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ИМ. Н.А. ДОБРОЛЮБОВА

Факультет международных отношений, экономики и управления

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НАУКА И ТЕХНИЧЕСКИЙ ПРОГРЕСС

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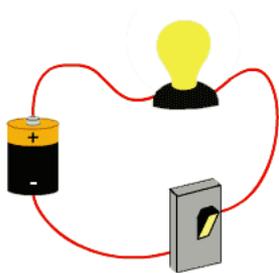
Unit 1. Inventions and inventors

PART 1. Vocabulary introduction.

1. Look at the pictures of important inventions and discoveries. Match these words with the photos. Some words are used more than once.

telephone writing fire heat wire communication power electricity printing cooking
education

Picture 1



Picture 2



Picture 3



Picture 4



.....
.....
.....
.....

2. Choose one picture and answer the questions.

1. What is the invention/discovery?
2. What is it used for?
3. Why is it important?
4. How did people manage before they had this invention/discovery?

3. Choose one of the pictures. Complete the chart in a similar way to the example given.

Invention	Advantages	How people managed before
aeroplane	Travels long distances	Traveled by horse carriage, boat or train. Allowed more time for travel

4. Prepare to talk about your invention. Complete the model, using the information in exercise 3.

In my opinion, was a very important event for mankind. Thanks to this innovation, today we are able to But how did people manage before they had? Well, firstly they Secondly, they Finally, they

5. Discuss your ideas with the class and answer any questions you are asked.

Which of the four inventions or discoveries do you think was most important for mankind? Why?

PART 2. Reading Text 1.

Multiple matching. Read the descriptions of the inventions. For questions 1—15, choose which text A—D is referred to. Each one may be chosen more than once. When more than one answer is required, these may be given in any order.

Which person

was also an author?	1		
got bored with his invention?	2		
spent a long time on his invention?	3		
did not die while testing the apparatus?	4	5	
almost caused the death of another person?	6		
accepted his death?	7		
was not let down by his apparatus?	8		
jumped from a building?	9		
only transported one person?	10	11	
had more success with a different invention?	12		
did something that had never been done before?	13	14	
experimented on another model first?	15		

Pioneers of Flight

A	<p>The Belgian de Groof worked for years on an apparatus intended to emulate the flight of birds. For this purpose, he constructed a device with bat-like wings. The framework was made of wood and rattan; the wings, spanning nearly 40 feet, were covered with strong, waterproof silk, as was the twenty-foot-long tail. The machine was controlled by three hand operated levers. De Groof's first trial, which consisted of jumping from a great height to the Grand Place in Brussels, ended in complete failure, and he was lucky to escape unhurt. His second attempt was successful, but his third, on the evening of 9 July 1894, was not. Having planned to descend into the River Thames, de Groof was taken up by balloon and released from a height of 1,000 feet. For some unknown reason the wing frame collapsed and he fell to his death. There was almost a second accident when the balloonist, having lost control of the balloon, landed in front of an approaching train, which just stopped in the nick of time.</p>
B	<p>In 1875, Gaston Tissandier reached the unheard of altitude of 8,600 metres in a balloon. Both of his companions on the trip died from breathing the thin air. Tissandier, himself, survived, but became deaf. This did not, however, put him off and he continued with his experiments. On 8 October 1883 he and his brother Albert became the first to fit an electric motor to an airship, thus creating the first electric-powered flight and enabling airships to be steered. In order to form some idea of the results which could be obtained, the brothers first performed tests on a small-scale model in their own laboratory near Paris. The airship they finally constructed was huge — 92 feet long with a diameter of 30 feet. The bamboo pannier, which was attached by twenty ropes to the envelope, contained the Siemens electric motor.</p>

	<p>The test on 8 October, which lasted just over an hour, was a relative success. The flight lasted just over an hour and the brothers landed safely. They had been able to steer the airship at will declared that they would have had problems had the weather not been fair.</p>
C	<p>Otto Lilienthal studied the science of aviation and published two books on the subject. He constructed a machine in which he threw himself from a height, remained in the air for a time and then gradually descended to earth. His machine consisted of a framework of thin wooden rods covered with fine linen fixed securely to his shoulders. It took the shape of two slightly concave wings, with a raised tailpiece at the rear. A pair of rudders were fitted to help him steer. Mr Lilienthal first launched himself in his machine from a tower on a hilltop near Berlin, then later on from a 200-foot-high hill in the Rhinow Mountains. He describes his feelings: ‘After a few leaps one gradually begins to feel that one is master of the situation; a feeling of safety replaces the initial fear.’</p> <p>On 9 August 1896, Otto Lilienthal crashed to earth from a height of 50 feet while testing a new type of steering device. He died the following day. His last words were reported to be, ‘Sacrifices must be made.’</p>
D	<p>On Tuesday 31 July 1894, for the first time in history, a flying machine actually left the ground, fully equipped with engines, boiler, fuel, water and a crew of three. Its inventor was Hiram Maxim, who had invested in its construction. Unfortunately, Maxim’s triumph was short-lived as the Maxim flying machine crashed on its first flight. The machine was a large structure formed of steel tubes and wires. Weighing 8,000 pounds including men and stores, it had five wings and was steam-driven. Maxim began tests in 1894. On the third try the plane, which was powered up to 40 miles per hour, left its track and continued on its way cutting a path through the grass for some 200 yards. At times it</p>

reached an altitude of two to three feet above the ground before it finally crashed. After this Maxim lost interest in flying and went on to other inventions, making his fortune with the invention of the Maxim machine gun.
--

Follow-up

- 1. How important has the invention of the aeroplane been?**
- 2. What do you think are the best and worst inventions ever?**

Vocabulary practice

1. Look up the transcription of the following words

Apparatus	pannier
Trial	sacrifice
To release	engine
altitude	triumph
concave	short-lived
rudders	

2. Match the words with their definitions

to emulate	existing or occurring at the beginning
to descend	move or fall downwards
to collapse	reproduce the function or action of; imitate; copy
initial	suddenly fall down or give way

3. Provide Russian equivalents

lever	to replace
in the nick of time	machine gun
to steer	

4. Study the list of verbs to talk about scientific work

To work on

To construct (a device)

To intend

To be put off

To obtain results

To perform tests

To publish books on smth

To launch

To test (a device)

To equip

To invest in

PART 3. SPEAKING

Look at the language we use to give opinions. Write your own examples, giving your opinions on modern technology, such as mobile phones, computers, MP3 players, etc.

Strong opinions

I'm convinced that... I'm convinced that cloning a human being would set a dangerous precedent.

.....
.....

It is really clear that... It is really clear that the government must fund more scientific research.

.....
.....

It is obvious that... It is obvious that schools need better laboratory facilities.

.....
.....

Neutral opinions

I think that... I think that life would be better without the motor car.

.....
.....

I believe that... I believe that I owe a lot to science, but only a little to my science teacher.

.....
.....

Weak opinions

It seems to me that... It seems to me that not enough students study science at school.

.....
.....

I would say that... I would say that scientists should be paid more than business people.

.....
.....

Expressing concessions

Although... Although nuclear energy is cheap, I wonder if it really is safe.

.....
.....

In spite of the fact that... In spite of the fact that it is dangerous, a lot of young people still smoke.

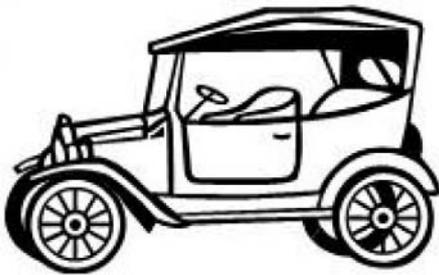
.....
.....

Discussions

1. Choose one of the photos. Read the text about the invention and answer the questions.

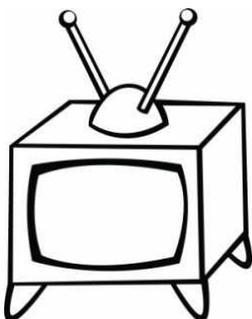
- 1 Who invented it?
- 2 When was it invented?
- 3 Why is it important?

The motor car is probably the most important invention in the history of transportation since the wheel. A Frenchman, Amedee Bollee, built a car for 12 passengers in 1873, but its steam engine was impractical and the vehicle was too slow. Then came the invention of a practical petrol engine.



In 1889, in Germany, Gottlieb Daimler and Wilhelm Maybach built a car with a two-cylinder petrol engine which travelled at 10 mph. Another German, Karl Benz, also built a petrol-engined car in the same year. However, only a few motor cars were manufactured in Europe and the United States before 1900.

In 1901, The Curved Dash Oldsmobile was the first automobile to be produced in large numbers, but Henry Ford of Detroit is said to have introduced the modern method of mass production using assembly lines. He began making his Model-T in 1908, and by 1927 when Ford stopped making it, over 18 million had been produced. The model-T Ford opened the way to affordable motorized transport, and is considered to be the father of today's family car.



The Scottish electrical engineer John Logie Baird invented a mechanical television system.

This television pioneer created the first televised pictures of moving objects in 1924. Then, in 1928, he succeeded in transmitting an image of a human face across the Atlantic and

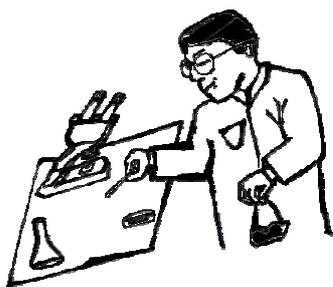
demonstrated a colour television.

He persuaded the BBC to start broadcasting television on the Baird 30-line system in 1929. Simultaneous sound and vision was first broadcast in 1930. In July 1930, the First British television play was transmitted.

But in 1936, the BBC adopted the electronic television technology of Marconi-EMI. This technology had 405 lines per picture, compared to Baird's 30. The quality of the picture was much better.

Although Baird lost his early advantage, many people think he was the founder of the modern television which is enjoyed throughout the world today

In 1928, a scientist named Alexander Fleming was doing research at St Mary's hospital in London. He was looking for something to fight bacterial infections



When Fleming went on holiday he did not wash his culture plates. To his surprise, when he came back a few weeks later he noticed that a mould had grown on one of them. The exciting part was that there were no bacteria growing around it. The mould prevented the bacteria from growing by producing some type of substance. Fleming named the substance 'penicillin'.

Fleming published his findings in 1929. After his discovery much research began into finding out more about this incredible substance.

Although Fleming carried out many experiments with penicillin, he was not able to use its potential as a treatment against infections. Nevertheless he is still known as the scientist who discovered penicillin.

Howard Florey, Ernst Chain, and Norman Heatley further developed Fleming's work in 1938 at Oxford University. They were able to make enough penicillin to establish it as a valuable drug.

The world now had a valuable treatment that would save the lives of many millions.

2. 'The invention of the millennium' is an award for the most important scientific invention in the last 1000 years. In groups, talk about nominating an invention. Use the invention you chose in exercise 1 or any other invention or discovery. Use these headings to help you.

What is the invention?

When was it discovered or invented, and by whom?

Why was it a great achievement?

What are its benefits?

3. Discuss your ideas with the class and answer any questions you are asked.

4. Read the voting instructions. In your groups, discuss and award the points.

Voting instructions:

- You cannot vote for your own invention.
- Discuss which invention was the most important.
- Give the most important invention three points.
- Give two points to the second most important invention, and one point to the third invention

5. Read out your votes to the class and explain why you made your choice.

Which invention won the most votes?

Presentation

Make a short presentation on a scientist you consider who has made a contribution

PART 4. READING TEXT 2.

You are going to read a short story about a scientist. Seven paragraphs have been removed from the story. Choose from the paragraphs A-H the one which fits each gap (1-6). There is one extra paragraph which you do not need to use. There is an example at the beginning (0).

A. Angela had just sat down with the first sample and was holding it under the microscope. ‘That’s interesting,’ she said to herself as she saw something she hadn’t expected.

B. Angela heard these words with complete astonishment. She knew it was impossible. And yet ... She walked slowly towards the cages. ‘How do you know my name?’ she asked. It was the only question she could think of. The rat replied that he’d heard Brian call her that only the day before. ‘I nearly introduced myself to you then,’ it said. ‘But I wanted to wait until we were alone.’

C. She’d seen the same thing a while ago, and knew exactly what to do. She called reception. ‘Susan, could you come in here, please. I think we’ve got a problem.’ She sat back and waited for Susan to come in.

D. But she knew in her heart that they had to use them. There was no other way. And so she reminded herself once again of the people who would continue to suffer if she didn’t find a vaccine and that gave her the strength to carry on working.

E. ‘Me too,’ said the voice. ‘You’ve no idea what it’s like stuck in here all day. At least you get to go home at night. I’ve been here for months.’ Angela jumped up. ‘Who said that?’ she asked nervously. For a second, the thought crossed her mind that it was one of the rats in the cage at the back of the lab. ‘It can’t be,’ she said.

F. Today, however, he was absent. He’d flown to Fullingham for his sister’s wedding, and wouldn’t be back until next Monday. Angela made herself some coffee, and started to get the test tubes and microscopes ready. She was going to be analysing some chemicals that they’d prepared the day before.

G. She wasn’t sure she was quite ready for that, yet. So she stopped. Leaning forward as far as she could, and peering into one of the cages, she said, ‘Where are you? Let me see you. Which cage are you in?’

H. Angela was expecting another normal day at the laboratory. For the past three years, she had been conducting experiments at the Winchester Foundation in the hope of developing a vaccine against leukemia. Yes, she sometimes had to do experiments on live animals, but she knew that in the long run it would save millions of lives.

The laboratory

The sky was grey as Angela Dawson got out of the car and walked towards the cold, steel building. She opened the heavy steel door. ‘Morning, Dr Dawson,’ said the secretary as Angela walked past reception. ‘Another day in paradise.’ The secretary always said this, and Angela always replied, ‘Hi, Susan. Only four hours till lunchtime.’

0.....H.....

She did, of course, have doubts about such experiments. ‘Is there a better way?’ she would ask herself sometimes. ‘Can’t we do our research without having to make animals suffer?’

1.....

She walked into her laboratory. Normally, her assistant Brian would already be there, hard at work getting the equipment ready for the day’s experiments.

2.....

Once she’d finished this analysis — probably after lunch — she’d have to inject a small amount of one of the chemicals into a rat. The rat wouldn’t feel any pain, and there shouldn’t be any serious side effects.

3.....

‘What is?’ asked a squeaky voice. Angela looked up suddenly.

‘Who’s there?’ she asked. She looked around the lab. It seemed to be empty. ‘Strange,’ thought Angela. ‘I must be imagining things.’ And then she said aloud, ‘I guess I need a holiday.’

4.....

‘Actually, it can. You, Dr Dawson, have the privilege of speaking to the world’s first talking rat. Do come closer, I can hardly see you. We don’t have very good eyesight, you know. And don’t be frightened. I’m not going to hurt you.’

5.....

She was approaching the cages now. They kept that end of the laboratory fairly dark, and it was difficult to see clearly inside the cages without standing right next to them.

6

‘Over here,’ said the squeaky voice. ‘Come closer...’ Suddenly, she heard laughter coming from behind the cage. ‘Come closer... I’m sorry, Angela. I couldn’t keep it up,’ said Brian laughing.

‘Brian! I don’t believe this. What are you doing here? What is all this?’

‘Angela, it’s your birthday. I knew you’d forget; you always do. I wanted to give you a birthday to remember.’

‘Well, you’ve certainly managed that,’ she said as she started hitting him playfully.

Retell the text on behalf of a) Angela, b) Brian

PART 5. WRITING

1. Read the exam task and answer the questions below.

You have seen this advertisement in your college magazine:

COMPETITION - FUTURE INVENTIONS

Write an article for our magazine describing an invention you would like to see in the future and explaining how it would improve our lives.

The best article will be published in our magazine.

Write an article for the competition in 120—100 words.

1 Who is the intended reader? a) the students in your college b) the editor of the magazine

2 Should the style be: a) formal/neutral? b) informal?

3. What do you want the article to achieve? Tick two of the following.

a) win the competition

- b) inform the readers about inventions that are soon to be produced
- c) entertain the readers
- d) complain about the lack of equipment we have now

2. Look at the following list of points. Choose which ones to include and put them into the paragraph plan below. Think carefully about which one would make an interesting opening paragraph.

- a. the problems that this invention will solve
- b. what this invention will do
- c. when this invention will be available
- d. what kind of people will use this invention
- e. imaginary scene with this new invention in use
- f. what this invention will look like

Para.1: Introduction

1) _____

Para. 2:

2) _____

3) _____

Para. 3 the problems that this invention will solve

4) _____

Para 4 conclusion

5) _____

Remember that the first paragraph of an article needs to attract the attention of the readers and interest them enough to make them want to read on.

3. Now write your article. Remember to:

- give it an interesting title
- cover both parts of the task
- divide your article into paragraphs
- write in an appropriate style

UNIT 2. Communication technology.

PART 1. Vocabulary introduction.

The Cell Phone Age

1. Discuss these questions with a partner

- Do you have a cellular phone?
- Why do/don't you have one?

2. Vocabulary. Match the word with the correct meaning

indispensable	large inconvenient size
the preserve	not noticing
bulky	be as good as
rival	suitable only for
bemoan	very important
oblivious	complain about

3. Change these sentences using the vocabulary from exercise 2.

1. Many people complain about the manners of today's youth.
2. Computers have changed a lot in recent years. Desktops used to be very big.
3. Many free software packages are as good as commercial ones.
4. Sumo wrestling used to be only for Japanese. Now many nationalities take part.
5. Microwave ovens are nowadays very important for cooking.

4. Quickly read the following text:

For many people today, it's difficult to imagine life without a cellular phone. Once the preserve of the rich, they have now become an indispensable part of modern day life.

The technology for cellular phones was patented in 1975, but it wasn't until 1982 that the first commercial cell phone network was established in the United States.

Since that time, the cellular phone has changed from a bulky machine, to something that can fit into the palm of your hand.

The functions available in modern-day cell phones are increasing rapidly. E-mail access is now standard. Cellular phone cameras, which were once little more than a gimmick, now rival stand-alone digital cameras in terms of quality. With ‘Third Generation’ telephones, broadband access offers the possibility of video phones, television and full Internet access.

All this comes at a cost, however. Many people bemoan a society where people seem glued to their phone, but oblivious to all that is going on around them.

5. Summarizing. Write one sentence for each paragraph. Compare your answers with other students.

- 1)
- 2)
- 3)
- 4)

6. Discussion. Ask your partner(s) these questions. Ask follow-up questions!

- Do you agree with the writer that cell phones have become ‘an indispensable part of modern day life’?
- The text talks about the social cost of people using cell phones. Do you think it’s a major problem?
- Why did you choose your particular cell phone? Does it have any functions that you never use?
- How do you think cellular phones will change in the coming years?
- Do you think you have good ‘cell phone manners’? Can you give any examples?
- In what places is cell phone usage banned? Do you agree with this?
- Do you ever get annoyed by cellular phone users?
- From what age do you think it’s acceptable for people to have cell phones?

PART 2. Reading Text 1. Multiple matching

1 Read the texts opposite about pioneers in the field of communications. Find out what each person invented.

- a. Gutenberg invented
- b. Braille invented
- c. Morse invented
- d. Bell invented

A Johannes Gutenberg

Johannes Gutenberg, who was born around the year 1400 in Germany, is widely regarded as the inventor of the modern printing press. Before about 1450, most books were written or copied by hand. This made them extremely time-consuming to produce and expensive to buy. But in 1455, Gutenberg developed a machine which could print multiple copies of the same book. These printed books were sold for 30 florins each, and although this represented three years' wages for an average office worker at the time, it was still considerably cheaper than a handwritten book. Today, there are 48 copies of Gutenberg's first book in existence. Two are at the British

Museum and can be viewed online. Gutenberg did not achieve financial success as a result of his breakthrough — the rich at that time regarded printed books as inferior and preferred handwritten works — but his invention helped to spread knowledge across Europe and was a major factor in the Renaissance.

B Louis Braille

Born in France in 1809, Louis Braille became blind at the age of three after an accident in his father's workshop. When he was ten, he earned a place at a special school for blind children in Paris, one of the first institutions of its kind in the world. Although this saved Louis from the normal fate of the blind at that time — begging for money on the streets — life at the school was not easy or comfortable, and Braille was served bread and water. In 1821, Charles Barbier, a former soldier, visited the school and talked about a code that he'd invented which allowed soldiers to share information on the battlefield without speaking. The code used

dots that could be felt with the fingertips. Impressed by this idea, Louis worked on his own code to help the blind read, using one of his father's tools to make the dots — ironically, the same kind of tool that had caused him to lose his sight twelve years earlier. The code that Louis invented has become standard throughout the world. The first book ever printed using Braille was a book Braille himself had written about his new system of writing.

C Samuel Morse

Samuel Morse, born in 1791 in Massachusetts, USA, started his career not as an inventor but as an artist. He had great artistic talent, and soon became well known for his portraits, but he also had a passion for new technology. In 1832, while travelling home by sea from Europe, he overheard a conversation about electromagnetism, and this gave him the idea for a new form of communication: the electric telegraph. Although other inventors had developed similar machines, Morse's worked better and he applied for, and got, the patent in 1837. For the next five years, Morse tried to persuade politicians and businessmen in the USA to invest in a network of telegraph wires for sending messages between cities, but most of them did not believe such a system could ever work. And yet, a few years later, telegraph wires encircled the earth allowing instant messages to be sent from one continent to another.

D Alexander Graham Bell

A pioneer in the field of telecommunications, Alexander Graham Bell was born in 1847 in Edinburgh, Scotland. He moved to Canada and then to the United States, settling in Boston, before beginning his career as an inventor. Perhaps because of his mother's hearing problems,

Bell had a particular interest in the education of deaf people. This led him to invent the microphone and, in 1876, his 'electrical speech machine', which we now call a telephone. Bell was not the only inventor working in this field, but his lawyer managed to secure the all-important patent which gave Bell ownership of the idea. Bell and his partners tried to sell the patent to Western Union, a large communications company in the USA, for \$100,000. The president of the company

thought it was too much to pay. Two years later, he admitted to colleagues that if he could get the patent for \$25 million, he would consider it a bargain. But by that time, Bell was not interested in selling and was already a rich man.

2. Read the texts again carefully. For questions 1—15, choose from the people (A—D). The people may be chosen more than once.

Which person

1. was born more than 500 years ago?
2. suffered a terrible injury at a young age?
3. had another career before starting to invent?
4. was inspired by a military invention?
5. lived in the USA but was not born there?
6. personally obtained a patent?
7. tried hard to convince people of the importance of his invention?
8. nearly gave up the rights to his invention?
9. did not make much money from his invention?
10. helped to educate people in many countries?
11. developed his invention using something belonging to one of his parents?
12. developed his invention based on something he heard on a ship?
13. developed inventions to help combat a family member's disability?
14. had a difficult time during his education?
15. produced a book about his invention?

Vocabulary

3. Arrange the following words in synonymous pairs.

To regard as	to make much money
multiple	numerous
to achieve financial success	main
inferior	to become blind
major	to convince
to lose sight	to educate people

well known	to fight
To persuade	to get
to obtain	famous
to spread knowledge	not good enough
to combat	to consider

4. Paraphrase the sentences using synonyms of the words in bold.

1. He **is** currently **considered** to be the best British athlete.
2. These children suffer from **multiple** handicaps.
3. How to **Achieve Financial Success** - Learn the Secret of Having Financial Success As Part of Your Life
4. How Do People **Become Blind**?

5. Study the following words and their derivatives.

Exist – existence

Injure – injury

Inspire – inspiration

Apply – application

Circle – encircle

Own – ownership

Suffer – suffering,

Grammar

6. Study the following sentences with infinitives and gerunds.

- This made them extremely **time-consuming to produce** and **expensive to buy**.
- The invention allowed soldiers to share information on the battlefield **without speaking**.
- Morse tried to persuade politicians and businessmen in the USA to invest in a network of telegraph wires **for sending messages** between cities

- He moved to Canada and then to the United States, settling in Boston, **before beginning** his career as an inventor.
- The president of the company thought it was **too much to pay**.
- Bell was not **interested in selling** and was already a rich man.

7. Make up your own sentences by analogy.

8. Prepare to speak on major inventions of the communication technology.

PART 3. Dialogues and speaking

In pairs, discuss which of these forms of communication you use, when you use them and who you communicate with.

Email letter postcard text message phone video
chat

Instant messaging chatroom

Discuss these questions:

1. Are each means of communication listed generally more popular with older or younger people? Why?
2. What are the advantages and disadvantages of each means? Think about
Cost speed convenience
degree of formality the situation (personal or business)
3. Which of the means listed will be more popular in the future and which less popular, in your opinion? Why?

PART 4. READING TEXT 2. Welcome to the iPod generation

1 Before you read the article below about MP3 players, discuss these questions.

- a How do you listen to music? On the radio, the TV, a Walkman, a CD player, the Internet, or an MP3 player? Which of these do you prefer?
- b How are MP3 players different from other music-playing equipment?

2 Read the article below. Seven sentences have been removed from the article. Choose from the sentences A—H the one which fits each gap (1—7). There is one extra sentence which you do not need to use.

Today it is not uncommon to see people — for all I know, you might even be one of them — who live and walk about with white, black, blue or pink wires hanging from their ears wherever they go. They move about in their personal bubbles, sometimes unaware of what’s happening around them. 1 _____ Outside life is shut out. Sometimes, rightly so, for environmental distractions can easily prevent them from concentrating on something really important. Of course it doesn’t have to be an actual iPod; it could be one of the other MP3 players on the market. So are you one of ‘them’? Or, should I say one of ‘us’? 2 _____

For introverts like me, walking around in our own personal bubble is perfect. 3 _____ What’s even better, wearing earphones seems to give a signal to people which says: ‘Do not disturb — I’m enjoying myself and am not available for chatting at the moment!’ If, for example, I’m strolling along a busy street, and I see someone I’d rather not talk to, I can simply stare into space and pretend I haven’t seen them. 4 _____ Of course, I don’t like being on the receiving end of this anti-social treatment, but I can’t complain.

Now imagine this situation: you’re at work and about to make an incredible scientific breakthrough, or you have just come up with an idea that will save the company millions, and your boss suddenly turns up.

5 _____. Listening to music through earphones is the perfect way to ignore such interruptions. Once again, those white, black, blue or pink wires dangling from your ears would be sure to give that ‘Go away!’ signal.

6 _____ It’s probably part of the growing up stage when they just want to ignore their whole family. Instead of covering their ears and screaming Yada, yada, yada ...‘ while their mother gives them a lecture about how they should do their homework first before playing their brand new computer game,

they can just turn up the volume on their MP3 player, smile, and say ‘Yes Mum. Of course, Mum’. Problem solved.

Pretty soon, not only will we have pretty coloured wires dangling from our ears — even better, our brains will be directly plugged into some new high-tech device, and we’ll be in a virtual world, interacting with everyone else, or choosing not to, as we like. 7 _____. The truth is that our devices are changing so quickly, and invading our personal lives at such an alarming rate, that they are changing our social habits along the way.

In the end, there is a thin line between using technology as a tool for making life easier and better and being a slave to it! It’s so strange — suddenly, I don’t feel like wearing my earphones anymore!

A. After all, I am listening to my favourite music and would rather not be disturbed by pointless chit-chat.

B. At this precise moment, the slightest disturbance would break your concentration and that magic moment might be lost forever.

C. I also have wires dangling from my ears

D. In the home situation, teenagers love the dangling wires.

E. In this world, there will be no actual physical ‘play’ because we will all be permanently plugged in.

F. The term ‘iPod’ is closely related to ‘MP3 player’ because iPods were one of the first such devices on the market.

G. They walk around in their own, artificial personal spaces, with their personal ‘digital noise reduction systems.’

H. We don’t have to deal with noise from other people or from the environment.

Follow-up

Discuss these questions

- Do you and your friends listen to music on an MP3 player?
- Do you ever behave in the way the writer of the article suggests — ignoring people because you are listening to music?
- How do you think this technology will develop in the future? How will these developments affect people's behaviour?

So and such

1. What do these extracts from the article show about the use of so and such?

a Listening to music through earphones is the perfect way to ignore such interruptions.

b The truth is that our devices are changing so quickly, and invading our personal lives at such an alarming rate, that they are changing

c It's so strange — suddenly, I don't feel like wearing my earphones anymore!

2. Which of these words and phrases can follow so and which can follow such?

a lot of people few cars hot weather little insects little time
many people much money tall trees

3. Complete these sentences with so or such.

1. That concert was _____ exciting that I couldn't get to sleep afterwards.
2. I'd no idea that it was _____ an interesting film.
3. I've never seen _____ few people in town.
4. Why are you behaving _____ aggressively?
5. _____ a lot of day-time TV programmes are cheap and badly made.

4. Combine the sentences by using *so . . . that* or *such . . . that*.

1. This tea is good. I think I'll have another cup. - This tea is so good that I think I'll have another cup.

2. This is good tea. I think I'll have another cup. - This is such good tea that I think I'll have another cup.

3. It was an expensive car. We couldn't afford to buy it.
4. The car was expensive. We couldn't afford to buy it.
5. The weather was hot. You could fry an egg on the sidewalk.
6. During the summer, we had hot and humid weather. It was uncomfortable just sitting in a chair doing nothing.
7. I don't feel like going to work. We're having beautiful weather.
8. Ivan takes everything in life too seriously. He is unable to experience the small joys and pleasures of daily living.
9. I've met too many people in the last few days. I can't possibly remember all of their names.
10. Tommy ate too much candy. He got a stomachache.
11. It took us only ten minutes to get there. There was little traffic.
12. In some countries, few students are accepted by the universities. As a result, admission is virtually a guarantee of a good job upon graduation.

PART 5. Reading Text 3. Conversations with virtual granny

Before you read discuss the following questions in pairs or small groups.

1. Make a list of some of the functions of computers.
2. Make a list of ten jobs in which people use computers. Which functions of computers do these people use?
3. How can a computer be abused?
4. Have you heard of any crime that was committed with the help of a computer?
5. Do you have a computer at home? What do you use it for?
6. What does 'virtual reality' mean?

The words in Column A are taken from the text. Match them with the expressions in Column B which have a similar meaning.

Column A

1. immortality
2. animation
3. footage
4. posthumous
5. interaction
6. tracking
7. anticipate
8. relish
9. appeal
10. resurrected
11. artificial intelligence
12. screen legends

Column B

- a) expect that sth will happen
- b) great enjoyment
- c) film or part of a film
- d) brought back to life again
- e) happening after death
- f) film in which drawings or puppets appear to move
- g) attractiveness or interest
- h) following the marks or the movements of sth
- i) communicating or co-operating with each other
- j) living for ever, never dying
- k) capacity of machines to simulate intelligent human behaviour
- i) film stars

Read the text**Conversations with virtual granny**

Clive Cookson looks forward to an animated ‘life’ after death (Extract)

You died 10 years ago. Sadly, the best efforts of 21st century medical technology could not keep you alive beyond the age of 120. But friends and relatives can still interact with you, or rather with a hyper-realistic computer animation of you, thanks to your “virtual immortality”.

The computer has processed all the available photographs and video footage taken during your lifetime, all the recordings of your voice and much of what you wrote, including a long personal testament written for your electronic afterlife. It now has the essence of your looks, voice and character — and can chat realistically to anyone about current events, from family gossip to international politics.

Some people will be excited by the prospect of this sort of posthumous existence, some will be horrified — but no one should dismiss it merely as science fiction. Computer scientists are making such rapid progress with human

interactions that they are talking about virtual immortality as a serious prospect for the future.

“I think it’s a neat idea,” says David Hogg, professor of artificial intelligence at Leeds University. “You could give the computer videos of granny, taken before she died, and she’d be able to talk back to you as if she were alive.”

Hogg is one of those working “to equip a virtual human being with the ability to interact in a natural way”. With his Leeds colleagues Neil Johnson and Aphrodite Galata, he has taught a computer to simulate convincingly one of the simpler forms of interaction: shaking hands.

If you shake hands with an imaginary partner, the Leeds computer will fill in the missing person on its screen. Although that may seem simple, the researchers had to work out an extremely complex algorithm (mathematical process) to enable the computer to “learn” the movements of handshaking by analyzing video sequences of real people shaking hands.

To supplement this work on gestures, the Leeds researchers recently moved on to the more challenging task of teaching a computer to simulate and respond to facial expressions, working with Chris Taylor at Manchester University who has developed a computerized face tracking system.

While virtual immortality for the masses lies decades in the future, movie stars will not have to wait so long, Indeed, the Hollywood studios are already anticipating with relish the box office appeal of new films featuring resurrected screen legends such as Marilyn Monroe and Bruce Lee. (Financial Times)

Check your understanding

1. Decide whether the following statements are true or false or not stated according to the text. Write T (true) or F (false) or NS (not stated).

1. The text suggests that 21st century medicine may extend human life.
2. If the computer can process enough data, it can create an animation of people.
3. People can interact with each other after their deaths.
4. The computer has a testament which regulates electronic afterlife.

5. People will probably feel differently about virtual immortality.
- 6 David Hogg finds the idea of virtual immortality unpleasant
7. David Hogg has recorded video sequences of real people shaking hands.
8. Simulating facial expressions is more difficult than simulating gestures.
9. The Hollywood Studios expect new Marilyn Monroe films to make a lot of money.

2. Answer the following questions in no more than five words.

1. What is virtual immortality?

.....

2. What information does the computer need to be able to animate a person?

3. What can an animated person talk about?

4. What are the people at Leeds University working on?

.....

5. What did they need to teach the computer how to shake hands?

.....

6. How can Chris Taylor contribute to the project?

.....

7. Why do studios want to make new films with resurrected screen legends?

.....

.....

Vocabulary development

1. Underline the words in the text which end in -ment or -ion. Study what they mean in the text.

2. Complete the following table by either the verb or the noun made from the given words.

Verb	Noun (-ment)	Noun (-ion)
interact		
		animation
excite		
equip		

simulate		
	movement	
express		
develop		
anticipate		
resurrect		

3. Fill in the gaps in the following sentences with a word from the table above.

1. Men often do not want totheir feelings explicitly.
2. Thefor the new laboratory cost much more than we had expected.
- 3games often help students to prepare for real life situations.
4. Living in a big city offers a lot ofto young people.
5. A good general can..... what the enemy will do.
6. Many scientists would like to..... a vaccine for AIDS.
7. Roger Rabbit is a film that blendedand film together.
8. She was so frightened that she couldn't
- 9 in Christianity is the event when Jesus came alive again three days after he was killed.
10. Human beings can with each other by gestures and facial expressions, too.

4. Fill in the gaps with the words in the box below. You can use the same word more than once: at • back • beyond • in • to • with

1. A trip to the USA was belief when I was a young man.
2. Thanksthe bad weather, they had cancelled the football match.
3. You shouldn't talkto your mother, Katie.
4. She tried to smile..... a natural way, hut she couldn't.
5. The patient responded very wellthe treatment.
6. I studied history and artsuniversity.

7. Not all the soldiers were equipped..... guns and winter clothes.
8. Could you fill..... this form, please.
9. Can we move onthe next question.
10. In Africa people interacteach other in a different way.

Follow-up activities

1. Discuss the following questions in small groups.

- How does the Internet change our lives?
- Printed books will soon be viewed as objects of art since people will rather use the computer if they need information or ii they want to read fiction. Do you agree?
- Computers will destroy human relationships. Do you agree with this statement?
- What do you think of battery operated toys such as the one described below?

Just Add Walking

Sonic virtual pets require constant button-pressing to keep them alive. Nintendo's new Pokemon Pikachu just needs a daily walk to maintain the happiness of the tiny character that lives inside the yellow device, which kids can attach to their pants like a pager. A built-in pedometer keeps track of how far you've travelled and converts your steps into "watts", food for your pet Pikachu, a roly-poly gerbil-like creature. This pet has legs.

2. Your American friends ask you if they could send a Pokemon Pikachu (described above) to your 10-year-old child/brother/sister as a birthday present.

- a. If you like the idea, write a letter (in 200—250 words) of thanks in which you explain why you think it will be a good present for a kid.
- b. If you don't like the idea, write a letter (in 200—250 words) to them and try to persuade them to choose something else as a present. Explain to them why you don't want your child/brother/sister to have a toy like that.

UNIT 3. Medicine and biology

PART 1. Vocabulary introduction.

Read the text to find the answers to these questions.

1. What are clones?
2. What does the company Genetic Savings and Clone do?
3. What guarantee does the company give?
4. Do all pet owners want to clone their pets? Why or why not?

Life after Death?

Kittens Tabouli and Baba Ganoush look alike, but they aren't twins. They're clones. Feline clones are exact genetic copies of another cat. They were created in a laboratory by a company called Genetic Savings and Clone. The company expects to make a lot of money cloning pets after they die. Lou Hawthorne, the president of the company, says, "It's a multibillion-dollar business waiting to happen." Hawthorne's company already has a list of people who want cloned cats. They will each pay \$50,000. Dogs will cost more. "We guarantee that the clone will be healthy and that it will look very much like the original animal," Hawthorne says.

One woman has ordered a clone of her late cat. "I made the decision to clone him before he died. Then I had hope that I might share a part of him again," Marsha Brooks says. For many people, losing a beloved pet is very upsetting. It can be like losing a member of the family. But even some pet lovers say that cloning seems absurd. However, this cat owner doesn't agree. She wants her cat back. "He was more intelligent than most of the people I know," she said. "And I can't wait to meet the clone!"

But while one woman waits for a clone, others are looking for new pets. Karen and Michael Lawrence decided to spend \$50 instead of \$50,000. When their cat, Marshall, died, they went to the animal shelter. "You know, there are a lot of great cats and dogs who don't have homes." said Karen.

Analyzing Quotations

Look back at the reading and underline the quotations.

Name of the person quoted

for or against cloning?

1. _____

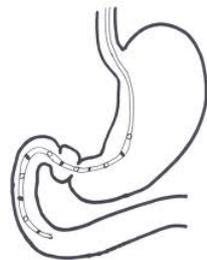
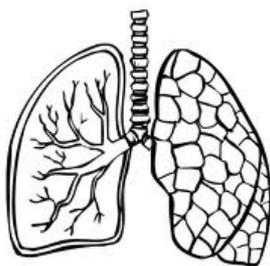
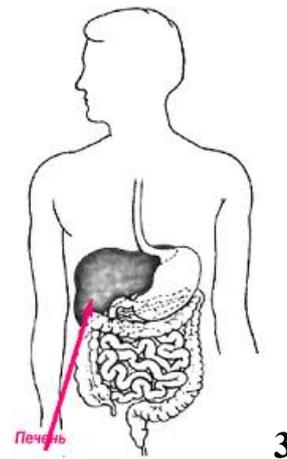
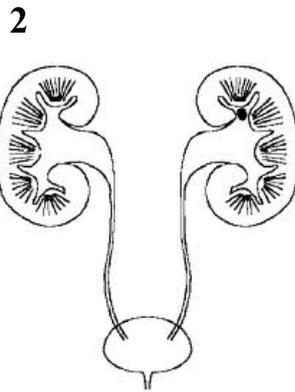
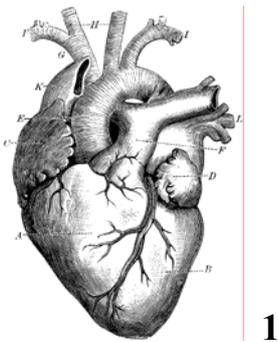
2. _____

3. _____

Who do you agree with?

Vocabulary

1. Give names of the bodily organs indicated



● Имплантометрические электроды
○ Датчики давления

2. Match the following parts of the body with the jumbled definitions on the right.

1. kidney

a. organ in the head which controls thought and

2. lung

feeling

3. liver

b. long pipe leading from the stomach which takes

- | | |
|--------------|---|
| 4. heart | waste matter from the body |
| 5. brain | c. baglike organ in which food is broken down for use by the body |
| 6. intestine | d. one of a pair of organs which separate waste liquid from the blood |
| 7. appendix | e. one of two bony parts of the face in which teeth are set |
| 8. stomach | f. large organ which cleans the blood |
| 9. jaw | g. one of a pair of breathing organs in the chest |
| | h. short organ of little use which leads off the large intestine |
| | i. organ in the chest which controls the flow of blood by pushing it round the body |

3. Fill the blanks with the words below. You may use each word only once.

bacteria body break dangerous delicate disease eyes
germs line liquids membrane moisture mouth
nose parts prick skin sneeze stomach

How the Body Fights Disease

The is often called „the body’s first of defence” It acts as armour, resisting many germs that might harm the moreparts of the..... Anyin the skin, even a pin, provides an opening forgerms. Someenter the body through theandand other natural openings. These areas provide warmth andin which germs thrive. When theof the nose and throat becomes irritated, we cough or, blowing out the unwanted substances. Other body..... also provide a defence against..... Tears, for example, wash

from theTears also contain substances that fight bacteria. Acid in thekills many germs before they can reach otherof the body.

4. Fill the blanks with the right word from the list below. You may use each only once.

administer after antibodies diseases fight generally
harmless including injected orally prevent prevention
serums smallpox substances symptoms vaccines

Drugs That Prevent Disease

Doctors use two main types of drugs for the of disease:

1. Vaccines contain dead or germs. They cause the body to developcalled that act todisease. Doctorsbefore a person has been exposed to such as poliomyelitis or Vaccines are usually..... but sometimes given
2. Serums contain antibodies thatoff the germs of certain diseases, scarlet fever and lockjaw. These drugs are given a person has been exposed to the disease, or after of the disease have appeared. are administered by injection.

5. Choose the right answer.

1. She was that we could go and see her in hospital.
a) anxious b) concerned c) delighted d) mad
2. The woman was in aemotional state after hearing of her son's accident.
a) doubtfully b) greatly c) highly d) largely
3. She didn't seem to know what was happening at all, she looked completely
a) bewildered b) doomed c) doubtful d) undecided
- 4 We're sorry you are ill and send you our best wishes for a speedy
.....

a) recovery b) relief c) repair d) survival

5. She will never be able to..... the winters in Russia because of her health.

a) repulse b) resist c) stand d) sustain

6. Sam is in hospital again. The poor chap seems accidents

a) bound b) destined c) disposed d) prone

7. After her long illness she looked quite

a) elevated b) emaciated c) emancipated d) emasculated

8. He's been very ill but we think he'll it.

a) come back b) get over c) pull through d) take off

6. Where can you find these patients? Match the patients with the correct wards or departments.

1. Intensive Care Unit	a. Mary who has just had a baby
2. Casualty and Emergency Department	b. John who has broken his leg
3. Paediatric Ward	c. My grandmother who is suffering from pneumonia complications
4. Maternity Unit	d. Peter who will have his appendix removed
5. Orthopaedic Ward	e. Betty's mother who is suffering from women's disease
6. Surgical Ward	f. My mother who will be operated on for an eye cataract
7. Geriatric Ward	g. Samuel who is unconscious
8. Ophthalmic Ward	h. Paul who has just been in a car crash
9. Gynaecological Ward	i. Your son who has measles

7. Which of the professionals would you consult in each of the following cases?

1. To operate on an eye cataract _ c _ _ _ _ _
2. To cure your son's measles _ _ d _ _ _ _ _
3. To make your new glasses _ _ _ i _ _ _ _
4. To deliver a baby o b _ _ _ _ _
5. To test your eyesight _ _ t _ _ _ _ _
6. To cure a rash on the skin d _ _ _ _ _
7. To treat a sick mind p _ _ _ _ _
8. To operate on your appendix _ _ r _ _ _ _
9. To examine the old-age complaints of your grandmother g _ _ _ _ _
 _ _
10. To treat Peter's deformed hip _ _ _ _ p _ _ _ _
11. To analyze your dreams _ s _ _ _ _ _
12. To treat the ailments of your wife _ _ n _ _ _ _ _

PART 2. Reading Text 1.

1. Before reading use the title of the text and the question words in the box to make questions.

Where ...?	How .?	What ...?
Who ...?		

Where is music used as therapy?

2 Skim the text and find the answers to your questions in exercise 1.

3. Read the text and underline the topic sentences in paragraphs 3-6.

A recent study funded by the Wellcome Trust has investigated the connection between the use of music and the recovery of patients suffering from a variety of medical conditions. The study has brought together musicians, health workers, and researchers to find evidence of the beneficial effects music has on health.

4. Read the questions. Use the topic sentences to locate the answers to the questions.

1 Is there any clear proof that music can heal? - Paragraph 6

2 For which diseases is music currently used?

3 What effects does music have on people?

4 Do we know how music therapy works?

5 What effects does feeling good have on our health?

5. Scan the text and answer the questions in exercise 4.

6. Highlight the information which develops the topic sentences in paragraphs

3—6. Look at the example in paragraph 2 first.

Music used as a healing therapy

1. A recent study funded by the Wellcome Trust has investigated the connection between the use of music and the recovery of patients suffering from a variety of medical conditions. The study has brought together musicians, health workers, and researchers to find evidence of the beneficial effects music has on health.
2. Music **has long been used to treat** patients suffering from **different problems**. In 400 BCE its **healing properties** were documented by **the ancient Greeks**. More recently in **both world wars** in the last century medical workers used music therapy with **people** suffering from **trauma**. **Currently**, it is used as a treatment for many diseases, such as **cancer** and **Alzheimer's disease** and it has also been used with patients with **long-term pain** and **learning disabilities**.
3. There is growing evidence that music can cause physical changes to the body which can improve our health. In the Wellcome Trust study, which took place over three years at the Chelsea and Westminster hospital in London, patients were asked to listen to musical performances. As a result, it was found that stress levels were significantly reduced, recovery times were improved, and fewer drugs were needed.
4. These very positive results are partly due to general well-being. It is already accepted that when people feel happy and have a positive approach to life,

they are more likely to feel better and recover from disease quickly. Music increases this feeling of joy and adds to the recovery process.

5. However, not all, these benefits can be attributed to an increase in general well-being. Music has other effects which have not yet been understood. According to Professor Robertson, a scientist and musician, some effects of music are mysterious and are, therefore, being investigated further. It has been suggested that the sounds and rhythms of music help stimulate the brain and send electrical messages to the muscles and limbs.
6. Science, however, demands facts and hard evidence. Many in the medical profession have not yet recognized the healing benefits of music since reports have been based mainly on anecdotal evidence. These new studies could provide proof to medical practitioners that music is a suitable treatment for many conditions. One day doctors may even 'prescribe' music but that could be a long time in the future.

PART 3. Reading Text 2. Summarizing.

- 1. Read the title of the article from a medical journal. What is the article about? Compare your ideas with a partner.**
- 2. Use the key words in the box to predict what each paragraph is about. Use a dictionary if necessary.**

A vaccine - cured
B involved – trials – early stages– advanced stages – spread
C stimulates – immune system – cells – harmful
D further studies

3. Skim the article. Were your predictions correct?

Promising results from cancer study

A. A new experimental vaccine has shown promising results in the fight against lung cancer. In a small Texas-based study, a vaccine developed by scientists at

Baylor University Medical Centre in Dallas, USA cured lung cancer in some patients and slowed the progress of the disease in others.

B. Researchers have reported encouraging findings from this small study. Forty-three patients suffering from lung cancer were involved in these trials. Ten of these patients were in the early stages and thirty-three in the advanced stages of the disease. They were injected with the vaccine every two weeks for three months, and were carefully monitored for three years. In three of the patients in the advanced stages of cancer, the disease disappeared and in the others, it did not spread for five to twenty-four months. However, no great difference was seen in the patients in the early stages of the illness.

C. This new vaccine uses the patient's own immune system. It is made specifically for each patient and is injected into the arm or leg. It stimulates the body's immune system, which then recognizes that the cancer cells are harmful, and attacks and destroys them.

D. The vaccine could be effective against other forms of cancer. It offers great hope for the treatment of cancer in general, although further studies are needed before such treatment can be widely used. (232 words)

Deakin, F P. (2007). Promising results from cancer study. *New Medical Journal*,32.

4. Scan the article. Are the statements true (T) or false (F)?

1 The investigation cured all of the participants in the trial.

2 About forty people participated in the study

3 Patients in the early stages of the disease recovered more quickly

4 Every patient was given the same vaccine

5 The vaccine activates the immune system

6 This treatment may be useful for treating other cancers

5. Read the summary of the article. How is it different from the original?

Discuss your answers with a partner

A group of US researchers has carried out trials of a new vaccine which is effective against lung cancer. Although the study was limited to fewer than fifty people the results were very promising. Some of the patients at an advanced stage of the disease were cured. Each patient in the trial had their own vaccine which activated their bodies' immune system and enabled it to fight the cancer. It is hoped that other forms of cancer can be cured in a similar way.

6. Read the summary again. Match the highlighted parts of the summary with parts of the text.

A group of US researchers = scientists at Baylor University Medical Centre in Dallas, USA

Plagiarism is copying someone's work, or using someone's ideas and pretending they are your own. Do not copy directly from a text but rephrase by changing: 1) the vocabulary (using synonyms or phrases with a similar meaning); 2) the sentence structure and grammar.

7. Look at the sentences below from the summary in ex. 5. Replace the underlined words with a suitable synonym or near synonym from the box.

Rewrite each sentence, using the synonyms

tests scientists encouraging illness research recovered findings
conducted

1 A group of US researchers has carried out trials on a new vaccine.

2 Although the study was limited to fewer than fifty people, the results were very promising

3 Some of the patients at an advanced stage of the disease were cured

8. Passive voice revision. Rewrite the sentences in the correct form of the passive

NOTE An academic text will usually have a mixture of active and passive sentences.

- 1 Pharmaceutical companies are constantly developing new drugs.
- 2 The government provided the funding for the study.
- 3 Doctors have used alternative therapies for many years.
- 4 Scientists usually test their theories in the laboratory.
- 5 The researchers will publish their findings next month.

9. Find the words or phrases which are synonyms in the pairs of sentences

After only six months the team's research was completed

The group's study was finished after only six months.

Team= group; study=research; completed=finished

1. a The main causes of acute asthma attacks are common cold viruses
b Common cold viruses are the principal causes of severe asthma attacks.
2. a Scientists use radiation to investigate details of tiny structures
b Scientists use radiation to study details of very small structures
3. a A short ten-minute walk every day can be beneficial to your health
b Walking for ten minutes daily can benefit your health

10. Rephrase the sentences, using synonyms and the passive voice where appropriate

1. We need proof that the medicine works
- 2 They will build a huge medical centre in the near future
- 3 An unhealthy lifestyle can be the cause of many diseases
- 4 The organizers cancelled the talk because the speaker was ill

PART 4. Reading Text 3. Fertility Now: Babies by Design

1. Before reading discuss the following questions with a partner.

1. How important is raising children to your society? your family? you?
2. How important is having your own biological children to your society? your family? you?
3. What do you know about fertility clinics? What do they do? What procedures do they use?

2. Vocabulary introduction. Try to guess what these words mean then look up these words in the dictionary to see if you were correct

artificial insemination

in-vitro fertilization

surrogate mother

3. Read the articles and look for answers to your questions

Article 1.

Do You Think You'd Like to Donate an Egg? Read On!

In March, 1999, this advertisement appeared in student newspapers of Harvard, Princeton, the University of Pennsylvania, and Yale:

Help our dream come true. A loving caring couple seeking egg donor.

Candidates should be intelligent, athletic, blonde, at least 5'10", have a 1400+ SAT scores and have no major family medical problems. \$50,000.

Fifty thousand dollars for donating an egg? The best male candidates only get a couple of hundred dollars for donating hundreds of thousands of sperm. Why are eggs so much more valuable? Men have an unlimited amount of sperm, and they are very easy to donate. Women only have a limited number of eggs (several hundred), and in order to donate the eggs, the woman must undergo surgery. Of course, \$50,000 is an unusually high fee. The normal fee varies from \$5,000 to \$15,000. In fact, the couple that placed the ad received quite a lot of criticism. People complained that they were elitist because they insisted on a donor from an Ivy League school with high test scores and several physical requirements. The couple defended themselves by saying that they wanted a child that would be as similar to them as possible.

So, if you're female and ready to take hormones, gain weight, have surgery, and make a few thousand dollars while helping an eggless couple, apply. Just remember that this IS a surgical procedure, so it shouldn't be taken lightly.

Article 2. Too Old to Be Pregnant?

More and more women are turning to medical science to become mothers. Advances in reproductive technologies have made it increasingly possible for women in their 40s and 50s to give birth. Even women who are no longer fertile can use the eggs of younger donors. In 2002, the National Center for Health Statistics in the United States reported 263 births among women 50 and older, a ten-percent increase from the previous year. By comparison, the total number of babies born in the United States in 2002 was 4,021,726. This trend is raising a number of medical and ethical questions. Is there a point when a woman is too old to have a baby? We think there is.

Last week, a 66-year-old Romanian woman gave birth to a healthy baby girl. For the moment, Adriana Iliescu is the world's oldest known mother. It wasn't easy. She had to undergo nine years of fertility treatment in order to force her body to produce eggs. Then she was artificially inseminated with sperm from an anonymous donor. (In artificial insemination, a doctor injects semen into a woman's uterus.)

Ms. Iliescu, a retired university professor and the author of several children's books, is very optimistic about her future as a mother. She says that the people in her family are very long-lived, so she expects to be able to raise her daughter to adulthood without a problem.

Ms. Iliescu is not the only woman to conceive a child after the age of 60. In 2003, a 65-year-old Indian woman gave birth to a son. Schoolteacher Satyabhama Mahapatra was impregnated with an egg from her 26-year-old niece. The egg had been fertilized by Mrs. Mahapatra's husband using in-vitro fertilization. In this procedure, egg and sperm are combined in a laboratory. As a result, the couple, who had been married for 50 years, was able to have their first child.

While it is not difficult to understand the joy that these people must feel about the birth of their long-awaited offspring, one has to wonder about children raised by elderly parents. It is true that it is not unusual for men to become fathers late in life. However, until now, their children had at least one parent of the normal

age for childrearing.

Adapted from ‘Romanian woman gives birth at 66’ BBC News Online.

Article 3. Surrogate Motherhood Can Create Unusual Family Ties

NEW YORK —More and more women are offering to be surrogate mothers for childless couples. A surrogate mother is a woman who carries another woman’s child. Sometimes the surrogate is artificially inseminated with the husband’s sperm. Sometimes doctors implant an already fertilized egg. Some women become surrogates for money. Some do it to help friends and relatives. Here are two surrogates’ stories.

Twins Born Ten Days Apart

Jody Williams is a loving mother of three. When her brother and sister-in-law were unable to become pregnant, she offered to be a surrogate mother for them. (The couple’s names were not released because they wanted to remain anonymous.) The doctor fertilized her sister-in-law’s eggs with her brother’s sperm. Then he implanted two fertilized eggs in Williams and two in her sister-in-law. After a few weeks, tests showed that both women were pregnant.

Nine months later, the couple became the parents of fraternal twins born to different women in two different states on two different dates. Jody Williams delivered a girl on April 26. Her sister-in-law had a baby boy on May 7.

Williams and her husband, Dean, have three children of their own. “Our children accepted that this wasn’t our baby,” she said, “and that we would send their little cousin home to their aunt and uncle.’

Williams’s sister-in-law said, “We can’t thank her enough. She is a great mother. She has three beautiful children that she loves and adores, and she wanted her brother and me to have that, too.’

Woman Gives Birth to Grandchildren

Tina Cade gave birth to her daughter 29 years ago. Then, at 55, she gave birth to her daughter’s three children. Cade’s daughter, Camille Hammond, and her

husband, Jason, had tried in-vitro fertilization, but the procedure was unsuccessful. Cade offered to be a surrogate for the couple.

Fertility experts said there are more and more cases of family surrogates. Couples choose a family member to be a surrogate to avoid the legal problems that can happen with a stranger. But family surrogacy has problems of its own. For example, the law in many places says that the woman who gives birth to a baby is the legal mother, even if she is a surrogate. There are also possible health problems for the surrogate — especially if she is older. Such cases can also create unusual, sometimes difficult problems for family relationships. “Someone who has carried a child for nine months may want to be more than a traditional grandmother,” said Lori B. Andrews, who studies reproductive issues at the Chicago-Kent College of Law.

For her part, Camille Hammond said she hopes the birth of the children will help other couples. “We just wanted to let people know . . . there may in fact be options they haven’t considered that may be a little nontraditional:”

4. Check the questions you can answer after reading once. Then go back and look for the answers that you are unsure of.

Article 1.

1. What do Harvard, Princeton, the University of Pennsylvania, and Yale have in common?
2. Which two of these qualities did the advertisement NOT ask for?
intelligence - musical ability - height - beauty - hair color - athletic ability
3. How much did the couple offer to pay for an egg?
4. Why did people criticize the couple?
5. What was their defense?
6. Why are egg donors paid more than sperm donors?

Article 2.

1. How many women over 50 had babies in the United States in 2002? In 2001?

2. How old was the Romanian woman who had a child?
3. How long did she receive fertility treatments?
4. Who was the father of her child?
5. How old was the Indian woman?
6. How long had she and her husband been married?
7. Who is the genetic mother of their child?

Article 3.

1. What is a surrogate mother?
2. Are all surrogate mothers the genetic mothers of the children they carry?
3. Who were the genetic parents of Jody Williams’s “daughter?”
4. What do you think Jody Williams’s “daughter” will call her?
5. What is Tina Cade’s relationship to Camille Hammond?
6. What are the advantages of having a family member as a surrogate?

What are some potential problems of having a family member as a surrogate?

5. Vocabulary Work Guess Meaning from Context. Look for these words in the readings.

Word	Reading	Meaning
limited	1	_____
elitist	1	_____
donor	1	_____
trend	2	_____
ethical	2	_____
conceive	2	_____
fraternal	3	_____

6. Vocabulary Work. Guess Meaning from Related Words. Find other forms of these words in the articles. Put the words in the correct columns.

Noun (person)	Noun (thing)	Verb	Adjective	Adverb
		donate		
elite				
surgeon				
	semen			
			fertile	

7. Look at the meanings of these prefixes and suffixes. Then look in the articles for the words that use them. Write the words below. Guess their meanings.

Word part	Meaning	Word	Meaning
im-	in	_____	_____
non-	not	_____	_____
-less	without	_____	_____
Un-	not	_____	_____

Analyze

1. A number of different fertilization methods were used in the cases described in the readings. Which methods were used in each case?

Case	Artificial insemination	In-vitro fertilization	Third-party egg donor
Adrianna Iliescu			
Satyabhama Mahapatra			
Jody Williams			
Tina Cade			

2. Check the column that describes each woman’s relationship to the baby pertaining to her story.

Case	Genetic mother	Birth mother	Caregiving mother
Adrianna Iliescu			
Satyabhama Mahapatra			
Jody Williams			
Jody’s sister-in-law			
Tina Cade			
Camille Hammond			

Understanding the Author’s Purpose

1. The author of each article had a different purpose. Identify the purpose of each one.

instruct persuade warn describe

Article 1 _____

Article 2 _____

Article 3 _____

2. Find language in each reading that supports your opinion.

Article 1 _____

Article 2 _____

Article 3 _____

3. Discuss these questions.

1. Do you think egg donors are generous humanitarians? Why or why not?
2. Are you disturbed by any of the four cases described here? Why or why not?

4. Make a summary of one article of your choice

Article 4. Designer Baby Transplant

1. Read the text to find the answers to these questions.

1. What was wrong with the Whitakers’ son?
2. Why did they decide to have another child?

3. Why did they have to go to the United States?
4. What was the difference between the Whitakers' case and the Hashmis' case?
5. Why are some people worried about selecting embryos?

Designer Baby Transplant

When Jayson and Michelle Whitaker were told that their son, Charlie, had a rare blood condition, they were devastated. The doctors said that Charlie's only hope for surviving Diamond Blackfan Anaemia was a stem-cell transplant. The Whitakers and their daughter, Emily, were tested, but none of them qualified as a suitable candidate to help Charlie. They were not a close enough genetic match.

That is when the couple decided to have another child. The Whitakers, who are British, asked the government for permission to use in-vitro fertilization to create and select an embryo that would be a match for Charlie. When permission was denied, the Whitakers went to the United States, where such procedures are not illegal.

Charlie's newest sibling, Jamie, was born after being selected from a number of embryos as a perfect genetic match. Blood was collected from his umbilical cord to be used for Charlie's transplant. The Whitakers have to wait until Jamie is six months old to make sure that he does not have the same blood disease as Charlie before the stem-cell transplant can be done.

Controversy

According to the Whitakers, they just did what they had to do to save their child.

However, others do not agree. There has been considerable argument in the United Kingdom about the selecting of embryos. Critics worry that such selection could lead to babies being created to provide spare parts. But the boys' father, Jayson Whitaker, said there was no selection on the basis of color of eyes or hair or sex: "All we did was change the odds from a one-in-four chance of a match (from a baby conceived naturally) to a 98 percent chance."

Sometimes, the line between the permissible and the impermissible is difficult to see. Last year, the British government gave another couple, Shahana and Raj Hashmi, permission to test their unborn child to make sure his/her tissue would be a suitable match for their 4-year-old son, Zain, who suffers from a rare blood disorder. Neither the couple nor their four other children were bone-marrow matches for Zain, who was expected to die without a transplant. In the Hashmis' case, the boy's illness was hereditary. Screening the new baby would be necessary anyway to ensure the new child did not have the disease. The doctors simply performed one more test to see if the embryo was a match for Zain. But Charlie Whitaker's condition is not usually inherited, so there was no reason to test the embryo for the disease.

Dr. Lana Rechitsky, a doctor at the Chicago institute that treated the Whitakers, doesn't understand why the procedure is so controversial. She said, "We are not creating anything new. We are just trying to choose between the embryos to find the one that is normal and can save the life of its sibling." A spokeswoman from Comment on Reproductive Ethics (CORE) disagrees: "CORE believes that the designing of a child as a tissue donor for a sick sibling is undesirable, unnecessary, and that the current decision-making process is profoundly undemocratic."

2. Vocabulary Work Translate the following words into Russian.

devastated

embryo

sibling

genetic

umbilical cord

considerable

spare parts

permissible

impermissible

disorder

spokeswoman

inherited

controversial

profoundly

3. Analysis. Identifying Main Ideas and Evaluating Types of Supporting Details

Writers use different types of supporting details to expand on their main ideas.

Types of Supporting Details

Description: Mali is a wild and beautiful place with stark mountains rising against a bright blue sky.

Example: Children need structure. In my sister's house, there are no set bedtimes or mealtimes and, as a result, her children have a terrible time obeying rules in school.

Statistics: Most people in our town would like to build a new school. In a recent survey, 66 percent of the population said that they would be willing to pay higher taxes in order to have a modern school.

Expert: Our local economy is doing much better than the national average. Dr. Tania Butler, economics professor at Gainesboro University, says that this is because of our low taxes and the high number of skilled workers in the local population.

4. Look back at the reading. First, identify the main ideas. Then decide on the type of supporting details the writer uses to expand on each one. Circle examples to share.

5. Discussion. Think about your ideas - Look at the list of procedures below.

What is your opinion of each of them?

- a. I would undergo this procedure.
- b. I would not undergo this procedure under any circumstances.
- c. I would not let my spouse undergo this procedure under any circumstances.
- d. I would undergo this procedure for a close friend or family member.
- e. I would undergo this procedure for a stranger.
- f. This procedure should not be allowed.
- g. This procedure should only be allowed in very special circumstances.
- h. This procedure should be allowed if the parents want it.
- i. I prefer not to respond.

- 1. Hormone treatments to increase a woman's number of eggs.
- 2. In-vitro fertilization with the sperm and egg of the parents.
- 3. In-vitro fertilization with egg or sperm from a donor.
- 4. Implantation of a fertilized egg in the mother.
- 5. Implantation of a fertilized egg in a surrogate.
- 6. Artificial insemination with sperm from a donor.
- 7. Selection of an embryo to make sure that it does not have a serious hereditary disease.
- 8. Selection of an embryo to find a donor for a sick sibling.
- 9. Selection of an embryo for gender.
- 10. Selection of an embryo for physical characteristics.

Talk about your ideas

- 1. Is there any difference between the procedures that you would be willing to undergo and the ones that you think other people should be allowed to have? Why or why not?
- 2. Clearly there is a lot of controversy and confusion about the ethics of these medical procedures. Who should make the policies regarding their legality? Should

it be doctors? the government? religious leaders? Give reasons for your opinions.

PART 5. Reading text 5.

1. Match the following words to the definitions below.

1. to clone
 2. a cell
 3. reproduction
 4. an organ
 5. (skin) tissue
 6. an embryo
 7. genetic engineering
 8. to fertilize
 9. a technique
 10. a physicist
 11. ethics
 12. DNA
- a. A part of the body, such as the heart or lungs, that has a particular purpose
 - b. An animal or human in the early stages of development before birth
 - c. A special skill or way of doing something. Especially one that has to be learned
 - d. Moral rules or principles of behaviour for deciding what is right and wrong
 - e. To make sperm join an egg so that a young baby or animal develops
 - f. The act or process of producing young animals or plants
 - g. An acid that carries genetic information in a cell
 - h. To make an exact copy of a plant or animal by taking a cell from it and developing it artificially
 - i. The material forming animal or plant cells

- j. Someone who works in the science concerned with the study of physical objects and substances, and of natural forces such as light, heat and movement
- k. The science of changing the genetic structure of an animal, plant or human in order to affect the way it develops
- l. The smallest part of a living thing that can exist independently

2. Use your dictionary to fill in the table

Verb	Noun	Adjective
clone		
	reproduction	
-----	embryo	
-----		genetic
Fertilize		
-----	physicist	
-----	ethics	

3. Discuss with other students.

What is involved in ‘cloning’ and ‘genetic engineering’? What purposes could they be used for? Are there any, ethical issues? If so, what are they?

4. Look at the title of the article below and discuss.

What do you think the article will be about and what ideas/ views might be discussed?

5. Read the article, ignoring the gaps. Decide what the writer’s attitude to Richard Seed is.

6. After the article are paragraphs which are missing from the main text. They are in jumbled order and there is one more than is required. To help you decide where each one should go follow these instructions.

1. Look at Paragraph G. You will see the words *The second cloning method* have been underlined. What does this phrase tell us about what comes directly before paragraph? Find the appropriate gap in the main text where this paragraph should go.
2. Look at Paragraph C. The words *this* and *he* are underlined. What /who do they each refer to? Find the gap in the main text where this paragraph should go.
3. Look at the other extracted paragraphs. Pay particular attention to the underlined words. Decide who or what they refer to. Allocate one paragraph to each of the gaps.
4. When you have decided on one paragraph for each gap, read the complete article from beginning to end to be sure that it makes sense.

Cellmates

Had Richard Seed been you typical scientist - prone to caution and qualifying statements - he would have never become famous. If he's even looked different, more mousey and cerebral, he might not have he huge exposure on American television that he did. But as it was his habit of uttering alarming far-fetched statements, his didactic manner and forbidding appearance ensured him his time in the media spotlight. For several days at the beginning of 1998, he became a household name as the first person who was going to clone human beings.

(1 _____)

There are in fact, two ways of cloning animals and, potentially, humans. The first is by embryo splitting which already happens naturally in the case of identical twins. From time to time a very early-stage embryo will divide to form two separate individuals who are genetically identical. It's possible to repeat this process artificially, but because only a very few cells are available at the stage where they divide, this method can only result in a few clones.

(2 _____)

Neither the increased legislation nor the public condemnation has caused Seed to question the validity of his plan to clone human beings. A Harvard-trained physicist who started working in reproductive sciences 20 years ago, he co-founded a company in the 1970s that developed a technique for transferring embryos in cattle. Later, he used the same technique on humans, attempting to transfer embryos from fertile to infertile women.

(3 _____)

If the idea of human cloning makes most of us feel uncomfortable, why don't governments simply ban it outright? The problem is that we risk throwing the (cloned) baby out with the bath water. The technology could be enormously useful. Following the outrage over Seed's announcement, American biotech companies and scientists were fearful that hasty, badly worded legislation would restrict valuable, ethically acceptable research.

(4 _____)

Nevertheless, the idea of cloning is terrifying to many because it seems to diminish us and at the same time give us enormous power, a power we don't think we are ready for. But Steve Jones, professor of genetics at University College, London, says we probably shouldn't worry so much.

(5 _____)

A human clone, it is said, would be a person's identical twin born 20 or 30 years later. A clone might look like a younger version of its parent and have many of the same predispositions and inclinations but, "You're going to get someone who is raised by different parents, in a different time, who will fall in love with different people." says Thomas Murray, director of the Center for Biomedical Ethics, Cleveland, Ohio.

(6 _____)

The issue of human cloning raises a hundred questions to which there are few clear answers, What about the situation where a mother wants to 'replace' a daughter who has died in a car crash? Supposing a couple had a child with kidney

failure: would it be right for them to clone a sibling to be a compatible organ donor?

(7 _____)

‘If I look at some of my deepest fears,’ says Steve Jones, ‘they’re not about cloning. But I do have fears about genetics. I’m often shocked that my own students don’t think there are ethical problems, Many have the feeling that, if you can do it, then you should.’

It’s a pity science can’t be made to stop, back up a bit. We haven’t had time to fully absorb the ideas surrounding human cloning, and already we’re moving into even more ethically murky waters. Until we get the issues about cloning sorted out, what chance do we have with an even more complicated matter - our ability to make offspring who are far superior to us genetically? Or whatever happens then to pass as being superior.

Extracted paragraphs

A. He claims the procedure led to the birth of three healthy babies. ‘Clones are fun,’ he booms. ‘They’re so much fun; I plan to make five of my own.’ It’s an alarming thought. The vision of five more Richard Seeds looming over me is so distracting that I can’t think of much to say in response.

B. ‘My mother is an identical twin, so I’m used to the idea of human clones. She and my aunt are clearly different people who happen to look remarkably the same. People who say clones aren’t natural are effectively saying that people are simply the sum of their genes. They’re not. People are people.’

C. This was not going to be some time far into the future, but within months. It was a relatively simple matter, he airily claimed. No matter that other scientists said it couldn’t be done or ethicists that it shouldn’t be done. He insisted he was going to go ahead.

D. Having said this, geneticists currently appear to be less interested in issues of human cloning than the ethical and practical implications of genetic engineering.

This is the kind of technology that could one day allow us to preselect a whole range of desirable traits for our children.

E. Despite such criticisms, his relative lack of experience in the field doesn't seem to concern him. 'It's true that there are probably 40 or 50 people in the US who are better qualified to do this than I am, but, in the sense of project organisation, I am definitely number one.'

F. 'They may be utterly uninterested in their parents' line of work. If you were to find some DNA of Shakespeare's, for example and create ten embryos from it. It's very unlikely any of them would grow up to be a great poet.'

G. The second cloning method - the one that Seed says he is going to use - is nuclear replacement. Genetic material taken from a foetal or adult cell is introduced into an unfertilized egg that has had its own genetic material removed.

H. This could, amongst other things, give us an insight into the origins of cancer and information about how and why we age. It could lead to huge advances in organ replacement and, for example, a way of creating new skin for burn victims.

7. Discuss this question.

How does your view of Richard Seed compare with that of the journalist who wrote the article?

8. Use forms of the words below to fill the numbered gaps in this text.

BREAKTHROUGHS OR DISASTERS?

Of all the 1..... (science) breakthroughs of the late twentieth century, undoubtedly the one that proved most controversial was the 2..... (clone) of Dolly the sheep in Scotland in 1997. Twenty years had gone by since the first successful 'in vitro' 3..... (fertilise) and transfer at the 4..... (embryo) stage that led to the birth of 'Baby Louise'. Despite the benefits that 5..... (gene) engineering might offer, many people had doubts about the 6 (reproduction) of humans by other than natural means and the potential dangers of 7(ethical) individuals

learning the techniques and applying them for profit or other ends. 8.....
(physics) had received similar reactions when they first succeeded in splitting the
atom. People feared that this 9..... (develop) would lead to the creation
of nuclear weapons that would 10.....(threat) humanity. They were not
wrong. The Second World War ended with the use of these terrible weapons of
mass 11 (destroy).

НАУКА И ТЕХНИЧЕСКИЙ ПРОГРЕСС

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