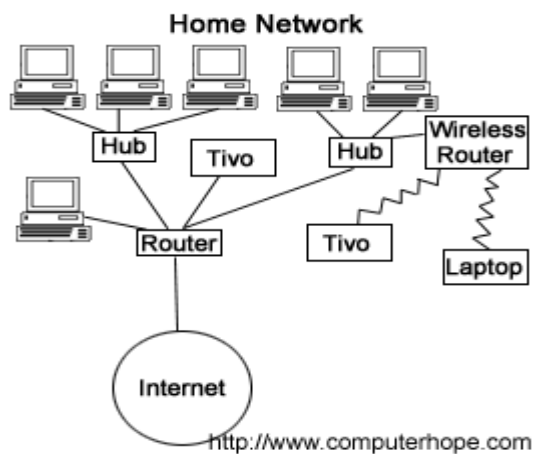
“Networking is not about just connecting people. It’s about connecting people with people, people with ideas, and people with opportunities.”
— Michele Jennae

KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of networks.

Read the text and find Russian equivalents for the words and expressions in bold type.



What is a Network?

A network consists of two or more computers that are linked in order **to share resources** (such as printers and CDs), **exchange files**, or allow electronic communications. The computers on a network **may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams.**

Two very common types of networks include:

- **Local Area Network (LAN)**
- **Wide Area Network (WAN)**

Local Area Network

A Local Area Network (LAN) is a network that is confined to a relatively small area. It is generally **limited to a geographic** area such as a writing lab, school, or building.

Computers connected to a network are broadly categorized as servers or **workstations**. Servers are generally not used by humans directly, but rather run continuously to provide "services" to the other computers (and their human users) on the network. Services provided can include printing and faxing, **software hosting, file storage and sharing**, messaging, **data storage and retrieval**, complete access control (security) for the network's resources, and many others.

Workstations are called such because they typically do have a **human user** which interacts with the network through them. Workstations were traditionally considered a desktop, consisting of a computer, keyboard, display, and mouse, or a laptop, with integrated keyboard, display, and touchpad. With the advent of the tablet computer, and the touch screen devices such as iPad and iPhone, our definition of workstation is quickly evolving to include those devices, because of their ability to interact with the network and **utilize network services**.

Servers tend to be more powerful than workstations, although **configurations** are guided by needs. For example, a group of servers might be located in a secure area, away from humans, and only accessed through the network.

On a single LAN, computers and servers may be connected by cables or wirelessly.

Wide Area Network

Wide Area Networks (WANs) connect networks in larger geographic areas, such as Florida, the United States, or the world. Dedicated **transoceanic cabling or satellite uplinks** may be used to connect this type of global network.

Using a WAN, schools in Florida can communicate with places like Tokyo in a matter of seconds, without paying enormous phone bills. A WAN is complicated. **It uses multiplexers**, bridges, and routers to connect local and **metropolitan networks** to global communications networks like the Internet. To users, however, a WAN will not appear to be much different than a LAN.

READING 1. VOCABULARY 1

OBJECTIVES:

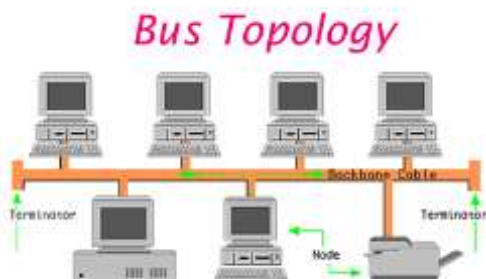
- I. Target Reading Skills
 - to scan the text for key information
 - to understand and use the vocabulary of networks
- II. Question types
 - gaps filling
 - True/False statements
 - table completion

1. Read the texts about the different network topologies and fill in the gaps with the words in the box.

nodes		network	affect	small	star	exchanging
circle	pathway	configure	destination	failure	backbone	

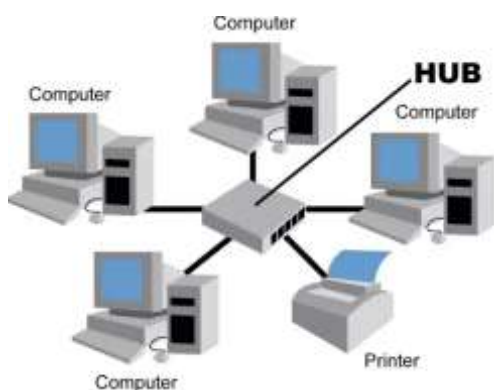
Network topologies

Bus network



In a bus network all 1) **nodes** are connected to a common medium, called backbone, as it happens with Christmas lights. Information sent along the 2) _____ travels until the destination is reached. This kind of topology is generally used only for 3) _____ networks, as it isn't able to connect a large number of computers. The main advantage offered by this topology is that if a computer or device doesn't work, it doesn't 4) _____ the others.

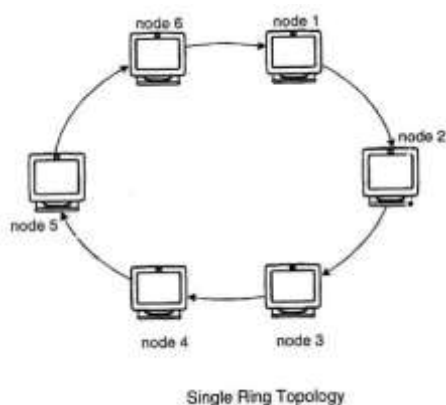
Star network



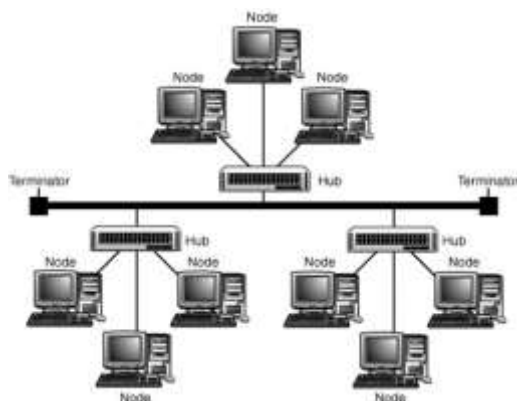
In a star network all nodes are connected to a special central node called the hub. Once it has received a signal, the hub passes it to all other nodes until it reaches the 5) _____ computer. This means that all the computers and devices are joined together. This topology is commonly used in businesses because it can grant rapidity and safety in 6) _____ data. Thanks to this topology, data is always up-to-date and if a computer doesn't work, it doesn't affect the others.

The only disadvantage to it is that if the hub goes down, the whole 7) _____ doesn't work.

Ring network



In a ring network each node is connected to its left in a 8) _____. There is no central hub that holds all the data, and communication is sent in one direction around the ring through the use of a token. As it requires fewer cables, this topology is less expensive. Nonetheless, because it provides only one 9) _____ among the nodes, a single node 10) _____ may isolate all the devices attached to the ring.



Star bus topology

Star bus topology is the most common network topology used today. It combines elements of star and bus topologies to create a more effective network. Computers in a specific area are connected to hubs creating a 11) _____, then each hub is connected together along the network backbone.

The main advantage of this type of topology is that it can be more easily expanded over time than a bus or a star. On the other hand, this topology is more difficult to 12) _____ than the others and if the backbone line breaks, the whole network goes down.

2. Read the text again and decide if the following statements are True or False, then correct false ones.

1. The topology chosen depends only on the location of computers.
2. All topologies use many cables and are very expensive.
3. In a bus topology all the busses are connected one after another.
4. In a bus topology a server controls the flow of data.
5. In a star network data is always updated.
6. The hub doesn't connect printers and other devices in a star topology.
7. In the ring topology each node is connected to the hub.
8. In the ring topology if the hub doesn't work, the network goes down.
9. Star bus topology combines elements of bus and ring topologies.
10. In a star bus topology a backbone line failure affects the whole network.

3. Read the text again and complete the table with the missing information.

Topology	Connection	Use	Advantages	Disadvantages
		<i>small networks</i>		
	<i>each node is connected to the central hub</i>			
<i>ring</i>				

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of networks.

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

node	hub	strand	backbone	coaxial	receiver	transmitter
------	-----	--------	----------	---------	----------	-------------

1. the most important part of something, providing support for everything else
2. a cable has two concentric wires (= wires that share a central point) to conduct the signal, separated by an insulating layer
3. the central part of something

4. equipment which receives signals
5. single thin piece of wire
6. equipment that sends out radio or television signals
7. a place where lines in a network cross or join

READING 2

OBJECTIVES:

- I. Target Reading Skills: to scan the text for key information
- II. Question types
 - answering questions
 - diagram completion

1. Find the answers to these questions in the following text.

1. What do computers use TCP/IP for?
2. What is a local area network?
3. What is a wide area network?
4. Why is a router given the IP address?
5. Why do you enter a URL when requesting information from a web page?
6. What does home Internet connection require?



Home network

If you have a home computer network, the computers are also using TCP/IP to connect to each other. The TCP/IP protocol allows each computer to "see" the other computers on the network, share files, and is what makes it possible for a printer to be shared on a network.

When computers connect to each other on the same network, it is called a local area network, or LAN. When multiple networks are connected to each other, it is called a wide area network, or WAN. With this type of network, your home has a network router that connects to your ISP. The router is given the IP address for your connection to the Internet and then assigns local IP addresses to each device in your network. These local addresses are often 192.168.1.2-255. When accessing a local computer in your network, your router sends your TCP/IP packets between the local IP addresses. However, when you want to connect to the Internet, your router communicates to the Internet with the IP address assigned to it from the ISP. Your IP address is not a 192.168.x.x address because the ISP assigns that IP address and not your router.

When requesting information from a web page you enter a URL that is easy to understand and remember. For your computer to access the computer containing the pages, that URL must be converted into an IP address, which is done with DNS. Once DNS has converted the URL into an IP address, the routers on the Internet will know how to route your TCP/IP packet.

Today, computers using the Microsoft Windows OS, macOS, and Linux OS all use the TCP/IP protocol to connect to other computers on a LAN or WAN. Connecting to a LAN or WAN requires either a wired connection or a wireless connection. A wired connection is usually done using a network cable (Cat5 or Cat6 network cable). A wireless connection (Wi-Fi) is done using a 802.11b, 802.11g or 802.11n wireless network card. With both connection types, a network router is usually required to connect to other computers. Connecting to the Internet at your home also requires either a cable modem or a DSL modem, depending on which ISP you use.

2. Read the text again. Complete the diagram below with NO MORE THAN THREE WORDS from the text.

Your computer connects **1)** _____ using TCP/IP and asks for a **2)** _____.



The **3)** _____ and gives your computer the local IP address 192.168.1.12.



Your router requests an IP address to connect **4)** _____. The ISP assigns your WAN address as 175.51.127.17.



While on the Internet you request access to the server by entering the URL <http://www.xxxxxxx.com>. Using DNS that address 69.72.169.241 and the TCP/IP packet travels over multiple **5)** _____ until it reaches that address.



Your TCP/IP packet reaches its destination and communicates with the other computer it responds and repeats the above steps to get the data back **6)** _____.

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of networks.

1. Read the information opposite and correct the following statements.

1. LANs link computers and other devices that are placed far apart.
2. The word protocol refers to the shape of the network.
3. Routers are used to link two computers.
4. Access points don't need to be connected to a wired LAN.
5. Wireless adapters are optional when you are using a WLAN.
6. The Internet is an example of a LAN.
7. Wireless WANs use fibre and cable as linking devices.

VOCABULARY*

1. Use the words in the box to complete the sentences.

LAN	WLAN	nodes	peer-to-peer	hub	server	backbones
-----	------	-------	--------------	-----	--------	-----------

1. All the PCs on a _____ are connected to one _____, which is a powerful PC with a large hard disc that can be shared by everyone.
2. The style of _____ networking permits each user to share resources such as printers.
3. The star is a topology for a computer network in which one computer occupies the central part and the remaining _____ are linked solely to it.
4. At present Wi-Fi systems transmit data at much more than 100 times the rate of a dial-up modem, making it an ideal technology for linking computers to one another and to the Net in a _____.
5. All the fibre-optic _____ of the United States, Canada and Latin America cross Panama.
6. A _____ joins the multiple computers (or other network devices) together to form a single network segment, where all computers can communicate directly with each other.

LISTENING

OBJECTIVES:

- I. Target Listening Skills
 - skimming
 - scanning
- II. Question types: table completion

1. Listen to the recording “Unit 6. Listening” (0.00-1.50) and answer the question.

1. What does the word “networking” mean?
2. Name the devices that are mentioned in the recording.

2. Listen to the recording again and fill the table.

Device	Functions
Router	1) _____ together, so they can 2) _____ with each other and to connect 3) _____ at the same time it handles 4) _____ through all of the computers and devices it assigns 5) _____ to each one (IP address)
Switch	it 6) _____ through your network to the places it needs to go it has 7) _____ ports right into it


SPEAKING 1

OBJECTIVES:

- I. Target Speaking Skills
 - expressing ideas
 - planning
- II. Format

- individual long term
- discussion

1. Read information about Juniper Networks, Inc.

	<p>Juniper Networks, Inc. is an American multinational corporation headquartered in Sunnyvale, California that develops and markets networking products. Its products include routers, switches, network management software, network security products and software-defined networking technology.</p>
<p>The company was founded in 1996 by Pradeep Sindhu. It received several rounds of funding from venture capitalists and telecommunications companies before going public in 1999. Juniper grew to \$673 million in annual revenues by 2000. By 2001 it had a 37% share of the core routers market, challenging Cisco's once-dominant market-share. It grew to \$4 billion in revenues by 2004 and \$4.63 billion in 2014.</p>	
<p>Juniper Networks originally focused on core routers, which are used by internet service providers (ISPs) to perform IP address lookups and direct internet traffic. Through the acquisition of Unisphere in 2002, the company entered the market for edge routers, which are used by ISPs to route internet traffic to individual consumers.</p>	
<p>In 2014, Juniper has been focused on developing new software-defined networking products.</p>	

2. You are a group of web designers. You are asked to plan new design for the company's web site. Make a project of a new web site according to the following plan. Tell about your project.

Analysis	<p><i>What's the site's purpose?</i> <i>Who's the target audience?</i></p>
Design and implementation	<p><i>What look and content will the site have?</i> <i>How will it be created and managed?</i></p>
Evaluation	<p><i>How do we know if the site is effective?</i></p>

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue.

Talk about network security threats

You should say:

- Illegal access to the system
- Viruses
- Stealing data

WRITING. FINAL DRAFT

OBJECTIVES:

To make a draft.

CONSIDER THIS:

The last stage of writing process is publishing. For students it means submitting the work for a grade.

After proofreading your essay there are several things to add to complete the work: a title page, an abstract, and a references section. The title page and references sections follow standard formats defined by state and/or university standards. The abstract usually has a word limit specified by different academic organizations, conferences, or journals.

The abstract is a summary of your paper placed after the title page. The most common kind of abstract contains brief details of the main problem, key points and conclusions. Present the information in the same order that it is organized in your essay.

HOME TASK:

Proofread your essay and prepare the final draft to submit it to your teacher. Write an abstract (about 120-250 words)

SCENARIO

OBJECTIVES:

- I. Target Speaking Skills
 - to express opinion
 - to interview
- II. Format
 - discussion
 - interview
- III. Writing skills: to write a resume

1. Do you know what “a network specialist” is? See if you are right.

Would you like to be a network specialist? Why?

Network Specialists manage networks to ensure they function efficiently. Tasks such as collecting network performance data, monitoring network security, troubleshooting issues, anticipating problems and performing routine maintenance are commonplace for these IT professionals.

Network Specialists can locate job opportunities in a variety of companies and businesses — large, medium and small.

2. In pairs, decide what are network specialist`s duties? Would you like to add anything to the list below?

Network Specialist Duties and Responsibilities	<ul style="list-style-type: none">• To maintain software and hardware• To monitor systems for glitches or disturbances• To analyze technical issues and develop solutions• To establish the network• To analyze workflow and security requirements and design router administration• To look at network performance issues such as availability, latency, utilization and throughput• To establish connections and firewalls• To define the policies and procedures of the network• To maintain the network• To secure the network• To implement secure network access protocols and then monitor and evaluate them for issues• To upgrade the network• To test, evaluate and install network enhancements to ensure that they are the best choices• To update job knowledge (to participate in relevant educational opportunities such as live classes and webinars, read professional publications, network with other professionals and maintain active memberships in professional organizations)
Network Specialist Education and Training	Many employers are seeking Network Specialist candidates who have a bachelor’s degree in areas such as computer science, computer information systems or computer networking. Classes and experience in the following areas are a plus: computer systems analysis, programming, database management and E-security.

3. What is a resume? You are looking for a position of a network specialist. Write a resume for your potential employer. See useful tips and a resume sample.

CONSIDER THIS:

A **resume** is a document used by a person to present their backgrounds and skills. A typical resume contains a "summary" of relevant job experience and education.

A resume can be written in different styles:

- a chronological resume- as it organizes and arranges the information chronologically such as your work history and achievements.

- a Functional resume- as it divides every piece of information in different part of the page according to the way you want to organize the information.

Tips on Writing a Resume

- 1) **Customize your resume.** Start by customizing your resume objective to the job you are applying for, for example, Sales Representative in a Small Start-up Company. Then go on to customize your profile and job history information to the target job.
- 2) **Include a targeted and persuasive profile.** Convince the reader immediately that you are able to successfully perform the job. At the start of your resume write a strong profile statement that summarizes your key skills and strengths as they relate to the target job.
- 3) **Identify your strengths.** Tips on writing a resume include to highlight your strongest skills and abilities as they relate to the target job. Know what your strengths are and make sure you focus on those relevant to the job opportunity.
- 4) **Put your work experience in reverse chronological order.** Your most recent work experience is probably the most relevant. It is usually advisable to only include the last 10 - 15 years of work history. You can summarize earlier work history with a brief description of your achievements during that time.
- 5) **Prioritize the information** provided for each position starting with the most relevant and important details in relation to the job you are applying for.
- 6) **Use resume action words.** Highlight your skills and experience by using powerful action words. Resume verbs such as analyzed, controlled, developed, supervised and negotiated provide a clear and convincing picture of your expertise and experience.
- 7) **Put experience before education.** This is to highlight your skills and abilities in direct relation to the target job. An exception would be if you are a recent graduate.

Resume Writing Don'ts

- Don't use pictures. That causes people to pre-judge you even if they are not supposed to.
- Don't fold or staple your resume.
- Don't use negative words.
- Don't include salary info.
- Don't mention your religion, marital status, age, political views, or race.
- Don't use gimmicks or try to be funny.
- Don't include hobbies or interests unless they are related to your qualifications or reflect strong character or work ethic.
- Don't include any negative traits or characteristics.
- Don't use contractions or slang.

Resume sample

John Braud

123, EBay Street

Boston, MA, 6677

Contact: 143-868-8869

Email: braud.john@yahoo.com

Career Objective:

To work as a computer network specialist for a retail chain and help in retaining customers, and enhancing productivity by applying my skills in managing cable or wireless networking systems.

Summary of Skills:

- Experienced in working with Cat5 cable and advanced computer networking systems
- Knowledge of different programming languages and fiber optic cable,
- Skilled in installing, repairing, and maintaining integrated network systems
- Adept in SMTP, TCP/IP protocols, POP, SMB and IGMP
- Thorough understanding of information system architecture and system security practices
- Expert in handling wireless networks, routers, and computer hardware
- Strong analytical and problem-solving skills
- Ability to prioritize tasks, create email systems, and take backup
- Polished written and oral communication skills
- Ability to lift 40 pounds overhead

Work Experience:

Computer Network Specialist

GRT Software Inc., Boston, MA

April 2012 - Present

- Analyze, and maintain voice, video and data communication networks
- Maintain network systems and manage usage of communication networks
- Evaluate hardware and software programs
- Set up telephone networks, and maintain intranet
- Work on company server and take regular backup
- Install, repair, and maintain computer network systems
- Create and maintain email and data distribution system
- Troubleshoot and resolve problems
- Create and maintain users account for all workstations
- Provide backup support for functional servers

Computer Network Specialist

Zen Software Solutions, Boston, MA

May 2010 - March 2012

- Developed, tested, and deployed network device configurations
- Oversaw daily operations of network technologies
- Fixed hardware, software, and network issues

- Developed and implemented network security policies
- Repaired, maintained, and replaced network cabling
- Connected all workstations to each other and the server
- Assisted in the developing network architecture
- Implemented systems management procedures
- Handled software and hardware configuration

Education:

Bachelor's Degree in Computer Networking
Daffodil University, Boston, MA
2009

References:

On request.

4. In pairs, exchange your resumes and study them. Imagine that you are job interviewers. Prepare questions to ask the interviewee in the job interview.

<p>Ask about:</p> <ul style="list-style-type: none"> • Subjects studied • Favorite subjects • Reasons • Work experience • Enjoy work experience • Skills learned • Training • Salary • Benefits (life insurance/ healthcare) 	<p>Questions examples:</p> <ul style="list-style-type: none"> • Do you hold a driving license? • Why do you want this job? • Which subjects did you study in your diploma? • Which subjects did you enjoy most in your course? • Why did you enjoy the subject most?
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UNIT 7. COMMUNICATION SYSTEMS

By the end of unit 7 will be able to:		
Reading 1	Target Reading Skills	Scanning
	Question types	Table completion
Reading 2	Target Reading Skills	<ul style="list-style-type: none"> • Scanning • Possible ending elimination
	Question types	Beginnings and endings
Listening	Target Listening Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Answering questions • Sentence completion
Speaking 1	Target Speaking Skills	<ul style="list-style-type: none"> • To express opinions • To express agreement • To express disagreement
	Format	Discussion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas)
	Format	Individual long turn
Writing		To prepare a research presentation
Use of English		To understand and use the vocabulary of communication systems
Scenario	Objective	To study information on “netiquette”

UNIT 7. COMMUNICATION SYSTEMS



KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of communication systems.

Read the text and find Russian equivalents for the words and expressions in bold type.

There are a great many different types of communication systems, due to the fact that each one has the potential to contain **a vast array of components**. There are, however, several categories that each type of system can usually be placed into. The types of communications systems are **usually discernible by the primary medium through which the information is transmitted**. Communication systems may also be classified as **one-way, two-way, or multiple-way systems**, depending on how many parties can exchange information through its various components.

One example is a radio communication system. The medium through which information is transmitted is **electromagnetic waves**, and more specifically those with **frequencies** that are lower than **the frequency of visible light**. On one end of these radio systems is **a transmitter** that **will take the information and electronically convert it into radio waves**. These radio waves travel to the other end of the radio communication system, which **is designed to detect and decode the waves and convert them to recognizable information**. **A simple two-way radio system may comprise of two handheld transceivers**, for example, which are more commonly referred to as **walkie-talkies**.

Power line communication systems are used to transmit electronically from a source or array of sources to their destinations. A type of electronic system that often is referred to is cable television, widely known for its transmission of **a plethora of channels** throughout homes in addition to their use for providing Internet access. Power line communication systems are often used because of their relatively low cost, even though there are other systems that surpass them in quality and efficiency.

Optical communication systems offer many improvements over other types, and have also been responsible for revolutionizing the telecommunications industry. The main reason for this is because the medium used in optical systems is light, which allows for them to be faster, clearer, and more reliable than electrical or radio signals. These reliable signals are usually carried through **optical fiber**, although an optical signal can be sent over relatively short distances through the air, usually only over a couple of miles.

As mentioned, communication systems are far from simple and can contain a wide range of components to uphold continuous operation. In addition to the above systems, communications networks may utilize Internet, **cellular, wireless, satellite technologies** and more. Those systems which take advantage of two or more media are referred to as hybrid communication networks. Much research is being devoted to finding better ways of developing communications systems through countless combinations of all of these communications technologies.

READING 1

OBJECTIVES:

- I. Target Reading Skills: to scan the text for relevant information
- II. Question types: table completion

1. Read the text about the different kinds of transmission media and complete the table.

Ground transmission

Wires provide a cheap and effective means of communication that was predominant in the past. Wires, which are made out of **copper** and insulated with **plastic**, can be single or twisted, and they are used mainly in telephone and computer networks.

Coaxial cables consist of an inner conductor insulated with plastic and surrounded by a woven copper shield. They are used in television and radio as these cables can support about 60m channels. The inner copper cable is insulated to protect the wires from bending and crushing to reduce the noises.

Optical fibres are used in place of simple copper wires to carry larger amounts of information. They consist of strands of pure glass as thin as human hair. Signal travel along fibres with less loss and without any electromagnetic interference. As they permit transmission over longer distances and at a higher speed, they are used in communication systems, in some medical instruments and in a wide variety of sensing devices.

Air Transmission

Antennas were invented to capture **radio** signals and convert them into electrical signals through the receiver. They can also receive electrical signals from the **transmitter** and convert them into radio signals.

These electric devices, which provide information at a cheap rate, are essential to all equipment that uses radio. They are used in systems such as radio and television broadcasting, radar, mobile phones, and satellite communications, for which they are in form of dishes.

Satellites are machines launched into space to move around Earth or another celestial body. A communications satellite is basically a station which receives signals in a given **frequency** and then transmits them at a different frequency to avoid interference problems. The first **satellite** was launched by the Soviet Union in 1957. There are different types of satellites: low-orbit satellites, which travel at about 300km from the Earth and observe the planet, providing accurate information about agriculture, pollution and weather forecasting, medium-altitude satellites, which travel at about 9000-18000km from the Earth and are used in telecommunications.

Means of transmission	Material	Function	Types of signal (ground or air)	Advantages
Wires				
Coaxial cables				
Optical fibres				
Antennas				
Satellites				

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of communication systems.

1. Find words that are in bold in the text for the following definitions

1. a chemical element that is a reddish-brown metal, used especially for making wire and coins
2. a long, thin glass rod through which very large amounts of information can be sent in the form of light
3. a piece of equipment for broadcasting radio or television signals
4. an action, movement, or sound that gives information, a message, a warning, or an order
5. a device sent up into space to travel around the earth, used for collecting information or communicating by radio, television, etc.
6. an artificial substance that can be shaped when soft into many different forms and has many different uses
7. the number of times something happens within a particular period, or the fact of something happening often or a large number of times

2. Fill the gaps with the appropriate words from the box.

Cables	radio waves	wires	coaxial cables
satellites	antennas	transmission	optical fibres

Telecommunication systems need means for the 1) _____ of any information, which is translated into electromagnetic waves that connect the transmitter to the receiver. These means can be physical media, such as 2) _____, or radio 3) _____, which are transmitted by air. Different kind of cables can be used. The simplest communication cables consist of a single pair of 4) _____ twisted together. Other types are 5) _____ cables and optical 6) _____. Radio waves need 7) _____ to be transmitted and sometimes 8) _____ are necessary for long-distance transmission.

READING 2

OBJECTIVES:

- I. Target Reading Skills
 - to scan the text for key information
 - to eliminate impossible endings
- II. Question types: beginnings and endings

1. Scan the text “Early developments”. Complete the sentences with the best ending from the box below. Choose the appropriate letters A-G.

How Does a VoIP System Work?

The introduction of VoIP has changed the way consumers and businesses utilize voice communication. Making phone calls has never been cheaper and 1) _____. How VoIP phone systems work differs considerably from the analog systems that we have gotten used to over the last few decades.

For one thing, VoIP does not require separate infrastructure or phone lines. Instead it functions on top of the existing framework 2) _____. This is precisely why it is called Voice over Internet Protocol – VoIP calls are transmitted over the Internet rather than copper lines. While VoIP offers many advantages, its biggest strength is 3) _____.

Even as VoIP has steadily been growing in popularity and usage, not a lot of people understand how it functions. Although the average consumer can get by without truly understanding how VoIP works, it is essential that business executives understand the VoIP phone system before implementing it.

Normally phone calls made on a landline travel through TDM circuits to connect two people, over long and short distances. The voice signal is transmitted as is and the circuit is held open for as long as the phone call continues.

VoIP on the other hand utilizes packet switching technology 4) _____.

Since the Internet was not really designed to enable real-time voice communication such as VoIP, several protocols were developed and implemented to facilitate voice calls over the last few years.

During a VoIP call, 5) _____. There they are reassembled and converted back into audio signals that can be heard by human beings.

Generally, with Internet data, it does not matter much in what order the packets are received and if some packets are dropped – the missing ones will simply be resent.

However, the same does not hold true for real-time communication – 6) _____. Additionally, missing packets can lead to silence or choppy conversations.

Every device that is registered on a VoIP network has a unique IP address 7) _____. When a VoIP call is initiated, a signal is sent to a soft switch which knows the current IP address of various VoIP endpoints (desk phone, cell phone, computer etc.).

If the particular soft switch does not have that information, the request is passed on further until it reaches a soft switch that does have the data. Once the other endpoint is located, a connection can be established and two-way voice communication can begin.

- | |
|---|
| <ul style="list-style-type: none">A. that it is based on Internet protocols rather than telecommunication standardsB. the packets have to be reassembled in a specific order in order to make sense to the personC. VoIP enables a whole suite of features that bring voice calling into the 21st centuryD. the voice signals are converted into data packets which then travel independently of each other to the destinationE. that is used for delivering Internet throughout most of the worldF. i.e. the same way other data is sent over the Internet such as emailG. that is dynamically assigned i.e. it is not permanent like a phone number |
|---|

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of communication systems.

1. Fill the gaps with the appropriate words and expressions from the box.

bandwidth	virtual	software interface
a landline	transmit data	phone lines
internet connection		

The Pros of VoIP Systems for Small Businesses

Here are just a few of the benefits of using VoIP for your business.

- **Simpler setup** – You can set up a 1) _____ phone system in just an afternoon. You don't even need any special equipment beyond a computer – although investing in headsets and phone handsets is usually a good idea if you'll be using VoIP heavily.
- **You don't have to pay for each phone line** – When you buy 2) _____, you have to pay for each one – even if you're not using it. With a VoIP system, you're typically on a "pay-as-you-go" structure – you pay for the lines you need. No more, and no less.
- **More flexible and easier to assign new numbers** – Usually, you can assign new phone numbers simply by using your VoIP system's 3) _____. That means it's simple to assign numbers and change them when you hire new employees or have to set up a new phone line.

The Cons of VoIP Systems For Small Businesses

VoIP isn't perfect. There are some drawbacks that may make you think twice about using VoIP rather than a traditional landline.

- **Sound quality and latency** – VoIP systems tend to have more issues with sound quality and latency (the time it takes to transmit and receive voice data), compared to 4) _____. This can be mitigated by using the proper software, and having a fast, reliable 5) _____.
- **Bandwidth usage** – Because VoIP systems 6) _____ over the internet, they will use up more of your 7) _____. This means you'll need a larger, more expensive internet connection to use your VoIP systems properly.

VOCABULARY*

WEBLISH

The language of abbreviations and terms used on the web, such as 'BTW', 'A/S/L' etc., Other forms include Textish/Txtish for use with mobile phones, noteish/notish when used as abbreviated short hand. *Example: I can't understand these people, they're all speaking in weblish!*

Examples of weblish:

- ATB = All the best! (Good luck!)
- IYKWIM = If you know what I mean
- KISS = Keep it simple, stupid!
- HAND = Have a nice day!
- BBL = (I'll) be back later
- IDC = I don't care
- BOC = But of course
- BTW = By the way
- B4N = bye for now
- B = be
- ASAP = as soon as possible
- BRB = be right back
- BY = busy
- C = see
- CU = see you
- D = the
- DEY = they
- DUNNO = I don't
- CWOT = complete waste of time
- TC = take care
- FRNDS = friends
- HAFTA = have to
- HAV = have
- KNO = know
- LV = love
- OVA = over
- R = are/ our
- THR = their
- TTYL = talk to you later
- U = you
- UR = your
- WOT = what
- LTNS = long time no see
- MU = I miss you
- IC = I see
- U4E = you forever.

1. Decode the following words and expressions.

2MORO —	PLS —	L8r —	HRU —
2NITE —	IMHO —	F2F (FTF) —	RUOK —
CUL8R —	OMG —	WAN2 —	BF —
B4 —	XOXO —	SOM1 —	GF —
NO1 —	SIS —	LOL —	BRO —

2. Decode the following messages.

1.

My smmr hols wr CWOT. B4, we usd 2go2 NY 2C my bro, his GF & thr 3 kds FTF. ILV NY, it's a gr8 plc. Call me ASAP.

2.

A: I mu. Ltns. Hru?

B: Oh, I'm fine. I mu 2. How is ur sis?

A: My sis is Ok. She is on a d8 2day.

B: Ic. That's gr8. It's getting l8. We should go b4 It get's dark. I hope I will cu l8r. Maybe 2morrow?

A: Ok! Hand. CUL.

LISTENING

OBJECTIVES:

- I. Target Listening Skills: scanning
- II. Question types
 - answering questions
 - sentence completion

1. Listen to the recording “Unit 7. Listening.” (00.00-02.20) and answer the following questions.

1. SIM stands for:
 - a. Subscriber identity module
 - b. Subscriber individual module
 - c. Subscriber identity mode
2. SIM card store a
 - a. 54-bit number
 - b. 64-bit number
 - c. 4-bit number
3. An amount of unique numbers that can be stored on a SIM card
 - a. 9 million
 - b. 9 billion
 - c. 9 quintillion

2. Listen to the recording again. Complete the sentences below. Write no more than three words for each answer.

1. When you turn on your phone and first connect to 1) _____ your phone will pass your SIM card's ID number along with 2) _____.
2. Your provider then generates 3) _____ and uses the key to spit out a response number.
3. At the same time that random number is sent back to your phone and the same 4) _____ is done with the authentication key to generate another response number.
4. If the two numbers match, your 5) _____ will recognize this and 6) _____ your phone to the network.

SPEAKING 1

OBJECTIVES:

- I. Target Speaking Skills
 - to express opinions
 - to express agreement
 - to express disagreement
- II. Format: discussion

Group A

1. Read about the main advantages of VoIP.

1. VoIP is much cheaper than telephone. VoIP has flat-rate charge for all calls, including long-distance and international.
2. You can talk with many people in different places at the same time. Online meetings are easy.
3. Pictures, videos, music files can be sent at the same time.
4. Online customer support is quicker and better than with telephone landlines and mobile phones.
5. VoIP is portable – you can call from anywhere in the world by logging into your account on the computer. Your phone number is the same everywhere.
6. The hardware is small and lightweight – headset or small IP phone.
7. VoIP has excellent coverage all over the world. Compare this with poor coverage of mobile phones in some parts of the world.

2. Add any other advantages to the list.

3. What arguments do you think Group B will make? Note points you could make against these arguments.

Group B

1. Read about the main disadvantages of VoIP.

1. VoIP only works if your computer is switched on and the software is running. The other person must have the same software loaded and running on his/her computer.
2. Some VoIP companies only allow you to call someone subscribing to the same company.
3. The sound quality can be poor – delay, echo, silent patches.
4. If a company changes to VoIP, it has to buy headsets or internet phones – expensive.
5. If there is a power cut, you cannot use VoIP (unless you have battery back-up). Landline phone stays on because of current in phone line.
6. Difficult to use for emergency services – the operator cannot locate your address.
7. You must have a second set up if you want to run a second phone line.
8. VoIP can only be used with broadband connection.

2. Add any other disadvantages to the list.

3. What arguments do you think Group A will make? Note points you could make against these arguments.

USEFUL EXPRESSIONS

Expressing opinion	I tend to think that... My own feeling on the subject is that I'd like to point out that
Expressing disagreement	I don't agree with what you say. Nonsense!

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue. Use "Useful expressions" for the answer.

Talk about weblish

You should say:

- 3 arguments for
- 3 arguments against
- if you use it in your messages and how often

WRITING. PRESENTING YOUR RESEARCH

OBJECTIVES:

To prepare a research presentation.

CONSIDER THIS: SOME HINTS FOR A SUCCESSFUL PRESENTATION

PREPARATION

- **Planning.** Plan your presentation carefully. Thorough preparation will make you more confident and help you to overcome your nervousness.
- **Objectives.** Think about what to achieve. Are you aiming to inform, persuade, train or entertain your audience?
- **Audience.** Who exactly will you be addressing? How many people will be attending? What do they need to know? What do they already know? What will they expect in terms of content and approach?
- **Content and organization.** Be selective! Don't try to cram too much into your presentation. Your presentation should have a clear, coherent structure and cover the points you wish to make in a logical order.
- **Approach.** 'Tell your audience what you're going to say, say it, then tell the audience what you've said'. Try to develop your key points in an interesting and varied way, drawing on relevant examples, figures etc.
- **Rehearsal.** Allow time to practise your presentation – this will give you a chance to identify any weak points or gaps. You will also be able to check the timing, and make sure you can pronounce any figures and proper names correctly and confidently.

DELIVERY

- **Nerves!** You'll probably be nervous at the beginning of your presentation. Don't worry – most people are nervous in this situation. Try not to speak too fast during the first couple of minutes – this is the time you establish your rapport with the audience and first impression are very important. You may find it helpful to memorise your introduction.
- **Audience rapport.** Use the introduction to welcome your audience, introduce your topic/subject, outline the structure of your talk, and provide guidelines on questions. Use the conclusion to summarise the main points of your presentation, thank the audience, and invite questions. Indicate when you've completed one point or section in your presentation and are moving on to the next. Give your audience clear signals as to the direction your presentation is taking. Try to be enthusiastic – your interest in the subject matter will carry your audience along. Look around your audience as you speak – eye contact is essential for maintaining a good rapport. Use words and sentences that you are comfortable with. There is no benefit in using difficult language. Avoid jargon unless you are sure all your audience will understand it. Be ready to deal with any hostile questions. Polite, diplomatic answers are a good disarming tactic.
- **Body language and voice quality.** Try to be aware of any repetitive hand gestures or awkward mannerisms that might irritate your audience. You must be clearly audible at all times – don't let your voice drop at the end of sentences. If you vary your intonation, your voice will be more interesting to listen to and you will be able to make your points more effectively.
- **Visual aids.** Use your visual aids confidently making sure you allow your audience time to absorb information from flipcharts and transparencies.

HOME TASK:

Prepare the presentation of your research.

SCENARIO

OBJECTIVES:

To study information on “netiquette”.

1. Have you ever heard a word “netiquette”? What does it mean? Check your answer.

CONSIDER THIS:

Netiquette is a term that has been derived from "Internet Etiquette" or "Network Etiquette". It, basically, refers to the use of proper manners and display of appropriate behavior online.

2. Read “netiquette rules”. In pairs, decide which rules are appropriate for business netiquette. Would you like to add more rules to the list?

Netiquette Rules

- A netizen should observe basic courtesy in his/her net dealings. The golden rule is to be courteous and respectful of others, who are online. Remember the rule when sending an email, chatting in a chat room or speaking in a forum.
- It is difficult to gauge the expressions and emotions of a person, while communicating online, unless you are using a web camera or a microphone. Using emoticons, such as smileys, can greatly help in conveying your true emotions online.
- Keep your messages short, particularly when typing an email or chatting in a chat room. Know the net language and get a hang of chat abbreviations and acronyms. This saves the reader some valuable time. Therefore, keep the messages brief and precise on the internet.
- Writing in capital letters is considered the equivalent of shouting on the net. Avoid writing in capital letters, as it is considered to be very rude. Use caps only if you actually want to stress on a few words or phrase.
- Using inappropriate and abusive language is against netiquettes. There is a possibility of getting permanently banned from a forum or group, in case you use foul or offensive language. Make sure you are civilized on the net, unless you are chatting with a very close friend, that too privately.
- Take care not to post any silly or funny photographs on social networking sites, as it can pose a problem in the future. Several colleges and employers now search for the candidate's profile on social networking sites before hiring them.
- Revealing private information in the wrong location can have serious consequences and implications for some. Cybercrime is not a new phenomenon for netizens anymore. Identity theft is also a major concern on Internet today, which continues to grow rapidly. Therefore, it is important to guard against releasing any private information on the net.

- There is a growing breach of copy right laws on the net. It is not uncommon to find similar information on the net, in the same language. However, stealing information or copy-pasting can really get you into trouble, and therefore, one should guard against violating copy right rules.
- Cyberbullying is a growing concern for the internet users. It is important to keep a guard on any person trying to threaten or intimidate you on the net. Local law enforcement should be contacted, if the user comes across with messages that are threatening or raise security concern.

3. Work in groups, imagine that you are a part of a team of employees who are responsible for company`s public relations. Your boss receives a lot of complaints from business partners and clients. They claim that company`s employees do not follow rules of business netiquette. They use a lot of slang, weblish, inappropriate smiles, and send tons of “funny” pictures in business e-mails and messages. You are asked to draw up rules of company`s netiquette and send them to the employees.

4. In groups, decide who has the best list of business netiquette.

UNIT 8. NEW TECHNOLOGIES

By the end of unit 8 will be able to:		
Reading 1	Target Reading Skills	<ul style="list-style-type: none"> • Skimming • Scanning
	Question types	<ul style="list-style-type: none"> • Identification of writer`s idea • Matching
Reading 2	Target Reading Skills	Scanning
	Question types	<ul style="list-style-type: none"> • Identification of writer`s idea • True/ False/ Not Given
Listening	Target Listening Skills	Scanning
	Question types	Answering questions
Speaking 1	Target Speaking Skills	To make recommendations
	Format	Discussion
Speaking 2	Target Speaking Skills	<ul style="list-style-type: none"> • To sustain a long turn without interlocutor support • To manage language (organization and expression of ideas)
	Format	Individual long turn
Writing		To prepare a grant application
Use of English		To understand and use the vocabulary of technologies and technological changes.
Scenario	Target Speaking Skills	<ul style="list-style-type: none"> • To express opinion • To present ideas • To work with the audience
	Format	<ul style="list-style-type: none"> • Presentation • Discussion

UNIT 8. NEW TECHNOLOGIES



KEY VOCABULARY

OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

Read the text and find Russian equivalents for the words and expressions in bold type.

“What is An Emerging Technology?”

The more concise definitions of **emerging technology** are:

- *“Characterized by radical novelty, relatively fast growth, coherence, prominent impact, and uncertainty and ambiguity” – Wikipedia*
- *“Are projected to have significant systemic and long-lasting economic, social and political impacts” – Tim Harper*
- *“A new technology that will substantially alter the business and social environment with a time horizon extending to 5 to 10 years” – The Law Dictionary*

Disruptive technologies often seem to take a page out of a **sci-fi novel**. Every year, the list of disruptive technologies will grow to represent **new breakthroughs** and shrink to represent technologies that a) didn't prove to be economically viable and were laid by the wayside or b) were so **economically viable** that they became **mainstream technologies**.

So, what does a list of emerging technologies look like? Here are some of them:

- Optogenetics – a **biological technique** that uses light to control cells in **living tissues**
- **Recyclable Thermoset Plastics** – this essentially means that we will be able to recycle all plastics and will **be ubiquitous** by 2025
- **Distributed Manufacturing** – replace as much of the supply chain as possible with digital data
- **Slack** – a software-as-a-service **team collaboration tool** which also happens to be a **unicorn**.
- **Augmented Reality**
- **Virtual Reality**
- Big Data (datasets being created for AI)

READING 1

OBJECTIVES:

- I. Target Reading Skills
 - to skim the text for general information
 - to scan the text for relevant information
- II. Question types
 - identification of writer`s idea
 - matching

1.Look at the pictures. What are they? Would you like to own any of these gadgets?

2. Skim the text and match the pictures to the paragraphs A-D.

3. Read the text. In pairs, answer the questions.

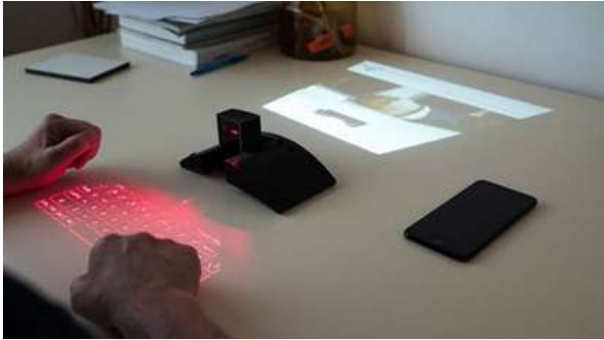
1. What is Amphibio for? How will it work?
2. Why is Masterkey 4.0 concept is unique?
3. Will Masterkey 4.0 be more convenient than a traditional keyboard?
4. What is Palm PVG100? Will this model be economically justified?
5. Why is Turning Phone called the super advanced smartphone?
6. Will the following gadgets be useful in the future? Why?



Picture 1



Picture 3



Picture 2



Picture 4

A. AMPHIBIO by Jun Kaemi is made out of special porous hydrophobic material that supports underwater breathing by replenishing oxygen from surrounding water. It dissipates carbon dioxide that accumulate in the system. Inspired by water diving insects, there's a high possibility that human can survive underwater with this technology. There's a thin layer of air trapped on the insect's superhydrophobic skin surface, it works as a gas exchanging gill. This new developed material creates a complex form using recent additive manufacturing technology, 3D printing. Kaemi says that the next step would be to test AMPHIBIO at human scale, the gill would be at least 32m² to support our oxygen consumption in water.

In not so distant future with further optimization of the material, a human can stay underwater for longer, without the heft of current diving equipment.

B. Any accessory for a smartphone should be comparable in size with it, otherwise the mobility and comfort of work deteriorates dramatically. A different matter, if the device does not have a constant physical form, as in the case of the keyboard Masterkey 4.0, which is projected by a laser beam to the surface. In the deactivated form, it is no more than a cover for a smartphone, in the active – in front of you a full-sized QWERTY keyboard for working with documents.

The technology of the projected keyboard Masterkey is developed by its authors from 2014, they wanted to get not just a toy for geeks, but a universal gadget that would make the physical keyboards a reality. Simply because you can at any time to deploy on the table at home or on the wall in the audience a virtual analogue. The picoprojector provides an increase in the image up to 120 inches diagonally, however at the maximum resolution of 854×480 pixels the image does not differ in detail.

C. TCL Corporation has developed a smartphone with the code name Palm PVG100. Judging by the rumors, the device will be very good. Smartphone will work on Android 8.1 and will receive a hardware keyboard.

It is not clear why TCL, which owns the brand Alcatel and BlackBerry, to release another stillborn smartphone? The desire to play on nostalgia, as Nokia did with a controversial model like the Palm PVG100, is unlikely to be economically justified.

Smartphone from Palm plans to show in the second half of 2018. Not long left to wait, just so as not to vain ...

D. The company Turing Robotic Industries first became famous for the fact that it announced the super-advanced smartphone Turing Phone, and after a while released it with the worst specifications.

Feature HubblePhone is the presence of four OLED-screens, two of which will be located in the main part and two – in the additional. Why so much to the user – is not explained. But the smartphone easily folds up like a clamshell, or offers the owner a sub-screen under the user's desired angle. The smartphone will have several cameras that can recognize the movement of the lips to activate the call function. It is enough to name the name of the contact and the device will automatically start the call.

VOCABULARY 1

OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

1. Translate the following words and expressions into Russian.

1. special porous hydrophobic material
2. to support underwater breathing by replenishing oxygen from surrounding water
3. a thin layer of air trapped on the insect's superhydrophobic skin surface
4. a gas exchanging gill
5. recent additive manufacturing technology
6. to be projected by a laser beam to the surface
7. a hardware keyboard
8. a controversial model
9. to be economically justified
10. to fold up like a clamshell

READING 2

OBJECTIVES:

- I. Target Reading Skills: to scan the text for relevant information
- II. Question types
 - identification of writer's idea
 - True/ False/ Not Given

1. Do you remember any technologies that were innovative in 2015? What are they?

2. Read the text. Find the answers to these questions in the text below.

1. Of what is Professor Cochrane completely convinced?

2. What is stored in the professor`s signet ring?
3. What will change dramatically when we start using rings like these?
4. What is the BT lab developing with artificial intelligence?
5. What effect are the professor`s AI experiments having on evolution?
6. What does the professor see as the negative side of the electronic revolution?
7. What was the result of combining the Internet with TV?
8. What developments does the professor suggest in the field of biotechnology?
9. According to the professor, what will happen by the year 2015? Were his predictions right?

3. In pairs, make predictions for year 2035.

Futures

Talking to Professor Cochrane is probably as close as you can get to time travelling without leaving the current dimension, as his vision stretches far into his century and beyond.

His seemingly unshakable conviction is that anything is possible if you really put your mind to it. In fact, BT (British Telecom) is already sitting on a host of innovations poised to blow your mind during this century.

Designed for the 21st century, Peter Cochrane's signet ring is built around a chip that holds all the details of his passport, bank account, medical records and driving licence. According to Cochrane, it's set to revolutionise shopping. The ring is already a full operational prototype, but it will be some time before you'll be trading your credit card in for the ultimate fashion accessory.

It's not just jewellery that's set to get smarter. One of the biggest projects down at the Lab is looking at artificial intelligence as a way of creating software programs, networks, telephones and machines with a degree of intelligence built-in. By sensing their environment, they should be able to develop new capacities as demands change. 'I have software that is breeding, which is interchanging genes and creating adaptable behavior. This means you'll see the network come alive – it will watch what you do and it will adapt'.

It doesn't stop there, though, as BT has taken artificial intelligence one step further and created machines that are solving their own problems. 'We've created solutions that a human being could never have dreamed of. We have solutions, and although we don't understand how they work, they do work. We're effectively increasing the speed of evolution', says Cochrane.

It's already good to talk, but with artificially intelligent phones on the way it will be even better. Cochrane is at present working on smart phones that can translate English to German, Japanese and French in real-time. 'Some of it's rocket science, but a lot of it's extremely simple. What we've built is a kernel of understanding inside a machine that extracts meaning from the science itself - at the moment we can do simple things such as phrase books', he says. The system uses a non-linear approach that sends the English to the understanding kernel in the machine and then fans it out to all the other languages simultaneously.

There's no doubt that Cochrane is putting a lot of faith in intelligent machines, particularly when it comes to cutting through the deluge of information that he says is the downside of the electronic revolution. BT's solution is the development of intelligent agents that watch, learn and start communicating.

It's not all work down at the Lab, though. BT's also involved in an on-going trial that it claims will revolutionise our leisure time, in particular the way we watch TV. 'We put people on the Internet and broadcast TV at the same time, so that people at home could actually influence what was happening on their TV sets. As a result, it became interactive and therefore more active.'

BT has its fingers in multiple pies and has made biotechnology another core focus of R&D. 'Personally, I think hospitals are very dangerous places to be. Here are lots of viable alternatives. For a start, we can stop bunging up hospitals wards by putting people online.' BT has already developed a pack for heart attack victims that monitors their progress and uploads information via a radio link back to the hospital.

So, what will the future hold for us if Peter Cochrane and his futurologists have their way? Well, by the year 2015, it's likely that will be eclipsed by supercomputer more powerful than the human brain. And if that's got visions of Terminator dancing in your head, don't worry – Cochrane's got covered. 'I'd really hate one morning to find myself considered an infestation of this planet. Our inclination is to nurture life and not to destroy it. Before we let loose a bunch of artificial intelligence, we ought to be thinking through the necessity of building in a number of rules that hold your life as a human being sacrosanct.'

Adapted from 'Futures, Celebrity Squares', Professor Peter Cochrane, PC Pro Magazine, February 2015.

4. Mark the following statements as True or False.

1. BT has a lot of new ideas that will astound people.
2. Jewellery that can store large amounts of personal data has started to replace credit cards.
3. BT's smart phone can only translate English into one other language at a time.
4. Intelligent agents can help users deal with an overload of information.
5. Watching TV will be a more active pastime in the future.
6. The professor thinks that humanity will be destroyed by very powerful computers in the future.

VOCABULARY 2

OBJECTIVES:

To understand and use the vocabulary of technologies and technological changes.

1. Match the following statements with the correct terms in the box.

BT	smart phone	intelligent agent	rocket science	R&D	upload	supercomputer
----	-------------	-------------------	----------------	-----	--------	---------------

1. A computer program that watches, learns and communicates with the user
2. Most powerful type of computer
3. Research and development
4. Transfer data from a client device to a server computer
5. A telephone that can translate English into various languages in real-time
6. British Telecom
7. Very advanced study

2. Translate the following expressions into Russian.

1. Current dimension
2. Signet ring
3. Artificial intelligence
4. To interchange genes
5. Create adaptable behavior
6. To be sacrosanct

VOCABULARY

1. Match the following statements with the correct terms in the box.

quantum bits	DNA biochip	embedded	user interface	MIPS
--------------	-------------	----------	----------------	------

1. A microchip made with organic materials
2. The speed at which the CPU processes instructions
3. The device or program used to interact with a computer
4. Subatomic particles used in quantum computers
5. Fixed, integrated

2. Complete each phrase with an appropriate phrasal verb from the box.

switch off	hang up	back up	bring out	be on	switch over
get through	shut down	put down	key in	skim through	call back

1. I've only managed to _____ the first few chapters of the manual.
2. If you don't recognize the voice and you are worried, _____.
3. You must _____ your password before the program will start.
4. At last I _____ e-mail at home.
5. It's boring – let's _____ to another channel.
6. Always _____ your work on a floppy disk or you may lose it.
7. Don't forget to _____ it _____ before you come to bed.
8. They are _____ her best seller in paperback.
9. I tried many times but I couldn't _____. Her line was busy.
10. The novel was much too exciting to _____ so I missed lunch.
11. I told him you'd _____ later.
12. Remember to save all your work before you _____ the computer.

LISTENING

OBJECTIVES:

- I. Target Reading Skills: to scan the text for relevant information
- II. Question types: answering questions

1. Work in groups. Answer the questions.

1. How often do we use technologies in our everyday life?
2. Are things going to change in the next few years?

2. Watch the video 'Unit 7. Listening. "Project 2020- Scenario for the Future of Cybercrime".'
Tell what future technologies are presented in the video.

3. Watch the video again and name functions that they perform.

SPEAKING

OBJECTIVES:

- I. Target Reading Skills: to make recommendations
- II. Question types: discussion

Work in groups. You are members of “Project - 2020” management team. Analyze all the potential risks of hacking and make recommendations on precautionary measures that should be implemented.

USEFUL LANGUAGE

It is clear from ... that...
With regard to...,
In the light of (this years' experience), ...
Perhaps the most effective way of...
It would be a good idea to...
It is (therefore) believed / obvious that...
It would (not) be advisable / practical to...
We suggest/propose that...
In light of the above, we believe the following measures should be adopted...
In my view, in future, we should...
To improve the situation, we recommend...

SPEAKING 2

OBJECTIVES:

- I. Target Speaking Skills
 - to sustain a long turn without interlocutor support
 - to manage language (organization and expression of ideas)
- II. Format: individual long turn

Work in groups. You will have to talk about a topic for one to two minutes. You have one minute to think about what you're going to say. You can make some notes to help you if you wish. Use linking words for your monologue.

Tell how developments in IT will affect these areas of life in next ten years

You should say:

- About commerce
- About work
- About the relationship between humans and computers

and say why is it so important to you

WRITING. GRANT APPLICATION

OBJECTIVES:

To prepare a grant application.

CONSIDER THIS:

University students have a lot of opportunities to make provision for their future. Special scholarship, traineeship, or grants could make a good start for future career.

There is no a unified format for grant application as every project is unique and different grantors have their own criteria, but it is possible to find some general points to prepare a good application:

1. Pre-writing

- 1.1. **Idea.** Before applying for a grant you should have a clear idea of your project and goals you want to achieve.
- 1.2. **Grantor.** Choose the program (grant) you'd like to apply for, do some background research on the organization that offers it, and find out its application criteria.
2. **Writing**
 - 2.1. Read the **application form** and any supporting documentation and **follow it very carefully!**
 - 2.2. To describe your project in a more detailed way answer the following questions: What is the conceptual novelty of my work? Why is it important? How to achieve and check the results?
 - 2.3. Work on your text. Use drafts, ask for peer editing, and revise your application.
 - 2.4. Consider amounts! Applications tend to happen a lot, but at the time of the commission to solve little. Therefore, the presentation of your text should be crisp and clear. The best chance to attract attention – to make a perfect summary.
 - 2.5. Pay attention to your reference section (if needed). Properly compiled it shows the seriousness of the applicant and that you have done serious preparatory work.

HOME TASK:

Find out relevant information about grants, scholarship or traineeship. Make a list, discuss it with your groupmates or/and supervisor. Prepare a grant application (if possible).

SCENARIO

OBJECTIVES:

- I. Target Speaking Skills
 - to express opinion
 - to present ideas
 - to work with the audience
- II. Format
 - discussion
 - making a presentation

1. In groups, discuss the predictions about technology. Decide which ones are most likely to happen and when they will happen:

1. Medical robots will carry out operations, controlled by surgeons who may be hundreds of kilometers away.
2. Tiny robots will be injected in our bodies to deliver medicine and to perform surgery from the inside.
3. You will be able to interact in a TV programme and follow storyline of your choice.
4. Planes will be controlled by computers which think like humans and are therefore afraid to crash.
5. You will be able to download your brain to a computer before you die.
6. Microchips will be stuck to your skin to form different circuits, including computers. You'll be able to watch videos using your arm as a screen.
7. Business will be carried out in 3-D virtual space, not in offices.

8. Jobs like teaching children or nursing will continue to be done by people, but most other jobs will be done by robots and computers.

2. Your group is a team of investors taking part in a competition to find the best new technology for the future. With your team, prepare and give a short presentation about your idea for the future. Try to persuade a funding committee that your idea is the best.

Technology of the Future Competition

New technology/ name	
Industry	
Possible date of use	
How it will be used	
Advantages	
Main application	
Other applications	

USEFUL PHRASES FOR PRESENTATIONS

Welcoming and greeting the audience	Hello, everyone. Good morning everyone and welcome to my presentation. First of all, let me thank you all for coming here today.
Introducing yourself (name, position, responsibilities)	Let me introduce myself. I'm ... For those of you who don't know me already, my name's ... and I'm responsible for...
Saying what your topic/title/subject is	What I'd like to present to you today is... As you can see on the screen, our topic today is... The subject/focus/topic/title of my presentation/talk/speech is... In this talk, I/we would like to concentrate on... In my presentation I would like to report on... I'm here today to present...
Explaining why your topic is relevant for your audience	Today's topic is of particular interest to those of you who... My talk is particularly relevant to those of you who... By the end of this talk you will be familiar with...
Stating your purpose/objective	The purpose/objective/aim of this presentation is to... Today I'd like to give you an overview of... During the next 20 minutes we'll be... What I'm going to do/What I intend to do is describe to you/show you/tell you about...
Presenting the outline/organization/structure of your presentation	I've divided my presentation into three main parts. In my presentation I'll focus on three major issues. We thought it would be useful to divide our talk into ... sections. We can break this area down into the following fields:... The subject can be looked at under the following headings:... We have organized this talk in the following way:... This presentation is structured as follows:... This talk will cover two current theories on the topic of...
Sequencing	First/First of all, I'd like to give you an overview of... Secondly/Then/Next, I'll focus on... Thirdly/And then, we'll consider... Finally/Lastly/Last of all, I'll deal with... So, I'll begin by filling you in on the background to/ bringing you up-to-date on/ giving you an overview of the history of/ making a few observations about/ outlining... And then, I'll go on to highlight what I see as the main points of/ put

	<p>the situation into some kind of perspective/discuss in more depth the implications of/ take you through/make detailed recommendations regarding...</p> <p>One thing I'll be dealing with is the issue of...</p> <p>I'll end with...</p> <p>And finally, I'd like to address the problem of/to raise briefly the issue of...</p>
Questions	<p>If you have any questions, feel free to interrupt me at any time. Please interrupt me, if there is something which needs clarifying. Otherwise, there'll be time for discussion at the end.</p> <p>If you have any questions you'd like to ask, I'll be happy to answer them.</p> <p>If you don't mind, we'll leave questions till the end.</p> <p>There will be time for questions after my presentation.</p>

LANGUAGE FUNCTIONS

Expressing opinion	
<p>As far as I'm concerned...</p> <p>As for me / As to me, ...</p> <p>From my point of view, ...</p> <p>I feel that ...</p> <p>I hold the view that ...</p> <p>I reckon ...</p> <p>I think people should (have the right to) ...</p> <p>I'd say that ...</p> <p>If you ask me, ...</p> <p>In my experience...</p> <p>In my opinion, ...</p> <p>It seems to me that ...</p> <p>My feeling is that ...</p> <p>My view / opinion / belief / impression / conviction is that ...</p> <p>Personally speaking,</p> <p>Personally, I think that ...</p> <p>Speaking personally, ...</p>	Unit 1
<p>For my part,</p> <p>I am of the opinion that ...</p> <p>I am sure / I am certain that ...</p> <p>I am under the impression that ...</p> <p>I dare say that ...</p> <p>I guess that ...</p> <p>I have no doubt that ...</p> <p>I think / consider / find / feel / believe / suppose / presume / assume that ...</p> <p>It is my belief,</p> <p>My impression is that ...</p>	Unit 2
<p>Personally, I believe (feel)...</p> <p>Personally, I think...</p> <p>Speaking for myself...</p>	Unit 3
<p>I form / adopt an opinion.</p> <p>As far as I am concerned, ...</p> <p>As far as I understand/ can see, ...</p> <p>I am sure/certain/convinced that...</p> <p>I hold the opinion that...</p> <p>I'd say that...</p>	Unit 4
<p>To my mind, ...</p> <p>Taking into account ...,</p> <p>It was clear that ...</p> <p>The most important point seems to me that ...</p> <p>It seems obvious that ...</p> <p>It is important that ...</p>	Unit 5

<p>... because I am sure that ...</p> <p>I have no doubt that ...</p> <p>I think / consider / find / feel / believe / suppose / presume that ...</p> <p>I guess that ...</p> <p>I bet that</p> <p>I gather that ...</p> <p>It goes without saying that...</p>	
<p>I have seen/noticed/observed that...</p> <p>I believe that...</p> <p>I bet that</p> <p>I gather that ...</p> <p>I have the feeling that ...</p> <p>I tend to think that...</p> <p>I would say that ...</p> <p>I'd like to point out that...</p> <p>In my eyes, ...</p> <p>In my opinion, ...</p> <p>In my view ...</p> <p>It is my impression that ...</p> <p>My own feeling on the subject is that ...</p> <p>One argument in favour of ... is that...</p>	
Expressing agreement	
<p>I have no objection.</p> <p>I agree with you / him ...</p> <p>I approve of it.</p> <p>I completely/totally agree ...</p> <p>I quite agree ...</p> <p>That's (just) what I think, too.</p> <p>That's a good point.</p> <p>That's exactly the point.</p> <p>You are absolutely right.</p> <p>I'll go along with that.</p> <p>Absolutely.</p> <p>I have come to the same conclusion</p> <p>I hold the same opinion.</p> <p>I share your view.</p> <p>I think so.</p> <p>We are of one mind / of the same mind on that question.</p>	Unit 1
<p>It is true.</p> <p>That is right.</p> <p>That's just it!</p> <p>I am at one with him on that point.</p>	Unit 2
<p>He is quite right / absolutely right</p> <p>He may be right.</p>	Unit 4

<p>Fair enough!</p> <p>I really think so.</p> <p>The author / the narrator / the protagonist / etc. is right</p> <p>Quite so!</p> <p>Just so!</p> <p>Yes of course!</p>	
Expressing disagreement	
<p>But that's not always the case.</p> <p>I am afraid I don't really agree.</p> <p>I am afraid that is not quite true.</p> <p>I am not so sure about that.</p> <p>I am not sure I agree with you.</p> <p>I can't see your point at all.</p> <p>I completely disagree.</p> <p>I disagree.</p> <p>I don't agree at all.</p> <p>I don't agree.</p> <p>I don't really think you are right.</p> <p>I don't think so.</p> <p>I think otherwise. I don't think that's quite right.</p> <p>I don't agree with you/him.</p> <p>No, you are missing the point.</p> <p>Not necessarily</p> <p>That's not the point.</p> <p>You are / he is wrong.</p>	Unit 1
<p>I don't share his/her/your view.</p> <p>I take a different view.</p> <p>This argument does not hold water.</p> <p>Not at all!</p>	Unit 2
<p>He's off his head!</p> <p>I don't agree with what you say.</p> <p>Nonsense!</p> <p>Rubbish!</p>	
Expressing doubt	
<p>I don't know.</p> <p>I find it difficult to believe.</p> <p>I'm not sure.</p>	Unit 1
<p>I doubt if he'll reach there in time.</p> <p>I'm not certain.</p> <p>I'm not sure whether he's telling the truth</p> <p>Perhaps...</p> <p>That can't be true.</p>	Unit 2
<p>Are you absolutely sure he has left?</p> <p>He may call on us on his way there.</p>	

<p>I think he's the man, but I can't be certain. It's not clear to me why he did such a thing. Surely, you could have explained it to him? That means he didn't actually meet her? That seems unlikely, you know. Why was that, then? You did hear him say that, didn't you?</p>	
Expressing dissatisfaction	
<p>His work isn't up to the mark. I don't like it like this. I don't like it. I had in mind something very simple. I'm not satisfied with what I have done for them That won't do. These shoes seem a little short for me. This dress is not quite the right style. This is not good. This is not what I need.</p>	
Making predictions	
<p>I reckon I will ... It is commonly believed ... It is doubtful that... It is likely that... It is possible that...</p>	Unit 4
<p>From a personal opinion/view ... I don't imagine I'll ... I don't think I'll ever ... I guess I'll ... It is probable that... It is unlikely that... Many people strongly suspect this will... Many people think/do not think ... Some people hold that this will... This can be anticipated to... This might lead to... This will certainly lead to... This will definitely lead to... This will possibly lead to... This will probably lead to... This will undoubtedly lead to... This will... This would lead to... This would possibly lead to...</p>	
Expressing uncertainty	

<p>I am ambivalent about ...</p> <p>I am in two minds about ...</p> <p>I am undecided ...</p> <p>I am unsure ...</p>	Unit 1
Asking for clarification	
<p>Sorry, I don't quite follow you</p> <p>Sorry, I don't really see what you are getting at</p> <p>You mean ...</p>	Unit 1
End of an answer	
<p>... in my view, anyway.</p> <p>All in all ...</p> <p>And that's about it, really.</p> <p>So, in short ...</p> <p>That's my opinion, anyway.</p>	
Starting/ closing a discussion	
<p>I think we need to make a decision.</p> <p>Let's talk about ... first.</p> <p>Shall we try to come to an agreement?</p> <p>We could start by talking about ...</p>	
Contrast	
<p>Although I must admit that ...</p> <p>But at the same time ...</p> <p>But on the other hand, ...</p> <p>Having said that, ...</p>	
Proposing	
<p>Do you fancy going to see (this photography exhibition)?</p> <p>How about going to (this photography exhibition).?</p> <p>How does this sound?</p> <p>I have got an idea. We could go to (this photography exhibition).</p> <p>Let's go to (this photography exhibition).</p> <p>Shall we go and see (this photography exhibition).?</p> <p>Well, why don't we go to (this photography exhibition).</p> <p>Would you like to go to (this photography exhibition)?</p>	
Reacting	
<p>... , don't you agree?</p> <p>... seems like the best option to me.</p> <p>Believe me, ...</p> <p>But just think of the !</p> <p>I am really keen on the idea of ...</p> <p>I am sure it will be worth it.</p> <p>If you ask me, I really think we should ...</p> <p>Let's go for it.</p> <p>Oh, come on!</p>	

Personally, I am in favour of ... (+ gerund)	
Reacting in a negative way	
(Modern art) isn't really my thing. I am not a big fan of (modern art) I am not really into (modern art) In fact, I don't really like(modern art) at all. I don't find (modern art) very interesting. To be honest, (modern art) just makes me laugh.	
Exclamations	
(Modern art) isn't really my thing. I am not a big fan of (modern art) I am not really into (modern art) In fact, I don't really like(modern art) at all. I don't find (modern art) very interesting. To be honest, (modern art) just makes me laugh.	
Making proposal	
I would like to propose that... I would like to put forward a proposal that ... I've got an idea! If... / we could ... / why not ...	Unit 2
Giving reason	
I base my argument on ... I'm telling you all this because ... On account of ... Since ... (так как) The reason for this is ... This is due to ...	Unit 2
Keeping to the point	
... has nothing to do with ... It would be more to the point, if ... What we are discussing here is ...	Unit 2
Comparing and contrast	
Both of these ... Neither of these ... One of these ..., while the other ... This model ... whereas the other ... This one ..., but on the other hand that one ...	Unit 2
Unlike Different from By/in contrast Compared to On the contrary Just like Likewise Much the same Similar to Similarly	Unit 3
Speculating	

<p>As far as I can see ...</p> <p>I'd say ...</p> <p>It looks like a ...</p> <p>It might/ may/ could/ can't be ... Unit 2</p> <p>I don't think it ... because ...</p> <p>It must be ...</p> <p>It's hard to say, but I think ...</p>	Unit 2
Persuading	
<p>It's obviously that ...</p> <p>I am absolutely sure that...</p> <p>It would be pity if ...</p> <p>You must agree that ...</p> <p>There is no doubt that ...</p> <p>I feel that ...</p> <p>I believe that ...</p> <p>Another reason why,</p>	Unit 4

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