



**ОҚУ ӘДІСТЕМЕЛІК КЕШЕН  
УЧЕБНО-МЕТОДИЧЕСКИЙ КОМПЛЕКС ПО ДИСЦИПЛИНЕ /  
ПРОФЕССИОНАЛЬНОМУ МОДУЛЮ**

«Иностранный язык»

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Учебно методический комплекс «Иностранный язык» предназначено для студентов учебных заведений технического и профессионального образования и содержит тексты, коммуникативные упражнения, направленные на формирования навыков общения на профессиональные темы.

Данное учебное пособие способствует развитию коммуникативной межкультурной компетенции студентов.

УМК предназначено для преподавателей английского языка, студентов, широкого круга читателей.

## Lesson1

### I Unit. Science and scientific phenomena

#### Lesson topic 1.1 Interesting facts about genetics. DNA

##### 1. Match two columns

- |                     |                |
|---------------------|----------------|
| 1.allow             | e. let         |
| 2.create            | h. make        |
| 3.stop              | b. prevent     |
| 4.passed            | f. transferred |
| 5.incurable         | j. untreatable |
| 6.technique         | c. method      |
| 7.result            | a. effect      |
| 8.sure              | g. certain     |
| 9.dangerous         | d. hazardous   |
| 10.open the door to | i. lead to     |

##### 2.Read the text

#### **Britain Says Yes to 3-parent Babies**

Lawmakers in the U.K. have voted to allow doctors to create babies from the DNA of three different people. It will be the first country in the world to do this. There was a vote in Britain's parliament, where 382 lawmakers voted for allowing three-person babies and 128 voted against the idea. The idea behind three-person babies is to stop diseases being passed from a mother to her newborn baby. Doctors say that as many as 150 babies a year could be born using the new technique. The first baby to be born using the DNA from three people could be as early as next year. The technique will help families with mitochondrial diseases. These are incurable and affect about one in 6,500 children worldwide.

The technique is quite simple. It combines the DNA of the two parents with the DNA of another woman. Doctors replace the unhealthy, disease-carrying DNA in the mother's egg with healthy DNA from the donor. The result is that the baby receives about 0.1 per cent of its DNA from the donor woman. Lawmakers said the technique was "light at the end of a dark tunnel" for many families. Britain's Prime Minister David Cameron said: "We're not playing God here. We're just making sure that two parents who want a healthy baby can have one." Critics say the technique could be dangerous. They say it would open the door to the genetic modification of children and "designer babies" in the future.

##### 3.In pairs, ask and answer the questions

1. Who voted to allow three-person babies in the UK?
2. How many countries in the world currently allow three-person babies?
3. How many votes against the idea were there?
4. When could the first three-person baby be born in the UK?
5. How many children do mitochondrial diseases affect worldwide?
6. Where do doctors put the healthy DNA from the female donor?
7. How much of the donor's DNA does the baby get?
8. What did lawmakers say was at the end of a tunnel?
9. Who said they weren't "playing God"?
10. What did critics say there could be in the future?

##### 4. Write down new vocabulary

**to inherit-** to be born with the same physical or mental characteristics as one of your [parents](#) or grandparents

**genome-** genome-the complete set of genetic material of a human, animal, plant, or other living thing

**to cure-**to make someone with an illness healthy again

**therapy-**a treatment that helps someone feel better, grow stronger, etc., especially after an illness

**to be determined-**to control or influence directly

**helix-**a curve that goes around a central tube or cone shape in the form of a spiral

### Interesting Facts about Genetics

5. Identify whether these statements are TRUE or FALSE

#### Interesting Facts about Genetics

- 1) Two humans typically share around 99.9% of the same genetic material. It's the 0.1% of the material that makes them different. \_\_\_\_\_
- 2) Two blue-eyed parents cannot have a brown-eyed child. \_\_\_\_\_
- 3) Humans share about 90% of genetic material with mice and 98% with chimpanzees. \_\_\_\_\_
- 4) Nearly every cell in the human body contains a complete copy of the human genome. \_\_\_\_\_
- 5) We get 23 chromosomes from our mother and 23 from our father. \_\_\_\_\_
- 6) Some diseases are inherited through genes. \_\_\_\_\_
- 7) Doctors may be able to cure diseases in the future by replacing bad DNA with good DNA using a process called gene therapy. \_\_\_\_\_
- 8) DNA is a really long molecule and there are lots of DNA molecules in the human body. If you unraveled all the DNA molecules in your body, they would reach to the Sun and back several times. \_\_\_\_\_
- 9) Some inherited traits are determined by multiple different genes. \_\_\_\_\_
- 10) DNA molecules have a specific shape called a double helix. \_\_\_\_\_
- 11) The ability to roll one's tongue is not heritable trait. \_\_\_\_\_

#### 6. Discussion "Who do you think you are?"

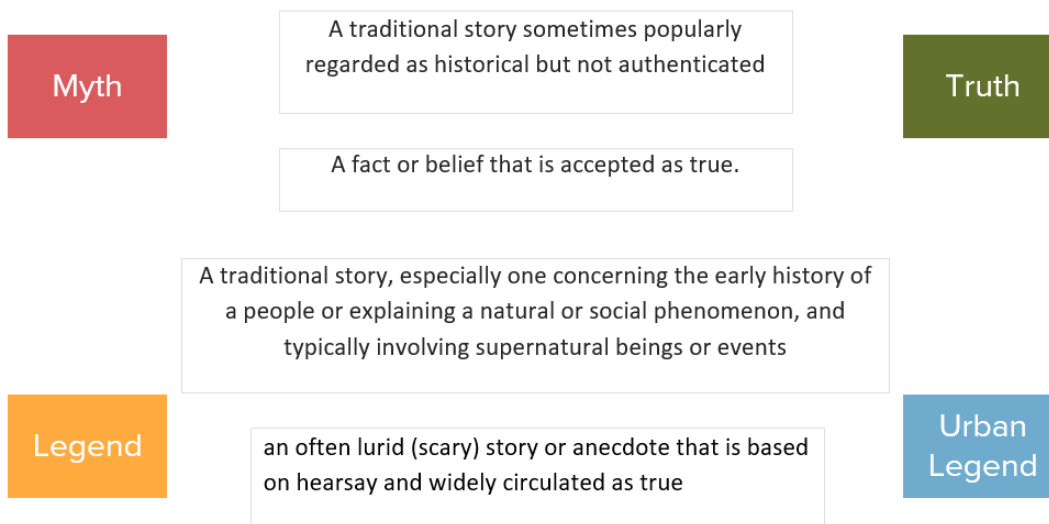
In pairs find out if you ever have heard about where they came from, or any family legends and stories. Tell each other stories about their heritage, culture, and ancestry.

Write on the board: "*The more you know about yourselves and your family's past – the more our personal identity evolves.*" Ask students to state their opinions.

## Lesson2

### Lesson topic 1.2 Myth busters (Physics, Chemistry, Biology)

1. Draw lines to match to match the image to the answer



2. Work in pairs and find out if these myth busted or confirmed. Use your smartphones

<b>Myth</b>	<b>Humans only use 10% of their available brain capacity</b>
<b>Decision</b> (PROVED or BUSTED)	
<b>Argument</b>	

<b>Myth</b>	<b>Elephants are scared of mice</b>
<b>Decision</b> (PROVED or BUSTED)	
<b>Argument</b>	

<b>Myth</b>	<b>You stay drier running in the rain than walking</b>
<b>Decision</b> (PROVED or BUSTED)	
<b>Argument</b>	

<b>Myth</b>	<b>A banana peel on the ground is guaranteed to cause the person who steps on it to slip and fall</b>
<b>Decision (PROVED or BUSTED)</b>	
<b>Argument</b>	

<b>Myth</b>	<b>It is possible to survive a free-falling elevator by jumping up at the last moment before it hits the ground</b>
<b>Decision (PROVED or BUSTED)</b>	
<b>Argument</b>	

3. Divide into groups. Read the text

**Group 1**

**Loch Ness Monster**



The Loch Ness Monster, sometimes called "Nessie" or "Ness" is a creature or group of creatures said to live in Loch Ness, a deep freshwater loch (lake) in northern Scotland. Nessie is generally categorized as a lake monster.

Legends of a monster, or animal, living in the loch have been known for several centuries, though others have questioned the accuracy and reliability of such tales, which were generally unknown before the 1960s.

The first modern sighting occurred on May 2, 1933. The newspaper Inverness Courier carried a story of Mr. and Mrs. John Mackay, who reportedly saw "an enormous animal rolling and plunging on the surface." The report of the "monster" became a media sensation even a reward of 20,000 pounds was offered for capture of the monster.

Regardless of whether anything is actually in the loch, the Loch Ness Monster has some significance for the local economy. Lots of people visited the loch for many times to see the monster.

Loch Ness is located in the North of Scotland and is one of a series of interlinked lochs which run along the Great Glen. By volume, Loch Ness is the largest freshwater lake in Great Britain.

Since Dec., 1933, when newspapers published accounts of a 'monster,' 40 to 50 ft (12-15 m) long, said to have been seen in the loch, there have been alleged sightings.

Most of the Nessie witnesses describe something with two humps, a tail, and a snakelike head, a red mouth and horns or antennae on the top of the creature's head. Nessie's movements have been studied, and the films and photos analyzed to determine what Nessie might be, if she exists.

Most accounts of Nessie's appearance, including historical ones, indicate a creature resembling the long-extinct plesiosaur. However, most scientists suggest the idea that the Loch Ness Monster is a prehistoric creature is highly unlikely because the loch was created comparatively recently.

Other sightings, however, do not fit the plesiosaur description or even a water-bound creature: In April 1923, Alfred Cruickshank claimed to have seen a creature 3 m to 3.5 m long, with an arched back and four elephant-like feet cross the road before him as he was driving. Other sightings report creatures more similar to camels or horses.

Theories as to the exact nature of the Loch Ness Monster sightings are varied: misidentification of seals, fish, logs, or unusual wave patterns.

A recent theory postulates that the "monster" is actually nothing more than bubbling and disruptions in the water caused by volcanic activity at the bottom of the loch.

Some researchers claim that there are no anomalous physical creatures within the loch. Because of the complete absence of physical evidence, these researchers argue that many of the reported sightings can be attributed to hoaxes or misidentification of creatures and objects.

Group 2

### Yeti: Abominable Snowman of the Himalayas



The Himalaya Mountains, the highest range on Earth, have been referred to as the "roof of the world." If that is so, there is a mystery called the *Yeti* in our attic. In Tibetan the word means "magical creature" and truly it is a seemingly supernatural enigma in the shape of a hairy creature that resembles a giant ape. The Himalayas lie on the border between India, Nepal, and Tibet (now part of China). In Katmandu, the capitol of Nepal, a visitor can hear the Yeti legend. He is a commercial money maker for the tourist industry (there's even a Hotel named the "Yak and the Yeti").

The first reliable report of the Yeti appeared in 1925 when a Greek photographer, **N. A. Tombazi**, working as a member of a British geological expedition in the Himalayas, was shown a creature moving in the distance across some lower slopes. The creature was almost a thousand feet away in an area with an altitude of around 15,000 feet. "Unquestionably, the figure in outline was exactly like a human being, walking upright," said Tombazi, "It showed up dark against the snow and, as far as I could make out wore no clothes." The creature disappeared before Tombazi could take a photograph and was not seen again. When the locals were asked to name the beast he'd seen they told him it was a "Kanchenjunga demon." Tombazi didn't think he'd seen a demon, but he couldn't figure out what the creature was either.

Some of the best

tracks ever seen were found and photographed by British mountaineers **Eric Shipton** and **Micheal Ward** in 1951. Each print was thirteen inches wide and some eighteen inches long. The tracks seemed fresh and Shipton and Ward followed the trail for a mile before it disappeared in hard ice. Shipton's and Ward's reputations argue against a hoax on their part and the remoteness and height of the trail's location argues against them being hoaxed.

One of the more curious reports of a close encounter with a Yeti occurred in 1938. A military man was traveling the Himalayas by himself when he became snowblind. As he neared death from exposure he was rescued by a nine foot tall Yeti that nursed him back to health until he was able to return home by himself.

In many other stories, though, the Yeti hasn't been so kind. One Sherpa girl, who was tending her yaks, described being surprised by a large ape-like creature with black and brown hair. It started to drag her off, but seemed to be startled by her screams and let her go. It then savagely killed two of her yaks. She escaped with her life and the incident was reported to the police, who found footprints.

Several expeditions have been organized to track down the Yeti, but none have found more than footprints and questionable artifacts like scalps and hides. Sir Edmund Hillary, the same man that had first climbed Everest in 1953, lead the 1960 expedition. Despite a ten-month stay the group failed to find any convincing evidence of the existence of the Yeti. The artifacts they examined, two skins and a scalp, turned out to belong to two blue bears. On October 20, 2008 a team of seven Japanese adventurers photographed footprints which could have been made by a Yeti.

Some people believe that the Yeti is actually three animals. The first is a large animal that often attacks cattle. This is probably the Tibetan blue bear. A creature so rare it is known only in the west through a few skins, bones and a skull. The second type is probably a gibbon that may live as far north as Nepal. The third Yeti, is the true abominable snowman of legend. A savage ape, covered with black or red hair that lives at altitudes of up to 20,000 feet.

So far there is no firm evidence to support the existence of the Yeti, but there is no way show that he doesn't exist either. If he indeed lives in the barren, frozen, upper reaches of the Himalayas where few men dare to tread, he may find his refuge safe for a long time to come.

### **Group 3**

#### **The JERSEY DEVIL**

The Jersey Devil, the supposed mythical creature of the New Jersey Pinelands, has haunted New Jersey and the surrounding areas for the past 260 years. It has been seen by over 2,000 witnesses over this period. It has terrorized towns and caused factories and schools to close down, yet many people believe that the Jersey Devil is a legend, a mythical beast, that originated from the folklore. Others disagree with this point of view.

The following text will show there is evidence to support the existence of an animal or supernatural being known as the Jersey Devil. There are many different versions of the birth of the Jersey Devil. One of the most popular legends says a Mrs. Shrouds of Leeds Point, NJ made a wish that if she ever had another child, she wants it to be a devil. Her next child was born misshapen and deformed. She kept it in the house, so the curious couldn't see him. On stormy night, the child flapped its arms, which turned into wings, and escaped out the chimney and was never seen by the family





again. Another story placed the birth in Estelville, NJ. Mrs. Leeds, finding out she was pregnant with her 13th child, shouted, "I hope it's a devil". She got her wish. The child was born with horns, a tail, wings, and a horse-like head.

The sightings have been divided up into 3 time periods, pre 1909, January 16-23, 1909, and post 1909. The witnesses described the creature they saw: 'It was about three feet and half high, with a head like a collie dog and a face like a horse. It had a long neck, wings about two feet long, and its back legs were like those of a crane, and it had horse's hooves. It walked on its back legs and held up two short front legs with paws on them. It didn't use the front legs at all while we were watching.'

There have been other sightings since 1909. In 1966 a farm was raided and 31 ducks, 3 geese, 4 cats, and 2 dogs were killed. One of the dogs was a large German Shepard which had its throat ripped out. In 1987 an aggressive German Shepard was found torn apart. The body was located 25 feet from the chain which had been hooked to him. Around the body were strange tracks that no one could identify.

Professor Bralhopf said that "the tracks were made by some prehistoric animal from the Jurassic period". He believes the creature survived underground in a cavern. An expert from the Smithsonian Institute had a theory about ancient creatures surviving underground. He said the Jersey Devil was a Pterodactyl. The Academy of Natural Sciences could find no record of any creature, living or extinct, that resembles the Jersey Devil.

Jack E. Boucher has a theory in which he believes the devil was a deformed child. He thinks Mrs. Leeds had a disfigured child and kept it locked away in the house. She grew sick and couldn't feed the child anymore. It escaped out of hunger and raided local farms for food. This doesn't take into account the incredible life span of the devil. The child would have been 174 years old in 1909. It also doesn't account for the sightings of the devil flying.

The last theory is the most controversial one. Many people believe that the Jersey Devil could be the very essence of evil, embodied. It is said that the devil appears before any great conflict. The Jersey Devil was sighted before the start of the Civil War. It was also seen right before the Spanish American War and WW I. In 1939, before the start of WW II, Mount Holly citizens were awakened by the noise of hooves on their roof tops. The Devil was seen on December 7, 1941, right before Pearl Harbor was bombed. He was also seen right before the Vietnam War.

Other facts support the supernatural theory are the reports of the death of the devil. Each time he is reported dead, he returns. It seems the devil is immortal, which a supernatural being would be. None of these theories can give a definitive answer to what the Jersey Devil was or is, but the sightings prove there is something out there. Whether the Jersey Devil is a bird or a demon, is still left to speculation.

## **Group 4**

### **Big Foot**

North America has its own monster. While Scotland has its Loch Ness sea monster and the Himalayas has its Abominable Snowman or Yeti, North America lays claim to Sasquatch or, as he has been nicknamed, Bigfoot. Sightings of Bigfoot were first reported in parts of the United States and Canada in the early 1800s. Since then there have been hundreds of reports of a large, hairy ape.



On August 26, 1957, William Roe a hunter, saw what he thought was a grizzly bear. When the animal stood up, he realized this was no grizzly bear! The animal, a female, was six feet tall, three feet wide, and weighed approximately 300 lbs. Her arms reached almost to her knees. Roe was hiding in some brush and was able to observe the creature from a distance of some 20 feet. He watched, fascinated, as she used her white, even teeth to eat leaves from a nearby bush. Her head was "higher at the back than at the front"; her nose was flat. Only the area around her mouth was bare - the rest of her body was covered in hair, none of which was longer than an inch. The ears looked very much like a human's. The eyes were small and dark, similar to a bear's.

Roe wanted to find out whether the animal was a vegetarian or whether she consumed meat as well. He searched for and found signs in several places. Roe concluded this animal lived solely on vegetation. While Roe could not be sure this creature was, in fact, a Bigfoot, the logical conclusion is that he was fortunate enough to be able to observe this elusive creature up close.

On October 20, 1967, two men on horseback, Roger Patterson, who shot the film and Bob Gimlin, a friend, took to the northern Californian woods of Bluff Creek in the hopes of photographing one of these elusive creatures. They were not disappointed. In the late afternoon, Patterson and Gimlin met the creature. He quickly ran toward the creature. It responded by simply walking away. It walked into the trees and vanished. The creature that was filmed was a female.

Over the years, rumors abounded that Roger Patterson and Bob Gimlin hoaxed the whole incident. It even went further by saying that a special effects man named John Chambers, who designed the makeup in the Planet of the Apes movies, designed the suit. Scientists who have studied the film have said that the estimated stride of the creature is larger than that of a man. They also say it would have been very difficult for a man for simulate this large stride. Footprints were also found later at the same location. The footprints were the same type as typically found at a Bigfoot sighting.

In 2008 two men, Matt Whitton and Rick Dyer, held a press conference to claim they had found a Bigfoot body in the forests of Georgia. The "body" was later revealed to be a rubber gorilla suit.

Are they dangerous? This is a very delicate area. Most encounters are just "being in the right — at the right time" to see a Bigfoot and watch it disappear into the forest. However, there have been a few documented cases where a violent encounter with a Bigfoot has taken place.

There have also been many hoaxes, wild guesses about UFOs or supernatural connections. Some suggest the beast is a relative of Gigantopithecus, an extinct primate of China. Some scientists think that it is possible that an extinct known as Gigantopithecus Blacki that walked in Asia some 300,000 years ago, did not die out, but survived well into the 20th century.





4.Fill in the table

#### Vocabulary work

	Words	Translation

The new words from the text		
The words to learn for my classmates	<ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> </ol>	<ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> </ol>

5. Interview other groups and fill in the table

				
<b>Name</b>				
<b>When?</b>				
<b>Where?</b>				
<b>Appearance</b>				
<b>Sightings</b>				
<b>Theories</b>				

<b>Your opinion (Fact or fantasy?)</b>				
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6. Write a paragraph on the following topic:

“The unknown creatures: a mystery or a call from the past”

You should include:

- Your opinion
- The reason why you think so
- Explain your reason using the information you have learnt in the last 2 lessons

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### Lesson3

#### Lesson topic 1.3 Writing an article

1) Read the information and make notes

What is an article?

An article

- *is a piece of writing usually intended for publication in a newspaper, magazine or journal*
- *is written for a wide audience, so it is essential to attract and retain the readers' attention*
- *may include amusing stories, reported speech and descriptions*
- *can be formal or informal, depending on the target audience*
- *should be written in an interesting or entertaining manner*
- *should give opinions and thoughts, as well as facts*
- *is in a less formal style than a report An article can*
- *describe an experience, event, person or place*
- *present an opinion or balanced argument*
- *compare and contrast*
- *provide information*
- *offer suggestions*
- *offer advice*

A realistic article should consist of: 1. an eye-catching title which attracts the readers' attention and suggests the theme of the article. (Think about why you read a magazine or newspaper article recently - what made you read it?) Articles can also have subheadings before each paragraph. 2. an introduction which clearly defines the topic to be covered and

keeps the reader's attention. 3. the main body of two to five paragraphs in which the topic is further developed in detail. 4. the conclusion - summarising the topic or a final opinion, recommendation or comment.

REMEMBER Before you begin writing it is important to consider: • where is the article going to appear - in a newspaper or magazine? • who are the intended readers - a specific group such as students or teenagers, or adults in general? • what is the aim of the article - to advise, suggest, inform, compare and contrast, describe, etc.?

These three points are the deciding factors in the layout of your article, its style, language and level of formality.

Determine the information you are going to use and organize your ideas carefully into paragraphs.

Each paragraph should have a clear topic sentence.

The article could be formal, semi-formal or informal, depending on your intended audience.

Use vocabulary and descriptive language appropriate for the article. Linking words and expressions,

and a variety of vocabulary will only improve your work and make it more interesting.

DO NOT use over-personal or over-emotional language or simplistic vocabulary.

DO NOT talk about yourself. You are writing for the general public, not a close circle of friends.

Your opinions are only interesting to other people if you can make them amusing, justify them or

explain them

2. Match the topics (1-10) below with the titles (A-K) on the next page. There is one extra title that you do not need.

1. A healthy diet. \_\_\_\_\_
2. School Exams. \_\_\_\_\_
3. Eating out inexpensively. \_\_\_\_\_
4. The Internet. \_\_\_\_\_
5. A famous person. \_\_\_\_\_
6. Genetic Engineering. \_\_\_\_\_
7. Drug-taking. \_\_\_\_\_
8. An outdoor activity. \_\_\_\_\_
9. How to attract a man. \_\_\_\_\_
10. A successful career. \_\_\_\_\_

The image shows 11 titles in various shapes and colors:

- a. How to Reach The Top (oval, light blue)
- b. Do You Need To Be Connected? (rounded rectangle, light blue)
- c. THE CRACK IN OUR SCHOOLS (wavy-bottomed rectangle, light blue)
- d. Mouth-watering Recipes (rectangle, light blue)
- e. Is Jogging Bad For Our Health? (hexagon, light blue)
- f. An Apple A Day Keeps The Doctor Away (dashed border, light blue)
- g. To Flirt or Not to Flirt? - That Is THE Question (rectangle, light blue)
- h. A Testing Time (rectangle, light blue)
- i. The Man Behind The Prime Minister (diamond, light blue)
- j. Would You Like To Be Cloned? (arrowhead, light blue)
- k. Cheap and Cheerful Grub (rectangle, light blue)

3. Read the following first paragraphs and think of an appropriate title for each one. 1. TITLE: \_\_\_\_\_

It's that time of year again! Lots of expense, your patience tried to its utmost limits thanks to being in such close proximity to your family, over-eating and over-drinking - perhaps overindulging generally - receiving presents you don't really want and seeing relatives you don't really want to see. They get wheeled out every year for a free meal and a sherry and drive you mad with their complaints. How to avoid all this? Do something different - go on holiday and let someone else take the strain.

2. TITLE: \_\_\_\_\_

The oldest known disease to man, and the first to be identified, is on the increase. It is now prevalent in twenty-four countries, and still doctors are unsure what causes leprosy. There is a general consensus that it could be contracted through the respiratory system, but as yet there is no solid evidence. On the other hand, it could be spread by touch. Leprosy is curable if detected in the early stages, but what are the symptoms?

TITLE: \_\_\_\_\_

The joy of writing a long, newsy letter to a friend, a short thank-you note or even a letter of complaint, seems to have disappeared nowadays. People just pick up the phone, fax or send an e-mail instead of composing something in their own handwriting, which is much more appreciated by the person receiving it. It shows thought, care and consideration but people, or their way of life, are changing

TITLE: \_\_\_\_\_

Dieting seems to have become a way of life for many people, particularly women. It is said that at any one time three out of four people are on a diet, convinced that this is the magic formula, and that they will finally look like that model on the television they so envy. What they do not seem to realise is that they might well lose weight but will inevitably put it all back on - often more weight than they lost in the first place. The whole exercise is futile, and people never seem to realise that to lose weight permanently, one needs to change one's entire eating lifestyle.

TITLE: \_\_\_\_\_

Learning another language is not an easy process - different word order, irregular verbs, those tricky prepositions and difficult to pronounce, strange looking vocabulary. There are also many methods on offer to accomplish this feat - so many in fact, that it can become confusing and hard to decide which is the best way for you. Courses on cassette, evening classes, private lessons, a language school, move to the country of the target language (an extreme method, perhaps), a correspondence course or a pen friend - the list is endless and it is like a jungle trying to decide what to try

4. Imagine you have been asked to write the following article:

*Have you studied abroad?*

*Have you spent time studying in another country? We invite you, our readers, to submit an article on your experiences in that country, to be included in our forthcoming series on living and studying abroad. Share your experiences with us. Tell us what you studied and about any difficulties you faced while you were there. Have you changed as a result of this?*

## Write your article. (250 words)

First think about: • Where is the article going to appear? (In a magazine.) • Who are the intended readers? (Probably a fairly wide age group.) • What is the aim of the article? (To talk about your experiences, good and bad, while studying abroad.)

Then you need to decide: • Which country have you studied in? • How long were you there for? • What did you study? • What problems did you have while you were there? • How have you changed?

## Lesson4

### II Unit. Natural Disasters

#### Lesson topic 2.1 Causes and consequences of natural disasters (atmosphere, lithosphere, hydrosphere)

1. Write down new words

**gamma-ray burst** – are short-lived *bursts* of *gamma-ray* light, the most energetic form of light (гамма-всплеск)

**injuries**- physical harm or damage to someone's body caused by an accident or an attack (раны, повреждения)

**to occur** – to happen (случаются, происходить)

2. Read through the text and answer multiple choice questions that follow.

#### Natural Disasters

When something is natural, it comes from nature and it is not manmade. A disaster is something that usually causes major problems. It would be a disaster if a bridge suddenly fell because it was not built properly. Disasters are negative but can be manmade. However, when speaking about natural disasters you can combine the two terms and define them as catastrophes that occur in nature or by natural processes. They are not manmade. A natural disaster takes place in populated areas of the world when lives may be lost, the property is severely damaged, and the economy is negatively affected.

Natural disasters may include an asteroid collision with Earth, avalanche, landslide, blizzard, thunderstorm, earthquake, flood, gamma-ray burst (from space), volcano, heat wave, hurricane, solar flare, drought, tornado, tsunami, hail, and wildfire.

It is not a natural disaster if it occurs in an unpopulated area and there is no loss of life or property damage. For example, if a tsunami took place on an uninhabited island, it would not be a disaster. Disasters cause a loss. There are many things that can happen during a natural disaster. Sometimes, more than one disaster occurs at the same time. Landslides may occur during severe flooding and thunderstorms.

Natural disasters occur throughout the world, and often people know when they are coming and can prepare for them and be safe. Other disasters may occur without warning. Most people die during a natural disaster when there is no time to prepare for it. Though natural disasters cause

many problems, injuries, and sometimes death, they are not to be feared, but being aware of them and properly preparing for them is extremely important.

In addition, there are natural disasters that can occur more often in one part of the world or country than in other regions. For example, a person living in the middle of the United States would not need to be concerned with a tsunami, but someone living along the coast would be affected. In the middle of the country, a tornado might occur, but often there are fewer of them along the coast.

The top 10 natural disasters most likely occurring throughout the world include blizzards, droughts, earthquakes, floods, heat waves, hurricanes, thunderstorms, tornados, tsunamis, and wildfires. Some of the listed disasters may occur simultaneously such as a hurricane and thunderstorm causing massive flooding, or possibly a tsunami, or a heat wave coupled with wildfires.

Other natural disasters include landslides and avalanches, which can be caused by earthquakes, heavy rain or snow, or other disasters. Snow or mud can be released from the side of a mountain or hillside burying the area below. Finally, there are active volcanoes, which are eruptions of a mountaintop, sending out ash clouds, lava, and more, causing damage to property and the loss of human life.

The most common types of natural disasters in the world are floods and storms.

All natural disasters cause damage and destruction, and often one or more people die due to the effects of the natural disaster. Many of the disasters can be predicted ahead of time with some warnings given for people to prepare and move to safety.

3. Do the test

1) All the following statements are true EXCEPT:

- A:** Disasters can include those made by man.
- B:** It is not a natural disaster if there is no loss of life.
- C:** A tsunami taking place on a deserted island is a natural disaster.
- D:** An asteroid collision with Earth would be a natural disaster.

2) A catastrophe that occurs in nature or by natural processes and causes loss of life is:

- A:** A manmade disaster
- B:** A global disaster
- C:** A natural disaster
- D:** An unnatural disaster

3) All the following may be natural disasters EXCEPT:

- A:** Oil spill
- B:** Landslide
- C:** Avalanche
- D:** Volcano

4) Which of the following natural disasters are most likely to occur simultaneously?

- A:** Heatwave and droughts
- B:** Thunderstorms and volcanos
- C:** Earthquakes and blizzards



**D:** Wildfires and floods

5) Which of the following may occur during severe flooding and thunderstorms?

**A:** Earthquakes

**B:** Landslides

**C:** Solar flares

**D:** Wildfires

6) Which part of the United States would most likely experience a tsunami?

**A:** States on the east coast

**B:** States on the west coast

**C:** States in the Midwest

**D:** Both A and B

4. Write and present a report

#### **NOTES FOR THE REPORT ON NATURAL DISASTERS**

Start with the general information about WHAT happened, WHEN and WHERE.
Describe how it started (what or who CAUSED the disaster) and how it developed or progressed.
Say what were the CONSEQUENCES (damage, injuries, casualties, etc)

### **Lesson5**

#### **Lesson topic 2.2 Focus on Kazakhstan: reporting on the causes and consequences of natural disasters**

#### **1. Read the script and highlight key points**

##### **Huw Edwards video – Writing news: transcript**

Hello. Once a journalist has gathered all the ingredients they need to produce their report it's time to start writing.

If you're writing for television or radio, your words are going to be read out loud and you'll

need to write a script which might include audio or video clips.

If you're writing a text-based online story think about how the words and photos will appear on the screen.

But, before you start writing anything, ask yourself what's the main point of the story?

If you're not sure, tell the story to a friend, what's the first thing you say to them?

This will become the beginning of your report.

The middle of your report contains the best of your interviews.

So review your material, which are the best answers? Which is the most interesting opinion?

Which quotation would balance it?

And you will also need to plan an ending to your report. Think what final thought you want to leave your audience with.

So you already know about the 5 Ws of news-gathering, there are also 3Cs of news-writing:

Be CLEAR, CONCISE and CORRECT

Clear: Write as if you were telling the story to one person.

Use simple language that everyone will understand.

And never use a long word where a short one will do.

Concise: Which means short. Make your report too long and your audience will switch off.

So stick to the key facts rather than overloading the story with information.

Correct: Be sure to get your facts right. And get your grammar and punctuation right.

It's also about being truthful.

You can't just copy things word for word, you have to be honest and spell out where the information came from.

Truth and accuracy are two of the BBC News values.

Check out our master classes for more help.

Good luck with your news reports.

## 2. Check the key points

Writing news with Huw Edwards, BBC newsreader: key points

- Once you've got all your facts and material, it's time to start writing your reports.
- If writing for TV or radio, you need to write a script, which will be read aloud possibly alongside pictures or audio clips.
- If you're writing a text-based story, think about how photos might work alongside it
- Before you start writing, ask yourself: what is the main point of this story?
- If you're not sure, tell it to a friend – what's the first thing you say to them? That's a good guide to the most interesting part of a story and will probably be the start of your story.
- The middle of your report may well be the best parts of your interview so review the material and pick out the best answers.
- Also need to plan an ending – what final thought do you want to leave audience with?
- Stick to the 3 C's of news writing: be clear, concise and correct.
- Clear – as if you were telling the story to one person; never use a long word where a short one will do just as well.
- Concise – keep to the key facts and don't bore your audience!
- Correct – get facts, grammar and punctuation right and be honest about where your information is from

## 3. Using tips, plan your own news report

### **Planning your news report**

Name/Role: \_\_\_\_\_

Name/Role: \_\_\_\_\_

Name/Role: \_\_\_\_\_

Name/Role: \_\_\_\_\_

<b>Natural disaster and details about it</b>	Type of natural disaster. 5 w`s about it.	
<b>Set Design/ Costume Design</b>	What costumes or special clothing will you be using for it?	
<b>Props</b>	What props will you be using for your interview?	

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## Lesson6

### Lesson topic 2.3 Prediction and prevention of natural disasters

#### 1.Read the text

#### The Tornado

#### A (Mostly) True Story about Staying Safe during a Tornado

I can still remember the sound of the sirens. They sounded like the bells for changing classes at school, but louder, longer and scarier. From a young age, I was taught that those sirens meant danger. They meant that I needed to go to the center of the building or the basement and hide. They meant that a tornado was fast approaching. They meant that a tornado was close to me and coming closer. Unfortunately for me, the state of Ohio can have as many as 60 tornadoes a year!

My mom always told me and my sister that if we see a tornado, we should not panic. Instead, we should think calmly and clearly and go to the basement to hide. My mom taught us a lot about tornado safety. She told us that we should bring a safety bag full of essential items, things we really need, and leave the things that are not necessary behind. She also told us that we should only pack items like water, food, blankets, flashlights and medicine. The blanket was really important because she said it would protect us from dangerous flying debris, like pieces of wood, metal and trash that can get picked up and carried by tornadoes.

The most important item to pack, however, was a radio. She said we should only pack a radio that operates on batteries and not a radio that gets its power from electricity in the wall.

One day, my sister and I were at home alone and there was a big tornado. We couldn't see it, but we could hear the sirens so we knew it was somewhere in the vicinity. You see, the sirens are only turned on when a tornado is very close and in the area. If you hear the sirens, it is very important to stay calm and think fast.

Anyway, when my sister and I heard the sirens, we did not panic at all. We remembered what our mother had told us about tornado safety and we knew exactly what to do. We packed our safety bag full of essential items, water bottles and non-perishable foods. While fresh foods like milk and apples are more delicious, non-perishable foods that can be used for a long time like vegetables in cans and cookies in boxes are better for emergencies. For this reason, we packed a lot of Coca-Cola, candy, boxes of cookies and canned fruit. Then, with our bags packed, we went to the basement.

We hid in the basement for over 3 hours. We were so bored that we ate all of the boxes of cookies, one can of strawberries and about 7 cans of Coca-Cola. We also listened to the radio for hours and learned all the words to the song "My Heart Will Go On" from the movie Titanic. By the time our mom found us, we had gone completely insane. We were acting totally crazy and jumping up and down like Batman with the blankets tied around our necks.

When our mom saw all the empty boxes of cookies and cans of coca-cola, she became furious with us. She shouted at us and got really angry at us for eating so much sugar. Then, my sister started crying and said, "but mom, we did everything you told us to do! We packed a bag of important things and a radio! You never told us not to eat the cookies, dress up like Batman in the blankets or listen to the silly Titanic song on the radio fifty times!"

My mom suddenly stopped shouting at us and gave us both a big hug. "You're right," she said. "I should have told you the food was for eating slowly in case you couldn't leave the building for a few days, the blanket was for protecting your head and the radio was for listening to the news for information about the tornado. Since you were listening to music on the radio and not the news this whole time, you don't even know that the tornado is over and we are all safe!"

My sister and I felt very happy that we were safe and had prepared for the tornado correctly. However, when winter started that year we made sure to ask our mother why we needed to pack certain things in our blizzard safety bags. We didn't want to accidentally get in trouble again!

2. Answer the following questions using context clues to choose the correct letter.

1. Sirens...

A. are on TV            B. are quiet            C. are loud alarm bells            D. are school bells

2. If a tornado is approaching, it is....

A. getting nearer            B. going away            C. getting bigger            D. growing stronger

3. Essential items are...

A. fun items            B. unimportant items            C. necessary items            D. legos and toys

4. Flying pieces of debris are....

A. not safe            B. safe            C. interesting            D. predictable

5. Radios that operate on batteries...

A. work with cables    B. don't need batteries    C. are solar powered    D. get power from batteries

6. If a tornado is in the vicinity, it is...

A. far away from you    B. predictable    C. near you    D. looking for you

7. Non-perishable foods might include...

A. a can of tomatoes    B. apples    C. milk    D. fresh tomatoes

8. If you are insane, you feel...

A. not normal and silly    B. very normal and calm    C. angry and mad    D. very sad and quiet

9. If someone is furious with you, they are....

A. very happy with you    B. quite confused    by you    C. very mad at you    D. quite interested in you

Directions: Answer the following questions using what you know about finding the topic, supporting details and main idea of a story.

10. What is the topic of this story?

A. natural disasters    B. Mrs. Rachel's sister    C. cookies    D. tornado safety

11. Which is NOT a supporting detail in the story?

A. Mrs. Rachel's mom told her what to do if there is a tornado

B. Mrs. Rachel and her sister did not panic when they heard the tornado sirens, they remained calm

C. Mrs. Rachel and her sister prepared for the tornado correctly

D. Mrs. Rachel's mom told her why she should pack essential items and food in a bag to prepare for a tornado

12. What is the main idea of the story?

A. When you prepare for a natural disaster like a tornado, you should pack a safety bag.

B. When you hear tornado sirens, you should remain calm.

C. When you prepare for a natural disaster like a tornado, you should know what to pack in a safety bag and why.

D. When you hide from a tornado, it is important to stay hidden for at least three hours.

## Lesson7

### III Unit. Virtual Reality

#### Lesson topic 3.1 Developing and evaluating mobile applications

##### 1. Answer the questions

- How do you mostly use your phone? To connect with people? To create something new? To play?

##### 2. Read the text

Mobile phones. They are in all of our pockets now, aren't they? But how many mobile apps are there in your phone? You probably use them to order food, make payments or simply chat with your friends on Messenger. Mobile applications are to make our life easier. Nowadays many businesses in education sector build their own apps and there are many ways on how we could benefit from them.

Like all the other sectors, technology has also sneaked in the system of education worldwide and has given it a range of non-conventional learning possibilities. Mobile applications have found a revolutionary way to make learning simpler, faster, and available at any time and any place we want to. But is this revolution only about the applications created strictly for learning? Like all those apps students use to revise before Math or Geography tests? Or the apps they use to learn about different cultures and most commonly to learn foreign languages?

The digital technology has gone further and there is more what mobile apps people download every day can do for them. As Theodore Levitt once said: "Creativity is thinking up new things, innovation is doing new things" And in this case the idea of "doing new things" would be the creation of a new mobile application for the education market.

Just imagine there is an app which finds a private teacher for you, or if you are a teacher, it finds you new students. In your location, immediately and with almost no effort. A company from Poland has created such an app and they called it TeachersMap. It constitutes an interactive system for mobile devices which is based on a map and links foreign language teachers with their future students. As you can see, the creators are not trying to blind you with science. The location. It is that simple. Each time there is a student – tutor match, the app sends a notification directly to their phones.

TeachersMap is more convenient and more effective than the usual traditional ways of finding students and private teachers. The app frees them from browsing websites looking for new deals in their location or for online lessons. It is beneficial both for foreign language teachers and for students as it saves them a lot of valuable time which they used to spend on different websites and networking platforms in search of new contacts.

With time, things have changed, and there are different ways to introduce innovations in the education sector all around the world. Mobile apps give us access to infinite information, data and moreover, they enable fast connections between people. TeachersMap is one of them. We might need more such applications down the road.

##### 3. Read the sentences and decide whether they are true or false or not given:

1. Mobile applications are no longer so popular in Poland. \_\_\_\_\_

2. Learning via mobile apps is considered rather conventional. \_\_\_\_\_
3. TeachersMap is mainly for teachers to use. \_\_\_\_\_
4. In TeachersMap you can share your materials. \_\_\_\_\_
5. There is no name of the company which has created TeachersMap. \_\_\_\_\_
6. The number of mobile apps users is on the rise. \_\_\_\_\_
7. The article says that innovations in education are introduced around the world. \_\_\_\_\_
8. TeachersMap is going to create another mobile application. \_\_\_\_\_
9. In general, mobile apps are considered handy. \_\_\_\_\_
10. According to the text, we will have more educational apps in the future. \_\_\_\_\_

#### 4.Synonym match

Constitute	regular
Convenient	slip away
Conventional	solely
Benefit from	release
Sneak in	usually
Strictly	interaction
Free	endless
Networking	represent
Infinite	handy
Commonly	gain from

## Lesson8

### Lesson topic 3.2 Expressing and justifying opinions about 2D games

1)Read the speech

00:12

I'm a brain scientist, and as a brain scientist, I'm actually interested in how the brain learns, and I'm especially interested in a possibility of making our brains smarter, better and faster.

00:26

This is in this context I'm going to tell you about video games. When we say video games, most of you think about children. It's true. Ninety percent of children do play video games. But let's be frank. When the kids are in bed, who is in front of the PlayStation? Most of you. The average age of a gamer is 33 years old, not eight years old, and in fact, if we look at the projected demographics of video game play, the video game players of tomorrow are older adults. (Laughter)

01:05

So video [gaming] is pervasive throughout our society. It is clearly here to stay. It has an amazing impact on our everyday life. Consider these statistics released by Activision. After one month of release of the game "Call Of Duty: Black Ops," it had been played for 68,000 years worldwide, right? Would any of you complain if this was the case about doing linear algebra?

01:39

So what we are asking in the lab is, how can we leverage that power? Now I want to step back a bit. I know most of you have had the experience of coming back home and finding your kids playing these kinds of games. (Shooting noises) The name of the game is to get after your enemy zombie bad guys before they get to you, right? And I'm almost sure most of you have thought, "Oh, come on, can't you do something more intelligent than shooting at zombies?" I'd like you to put this kind of knee-jerk reaction in the context of what you would have thought if you had found your girl playing sudoku or your boy reading Shakespeare. Right? Most parents would find that great. Well, I'm not going to tell you that playing video games days in and days out is actually good for your health. It's not, and binging is never good. But I'm going to argue that in reasonable doses, actually the very game I showed you at the beginning, those action-packed shooter games have quite powerful effects and positive effects on many different aspects of our behavior.

02:55

There's not one week that goes without some major headlines in the media about whether video games are good or bad for you, right? You're all bombarded with that. I'd like to put this kind of Friday night bar discussion aside and get you to actually step into the lab. What we do in the lab is actually measure directly, in a quantitative fashion, what is the impact of video games on the brain. And so I'm going to take a few examples from our work.

03:26

One first saying that I'm sure you all have heard is the fact that too much screen time makes your eyesight worse. That's a statement about vision. There may be vision scientists among you. We actually know how to test that statement. We can step into the lab and measure how good your vision is. Well, guess what? People that don't play a lot of action games, that don't actually spend a lot of time in front of screens, have normal, or what we call corrective-to-normal vision. That's okay. The issue is what happens with these guys that actually indulge into playing video games like five hours per week, 10 hours per week, 15 hours per week. By that statement, their vision should be really bad, right? Guess what? Their vision is really, really good. It's better than those that don't play. And it's better in two different ways. The first way is that they're actually able to resolve small detail in the context of clutter, and though that means being able to read the fine print on a prescription rather than using magnifier glasses, you can actually do it with just your eyesight. The other way that they are better is actually being able to resolve different levels of gray. Imagine you're driving in a fog. That makes a difference between seeing the car in front of you and avoiding the accident, or getting into an accident. So we're actually leveraging that work to develop games for patients with low vision, and to have an impact on retraining their brain to see better. Clearly, when it comes to action video games, screen time doesn't make your eyesight worse.

05:04

Another saying that I'm sure you have all heard around: Video games lead to attention problems and greater distractability. Okay, we know how to measure attention in the lab. I'm actually going to give you an example of how we do so. I'm going to ask you to participate, so you're going to



have to actually play the game with me. I'm going to show you colored words. I want you to shout out the color of the ink. Right? So this is the first example. ["Chair"] Orange, good. ["Table"] Green. ["Board"] Audience: Red. Daphne Bavelier: Red. ["Horse"] DB: Yellow. Audience: Yellow. ["Yellow"] DB: Red. Audience: Yellow. ["Blue"] DB: Yellow. Okay, you get my point, right? (Laughter) You're getting better, but it's hard. Why is it hard? Because I introduced a conflict between the word itself and its color. How good your attention is determines actually how fast you resolve that conflict, so the young guys here at the top of their game probably, like, did a little better than some of us that are older. What we can show is that when you do this kind of task with people that play a lot of action games, they actually resolve the conflict faster. So clearly playing those action games doesn't lead to attention problems.

06:25

Actually, those action video game players have many other advantages in terms of attention, and one aspect of attention which is also improved for the better is our ability to track objects around in the world. This is something we use all the time. When you're driving, you're tracking, keeping track of the cars around you. You're also keeping track of the pedestrian, the running dog, and that's how you can actually be safe driving, right?

06:49

In the lab, we get people to come to the lab, sit in front of a computer screen, and we give them little tasks that I'm going to get you to do again. You're going to see yellow happy faces and a few sad blue faces. These are children in the schoolyard in Geneva during a recess during the winter. Most kids are happy. It's actually recess. But a few kids are sad and blue because they've forgotten their coat. Everybody begins to move around, and your task is to keep track of who had a coat at the beginning and who didn't. So I'm just going to show you an example where there is only one sad kid. It's easy because you can actually track it with your eyes. You can track, you can track, and then when it stops, and there is a question mark, and I ask you, did this kid have a coat or not? Was it yellow initially or blue? I hear a few yellow. Good. So most of you have a brain. (Laughter) I'm now going to ask you to do the task, but now with a little more challenging task. There are going to be three of them that are blue. Don't move your eyes. Please don't move your eyes. Keep your eyes fixated and expand, pull your attention. That's the only way you can actually do it. If you move your eyes, you're doomed. Yellow or blue? Audience: Yellow. DB: Good. So your typical normal young adult can have a span of about three or four objects of attention. That's what we just did. Your action video game player has a span of about six to seven objects of attention, which is what is shown in this video here. That's for you guys, action video game players. A bit more challenging, right? (Laughter) Yellow or blue? Blue. We have some people that are serious out there. Yeah. (Laughter)

08:30

Good. So in the same way that we actually see the effects of video games on people's behavior, we can use brain imaging and look at the impact of video games on the brain, and we do find many changes, but the main changes are actually to the brain networks that control attention. So one part is the parietal cortex which is very well known to control the orientation of attention. The other one is the frontal lobe, which controls how we sustain attention, and another one is the anterior cingulate, which controls how we allocate and regulate attention and resolve conflict. Now, when we do brain imaging, we find that all three of these networks are actually much more efficient in people that play action games.

09:16

This actually leads me to a rather counterintuitive finding in the literature about technology and the brain. You all know about multitasking. You all have been faulty of multitasking when you're driving and you pick up your cellphone. Bad idea. Very bad idea. Why? Because as your attention shifts to your cell phone, you are actually losing the capacity to react swiftly to the car braking in front of you, and so you're much more likely to get engaged into a car accident. Now, we can measure that kind of skills in the lab. We obviously don't ask people to drive around and see how many car accidents they have. That would be a little costly proposition. But we design tasks on the computer where we can measure, to millisecond accuracy, how good they are at switching from one task to another. When we do that, we actually find that people that play a lot of action games are really, really good. They switch really fast, very swiftly. They pay a very small cost.

10:20

Now I'd like you to remember that result, and put it in the context of another group of technology users, a group which is actually much revered by society, which are people that engage in multimedia-tasking. What is multimedia-tasking? It's the fact that most of us, most of our children, are engaged with listening to music at the same time as they're doing search on the web at the same time as they're chatting on Facebook with their friends. That's a multimedia-tasker. There was a first study done by colleagues at Stanford and that we replicated that showed that those people that identify as being high multimedia-taskers are absolutely abysmal at multitasking. When we measure them in the lab, they're really bad.

11:06

Right? So these kinds of results really makes two main points. The first one is that not all media are created equal. You can't compare the effect of multimedia-tasking and the effect of playing action games. They have totally different effects on different aspects of cognition, perception and attention. Even within video games, I'm telling you right now about these action-packed video games. Different video games have a different effect on your brains. So we actually need to step into the lab and really measure what is the effect of each video game.

11:41

The other lesson is that general wisdom carries no weight. I showed that to you already, like we looked at the fact that despite a lot of screen time, those action gamers have a lot of very good vision, etc. Here, what was really striking is that these undergraduates that actually report engaging in a lot of high multimedia-tasking are convinced they aced the test. So you show them their data, you show them they are bad and they're like, "Not possible." You know, they have this sort of gut feeling that, really, they are doing really, really good. That's another argument for why we need to step into the lab and really measure the impact of technology on the brain.

12:21

Now in a sense, when we think about the effect of video games on the brain, it's very similar to the effect of wine on the health. There are some very poor uses of wine. There are some very poor uses of video games. But when consumed in reasonable doses, and at the right age, wine can be very good for health. There are actually specific molecules that have been identified in red wine as leading to greater life expectancy. So it's the same way, like those action video games have a number of ingredients that are actually really powerful for brain plasticity, learning, attention, vision, etc., and so we need and we're working on understanding what are those active ingredients so that we can really then leverage them to deliver better games, either for education or for rehabilitation of patients.

13:19

Now because we are interested in having an impact for education or rehabilitation of patients, we are actually not that interested in how those of you that choose to play video games for many hours on end perform. I'm much more interested in taking any of you and showing that by forcing you to play an action game, I can actually change your vision for the better, whether you want to play that action game or not, right? That's the point of rehabilitation or education. Most of the kids don't go to school saying, "Great, two hours of math!"

13:52

So that's really the crux of the research, and to do that, we need to go one more step. And one more step is to do training studies. So let me illustrate that step with a task which is called mental rotation. Mental rotation is a task where I'm going to ask you, and again you're going to do the task, to look at this shape. Study it, it's a target shape, and I'm going to present to you four different shapes. One of these four different shapes is actually a rotated version of this shape. I want you to tell me which one: the first one, second one, third one or fourth one? Okay, I'll help you. Fourth one. One more. Get those brains working. Come on. That's our target shape. Third. Good! This is hard, right? Like, the reason that I asked you to do that is because you really feel your brain cringing, right? It doesn't really feel like playing mindless action video games.

14:58

Well, what we do in these training studies is, people come to the lab, they do tasks like this one, we then force them to play 10 hours of action games. They don't play 10 hours of action games in a row. They do distributed practice, so little shots of 40 minutes several days over a period of two weeks. Then, once they are done with the training, they come back a few days later and they are tested again on a similar type of mental rotation task. So this is work from a colleague in Toronto. What they showed is that, initially, you know, subjects perform where they are expected to perform given their age. After two weeks of training on action video games, they actually perform better, and the improvement is still there five months after having done the training. That's really, really important. Why? Because I told you we want to use these games for education or for rehabilitation. We need to have effects that are going to be long-lasting.

15:57

Now, at this point, a number of you are probably wondering well, what are you waiting for, to put on the market a game that would be good for the attention of my grandmother and that she would actually enjoy, or a game that would be great to rehabilitate the vision of my grandson who has amblyopia, for example?

16:16

Well, we're working on it, but here is a challenge. There are brain scientists like me that are beginning to understand what are the good ingredients in games to promote positive effects, and that's what I'm going to call the broccoli side of the equation. There is an entertainment software industry which is extremely deft at coming up with appealing products that you can't resist. That's the chocolate side of the equation. The issue is we need to put the two together, and it's a little bit like with food. Who really wants to eat chocolate-covered broccoli? None of you. (Laughter) And you probably have had that feeling, right, picking up an education game and sort of feeling, hmm, you know, it's not really fun, it's not really engaging. So what we need is really a new brand of chocolate, a brand of chocolate that is irresistible, that you really want to play, but that has all the ingredients, the good ingredients that are extracted from the broccoli that you can't recognize but

are still working on your brains. And we're working on it, but it takes brain scientists to come and to get together, people that work in the entertainment software industry, and publishers, so these are not people that usually meet every day, but it's actually doable, and we are on the right track. I'd like to leave you with that thought, and thank you for your attention. (Applause)

## 2. Answer the questions

### Your brain on video games

1. What is the average age of a video gamer?

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2. What is her viewpoint about playing video games?

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3. What are the effects of video games on our eyesight?

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4. What is the effect of video games on our attention span?

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5. What is the effect of video games on our ability to switch from one task to another?

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6. What is multimedia tasking?

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7. Are good multimedia taskers also good multitaskers?

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8. What connection does Prof Bavelier make between drinking wine and playing video games?

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9. What application of her research for education does she show?

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10. What does she mean by the 'broccoli side' of video games?

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11. What does she mean by the 'chocolate side' of video games?

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12. Who needs to come together for these two sides to meet?

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## Lesson9

### Lesson topic 3.3. Expressing and justifying opinions about 2D games

1. Read the topic (do not write translation)

#### Video and Computer Games

Video and computer games are extremely popular nowadays. A lot of people play computer games in order to escape dull reality and to fight with horrible monsters or to save the world from hostile aliens. Video and computer games give one the opportunity to plunge into exciting adventures: to explore complicated mazes, to combat frightful dragons, to overcome obstacles, to operate various vehicles, to fly an aircraft or to pilot a spacecraft, to solve different puzzles, to look after a virtual pet, to build cities, to play sport games and even to control the lives of people. Video games are constantly becoming more life-like and complex. New styles and genres appear. The development of a computer game demands the work and skills of quite a large group of people including programmers, graphic designers, sound designers, musicians, and other technicians. Modern video games contain a unique synthesis of 3D art, sound effects, real-life environment, people-like characters, architecture, artificial intelligence, dramatic performances, music, storytelling, and interactivity (the ability to communicate directly with a computer programme which does things in reaction to your actions). Video game developers have been accused of the depiction of graphic violence, advergaming (a form of advertising in games), consumption of drugs, alcohol or tobacco, bad language, propaganda, or profanity in some games. Many games encourage violent behavior, blur the difference between right and wrong and cause addiction. Some people say that video and computer games make children unsociable and passive. They are absorbed in games without

speaking to each other for a long time. Children and teenagers who are fond of computer games are not interested in reading. Some researchers proclaim that playing computer games stunts brain growth. Children can play for hours without eating, sleeping or learning. They sit in front of the computer screen exercising their fingers instead of playing outside or training themselves physically. That's why the levels of obesity among children and teenagers are rising. The vast majority of computer games are made for male game players, but nowadays more and more games are produced for girls and women. Small amount of young females play aggressive games and it has a negative influence on their psyche. But video and computer games have advantages as well. Most games require a great deal of patience and focus from the player so video games may even increase players' attention capacities. They may also improve a child's visual skills and develop coordination. Certain types of video games can improve gamers' dexterity as well as their ability to solve problems. Video games are meant not only for entertainment. Some video games are made for other reasons. Educational games attempt to teach players using the game as a vehicle. They help children develop maths, reading skills and spelling through play. Computer games can promote the development of strategic thinking and planning skills. It has been noticed that gamers don't realize they are learning. So if educational games could be used at school, education would enjoy significant benefits. All we should do is to control the playing, distribution, purchase, or sale of video and computer games. Violent games must be banned and the time of playing games should be strictly limited. Instead of killing and injuring people the aim of the game can be to save somebody or to make peace.

2. Read the following sentences and circle TRUE or FALSE:

- 1) Video and computer games are not so popular nowadays as they used to be 10 years ago.
- 2) Some people say that video and computer games make children sociable and hyperactive. –
- 3) The levels of obesity among children and teenagers are rising.
- 4) The vast majority of computer games are made for female game players.
- 5) Most games require a great deal of patience and focus from the player.
- 6) Video games are meant only for entertainment.
- 7) It has been noticed that gamers don't realize they are learning.

3. Answer the questions:

- 1) Why are many people fond of playing computer games?
- 2) What are the opportunities of computer and video games?
- 3) What have game developers been accused of?
- 4) Why can we say that the influence of computer games on children and teenagers is mostly negative?
- 5) What skills can computer games develop?

4. Complete each sentence (A-H) with one of the endings (1-8):

- A. Video games are constantly becoming-3
- B. The development of a computer game demands the work and skills of quite a large group of people including-7
- C. Modern video games contain a unique synthesis of-
- D. Many games encourage-
- E. Some researchers proclaim that-
- F. Educational games attempt to teach players-
- G. Computer games can promote the development of-
- H. All we should do is to control
1. violent behavior, blur the difference between right and wrong and cause addiction.
  2. strategic thinking and planning skills.
  3. more life-like and complex.
  4. 3D art, sound effects, real-life environment, people-like characters, architecture, artificial intelligence, dramatic performances, music, storytelling, and interactivity.
  5. the playing, distribution, purchase, or sale of video or computer games.
  6. playing computer games stunts brain growth.
  7. programmers, graphic designers, sound designers, musicians, and other technicians.
  8. using the game as a vehicle.

## Lesson10

### IV. Organic and non-organic worlds

#### Lesson topic 4.1 Discussing the difference between organic and non-organic food

##### 1. Read the text

##### THE SUN

Imagine a world where the sun never sets. Children can laugh and play in the streets all through the night. Fishermen enjoy 24 hours of daylight on the open sea. To get any sleep, people must block all the light from their windows.

Now imagine a world with only darkness. Even in the middle of the day, the sun does not shine. The only light comes from the moon and the stars in the black sky. Cars must drive with their lights on all the time. When people awake in the morning, it looks like the middle of the night.

This is the situation for people who live above the Arctic Circle. The sun clearly influences their lives. This includes people in northern Russia, Canada, Alaska and Greenland. For part of the year they cannot see the sun. And part of the year the sun never disappears.

But do you ever think about the sun? All life depends on the power of the sun. Year after year, the sun warms the earth, gives us light, builds life on our planet, and even keeps us healthy.

Whatever early people thought about the sun, they did not know much about it. But as people began to use science they learned more about the sun. In 1543, Nicholas Copernicus demonstrated

that the earth travels around the sun. One hundred years later, scientists estimated the distance to the sun. And as recently as 1904, a man named Ernest Rutherford showed how the sun produced such large amounts of heat. These people discovered that the sun is a star like all the other stars in the sky. However, for our planet, it is a very special star.

The earth is 150 million kilometers from the sun. Here is one way to imagine this great distance. Imagine that you are standing on the sun. Your friends are on the earth. If they turned on a light, it would take eight minutes for you to see it! But this is the perfect distance for the earth to use the sun's heat.

The temperature of the sun is around 6,000 degrees Celsius at its surface, and 15 million degrees at its centre! If the earth were any closer, we would burn. But if the earth were any further away, we would freeze. And yet, the sun is more than a big heater.

The sun also helps provide us with fresh air. The sun heats the oceans. Then the water heats the air. The changing air temperatures create most of the world's wind. Wind moves air to different places so plants can remove carbon dioxide from the air and create oxygen.

But the sun also affects plants directly. The sun makes plants grow through the process of photosynthesis. Plants can change light from the sun into energy. They use the energy to grow bigger and stronger. All life on earth depends on plants. Without the sun, we could not grow food for ourselves or for our animals.

Plants are not the only things who capture the power of the sun. Human can turn sunlight into electricity with solar cells. A solar cell collects the power of the sun and stores it. Then, this power can be used to run anything that uses electricity: cars, computers, or homes.

Besides all these amazing things, the sun also helps us to do something very simple, but needed. Without the sun, we would not be able to see anything!

The sun also helps people to be healthy and strong. It acts as a natural cleaner for our skin. The sun can help kill harmful bacteria that live on our skin. And the sun helps our bodies produce vitamin D. People need vitamin D to have strong bones.

The sun can also improve our mental health. In places where the sun does not shine, people can suffer from seasonal affective disorder. This is a kind of depression. People with season affective disorder do not have energy and feel sad. They are treated by sitting near a special light. But nothing is as good as being in real sunlight. Sunlight can help prevent depression and keep people happy. When the sun is shining, people have more hope about the future.

The sun does many other things as well. It helps us tell time. It controls the where and when animals travel. The sun's gravity keeps the planet in orbit. It even lets us see at night. This is because the sun shines on the moon and the moon sends the light down to the earth. The sun makes the colors of a rainbow after it rains. And it paints the sky during a sunset.

There are many things we still do not know about the sun. But the more we learn about the sun, the more we can thank God for giving us this wonderful gift.

2. Complete the sentences below.

*Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.*



1. For part of the year people who live above the \_\_\_\_\_ cannot see the sun.
2. In 1543, Nicholas Copernicus demonstrated that the \_\_\_\_\_ travels around the sun.
3. The earth is \_\_\_\_\_ kilometers from the sun.
4. It takes sunlight an average of \_\_\_\_\_ minutes to travel from the Sun to the Earth.
5. The temperature of the sun is around \_\_\_\_\_ million degrees at its centre.
6. The sun makes plants grow through the process of \_\_\_\_\_.
7. Human can turn sunlight into electricity with \_\_\_\_\_.
8. The sun helps our bodies produce \_\_\_\_\_ which is needed for us to have strong bones.
9. The sun's \_\_\_\_\_ keeps the planet in orbit.

### 3. Read and make notes

#### Compound adjectives

Compound adjectives are used to condense a lot of information in few words. The most commonly used compound adjective are formed in the following ways:

1. adverb + adjective, eg **environmentally friendly**
2. adverb + participle, eg **highly strung, well-known**
3. adjective + participle, eg **best-selling, hard-working, ready-made, short-sighted**
4. noun + participle, eg **king-sized, man-eating, face-saving**
5. adjective + noun, eg **full-time, high-speed**
6. noun + adjective, eg **accident-prone, lead-free, sugar-coated, tax-free**

Compound adjectives usually come before the noun they describe. However, they can also come after certain verbs.

Example: He's a well-known film star.

He's quite well-known.

4. Replace the relative clauses in italics. Use an appropriate compound adjective below.

environmentally friendly	face-saving	hard-working	high-speed
lead-free	ready-made	sugar-coated	

0. Firms will compete to employ individuals with talent *who are willing to work hard*.  
Firms will compete to employ hard-working individuals with talent.
1. There is an increased demand for products *which do not cause pollution*.  
\_\_\_\_\_
2. Sales of petrol *which has no added lead* have soared in recent years.  
\_\_\_\_\_
3. Many doctors still prefer to prescribe tablets *which are covered in sugar* for children.  
\_\_\_\_\_
4. Many commuters now travel from London to Paris on trains *which travel very quickly*.  
\_\_\_\_\_
5. Foods *which have been prepared in advance* are a popular choice for working parents.  
\_\_\_\_\_
6. The government was forced to make a compromise *which will avoid further embarrassment*.  
\_\_\_\_\_

5. These expressions are taken from the reading text. Replace the relative clauses in italics with a compound adjective and noun. Do NOT look back at the text before you answer questions 1-6.

0. ... fuel derived from coal, ore emulsion and shales *which are rich in oil*. (paragraph 2)  
\_\_\_\_\_ oil - rich shales
1. Would a sustained increase in prices trigger the adoption *which has been awaited for a long time* of alternative fuels... (paragraph 7)  
\_\_\_\_\_ - \_\_\_\_\_ adoption
2. ... higher pump prices will prompt consumers to search for alternatives *which are friendly to the wallet*... (paragraph 8)  
\_\_\_\_\_ - \_\_\_\_\_ alternatives
3. A recession would delay the development of cars *which use fuel efficiently*... (paragraph 9)  
\_\_\_\_\_ - \_\_\_\_\_ cars
4. (A recession) would also delay the development of hydrogen power and special fuels that could lead to petrol and diesel engines *which burn more cleanly*. (paragraph 9)  
\_\_\_\_\_ - \_\_\_\_\_ petrol and diesel engines
5. ... US car companies need the revenue from vehicles which are high in fuel consumption. (paragraph 10)  
high \_\_\_\_\_ - \_\_\_\_\_ vehicles
6. These vehicles which belong to a new generation will ... (paragraph 10)  
\_\_\_\_\_ - \_\_\_\_\_ vehicles

6. Rewrite each sentence but keep the meaning the same. Replace the relative clause in italics with a phrase containing a compound adjective. Use a word from **A** and a word from **B** to form the adjective.

A					B			
closed	high	long	low(x2)	old	balanced	circuit	established	paid
short	well(x2)				fashioned	lying	performance	
						standing	term	

0. They have ideas about raising children *which are outdated*.  
They have old-fashioned ideas about raising children.
1. Areas *which are close to the level of the sea* are more likely to flood.  
\_\_\_\_\_
2. It is recommended to eat a diet *which contains a variety of foods*.  
\_\_\_\_\_
3. Ford have produced an estate car *which is designed to be fast and powerful*.  
\_\_\_\_\_
4. People entering and leaving the building are monitored on television *which allows you to watch what is happening in different parts of the building*.  
\_\_\_\_\_
5. In spite of his qualifications and experience, he was offered only employment *which lasted for a short period of time* and not a permanent post.  
\_\_\_\_\_
6. Teaching and nursing have traditionally been jobs *which did not offer much pay*.  
\_\_\_\_\_
7. Fox hunting is a British tradition *which has existed for a long time*.  
\_\_\_\_\_
8. We prefer to do business with companies *which have been successful for a long time*.  
\_\_\_\_\_

## Lesson11

### Lesson topic 4.2 Discussing the difference between organic and non-organic food

How hungry would you have to be to eat a brain sandwich? What about some fried spider? Read this article to find out about the world's weirdest food.

1. Match the unusual food with the country, and write a -f next to the numbers 1 – 6. If you don't know, have a guess!
 

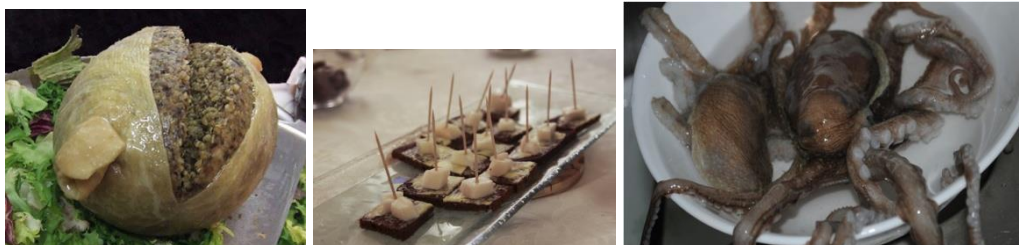
1. ... USA	a. Horse milk beer
2. ... Japan	b. Brain sandwiches
3. ... The Philippines	c. Jellied moose (лосось) nose
4. ... Norway	d. Duck egg (with embryo inside)

5. ... Mongolia e. Smoked sheep's head  
 6. ... Canada f. Tuna eyeball

2. Read the text



It's hard to say what is normal and what is weird where food is concerned – it all depends on the taste of the individual and which part of the world you come from. One person's nightmare is another person's delicacy. Here are a few of the strangest (or most normal) types of food from around the world.



**Haggis (Scotland)** A world-famous dish, haggis is made from the parts of a sheep many people would throw away. The heart, lungs and liver are mixed together with onion, spices and oatmeal (овсяные хлопья), then put inside a sheep's stomach and boiled for three hours.

**Brain sandwiches (USA)** These are not as common as they were in the past, but in parts of Ohio you can still get fried brains served on hamburger buns. Brains don't have much flavor, so you eat the sandwiches with plenty of sauce.

**Insects (Asia, Africa and South America)** Many insects are high in protein and contain important fatty acids (жирные кислоты) and vitamins. In Thailand it's common to find fried grasshoppers (кузнечики, саранча), crickets (сверчки), scorpions and worms on sale in the street. In Cambodia fried tarantula are a delicacy; people eat the legs too at a time.

**Hakarl (Iceland)** This has been described as the most disgusting food ever. Made by fermenting a Greenland or Basking shark (китовая акула) for two or four months, hakarl smells of ammonia (нашатырный спирт). It is available all year round in Icelandic stores and often served in cubes on toothpicks.

**Sannakji (Korea)** Now that Japanese sushi is popular all over the world, many people are used to eating raw fish. But this Korean delicacy is quite different, since the seafood isn't dead. Sannakji consists of baby octopus which are sliced up while alive; the tentacles (щупальца) are still wriggling about when the dish is served. If you don't chew the octopus carefully, there is a real danger that the tiny suction cups (присоски) can stick to your mouth and throat and choke you.

3. Read the questions and write the correct part of the world.

Scotland      USA      Asia, Africa and South America      Korea      Iceland (x2)

Which part of the world ...

1. ... eats an animal which is cut up into pieces while still alive? \_\_\_\_\_
2. ... gets valuable nutrition from eating small creatures? \_\_\_\_\_
3. ... offers a dish that probably needs lots of ketchup? \_\_\_\_\_
4. ... eats a fish that has undergone a period of chemical change? \_\_\_\_\_
5. ... doesn't waste much of the animal when they produce a well-known local dish?  
\_\_\_\_\_
6. ... eats chunks of food on small wooden sticks? \_\_\_\_\_

4. Complete the gaps with a verb from the box.

mix   slice   wriggle   choke   boil   chew

1. To make haggis, you \_\_\_\_\_ the heart, lungs and liver with the other ingredients, put it inside a sheep's stomach and \_\_\_\_\_ it for three hours.
2. In Korea, they \_\_\_\_\_ up the baby octopus and serve the tentacles as they continue to \_\_\_\_\_ around.
3. You have to be careful to \_\_\_\_\_ the tentacles fully, to make sure they don't stick in your throat and \_\_\_\_\_ you.

## Lesson 12

### Lesson topic 4.3 Analyzing the advantages and disadvantages of befouls Unit revision

#### The End of the Oil Age?

1. Look at the title and subtitle of the article. What do you think is the main problem discussed in the text (A-D)?

- A the rise in oil prices
- B decreasing supplies of oil
- C the need for alternative energy sources
- D the effect of oil prices on alternative fuel technology

**1. Read the text**

# The end of the Oil Age?

*The wells aren't about to run dry, but high oil prices might delay the adoption of alternative fuels*

- 1 Don't panic and don't sell the SUV just yet; the world is not running out of oil. Despite this year's 30 per cent price increase (and a 40 per cent rise in the past 12 months), no serious analyst is suggesting that we have even reached peak production, which might imply a steady increase in scarcity and price.
- 2 We will, of course, run out eventually, as you might expect with a finite resource that the world is burning up at the rate of 76 million barrels a day (2.8 billion imperial gallons), but it's going to take a while. Even at 2002's rate of consumption, conventional oil reserves will last more than 30 years; more fields have been discovered and are being discovered, and that's before you add fuel derived from coal, ore emulsion and oil-rich shales, or the eking out of stocks with renewable bio fuels.
- 3 Experts working for Ford have claimed that at present rates of consumption the world has about 600 years' worth of fossil fuels left, although we are unlikely to use them all up as some are very expensive to source and dirty to burn. Besides, as Byron McCormick, General Motors' executive head of hydrogen fuel-cell activities, says: 'The Stone Age didn't end because we ran out of stones.'
- 4 There might be a shortage of petrol, however, because of a lack of refining capacity, particularly in America. 'The US has so many different fuel types,' said one expert, 'that it is difficult to balance out refining capacity.' Furthermore, US environmental legislation means it's extremely hard to get permission to build new oil refineries.
- 5 While American's demand for oil varies seasonally, the UK's seasonal petrol demand is much steadier, although Heathrow's status as a European hub airport means we are quite low on jet fuel and a short-sighted policy on refining capacity means we are also short of automotive diesel; we are having to import both. In the long term, to the worrying detriment of our balance of payments, the UK is running out of oil, as North Sea stocks have reached their peak and are now dwindling.
- 6 There are many other factors driving the oil market, including geopolitics, speculators and the US market. Indeed, one of the main reasons that the price of oil has been rising is the breakdown of relations between the world's leading consumer of oil, America, and some of the world's leading producers of oil. Add to this the influence of speculation on the oil market, the massive expansion of oil consumption in China (now the world's second largest consumer) and burgeoning demand in India and it's no wonder that OPEC members are predicting petrol prices could soar.
- 7 Would a sustained increase in prices trigger the long-awaited adoption of alternative fuels and alternative energy technology? The answer is 'yes' and 'no'. To answer the question, you have to divide new technology into what is already or very nearly on sale, such as petrol/electric hybrid cars, liquid petroleum gas, bio fuels and diesel, and what's a long way off yet, such as fully synthetic fuels and hydrogen fuel-cell power.
- 8 Certainly there is some reason to suppose that higher pump prices will prompt consumers to search for wallet-friendly alternatives, particularly if that doesn't involve high initial spending. Therefore, we can expect the diesel market (currently more than 50% of European sales) to expand further. Diesel sales in the US might best be described as nascent, but those can be expected to grow as well. In the UK, liquid petroleum gas and diesel are to maintain their tax-friendly status for the next three years at least.
- 9 In the long term, the big worry among car makers is that sustained high fuel prices will mean higher interest rates, higher inflation and a worldwide recession. A recession would delay the development of fuel-efficient cars like Honda's Insight, Ford's Escape 4x4 and Toyota's Prius. It would also delay the development of hydrogen power and more heavily refined fuels that could lead to cleaner-burning petrol and diesel engines. 'I'm spending a lot of GM's risk capital here,' says Brian McCormick, 'and higher fuel prices are disheartening on one level, but encouraging on another.'
- 10 The irony is that US car companies need the revenue from high fuel-consumption but profitable vehicles like trucks and SUVs to fund the advanced research departments that are working on bringing the first generation of fuel-cell vehicles to the showrooms. These new-generation vehicles will run on hydrogen steamed out of natural gas, which is currently the cheapest and most convenient source of the fuel of the future.
- 11 'The technology is near at hand and we are working on it,' says McCormick. Unfortunately, governments will need to provide grants and subsidies for the massive investment required for a hydrogen fuel infrastructure, and in a worldwide recession that's not a realistic prospect. His boss GM director Larry Burns says, 'There's concern about the real risk that the high oil price will cause negative growth.'
- 12 Fuel isn't going to run out in the near future, but it's going to cost you more whatever you drive. It's probably not a good idea to sell your SUV right now, but whether you actually need two tons of off-road capability is likely to weigh more heavily on your mind in the long term.

3. Underline key words in questions 1-4 below.

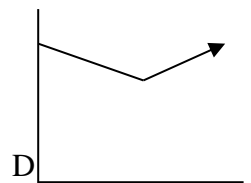
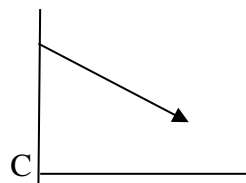
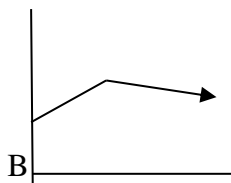
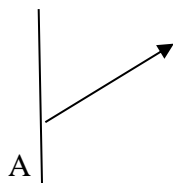
4. Read for parallel expressions in the questions 1-4 and the text's paragraphs.

5. Circle the appropriate letter A-D.

1. The most probable cause of a petrol shortage in the near future would be
  - A high fuel consumption.
  - B lack of conventional oil reserves.
  - C oil reserves which are difficult to access.
  - D American laws concerning the environment.

*Prompt: Which paragraph describes a **likely** cause of a petrol shortage? Only one option could cause a shortage in the **near future**.*

2. The graph which best illustrates changes to North Sea oil supplies is:



*Prompt: Read the paragraph to find mention of **North Sea** oil. What happens to something after it reaches a peak?*

3. Which of these does **not** affect the price of oil?
- A use of alternative fuels
  - B increase in demand
  - C stock market activity
  - D international relations

*Prompt: Find references to or parallel expressions for **increase in demand, stock market activity, international relations**. Paragraph 6 mentions 3 of the options which **do** affect the price of oil.*

4. Higher fuel prices would eventually bring about
- A a global economic downturn.
  - B lower interest rates.
  - C an increase in sales of large vehicles.
  - D development of environmentally friendly engines.

*Prompt: Option C is an unlikely answer. So, look at A, B and D more carefully.*

6. Match each description to the fuel it describes.

Fuels:

Oil (O)

Petrol (P)

Diesel (D)

Hydrogen (H)

- 1. The UK is not refining enough of this fuel to meet its needs. \_\_\_\_\_
- 2. The British government is encouraging people to buy this fuel. \_\_\_\_\_
- 3. An economic recession would affect the development of this fuel. \_\_\_\_\_
- 4. America buys more of this fuel than any other country. \_\_\_\_\_
- 5,6 Less polluting versions of this fuel are being developed. \_\_\_\_\_
- 7. This could become the preferred fuel in the future. \_\_\_\_\_
- 8. China and India are using increasing amounts of this fuel. \_\_\_\_\_

## Lesson13

### V Unit. Reading for pleasure

#### Lesson 5.1 learners read a non-fiction text

**Vocabulary:** types of literature

**Grammar:** question types; conjunctions

**Reading:** non-fiction/fiction texts

**Listening:** character analysis

**Speaking:** use formal/informal register; evaluate & comment on others' views; organise & present information to others

**Writing:** a summary

#### Vocabulary

#### Types of literature

**1 Look at the pictures. Which books are non-fiction (based on facts)? fiction (created from the imagination)?**

## **2 Which type(s) of books do you like reading? Why?**

**Tell the class. Use ideas from the list.**

- fascinating • thrilling • imaginative
- informative • relaxing • a waste of time
- unrealistic • boring/dull • predictable • silly

*I'm not so keen on romance novels as I find them boring and unrealistic.*

## **The War of the Worlds**

### **3 Read about H.G. Wells. What kind of novels did he write?**

H.G. Wells (1866-1946) was a British writer and one of the first to write about time travel, space flight and alien invasion.

Wells was born in Bromley, Kent, on 21st September, 1866. He left school when he was only fourteen and worked in various jobs in order to earn money for his family. After a number of unsuccessful years working as a shop assistant, a chemist's assistant and a teaching assistant, he won a scholarship to study biology under T.H. Huxley, a friend and follower of Charles Darwin, at the Royal College of Science in London. While he was at this college, he became interested in society and often thought about ways to organise it better. He did not like the fact that there were rich people and poor people in the world and thought that everyone should be equal.

Wells left college in 1887 and became a teacher. Later, he married Amy Catherine Robbins and they had two sons together. He began writing in his free time and published his first novel, *The Time Machine*, in 1895. Other famous novels include *The Invisible Man* (1897) and *The War of the Worlds* (1898). Once he was able to financially, he left teaching to write full time, and produced a large body of work, both fiction and non-fiction. Wells died in London, on 13th August, 1946. Today, people remember him as one of the best science-fiction writers of all time and as a man who had great ideas on how to improve our world. He invented words like 'time machine', 'parallel universe' and 'heat-ray', and made many predictions about the future that have come true.

**Check these words:** alien, invasion, scholarship, equal, prediction.

### **4 Ask and answer questions, as in the example.**

A: Where was H.G. Wells born?

B: He was born in Bromley, Kent

A: What did he do before he became a writer? Etc

### **5 Read the text and decide if statements (1-5) are T (true), F (false) or DS (doesn't say)**

*The War of the Worlds*, by H.G. Wells, is one of the most famous science-fiction stories of all time. It is a gripping novel, narrated by a writer whose name we never learn, about Martians arriving on Earth with a plan to conquer humanity and settle on their planet. The story, set at the end of the 19th century, one summer night when a strange cylinder came to Earth near the English town of Woking, just south-west of London. Not many people are interested at first, but then the cylinder unscrews and a creature emerges. These are aliens from Mars, and after a short while they have created huge machines, equipped with heat-rays and chemical weapons, which attack humans and rain death upon the land. They attempt to escape from London and the surrounding counties, the narrator must find a way to stay alive and be reunited with his wife. Will humans finally defeat the Martians? Will the narrator survive his wife?

The exciting plot keeps the reader absorbed to the very end. It is full of thrilling moments and dark tension among people who are forced to fight for their lives. What adds to the novel is its realistic portrayal of people struggling amongst the chaos. It so beautifully breaks down. *The War of the Worlds* is highly recommended. Even though it is over 100 years old, its ideas and themes are still fresh. If you like science-fiction stories and excitement, this satisfying novel will not disappoint you!



**Check these words:** gripping, conquer, unscrew, emerge, equipped, rain death upon, surrounding, defeat, absorbed, portrayal, struggle.

- 1 The narrator of the story remains nameless. ....
- 2 Working is part of London. ....
- 3 The Martians kill many people. ....
- 4 In the end of the book, humans manage to defeat the Martians. ....
- 5 The writer think The War of the Worlds is a little old-fashioned. ....

**6 Read the theory. What type of text are the texts in Exs 3 and 5? Give reasons**

Fiction	Non-fiction
Novel, crime story, myth, etc *enaginary-made-up people/events *putpase-to entertain *fist/third-person point of viev *contains a plot with a climax & resolution *language is stylistic/descriptive/ unrestrained with, idioms, metaphors, ets *often has illustrations	biography,review, encyclopaedia, entry, etc *fact-based - real people/events/subjects ® purpose - to inform * any person or no point of view * contains an intro/main body/conclusion * ides development * language is dependent on genre, but is generally quite restrained * often has photos, diagrams, charts

**7 How do the characters in The War of the Worlds express their fears? Find examples in the adapted extract below**

**The Ruined House**

While my brother was trying to get away, | and the curate had in an empty house at Halliford. | was wormed for my imagined her temified, in danger. and believing | was | walked up and down the moms of the house and gut Joyd when | thought of all the things that might to tier. My cousin was brave, but he was not the kind who realized danger quickly, or acted immediately. was needed now was not bravery, but carefulness. My pe was to believe that the Martians were on their way on and away from her.

All this wonying made me tired. | got angry with the curate’s tant remarks and his selfish hopelessness, 50 | kept away.Black Smoke had crept around the house, surrounding It making prisoners of us, Then, on Monday moming, @ tripod eand washed it all away with steam, When It was safe, we out of the window, | realized that it was time to leave. | ately started planning our next steps, but the curate was Zand had very little energy. He kept repeating the same words.

“We are safe here. Safe here”

The fact is that the curate and I had completely different characters and habits of thought and action. The danger and our hiding only emphasized those differences. He was a child, lacking all calmness and control.

I decided to leave him. When he realized I was leaving, he got up to come with me. Everything was quiet all through the afternoon, so we set off towards Sunbury at about five o’clock. We walked past dead men and horses, carts and luggage lying upside down, all , covered with a thick coat of black dust. We met some people in Twickenham, but they had no news to share. Like us, they were like frightened animals, trying to find a safer place. The foads were full of signs of crowds leaving urgently.

We didn't see any Martians until Kew, There, we saw people running and a tripod, taller than the trees and metallic, less: than a hundred yards away. We were too scared to go on, but we hid in a shed in a garden. When inside, the curate went down onto the ground and wrapped his arms around his knees, He cried silently and refused to move again. But | had made up my mind to reach Leatherhead, so, right before it went completely dark, | went on my way again. | left the curate behind, but he came hurrying after me. Leaving lite: that was the bravest and silliest thing | ever did, because the Martians were all around us in their deadly machines.

When the curate reached me, we saw a towering tripod across the meadows chasing four of five men. In three steps of its long legs, the Martian was among them, He did not use the Heat-Ray to destroy them, He picked them up one by one.

Then, he threw them into the metal container hanging like a workman's dasket behind him. Thar's when I realized that the Martians might have a different plan for us. We stood for a moment, frozen with fear, then tumed and ran for our lives.

**8. Read the extract in EX. 7 and choose the correct answer (A, B or C).**

**1 The narrator can't leave the house at first because**

- A there are Martians outside
- B the Black Smoke is dangerous.
- C he doesn't know where to go.

**2 The curate leaves with the narrator because**

- A he wants to help him find his wife.
- B he doesn't want to be left alone.
- C he thinks it's too dangerous to stay where they are.

**3 The narrator learns that the Martians**

- A. don't just want to kill humans.
- B are fairly easy to escape from on foot.
- C are using human tools and containers.

**9 What are the tripods like? Read the extract in Ex. 7 again. List the words used by the author and describe a tripod to your partner.**

**10 Compare the extract to the biography and the review. How do they differ?**

**Character analysis**

**11 Listen to a professor presenting the characters of the narrator and the curate, Use the adjectives from the list to complete the Venn diagram.**

- \* selfish \* courageous \* determined \* foolish
- \*worried \* disturbed \* educated \* scared

**12 Compare the personalities of Tand the curate. in what ways are they the same? How are they different? Use examples from the extract in Ex. 7 and the ideas in Ex. 11 to explain your opinion**

**13 Read the theory box and choose the correct item.**

**Conjunctions** show the logical relationship between sentences or parts of a sentence

- \* **both... and** 4 G Wels invented both the term "time machine" and "parallel universe"
- \* **what is more** / don't think aliens will come hear soon. **What is more**, i think they'll be friendly when they do arrive
- \* **in addition (to)** In addition to difficult conditions other planets might be home to dangerous bacteria,

\* **although/even though/though/in spite of the fact that), despite the fact that** (+ clause) Flying cars will soon exist although/even though/though/in spite of the fact that/despite the fact that they will be very expensive.

\* **in spite of/despite** (+ **noun/gerund**) Technology is a good thing, in spite of/despite people's fears,

\* **however/nevertheless** Fantasy books can be good:

**However/Nevertheless**, they're not as good as science fiction.

\* **yet** (formal) We want to visit the stars, yet our own planet in danger.

\***because** I'm studying Science **because** i like to the world.

1 I would like to live on Mars **although/despite** the harsh climate.

2 There might be life on other planets, **however/yet** we may never know.

3 The science-fiction story was **both/though** exciting and frightening.

4 Some bacteria are more and more deadly **Nevertheless/What is more**, the medicine we have doesn't kill them.

5 Technological advances can do great things for humanity. **However/What's more**, we should be careful they don't destroy the planet.

6 Aliens must exist somewhere **because/though** there are so many other stars and planets.

7 I think humans will travel into space **although/despite** it will be very dangerous.

**14 Fill in the graphic organizer based on the extract you read in Ex. 7. Now, use your notes and conjunctions to write a summary of the extract.**

Character(s):

.....

Setting:

.....

Main Event(s):

.....

### Elements in fiction

**15 Read the theory. Find two examples of simile, two of metaphor and one of personification in the extract of The War of the Worlds in Ex. 7. Then, identify which type of figurative language is used in sentences 1-6.**

### Figurative language

Writers often use figurative language such as similes, metaphors and personification to help them describe characters, places or situations.

\* **Similies** use the words **as** or **like** to compare one idea to another to suggest that they are similar.

Paul runs fast as lightning/like the wind.

\* **Metaphors** make a direct comparison between two things **without** the use of **as** or **like**. The stars are sparking diamonds in the sky.

\* **Personification** is when a writer gives human qualities to objects or animals for emphasis, The clouds soiled across the sky.

1 The soldiers fought like lions during the battle.

2 Jessica's room was a bomb site,

3 The flowers danced in the gentle breeze.

4 The wing howled in the trees.

5 Tom is as sly as a fox sometimes.

6 Kylie has 3 heart of stone.

**16 Read the novel. Test your knowledge Quiz**

**1 Why do the Martian want to come to earth?**

- A They want to learn more about humans.
- B They want to show the humans their advanced technology,
- C Their planet is dying.

**2 Where does the first cylinder land?**

- A in a town    B in the countryside    C in London

**3 What causes the fires around the Martians' first pit?**

- A the Heat-Ray    B a lightning bolt    C a spaceship landing

**4 How many cylinders land on Earth in total?**

- A ten    B five    C six

**5 What do the army use to successfully destroy tripods?**

- A a plane    B guns    C a warship

**6 Where does the narrator's brother go to escape England?**

- A Calais, France
- B Edinburgh, Scotland
- C Ostend, Belgium

**7 How is the curate discovered by the Martians?**

- A He makes too much noise.
- B He is spotted while looking for food
- C He gives himself up to them.

**8 Where did the artilleryman think humans could hide from the Martians?**

- A up on the mountains
- B under the sea
- C under the ground

**9 What kills the Martians?**

- A the army    B nuclear bombs    C bacteria

**10 Where does the narrator meet his wife?**

- A abroad    B in their house    C in the streets

**17 Read the novel, then watch Steven Spielberg's film adaptation War of the Worlds (2005). How close to the original story is the film adaptation?**

**18 a) Read the newspaper headlines and the extracts. How are they related to The War of the Worlds? Read through and find out.**

**Lesson14**

**Lesson 5.2 learners read non-fiction**

**Listeners Panic During**

**The War of the Worlds**

Thousands leave their homes to escape 'aliens from Mars'!

Hysteria gripped radio listeners last night when a dramatisation of H.G. Wells' The War of the Worlds made them believe an alien invasion had started in New York. The broadcast was made by Orson Welles' The Mercury Theatre on the Air over station WABC and the Columbia Broadcasting System's coast-to-coast network, from 8 to 9 o'clock. At least twenty adults required medical treatment for shock and hysteria, Families rushed out of their houses with wet handkerchiefs and towels over their faces to

escape from what they believed was to be a gas raid. Throughout New York families left their homes, some to flee to near-by parks. Thousands of persons called the Police and there were traffic jams all over the state.

The radio play was Presented as a real radio introduction, which clearly stated that it was a work of fiction.

**Check these words:** Broadcast, coast-to-coast, flee

### **The myth of the War of the Worlds panic**

Mass panic and hysteria Swept the United States on the eve of Halloween in 1938, when a realistic radio dramatisation of The War of the Worlds sent thousands of people into the streets or heading for the hills. Or did it?

The panic and terror associated with The War of the Worlds dramatisation did not come close to a nationwide dimension that night 73 years ago.

Sure, some Americans were frightened by what they heard. But most listeners were not. They recognised it for what it was - a clever and entertaining radio play,

Hadley Cantril, a Princeton University

Psychologist, believes around six million people heard the radio play. Of those, around 1.2 million, were frightened. But the whole point of the play was to frighten people — it was Halloween, after all. And there's a big difference between being frightened and in complete panic, {

So why did newspapers jump at the chance to misrepresent this story? Well, radio was their new competitor, and this was a chance to tell it off. And also, in the end, the idea of people escaping a pretend alien invasion was probably too good a story not to publish.

**Check these words:** dramatisation, nationwide, dimension, competitor, pretend

**b) Compare and contrast the information in the articles. How different is their Presentation of the reaction to Orson Welles' version of The War of the Worlds? Which do you believe and why?**

**19 Imagine filming the story nowadays in your country. How would you make it different? Think of: characters - place - plot, Present your story to the class.**

## **VI Unit. Capabilities of the human brain**

### **Lesson 15**

#### **Lesson 6.1 Investigate and report on the functions of the brain**

**Vocabulary:** capabilities of the human brain, stress symptoms & advice

**Grammar:** question types, relative clauses, the passive, type 3 conditional

**Phrasal verbs:** set, take

**Word formation:** adjectives to adverbs

**Writing:** an email giving advice

**Culture:** The Duke of Edinburgh's Award

**CLIL (PSHE):** Train your brain!

### **Vocabulary. The human brain**

1 a) Fill in the gaps in the texts A-D with words from the lists.

b) In pairs, name some more capabilities of the human brain

**A** \* react \* experience \* beat

We 1) ..... OUP emotions in the brain. The physical effect of these emotions helps us 2) ..... to situations. For example, fear makes our heart 3) ..... faster, and gets us ready to fight or run away.

**B** \* identify \* strong \* enjoy )

The brain allows us to 4) ..... music in lots of ways. When we listen to a piece of music, we can 5) ..... the different instruments, and the music we hear often has a(n) 6) ..... Effect on our emotions.

**C** \* converts \* learn \* written The brain allows us to create, understand and 7) ..... languages. This process is a lot more complicated than we think. It 8) ..... spoken or 9) ..... symbols into meaning which is passed on to other people.

**D** \* invent \* tell \* imagine )

The brain allows us to 10) ..... things that are not real. We can 11) ..... stories, paint pictures, sculpt statues and write music. This ability is the reason why we can 12) ..... new things.

**Over to you!**

\* Which of these capabilities do you consider the most important? Give reasons.

\* Which of these capabilities would you like to improve in yourself? Why?

### **Physical structure of the human brain**

#### **Reading & Vocabulary**

**1 a) The words below come from the text. What do you think they mean? Tell your partner. Check in your dictionary.**

\* blood pressure \* body temperature \* skull \* hemisphere \* nerve fibre \* neurologist \* synapse \* neuron

### **ONE BRAIN OR TWO**

Think about your brain for a moment. Weighing about 3lbs (1.4 kg), it not only controls your other organs, regulates pleasure and pain, hunger and thirst, blood pressure and body temperature, but it also plays a huge part in determining your personal identity through thoughts, memories and emotions. It's an amazing organ, isn't it? Although a brain is often compared to the CPU (central processing unit) in a laptop, in reality, the brain is far superior and far more complex.

Underneath a protective skull, the brain appears to be separated into two halves, the left hemisphere and the right hemisphere, but this is not quite true. Information and instructions pass from one side of the brain to the other through the corpus callosum - about 200-250 million nerve fibres. Surprisingly, each hemisphere is responsible for the opposite side of the body. For example, information received

From our senses on one side of the body is communicated to the opposite hemisphere of the brain. Some scientists think that the two hemispheres control logic and analysis: it deals with details. The right is usually considered more creative and imaginative: it prefers general ideas or 'the big picture' and deals with emotions, for artists such is dominant. On the other hand, people in professions that require organization and facts like scientists and accountants more commonly use left side of the brain.

It seems that each hemisphere of the brain has a tendency for certain kinds of function. For example, the left side of the brain may handle the syntax and vocabulary of language, but the right side controls the accent, speed and intonation of speech. Neurologists have found that if one side

of the brain is removed, the other side can take over some of its roles, such as speech, by creating connections or pathways (synapses) between brain cells (neurons). Will we ever fully understand our own brains? Probably not. However much research we might do, the human brain is probably capable of much more than we will ever discover!

**Check these words:** organ, hunger, thirst, play a part, determine, identity, skull, hemisphere, be responsible for, logic, be related to, deal with, require, tendency, syntax, take over, pathway

b) Which hemisphere (left or right) of the brain do you think controls: logic? details? creativity? general ideas? music skills? emotions? lists? Language?

**2. Read the Sentences (1-8) and decide if they are T (true), F (false) or DS (doesn't Say).**

1. The human brain 'controls how the body works. ....
2. A laptop's copy is smaller than the human brain. ....
3. The two sides of the human brain are not connected. ....
4. The right hemisphere controls the left side of the body. ....
5. The left hemisphere is dominant in both scientists and sculptors. ....
6. Both sides of the brain play a role in our use of language. ....
7. The human brain creates new brain cells all the time. ....
8. We might never fully understand the human brain. ....

**3 Answer the questions.**

1. What is surprising about the hemispheres of the brain?
2. How do neurologists think the brain repairs itself?
3. Think! Which side of your brain do you think is dominant? Why?

**4 Match the highlighted words in the text to their definitions: *more powerful, purpose, complicated, deal with/manage, the five physical abilities (touch, taste, sight, smell and hearing), controls.***

**5 Read the examples and find more examples in the text.**

- Yes/No questions: *Does the skull protect the brain? Yes, it does.*
- Wh- questions: *What is your earliest memory?*
- Tag questions: *Tom can play the guitar, can't he?*
- Rhetorical questions: *Wouldn't it be great if we never forgot anything?*

**6 a) Decide whether questions 1-4 are: Yes/No, wh-, tag or rhetorical. In pairs, ask and answer the questions.**

1. Wouldn't it be great to be happy all the time?
2. We can learn so much more about the brain, can't we?
3. Why do we sleep and dream?
4. Does your brain work better in the morning?

**b) Make your own Yes/No, wh-, tag and rhetorical questions. Ask and answer in pairs.**

**Listening**

**7 Listen to two people talking about the human brain, For questions 1-5, choose the correct answer (A, B or C).**

1. Where is Max learning Spanish?  
A at home  
B at his school

- C at a language school
- 2 Tina says that learning a new language
- A is quicker when you are older.
- B is easier when you are younger.
- C takes the same time at any age.
- 3 Tina says that she
- A can never decide what to do.
- B wants to be able to focus more.
- C likes to communicate on social media.
- 4 Soldiers who were taught new languages
- A were less likely to get lost.
- B had a larger hippocampus.
- C were more physically active.
- 5 Research has shown that speaking more than one language
- A helps people find jobs more easily.
- B makes people feel younger.
- C helps the brain work better.

**8 Imagine you are an interviewer. Your partner is a neurologist. Read the text again, then ask and answer questions about the brain. Exchange roles.**

*A: How much does the brain weigh?*

*B: It weighs about 1.4 kg. etc*

**9 a) Write a short summary of the text. Read it to the class.**

**b) Collect more facts about the human brain. Prepare a quiz.**

*How many neurons does the brain have?*

*It has around 100 billion.*

## Lesson16

### Lesson 6.2 Multiple intelligences self-study project

#### INTELLIGENCES

#### Vocabulary & Reading

**1 a) Read the 'intelligences' below and match them to what they refer to. Tell your partner.**

1\_\_ spatial

2\_\_ bodily-kinaesthetic

3\_\_ musical

4\_\_ linguistic

5\_\_ logical-matematical

6\_\_ interpersonal

7\_\_ intrapersonal

8\_\_ naturalistic

- a seeing relationships between symbols and actions
- b communicating well and being good with languages
- c understanding the emotions and needs of others
- d visualising space in the mind
- e singing, playing or composing music
- f understanding the natural world
- g using your body to solve problems or create something
- h understanding your own emotions and needs



**b) What do you think the 'intelligences' in Ex. 1a are? How do you think they relate to you? Does everybody have them? Read to find out.**

**2 Read again and choose from the sentences A-F the one which fits each gap (1-5). There is one extra sentence. Listen and read to find out.**

- A** However, it is one that teachers must rise to.
- B** It is generally believed that intelligence is an inherited characteristic.
- C** These intelligences are located in different parts of the brain but sometimes work together.
- D** Most of us, though, have an IQ of between 85 and 115.
- E** Of course, we don't just have one intelligence.
- F** That means employing a variety of different teaching techniques from which all the students can learn.

### **The Theory of Multiple Intelligences**

How smart are you? To answer that question as realistically as possible, you might try to find out your IQ. For many years, IQ (intelligence quotient) has been used to rate intelligence. You take a series of tests and receive a number - your IQ. The higher the number, the higher your IQ. Shakira has an IQ of 140, which almost makes her genius. Bill Gates' IQ is said to be between 160 and 170 - easily a genius. **1\_\_** According to this system, intelligence is easy to quantify, but one theory suggests that calculating intelligence is a lot more complicated. It is Howard Gardner's theory of multiple intelligences.

Gardner's theory first appeared in 1983 in his book, *Frames of Mind: The Theory of Multiple Intelligences*. The theory proposes that there is not just one 'intelligence', but eight or more 'intelligences' that we all have to a greater or lesser extent. **2\_\_** Gardner says, "Everything that we do involves the brain and so it's to be expected that different kinds of activities involve different brain areas- how could it not be the case?"

Gardner identifies eight multiple intelligences: spatial, bodily- kinaesthetic, musical, linguistic, logical-mathematical, interpersonal, intrapersonal and naturalistic. Each intelligence is a skill which people are good at. For example, a dancer may not have a high IQ, but, according to Gardner, that does not mean she is not intelligent. She has bodily-kinaesthetic intelligence. She has the ability to move her body on a stage, where the movements she makes create a performance. **3\_\_** We have all of the various intelligences to some extent; it's just that we usually excel at just one.

both Gardner's theory has far-reaching implications for how we rate intelligence, as well as how and what we learn. It's not enough these days to just present information and expect students to take it in. Educators must activate each intelligence to reach everyone in the classroom. **4\_\_** For example, linguistic intelligences prefer hearing, saying or seeing words whereas musical intelligences respond to music. In this case, a combination of memorising song lyrics might work well for both groups.

Adapting a learning situation to include all the intelligences is undoubtedly a challenge. **5\_\_** Everyone is intelligent in their own way. So let me rephrase the question I started with: What type of smart are you?

**Check these words** *smart, multiple, realistically, quotient, rate, quantify, calculate, propose, to an extent, be the case, movements, excel, far-reaching, implications, take sth in, activate, respond, combination, memorise, adapt, undoubtedly, rephrase, rise to a challenge, employ*

### **3 Answer the questions.**

- 1** Why is Gardner's theory important for schools?
- 2** Which type of intelligence do you think best describes you? Why?
- 3** Think! Do you agree with Gardner's theory? Why/Why not?

**4 Fill in: *far-reaching, smart, calculated, proposing, excels, responded, memorise, rise.***

- 1 Miss White gave us two poems to ..... for next lesson.
- 2 Luke is not good at maths, but he ..... at languages.
- 3 Sally ..... how much money she could.
- 4 Aizhan is a very ..... girl who always.
- 5 Einstein's theories had ..... implications for the way we see the world.
- 6 It's not an easy task, but I'm sure you can ..... to the challenge.
- 7 They are ..... that his theory is included in all teacher training courses.
- 8 Ulan ..... to every question in the interview quickly and politely.

**5 Read the theory. Find examples in the text.**

Relative clauses can be **defining** or **non-defining**:

- a **defining relative clause** contains essential information to the meaning of the sentence and cannot be removed. It is not put in commas. *The psychologist **who came up with the theory of multiple intelligences** is Howard Gardner.*
- a **non-defining relative clause** contains non-essential information to the meaning of the sentence and can be removed. It is put in commas. *The university, **which has two large libraries**, is one of the best in the country.*

**6 Join the sentences using the relative pronoun/adverb in brackets. Make any other necessary changes.**

- 1 We just met Dr Jones. He has written a book on multiple intelligences. (**who**)
- 2 This is the IT building. Professor Harris is working on important research there. (**where**)
- 3 Kairat recommended a documentary. It was very informative. (**which/that**)
- 4 1983 was the year. Howard Gardner's book was published then. (**when**)
- 5 Martha loves all sports. I understand the reason. (**why**)
- 6 This is the new student, Anna. Her IQ is very impressive. (**whose**)

**7 Do a survey. Interview your classmates. Ask them what type of intelligence they are and why. Find out the most popular intelligence. Present the information on a poster. Display it around the classroom.**

A: *What type of intelligence are you?*

B: *I'm linguistic because I love learning languages.*

**8 Collect information online about Howard Gardner. Write his biography. Make sure you plan your biography, edit it for any unnecessary information and proofread it for any mistakes. Find pictures to illustrate it. Present your biography to the class.**

## Lesson17

### Lesson 6.3 Describing the symptoms of stress and giving advice on how to reduce stress Stress is bad for you?

Think stress is your enemy? Think again. To be happy and healthy, we all need a little stress in our lives! 'Stress: the disease of our times', 'Stress-related illnesses the number one cause of doctors' visits' - it seems like you can't pick up a newspaper or magazine 5 these days without seeing a headline about stress and how bad it is for your health. The message is loud and clear: you should do everything you can to minimise stress in your daily life.

Is stress really the monster it is made out to be by the media? Surprisingly, most experts believe nothing is wrong with occasionally experiencing a little bit of 16 stress. As physiologist Monika Fleshner states, "Only under circumstances of chronic stress do we suffer its negative effects." This type of stress comes when we face a situation that takes a heavy toll on us - a stressful job or

an unhappy home life, for example. On the other hand, experiencing mild stress, according to Fleshner, can be good for us.

When we feel stressed, hormones are produced from glands in our body. These hormones (such as adrenaline and cortisol) serve a number of functions. They make the heart beat faster and blood flow to the brain and muscles is increased, making us ready for action. If we hadn't developed this reaction, we might not have survived as a species. In this case, stress is not a problem, but a condition that humans have evolved over thousands of years to deal with problems! Stress not only has short-term benefits. Recent research suggests that regularly experiencing short periods of mild stress can strengthen your immune system and lower the risk of neurological diseases such as Alzheimer's. In effect, stress acts like a 'workout' for the brain. Just like exercising muscles in the gym, stress exercises the brain, ensuring it stays strong and fully functional.

It's also worth thinking about the consequences of stress. Psychologists identify two main types: distress and eustress. Distress is negative stress which often makes us feel disheartened. Eustress, however, is positive stress that results in us feeling happy. Take physical exercise for example. It is stressful pushing your body to the limit, but the health benefits and feeling of accomplishment afterwards make the stress worth it.

So if some stress is beneficial, why are we continually told that stress is our enemy? According to Angela Padmore, author of *The Truth about Stress*, the answer lies with the stress management industry. According to Padmore, the vast majority of us do not feel stress to the point where we need to buy products or seek professional assistance. Yet, in Britain alone, there are over 15 million websites and 2 million stress management practitioners selling a huge variety of treatments for a condition that, to a large extent, does not need to be treated. As one experienced counsellor put it, "They've turned a normal part of living into a disease that needs to be cured."

So how does this help us in our everyday lives? Well firstly, it's important to recognise the difference between chronic stress and mild stress. If you are suffering from chronic stress, get help today, however, the next time that you feel mild stress, don't get too stressed about it - it's probably doing you some good.

### ***Vocabulary & Reading***

**1 The words below appear in the text. Use them to complete the sentences.**

• psychologists                      • produce      • media              • immune system      • practitioners

1 Stress is rarely written about in the .....

2 Stress causes glands in the body to ..... a number of hormones.

3 Regular periods of stress can strengthen the body's .....

4 According to ..... there are two main types of stress.

5 In Britain, there are over 2 million stress management .....

**2 Which of the sentences in Ex. 1 are true about stress? Listen and read to find out.**

**Check these words** disease, loud and clear, minimise, circumstances, chronic, take a heavy toll, mild, hormone, serve a function, flow, evolve, immune system, risk, neurological disease, in effect, workout, ensure, functional, identify, disheartened, push to the limit, accomplishment, beneficial, industry, vast majority, professional assistance, practitioner, counsellor, cure

**3 Read again and, for questions 1-3, choose the correct answer (A, B, C or D). Give reasons for your answers from the text.**

1 Monika Fleshner believes that stress

A is very bad for everyone.

B is very good for everyone.

C is not as harmful as the media says.

D at home is worse than stress at work.

- 2 The hormones released when we are stressed
- A help us feel a lot calmer.
  - B help the body fight diseases.
  - C help us deal with difficult situations.
  - D may cause serious illness later in life.

- 3 The main purpose of the article is to
- A bust some myths about stress.
  - B give the writer's opinion about stress.
  - C warn us about the stress management industry.
  - D give advice about how to avoid stress.

- 4 Answer the questions in your own words.
- 1 What occurs in the body when we feel stressed?
  - 2 Why do so many people seek treatment for mild stress?

5 Find examples of abstract and compound nouns in the text.

- 6 a) Find examples of the passive in the text. How do we form the passive?  
b Complete the sentences with the correct passive form of the verb in brackets.
- 1 Junk food must ..... at all costs. (**avoid**)
  - 2 Leaflets about stress ... at school yesterday. (**hand out**)
  - 3 Anxiety ..... to lead to many serious illnesses. (**say**)
  - 4 All stress should ..... harmful. (**not/consider**)
  - 5 Sleep patterns ..... by too much worrying. (**often/affect**)

### Conditionals: type 3

7 Read the examples. How do we form the third conditional?

A **Type 3 conditional** describes an imaginary situation in the past:

*If I had passed the exam, I would have got into university.* (I didn't pass the exam and I didn't get into university.)

8 Complete the sentences with the correct form of the verb in brackets to make Type 3 conditionals.

- 1 If you ... (be) at the lecture, you would
- 2 What ... (you/do) if you had been me?
- 3 If he had listened to my advice, he ... (not/have) so much stress.
- 4 If only you ... (burn) the cake, I wouldn't have had to buy one.
- 5 I ... (arrive) on time if the bus hadn't
- 6 If I ... (know) your phone number, I would have called you last night.

9 You will hear three people talking about what they do to reduce stress. Listen and match the speakers to the statements (A-E). There are two extra statements.

- A I made sure I stopped any unhealthy habits.
- B I wasn't sure where my anxiety came from.
- C I shared my worries with the people close to me.
- D I still had to face what was worrying me.
- E I talked about my problems with my school friends.

### Speaking & Writing

10 a) What things do you do to reduce stress? Tell the class.

b) What other ways can we use to reduce stress? Find information online and tell the class. Write a paragraph.

### Writing

An email giving advice

### Writing Tip

#### Writing an email giving advice

An email giving advice is an informal piece of writing to a friend, relative or someone we know well. We usually start with Dear/Hi + first name. In the first paragraph, we give our opening remarks and the reason for writing (I'm writing to ...). We give our pieces of advice in separate paragraphs. In the last paragraph, we express the hope that our advice was helpful as well as giving closing remarks. We sign off with an informal ending (e. g. Bye for now!) and our first name. An email giving advice usually includes:

- an **introduction** in which you express sympathy for your friend's problem and offer to give some advice.
- a **main body** of two paragraphs which include pieces of advice and their possible results.
- a **conclusion** with a hope that your advice has helped and closing remarks.

### 1 Read the rubric and look at the key words in bold. Answer the questions.

Your English friend is having trouble studying for school at home.

He/she has written an email I to you asking for your advice about how to Install study better. Write your email ( 120-180 words).

- 1 What are you going to write?
- 2 Who is going to read it?
- 3 What should your piece of writing be about?
- 4 How many words should you write?
- 5 What style should you use?

### 2 Read the email and match the paragraphs (A-E) to the descriptions below.

- 1\_\_ first piece of advice and possible results
- 2\_\_ hope that things will go well and closing remarks
- 3\_\_ second piece of advice and possible results
- 4\_\_ sympathy for friend's problem and offer of help
- 5\_\_ third piece of advice and possible results

### MailBox

Hi Danny,

**A\_\_** Thanks for the email. Sorry to hear you're feeling a bit under the weather. I had trouble studying last year too, so perhaps I can give you some advice.

**B\_\_** To start with, if I were you, I'd make sure that I had a quiet place to study. You should turn off the TV, switch off your smartphone and only go online if it's for research. If you do that, you'll be able to concentrate a lot better.

**C\_\_** Why don't you plan your studying? Set yourself a time and a time limit. For example, you could say that you are going to study for two hours at 7 o'clock. That way you won't put off studying and do something else.

**D\_\_** Also, it would be a good idea to join an online study group. If you do this, you'll get lots of support from other students. This really helped me, and I made lots of new friends, too!

**E\_\_** Hope my advice helps. I'm sure you'll soon sort out the problem. Let me know what happens. Best wishes, Aizhan

### 3 Decide whether the sentences are opening remarks or closing remarks. Mark the sentences as OR (opening remark) or CR (closing remark).

- 1 Let me know how things turn out.
- 2 Say hello to your family for me.
- 3 How're things?
- 4 Thanks for your email.
- 5 Sorry to hear about your problems.
- 6 Well that's all for now.
- 7 Let me give you some advice.
- 8 Write back soon.
- 9 I thought I'd drop you a line to ...
- 10 All the best and keep me posted.

**4 Replace the opening/closing remarks in the email in Ex. 2 with remarks from Ex. 3.**

### **Writing Tip**

Informal style is used to write to friends, relatives and other people we are close to. It is friendly and chatty. Informal style includes:

- short forms: *We're going to the art gallery tomorrow.*
- phrasal verbs: *Sorry I can't come, but I've got to look after my little brother.*
- colloquial expressions/idioms: *It was raining cats and dogs all day!*
- omission of pronouns: *I've got to go now! - Got to go now!*
- informal linkers: *Also, I've got football practice on Saturday morning.*

**5 Read the Writing Tip and find examples of informal style in the email in Ex. 2.**

**6 The first and last paragraphs below have been written in formal style. Rewrite them in informal style.**

**A** Dear James Thomson, Thank you for your email. I am very sorry to hear about your problem. The same thing happened to me last year. Allow me to give you some advice.

**B** I have got to go now. Please write back and tell me if my advice helped. Could you say hello to all your family for me? Yours sincerely, Elizabeth Foley

**7 Read the Writing Tip and find the ways the writer of the email in Ex. 2 makes suggestions.**

### **Writing Tip**

When we give advice, we make suggestions. We can do this in these ways:

- **How about** trying an after-school club?
- **Why don't you** make a list of the advantages and the disadvantages?
- **You could/should** ask your other friends for help.
- **It would be a good idea to** cut out junk food and fizzy drinks.
- **Have you thought of/about** volunteering at the local homeless shelter?
- **If I were you, I'd** tell your parents or a teacher.

**8 Make suggestions using the ideas (1-4).**

- 1 take up a sport and eat healthily
- 2 share your worries with your parents
- 3 focus on the cause of the stress
- 4 make time for fun and relaxation

### **Writing Tip**

When we give a piece of advice, we always say what the result of the piece of advice is. We can do this in several ways:

- **This will help by** taking your mind off your problems.
- **If you do this/that, you'll** feel a lot better very soon.

- **This way**, you'll soon forget about all your worries.
- **Then** you'll have plenty of time to do what you want.

### 9 Read the Writing Tip and give possible results for the pieces of advice in Ex. 8.

**10** Your English friend is taking exams next month, but he/she is very stressed about them. He/She has written an email to you asking for your advice about dealing with stress. Write an email to your friend (120-180 words). Use the plan to write your email. You can use your own ideas or the ones in Exs 8 & 9. Edit and proofread your email.

#### Plan

Hi (friend's first name),

**Para 1:** express sympathy for friend's problem; offer help

**Para 2:** first piece of advice and possible results

**Para 3:** second piece of advice and possible results

**Para 4:** third piece of advice and possible results

**Para 5:** express hope that things will go well; closing remarks

Best wishes,

(your first name)

#### Culture Corner

#### Study skills

#### Open cloze

Read the text once to get the general idea. Read again and try to identify what part of speech each missing word is e. g. verb, noun, conjunction, etc. Pay attention to the words before and after each gap. They will help you do the task. Read the completed text to see if it makes sense.

#### The Duke of Edinburgh's Award

The Duke of Edinburgh's Award (also called the D of E) is a very well-known and popular youth programme in (0) the UK that aims to help young people aged 14-24 reach their full potential! 1) ... gives young people the chance to develop their character and their life skills as they take part 2) ... all kinds of exciting extracurricular activities. Started as a small all-boys programme in 1956 by the Duke of Edinburgh, today 275,000 young people 3) ... different backgrounds are working towards 4) ... D of E at any one time in the Participants can progress through three levels of the D of E, the bronze (challenging), the silver (more challenging) or the gold (extremely challenging and 5) ... for the faint-hearted). It's definitely not easy to achieve any of the awards. Activities are organised in four areas: Volunteering, which could mean volunteering 6) ... an animal rescue centre or working in a charity shop for six months; Physical, which might be getting a certificate in parachuting or flamenco dancing; Skills, which could be doing a jewellery-making, first aid or cookery course; and Expedition, which could be planning a rowing trip 7) ... the Danube in Germany. All this can take anything from three months to three years! The best thing is - young people can pick exactly 8) ... activities they want to do in each category. Ultimately, it's all worth it and all the gold awards are presented 9) ... the Duke of Edinburgh himself at a royal palace. From beginning to end, it's great fun doing a D of E and employers, colleges and universities get excited if 10) ... see it on a person's CV.

*The important thing, though, is that "You learn to love something, work hard, be focused and disciplined and then you will be ready 11) ... when the right opportunity comes your way," as opera superstar Katherine Jenkins said. 12) ... completed her silver award.*

#### 1 What do you know about the Duke of Edinburgh's Award? Readthrough to find out.

#### 2 Read the text and fill in the gaps 1-12 with a word which best fits.

**3 Fill in: different, pick, full,easy, charity, comes, skills,rescue, gold.**

- 1 .....potential
- 2 life.....
- 3 .....background
- 4 .....to achieve
- 5 animal.....centre
- 6 .....shop
- 7 .....an activity
- 8 .....awards
- 9 .....your way

**4 a) Listen and read. Explain the different types of this award.**

**b) Think! How can this award help young people? In three minutes write a few sentences. Tell the class.**

**Check these words:** *aim, full potential, extracurricular activity, progress, challenging, animal rescue centre, charity shop, parachuting, first aid, expedition, rowing trip, pick, ultimately, royal palace, focused, disciplined.*

**5 Find information about an award that young people can obtain or a youth organisation they can belong to in your country (e. g. what it is, how it started. what it involves, why someone should do it/take part in it). Write a paragraph about it then read it to the class.**

Curricular: PSHE

You forgot someone's name, you left your essay at home or maybe you can't remember where you parked your car!

Memory is your ability to store, retain and recall information in your brain, but sometimes our memories let us down.

Fortunately, there are lots of creative tricks you can use to keep your memory in top form!

**Chunking**

Try breaking down strings of information, 0) ..... like phone numbers, into smaller chunks. So instead of trying to remember 791845, remember it as 79 18 45. This works even 1) ..... if you associate something meaningful with each chunk, too. Let's say you're 2) ..... for a History degree at university. You could say 79 AD is the year Vesuvius erupted in Pompeii, 18 is your age and 45 is your room number in your hall of residence. Finding personal connections like this anchors information in your memory.

**Thinking in pictures**

Try thinking in images rather 3) .....words. Let's say you have a new part-time job and your boss's name is Alice Barker. To remind you 4) ..... her name, make some connections: Alice with Alice in Wonderland and Barker with a huge barking dog. Now picture Alice falling down the rabbit hole closely followed 5) ..... a snarling dog. The more vivid and weird the images, the better this technique works.

**Word association**

Mnemonics 6) ..... as '30 days has September, April, June and November ...' have long been used by people to help 7) ..... remember tricky information. So the next time you need to remember the spelling of a difficult word or the names of some people you've just met, why not try coming 8) ..... with your own silly rhyme, song or poem? The sillier and funnier the better!

**Location, location, location!**

The Romans used a visualisation technique called 'loci' to remember lists of things, Imagine a room in your house. Mentally place the things you need to remember on the furniture. When you



want to recall the items, 9) ..... an imaginary walk around the room. When you recall the furniture, which is easy because the room is familiar  
10) ..... you, you'll recall the objects easily, too.

### **Practice makes perfect**

This is true, but psychologists say that we remember more effectively when we space out our learning. So don't cram for tests and exams! When 11) ..... to memorise new words in a foreign language, for instance, repeat them a few times, then take a break. Then come back to them, Perhaps put flashcards around the house with words written on them ... you will 12) ..... seeing them and they will be slowly burnt into your long-term memory.

*These are just a few tips. Experiment to see what works best for you! Above all, eat well and get plenty of sleep and exercise. Staying healthy will give your memory the best boost of all!*

**Check these words:** retain, recall, let sb down, keep in top form, chunk, break down, string of information, erupt, personal connection, barking, snarling, weird, mnemonics, tricky, rhyme, visualisation, mentally, effectively, space out, cram for, take a break, burnt into your memory, long-term memory, boost

**1 Read the title of the text, the introduction and the headings. How can we improve our memory? Read and check.**

**2 Read again and complete the gaps with the correct word. Compare with your partner.**

**3 Find all the phrasal verbs in the text. Make sentences using them.**

**4 Fill in:** remember, memorize, recall, remind.

1 ..... me to call John tonight!

2 ..... to lock the front door!

3 ..... these 10 words for Monday.

4 I can ..... happy times playing in the park when I was young.

5 a) Listen and read. Use the information in the text to explain how we can train our brains to remember things. Which techniques do you think can help you?

b) Do some Internet research on other memory techniques you can use. Use the key words: ways to improve

your memory. Tell the class.

### **Language in Use**

#### **Phrasal verbs/Prepositions**

**1 Choose the correct particle.**

**set sth aside:** save (money)

**set off:** start (a journey)

**set up:** start (a company)

**take in sth:** learn or understand sth

**take over:** begin to have control

**take up:** start (a hobby, sport)

1 Samal has set ..... her own language school..

2 Paul had difficulty taking ..... all the information.

3 I have £400 set ... .. to buy a new laptop.

4 Damir has taken ..... crosswords to improve his vocabulary.

5 Kevin set ..... early to avoid the traffic.

6 One side of the brain can take ..... the opposite's functions.

**2 Fill in:** for (x2), to (x2), with (x2).

- 1 I can't deal ... the stress; it's driving me crazy!
- 2 How did Sally react ... Paula's rudeness?
- 3 Our brains are responsible ... all our emotions.
- 4 I can't understand anything related ... neurology.
- 5 Berik is cramming ... his biology test.
- 6 Responsibility for the bad roads lies ... the local council.

### Words often confused

#### 3 Choose the correct word.

- 1 Can you remind/remember me to buy some milk later?
- 2 Which household items did Thomas Edison imagine/invent?
- 3 Did you see that great program/programme about the brain on TV?
- 4 Physical/Natural exercise is good for reducing stress.
- 5 Scientists have shown that eustress has positive effects/affects.
- 6 Our English teacher used to say/tell the most amazing stories.

### Word formation

#### 4 Fill in the correct word derived from the word in brackets.

We can add the suffixes -ly (intelligent - intelligently). -ily (angry - angrily), -ally (basic - basically) to adjectives to make adverbs.

- 1 Oliver climbed the mountain ..... (EASY)
- 2 There are ..... eight multiple intelligences. (PROBABLE)
- 3 ..... we missed the heavy rain. (LUCKY)
- 4 The audience applauded the actors ..... (ENTHUSIASTIC)
- 5 I've never seen David dance so ..... before. (ENERGETIC)
- 6 I'm ..... sorry to hear about your problem. (TERRIBLE)

### Kazakhstan in Action!

#### Read and fill in the correct word.

- In 2016, ten Nazarbayev Intellectual schools were recognised for 1) ..... excellence and were internationally accredited.
- Students from Kazakhstan can study abroad for 2) ..... with the government's Bolashak scholarship. This programme allows students to gain degrees and masters degrees from universities around the world 3) ... bringing their new skills back to Kazakhstan.
- A six-year old Maths genius 4) ..... Ramzan Baidautov from Kostanay city amazed everyone 5) ..... solving 175 problems in just 8 minutes at an International Maths competition 6) ..... the UAE.
- Schools in Kazakhstan use Lego to teach students about robotics, 7th-grade students have shown their skills 7) ..... building amazing robots and programming them to carry 8) ..... various tasks.

### Progress Check

#### In Pursuit of Happiness

Meet multimillionaire businessman and entrepreneur Chris Gardner today and you'd be forgiven for thinking he has led a charmed life, Rich and successful, with a \$10,000 watch on each wrist, a contacts list that reads like a Who's Who of America's rich and powerful and a seemingly permanent smile on his face that is as big as his bank balance, Gardner simply oozes happiness and success, But the truth is far more interesting: Chris Gardner used to be homeless. Christopher Paul Gardner was born in 1954, in Wisconsin, USA. As a child, Gardner did not get an easy start

in life. He experienced poverty, abuse and foster care, but he had a deep desire to make something of his life. He had big dreams and he was determined to pursue them.

Gardner's unlikely journey from rags to riches started in a parking lot one day in 1981, Getting into his car, he spotted a man in a red Ferrari. On an impulse, Gardner stopped the man and asked him how he had become so wealthy. The man told him he was a stockbroker. Then and there, he knew exactly what he wanted to do in life. It took almost a year of trying, but eventually Gardner succeeded in getting an unpaid internship at a brokerage firm. Unfortunately, he didn't earn enough money, so for the next year, Gardner led a double life. During the day, he worked in Wall Street; at night, he and Chris Jr slept in the streets. They washed in public bathroom sinks and ate at soup kitchens. It was the most difficult period of Gardner's life, but he recalls that not for one day did he ever stop believing his luck would change. Gardner's work colleagues never discovered his secret. Eventually, Gardner became a successful stockbroker and got enough money together to get himself and Chris Jr off the streets. By 1987, Gardner had become so good at what he did, he founded his own brokerage firm. Fast forward to the present day and Gardner is CEO of his second multimillion-dollar firm and a philanthropist who gives a great deal of his time and money to helping the homeless and unemployed.

People tell Gardner his story is a modern day rags-to-riches fairytale, but Gardner disagrees. "Mine is a story about how to empower yourself and beat the odds stacked against you," he insists. "Many people make excuses to themselves about why they can't achieve things in life. My life shows that if you are determined enough, you can achieve anything you want to." Today, Gardner is one of the richest men in the world, but his wealth has nothing to do with money. "Sometimes I can't sleep at night because my face hurts from smiling so much", says Gardner. The reason? "I'm doing the work I want to be doing." This, says Gardner, is the one secret that helped him to change his life and it is the key to his happiness. "Passion is everything. Find what makes you passionate and you will find success and fulfilment," says Gardner.

## Reading

**1 Read the text. For questions 1-4 choose the best answer A, B, C or D. Give reasons for your answers.**

**1 The writer implies that Chris Gardner**

- A cannot believe his luck in life.
- B is not very modest.
- C doesn't like to be reminded of his past.
- D is driven by money and power.

**2 Gardner's reason for wanting to become**

a stockbroker that day in 1981 was he

- A wanted to own a Ferrari.
- B wanted to be rich.
- C was tired of working in a parking lot.
- D knew he would be good at it.

**3 Gardner was such a good stockbroker that, in 1987, he**

- A became a multi-millionaire.
- B founded a homeless charity.
- C got himself and Chris Jr off the streets.
- D started his own company.

**4 Gardner thinks people should understand the message of his life story is**

- A gaining power over others is easy.
- B being lazy gets you nowhere.
- C life isn't hard if you don't want it to be.
- D doing what you feel strongly about.

4x5=20 marks

## Listening

**2 Listen to a radio interview about bullying. For questions 1-5, complete the sentences.**

Every school should join in to ..... of bullying.

If bullying isn't mentioned at your school, it doesn't mean that it .....

The plays will be discussed in the ..... afterwards..

Students may ..... into the poetry competition.

The winner will win .....

5x2=10 marks

**Progress Check**

**3 Fill in:** converts, heavy, challenge, senses, evolved, identified, serve, handle, implications, employ.

1 We perceive the world using our five .....

2 John's illness took a ..... toll on his immune system.

3 Howard Gardner ..... eight multiple intelligences.

4 The human brain has ..... to perform a huge variety of functions.

5 Stress can sometimes ..... a positive purpose.

6 The process of reading ..... ink on a page into words in our head.

7 Our bodies ..... different strategies to deal with stress.

8 The team rose to the ..... and won the match easily.

9 Galileo's theory had far-reaching ..... for astronomers.

10 Frank can't ..... all the stress in his new job.

10x1=10 marks

**4 Choose the correct item in each sentence.**

1 Have you met the professor who's/whose taking over the physics department?

2 Dana bought a new computer when/that broke on the first day.

3 Do you remember the day why/when we first met?

4 Tracey lives in London, where/that she works as a chemist.

5 Kairat is going to a university who/which is over 400 years old.

5x2=10 marks

**5 Complete the questions below with the correct tag.**

1 Let's watch a documentary tonight, ..... ?

2 Gardner will bring out his new book soon, ..... ?

3 I'm right about the address, ..... ?

4 You're going to the lecture, ..... ?

5 I don't have to wait for you, ..... ?

5x2=10 marks

**6 Use the verbs in bold to make passive sentences.**

1 Professor Yates new book ..... next year. (publish)

2 Our library ..... by a leading architect ten years ago. (design)

3 The laboratory ..... every day. (clean)

4 The star ..... through a telescope. (could/only/see)

5 Leaflets ..... after today's lecture. (hand out)

5x2=10 marks

**7 Complete the sentences using the verbs in brackets to make third conditionals.**

1 If I ..... (win) the lottery, I would have bought a huge house.

2 I ..... (not/go) to college if hadn't passed my exams.

3 If you'd gone to bed earlier, you ..... (not/be) so tired.

4 I ..... (talk) to Josie if I had seen her, but i didn't.

5 If you'd studied harder, you ..... (might/do) better on the test.

5x2=10 marks

marks

**8 Read the rubric and write your email.**

Your English friend has just moved to a new school and he/she is having trouble making friends. He/she has written an email to you asking for your advice about how to make friends. Write your email (120-180 words).

20 marks

Total: 100 marks

### **Check your Progress**

- talk about the human brain
- talk about multiple intelligences
- talk about ways to reduce stress
- use different question types
- use relative clauses and the passive
- use the third conditional
- write a quiz about the human brain
- write a short biography
- write an email giving advice

GOOD ✓ VERY GOOD ✓✓ EXCELLENT ✓✓✓

## **Lesson18**

### **VII Unit. Breakthrough technologies**

#### **Lesson 7.1 Nanotechnology**

**Vocabulary:** major breakthroughs; science/medicine; nanotechnology; robotics; characteristics for success

**Grammar:** reported speech; reported questions, quantifiers & countable/uncountable nouns

**Phrasal verbs:** verbs with down

**Writing:** a for-and-against essay

**Culture Corner:** Science Museum, London

**Curricular (Science & Technology):** Artificial Intelligence

#### **Vocabulary**

##### **Major breakthroughs**

**1 a) Fill in the gaps in the texts (A-D) with words in the lists.**

**b) 104.1 Which description is related to: space exploration? medicine? archaeology? technology?**

**A**

- led • discovered • revolutionized

In 1928, Alexander Fleming 1) ... penicillin by chance when he forgot to clean a dish. This 2) ... medicine and 3) ... to the development of life-saving antibiotics.

**B**

- unmanned • launched • orbit

In 1957, Russia 1) ... Sputnik 1, the first 2) ... satellite to successfully 3) ... Earth. Then, in 1961, Vostok 1 completed one orbit around the Earth carrying the 27-year-old Russian cosmonaut Yuri Gagarin.

**C**

- lit up • pioneered • supply

Nikola Tesla 1) ... the use of alternating current (A/C) to send power over huge distances. He paved the way for our modern electricity 2) ... and is referred to as the man who 3) ... the world.

**D**

- writing • unreadable • came across • work out

In 1799, French soldiers 1) ... a flat stone near Rosetta, Egypt. 'The Rosetta Stone' had 2) ... in Egyptian hieroglyphics and Greek on it and by comparing the two, experts were able to 3) ... the meaning of the hieroglyphics, which had been 4) ... for centuries.

### **Over to you!**

- Which of these breakthroughs do you think has had the biggest impact on our lives? Why?
- Name some other major breakthroughs and why you consider them important.

## **Lesson19**

### **Lesson 7.2 Nanotechnology**

#### **Nanotechnology**

#### **Vocabulary & Reading**

#### **1 These words/phrases appear in the text:**

- microscopic robot • molecules of DNA • molecular biology • nanotechnology • spider-bots • medical applications
- perform operations • miniature robot surgeons • allow treatments

**What could the text be about? Listen, read and check.**

**2 a) Listen and read the text again and for questions (1-6) choose the correct answer (A, B, C or D).**

**Give reasons for your answers.**

#### **The Nanobots**

**A** Scientists recently created a microscopic robot that can crawl along molecules of DNA. Combining the science of molecular biology and nanotechnology, this unique mechanism, dubbed a 'nano-spider', was developed by a team of researchers from Columbia University in New York with the help of colleagues in Arizona, California and Michigan. The groundbreaking device measures a mere four nanometres in width – an amazing 100,000 times smaller than the diameter of a human hair.

**B** Needless to say, this nano-spider is no WALL-E, but it can still be classified as a robot. A robot is defined as a mechanism that can understand its surrounding environment, make decisions and move automatically. The little spider-bots can certainly do that. They can walk, turn left and right and even create their own products. One day, such microscopic devices could actually be used to build tiny computer chips or to detect and treat diseases such as cancer at a molecular level.

**C** It is interesting to note that the nano-spiders are made of DNA molecules. The spider's body is composed of a common protein called streptavidin. Unlike a real spider, however, the nano-spider has only got four legs which are single strands of DNA protein attached to the body.

**D** Microscopic DNA walkers have been developed in the past, but they have never managed more than three steps. These ones can manage as many as 50 steps, which means a possible walking distance to around 100 nanometres. Taking up to one hour to complete, this is more like a marathon for the nano-spider. However, researchers hope to be able to make the spiders walk faster and further in the future. Furthermore, present research is focusing on making the nano-spiders able to follow more commands and to make more decisions.

**E** Molecular robotics is a new field in scientific research. Although it has not produced a long list of great inventions yet, scientists believe that nanotechnology could become one of the most important industries in the near future. The nano-spider is considered to be an important step in research which could one day lead to devices being created for various medical applications. One day, people could live their lives with miniature robot surgeons patrolling and protecting the insides of their bodies. For example, the spiders could be programmed to check a cell in the body, decide if it is cancerous, and then administer an anti-cancer drug.

**F** On the other hand, there are a number of arguments against the use of nanotechnology. Most of these concerns are over safety regulations. People are concerned that nanotechnology is not only being used to build small computer parts, but that it is also being used in food, clothing and medicine. Those with concerns would like to see stricter rules applied to the nanotechnology industry and they would like further tests to be carried out on products before they are allowed to enter the market.

**G** Billions of dollars are being invested in the research and development of nano-products worldwide. Robots are already working in hospitals around the world, often performing operations that require a steadier hand or more precision than a human is capable of. These microscopic robots, therefore, will allow treatments to be given that are currently impossible or which call for more invasive surgery.

**Check these words:** molecule, dub, groundbreaking, detect, molecular level, protein, strand, attached to, medical applications, patrol, administer, carry out, steady hand, precision, invasive surgery

**1 In the first paragraph, the writer says that the nano-spider**

**A** is much thicker than a human hair.

**B** cannot be seen under a microscope.

**C** was invented by an individual scientist.

**D** is an extremely small machine.

**2 Why does the writer suggest nano-spiders can be classified as robots?**

**A** because they have the features of a robot

**B** because they can walk

**C** because they are built with computer chips

**D** because they are microscopic devices

**3 What does 'this' refer to in I. 30?**

**A** the number of steps DNA walkers can manage

**B** the walking distance a DNA walker can do

**C** the length of the DNA walkers

**D** the time each step takes for a DNA walker

**4 What do we learn about nano-spiders in the fifth paragraph?**

**A** They could protect our bodies from disease in the future.

**B** They are already being used to fight cancer.

**C** They have been used for various medical purposes in the past.

**D** They have not actually been invented yet.

**5 What does the writer say about arguments against the use of nanotechnology?**

**A** People are concerned that it is used to build computer parts.

**B** People are concerned that nano-products are not tested before they are sold.

**C** There are concerns about whether the industry has strict rules for safety.

**D** There are no concerns about nanotechnology in medicine.

**6 All in all, the writer presents nanobots as devices which**

**A** we should be afraid of.

**B** have already been in use for many years.

**C** may be very useful in the future.

**D** are mainly useful in industry.

**b) Think! Do you think nanobots will ever replace humans in fields like medicine? Why (not)? Does your partner agree or disagree with you?**

**3 Fill in:** development, operations, environment, chips, applications, robotics. **Then, make sentences using the completed phrases.**

1 computer .....; 2 medical .....; 3 perform .....; 4 molecular .....; 5 surrounding .....; 6 ..... of nano-products.

### **Grammar. Reported speech**

#### **4 Change the following from direct into reported speech.**

1 "We are creating an artificial brain," he told the audience.

*He told the audience that they were creating an artificial brain.*

2 "I've just found a job working in a science lab," Ulan told me.

3 "We will soon have enough money to buy a more powerful computer," he said.

4 "Are you going to visit the Science Museum next weekend?" he asked her.

5 "How long has Dana been working for a company that designs robots?" Damir asked me.

6 "I read an article about artificial intelligence yesterday," she told me.

**5 Some people believe that robots will have a positive impact on our life whereas others disagree. What do you think the positive/negative impacts will be?**

### **Speaking & Writing**

**6 Find the main idea in each paragraph. Use them to write a short summary of the text. Use vocabulary from**

**Ex.1 and appropriate connectors. Tell the class.**

## **Lesson20**

### **Lesson 7.3 Robotics**

#### **Robotics**

#### **Vocabulary**

**1 What is artificial intelligence? Read the definition to find out.**

**artificial intelligence (n)** = the ability of computers or machines to have some qualities that the human mind has, such as decision-making and problem-solving, etc

#### **Listening**

**2 The robot in the picture is an example of artificial intelligence. Which of the following can it do? Decide in pairs.**

**Listen, read and check.**

• cook meals • move around • tell jokes • give health advice • sing and dance • do housework • analyse body language • understand different languages

#### **Reading**

**3 Read the text and for questions (1-4) choose the correct answer (A, B, C or D).**

**1 The first Pepper robots were bought in**

A 2000.

C 2015.

B 2014.

D 2016.

**2 Pepper can see using cameras on its**

A head.

B arms.

C wheels.

D hands.

**3 In two Belgian hospitals Pepper robots**

A find out patients' illnesses.



- B** help children with schoolwork.
- C** have replaced human nurses.
- D** help patients find their way around.
- 4 Pepper's creators say that it**
- A** can learn on its own.
- B** can't accept new software.
- C** doesn't live for a long time.
- D** will be replaced by a new robot.

### **PEPPER the Emotional Robot**

Imagine a robot which can tell how you feel just by listening to the sound of your voice and looking at your body language. It sounds like something from a sci-fi film but this technology is already here! Meet Pepper, the 'social robot' which can understand human emotions! Pepper was created by a French company called Aldebaran in 2014 and went on sale in Japan in 2015 and in the USA the following year. And even though it costs more than \$2,000, the robot is very popular! Pepper is a humanoid robot. This means that it looks a bit like a person. It is 1.2m tall with a head and two arms, and two wheels to move around. Its head has got four microphones and two HD cameras (one in its mouth and one on its forehead), and these allow it to move around and connect with people. Pepper can understand 20 languages and it can know if it's talking to a man, woman or child. Also, of course, the robot can understand how a person is feeling by the tone of their voice and their body language. Then, if you're feeling sad, it tries to make you happy! It can tell you a joke, sing a song and even dance to cheer you up!

Pepper might not sound very useful - after all, it can't cook food or help with the housework. But in many places this robot is making a big difference in people's lives. Two hospitals in Belgium, for example, use Pepper as a receptionist. These upgraded models can do various jobs around the hospitals.

**Check these words:** body language, emotion, humanoid, forehead, connect, upgraded

For example, they can greet new patients and walk with them to the correct department. Also, they can

cheer up sick children and help them to do their physical exercises!

The inventors of Pepper are always creating new software to improve the robot. They also say that Pepper has the ability to learn itself over time! So, who knows what Pepper will think of next to put a smile on our faces!

#### **4 a) Read again and answer the questions.**

- 1 What is a 'humanoid' robot?
- 2 How can Pepper move around?
- 3 In what ways do Pepper robots help young patients in Belgian hospitals?
- 4 Apart from hospitals where else could people use Pepper robots? In what way?
- 5 Would you like to own a robot like Pepper? Why?/Why not?

**b) Think! Why do you think scientists are trying to develop robots that look like and behave like humans?**

#### **5 Complete the advert. Use: cheer, greet, move, understand, make, tell.**

#### **Electronics**

- the latest in Japanese robot technology!

#### **Pepper - the social robot**

- Pepper can 1) ..... human emotions!

- It can 2) ..... people up when it recognises a sad voice or body language!
- It can 3) ..... jokes, and sing and dance!
- It has cameras and microphones and can 4) ..... around on two wheels.
- Perfect for your home or business. It can 5) ..... customers and show them around!
- Pepper can 6) ..... a big difference in people's lives. Buy yours today.

## Study skills

### Gap filling listening

Try to work out what information (e. g. number, noun, etc) is missing from each gap. This will help you do the listening task.

## Listening

### 6 Listen and complete the gaps. Robot Technology

Name of robot: Octobot

Creators: 1) ..... at Harvard University, USA

Special feature: has no 2) ..... parts

Looks like: a(n) 3) .....

Powered by: a 4) ..... called hydrogen

Can last for: around 5) ..... minutes

Can be used for: difficult or dangerous work

## Speaking & Writing

**7 Think! Why do you think Pepper is so popular in Japan? Are robots popular in your country? Could Pepper be part of your family? Why (not)?**

8 Design your own robot. Think about: name - *what it looks like* - *special features* - *abilities* - *any future*

*improvements*. Present your robot to the class. The class votes for the best idea.

## Lesson21

### Lesson 7.4 Robotics

#### The road to success

#### Vocabulary

#### Characteristics for success

**1 Listen and say. Which word means: single-minded? doesn't give up? brave? willing to accept ideas/suggestions? looks at the positive? really wants to be successful? won't let anything stop him/her doing sth? How important is each characteristic to help you to succeed in life and reach your goals? Why? Discuss with your partner.**

• *persistent* • *determined* • *creative* • *courageous* • *focused* • *hardworking* • *relaxed* • *risk-taker* • *organised* • *clever*

• *optimistic* • *open-minded* • *ambitious* • *confident*

A: *I believe that it's really important to be determined and persistent if you want to achieve something because if you don't give up you will succeed in the end.*

B: *I agree. However, I believe it's more important to be courageous because ...*

*"Genius is 1 % inspiration and 99% perspiration." (Thomas Edison 1847-1931)*

## ONE THE PATH TO TRUE GENIUS

1 ... Most people immediately think of the light bulb when they think of Thomas Edison. But although this genius did in fact invent the first practical, long-lasting light bulb, he had a hand in creating many more things we can still see around us today. He invented or contributed to recorded music, electrical systems, the telephone, the alkaline battery, X-rays and an early cinema projector.

Incredibly, by the end of his life he held 1,093 patents and he is responsible for more inventions than any other inventor in history!

2 ... Edison was undoubtedly a very clever person. Would you believe, though, that as a child, his teacher told his mother that he was too slow to learn? Later on, as an inventor, many of his inventions failed. So what were the secrets of Edison's success? We all have dreams and ambitions and who better than Mr. Edison to provide us with a few tips for achieving them!

3 ... Perhaps Edison's greatest strength was that he absolutely refused to give up. He said, "Many of life's failures are people who did not realise how close they were to success when they gave up." Unbelievably, it took Edison thousands of tries before he found the right filament to use for his light bulb. He wasn't afraid of failure. He simply saw his bad ideas as stepping stones to better ones. Even after his factory was almost totally destroyed by fire, he said, "There is great value in disaster. All Our mistakes are burned up and we can start anew." Three weeks later, Edison delivered the first phonograph\*.

4 ... Edison was also very intolerant of laziness and believed in pushing himself to reach his goals. He set himself a target, for instance, to come up with a small invention every 10 days and a major one every 6 months. So, try taking a leaf out of Edison's book. If you want to write a book, aim to write a chapter every day. If you want to become a photographer, teach yourself one new skill or trick every day or week. When you put your brain under a little pressure, you'll be amazed by how much your power of thought improves.

5 ... Another effective little rule Edison had was to take time out to relax while he was working at his 'invention factory' in Menlo Park, New Jersey. He would drift off to sleep with several small metal balls in his hand. If he fell into a deep sleep, the balls would fall noisily onto the floor and wake him up and he'd scribble down whatever was in his mind! So next time you are stuck on a problem, why not sleep on it? Scientists now agree that relaxation and short naps can improve our concentration and creativity.

6 ... Also, amazingly, historians have so far discovered around 4 million pages of Edison's notes including sketches, cartoons and even poems. It seems he had many new ideas simply by relaxing, letting his mind wander and allowing one idea to flow on to another. So maybe you too should keep a journal where you write down your ideas and thoughts. Who knows what it could lead to?

7 ... All in all, Thomas Edison succeeded because he was determined, persistent and knew how to use his mistakes to his advantage. So, what are you waiting for? Tap into your inner genius and get busy achieving your dreams. You might not create anything as important as the light bulb in your lifetime, but we can all light up the world in our own way!

**Check these words:** genius, alkaline battery, projector, patent, undoubtedly, failure, filament, burn up, anew, push oneself, reach one's goals, set oneself a target, skill, trick, under pressure, nap, concentration, flow, inner

### Reading

**2 a) What do you know about the inventor Thomas Edison?**

**b) Read the quotation. What kind of person do you think he was?**

**Listen and read the text to find out.**

**3 a) 10.4.7 Read the text again and match the headings (A-H) to the paragraphs (1-7). Use each heading once. There is one extra heading. Give reasons for your answers.**

- A Set goals to achieve your dreams
- E Start now to reach your potential
- B How to avoid failure
- C Success against the odds
- F Inventor of more than you might think
- D The value of keeping records
- G Strong belief in persistence
- H Take it easy for good ideas

**b) What is the author's purpose in writing this article? To entertain, to persuade the reader to believe in himself/herself or to inform the reader about something? Give reasons.**

## **Grammar**

### **Quantifiers & countable/uncountable nouns**

**4 Underline the correct words. Find more examples in the text. Which words are used with: countable or uncountable nouns? or both?**

- 1 Almost none/every of Da Vinci's inventions were built during his lifetime.
- 2 Gulnara only has a few/a little time left to finish her science project.
- 3 The scientists don't have much/many money for the project.
- 4 There are a small amount of/hardly any light bulbs in this shop.
- 5 Thomas Edison invented much/a lot of useful things.
- 6 All/Every of these inventions are amazing!
- 7 Either/Both Berik and Sultan want to be inventors.
- 8 Few/Little people realise how many/much inventions Edison was responsible for.
- 9 Damir has been working on his invention for a little/several years.
- 10 Edison experienced many/much failures in his life.
- 11 Miras spends a great deal of/all time working in his lab.
- 12 That scientist's name is either/or Sanjar or Yerasyl; I can't remember.
- 13 Are there any/much light bulbs in the cupboard?

5 Choose the correct words.

- 1 A lot of Edison's inventions were realistic/practical ones that were useful in real life.
- 2 This is a never-ending/long-lasting light bulb; it lasts for 1,000 hours.
- 3 You have to work hard to reach/ manage your goals in life.
- 4 Teams of people contributed to/ achieved Edison's inventions.
- 5 You've been working too hard; you should take some time out/ down.
- 6 Harry was so tired that he fell/ dropped into a heavy/deep sleep.
- 7 I couldn't work out what to do so I decided to sleep over/on it.

**6 Match the words in bold in the text with their meanings: slowly fall asleep, a way to make progress, stop trying, unable to do, not willing to accept/put up with, participated in, make use of, behave the same way as Edison, move from topic to topic, write down quickly, successful.**

## **Writing & Speaking**

**7 Think! Read Edison's quotes again in the text and explain their meaning. Which do you find the most inspirational? Why? Tell the class.**

**8 Think! Why was Thomas Edison so successful? What changes does he inspire you to make in your own life? Why? In a few minutes, write a few sentences about this, then read them to the class.**

**9 Find out more information about Thomas Edison. Report your information back to the class.**

## **Writing**

### **A for-and-against essay**

**1 Read the rubric. Identify the key words and answer the questions.**

You've had a class discussion about using robots. Now your I teacher has asked you to write an essay discussing the pros and cons of using robots. Write your essay justifying your ideas (120-180 words). Write about: 1) safety 2) cost 3) ... (your own idea)

- 1 What do you have to write?
  - 2 What should the essay contain?
- A only arguments for the topic  
 B only arguments against the topic  
 C both arguments for & against the topic

### Model analysis

#### 2 a) Read the model.

##### Which paragraph:

- A ... gives arguments for the topic?
- B ... Summarizes the writer's opinion?
- C ... states the topic?
- D ... gives arguments against the topic?

#### b) Is the writer in favor of or against the topic?

#### c) 10.5.4 10.5.5 Replace the topic sentences with other appropriate ones.

### ROBOTS: THE PROS AND CONS

1 Did you know that there are over 8.5 million robots in the world? Robots are being used more and more in our factories, fields and even in our homes, to carry out difficult or repetitive tasks, However, people do not always agree on whether using robots is a good thing.

2 There are a number of benefits to using robots. To begin with, the use of robots increases efficiency and improves safety in factories. This means that people do not have to do dangerous jobs and we are able to produce goods faster and easier. Moreover, the number of employees needed to do a task is reduced. As a result, profits increase for the company.

3 On the other hand, the use of robots has its drawbacks. For one thing, robots tend to be quite expensive to buy and maintain. As a result, large financial investments are required. In addition to this, using robots means that there are fewer jobs for people. This means that there can be higher unemployment and more social problems.

4 All things considered, although there are disadvantages to using robots, I believe that the benefits far outweigh them. Technology is an important part of our world today and if we use it wisely, our daily lives will be easier and less stressful.

#### 3 Replace the words in bold in the model with phrases from the list.

- Therefore • However • First • Additionally • Consequently • Also • To conclude

#### 4 Choose the correct item.

- 1 Many people are in favor of robots, in spite of/however there are those who are not.
- 2 The new technology is very efficient, besides/in addition being a lot more convenient.
- 3 There are many advantages to introducing robots, although/ despite there are also some disadvantages to consider.
- 4 in spite of/However being a modern miracle, nano-technology makes some people very nervous.
- 5 Despite/Although helping students learn, robots cannot be role models.
- 6 Robots cannot think like humans, however/in spite of, they can perform many human tasks.

#### 5 Study the box, then join the sentences using the words in brackets.

**even though/though/although** + clause **despite/in spite of** + noun/-ing form/the fact that

- 1 Robots make teacher's job easier, They cannot help teach students social skills. (despite)
- 2 Robots can be used in distance learning. They are not able to replace a human teacher. (in spite of)
- 3 Robots are very useful in the classroom. They are expensive. (although)

4 Robots can be exciting for students. They can't display any human emotions. (even though)

**6 Expand the prompts into complete sentences. Then write an appropriate topic sentence for each paragraph.**

A • robots/be/good/way/teach students/not attend school

• be/program/to provide information for students/without access to teacher

B • robots/be/expensive for some schools

• robots may be fun/but/not display/emotions

**Your turn**

**7 a) Read the rubric and find the key words.**

You have had a class discussion about robots in education. Now your teacher has asked you to write an essay. Write your essay using all the notes and justifying your points.

**Notes**

Write about: 1) social interaction 2) usefulness 3) ... (your own idea). Write your essay (120-180 words).

**b) Match the arguments (1-4) to the justifications (a-d).**

1... useful

2 ... enables distance learning

3 ... expensive

4 ... lack of emotion

**a** not cheap to purchase or maintain

**b** can allow students who can't attend school to participate in lessons

**c** can program them to perform a variety of tasks

**d** cannot display emotions towards students

**c) Which are arguments for? against?**

**8 Use phrases from the Useful Language box to join the sentences in Ex. 7b.**

**Useful language**

**Listing points:** To begin/start with .../First of all .../First ... ; Secondly, /Furthermore,/In addition,/What's more

**Concluding:** To sum up, /n conclusion,/All things considered/It is clear that/All in all

**Giving examples/Justifications:** For example/This way ... Consequently, This means that ... As a result ... Therefore ...

**9 Use your answers in Ex. 8, and the plan to help you write your essay in formal style. Make sure you use full verb forms and appropriate linkers.**

**Plan**

**Introduction**

**Para 1:** state the topic

**Main Body**

**Para 2:** arguments for & justifications/examples

**Para 3:** arguments against & justifications/examples

**Conclusion**

**Para 4:** summarise arguments/state your opinion

## Culture Corner

1 a) 10.1.9 10.4.1 What do you know about the Science Museum in London? What do you think someone can see/do there? Read to find out.

b) Read the text again. Five sentences are missing. Match the sentences (A-F) to the gaps (1-5). There is one extra sentence.

**Listen and read to check.**

**A** Visitors can learn about different areas of science, from the history of our everyday household appliances to aerobatics inside a flight simulator.

**B** There is also a gallery and an e-shop.

**C** The museum has free Wi-Fi and a whole range of apps that allow visitors to review information, play games or even interact with the exhibits.

**D** Another 2017 exhibition at the Science Museum included a space travel exhibit.

**E** Visitors could learn all about robotics and view over 100 different robots.

**F** In fact, from 2015 to 2016, there were more than 3,400,000 visitors.

2 **Fill in:** headset, exhibits, documentary, admission, experience, phenomena, simulator. **Use the completed phrases to make sentences to talk about the Science Museum in London.**

1 interactive .....

2 science .....

3 virtual-reality .....

4 flight .....

5 scientific .....

6 free .....

7 hands-on .....

3 **Find information about a science museum in your country. Find out: when it was founded, where it is, when it is open, what you can see/do there, what special exhibitions it has, any other interesting information. Write a paragraph about it and then read it to the class.**

The Science Museum, London

The UK's most famous science museum is the Science Museum, London. Each year, it welcomes millions of people through its doors. 1 ... The museum is open seven days a week and admission is free. The Science Museum has five floors full of exciting exhibits and exhibitions for people of all ages to enjoy.

**Hands-on science**

There is a lot to see and do at the museum. 2 ... The Science Museum gives young people the chance to observe and learn about a variety of scientific phenomena in a fun way. Many of the museum's exhibits are interactive and give visitors the chance to get a hands-on experience. The museum even has its own iMax cinema where visitors can watch fascinating science documentaries with amazing 3D effects.

**Amazing exhibitions**

The Science Museum has different exhibitions each year. In 2017, there was a fantastic robot exhibition. 3 ... They could have a conversation with a social robot or get up close to life-like android robots that look just like humans. 4 ... Visitors can put on virtual reality headsets and take a realistic 400 km trip from the International Space Station (ISS) all the way back to Earth.

**High-tech**

If all of the exciting exhibits aren't enough, visitors can have an even more engaging experience by downloading the Science Museum's apps onto their smartphone or tablet. 5 ... No matter what your interests are, there is something

for everyone at this incredible museum.

**Check these words:** exhibit, aerobatics, simulator, android robot, virtual reality headset

**Curricular: Science & Technology**

**1 Read the title of the text. What do you know about the topic? Listen and read. Does the text contain information you already know?**

**2 Read the text and decide if the statements below are T (True), F (False) or DS (Doesn't say).**

- 1 AI is the idea that we can create machines that look like humans. ...
- 2 Scientists want to create a machine that is more intelligent than a human. ...
- 3 Machines are programmed to respond to specific events. ...
- 4 Creating AI is a simple task. ...
- 5 AI machines are able to converse. ...
- 6 AI can be used to interpret hospital test results. ...
- 7 AI has reduced the amount of nurses in hospitals. ...
- 8 People think machines will be more intelligent than us. ...

**3 Fill in:** processes, affair, breakthrough, ultimate challenge, stimuli, morality.

- 1 Scientists want to create machines that have the same thought ..... as humans.
- 2 Developing artificial intelligence is the ..... for scientists.
- 3 Robots can be programmed to respond to ..... .
- 4 Fictional robots lack emotions and a sense of ..... .
- 5 AI researchers are still hoping for a ..... .
- 6 Multi-robot planetary exploration would be a complex ..... .

**4 Collect more information about AI. Present it to the class.**

**5 Think! Imagine AI was a reality. How would it affect your everyday life? Discuss in pairs.**

## **ARTIFICIAL INTELLIGENCE**

### **What is AI?**

AI stands for artificial intelligence, It is the idea that a machine can be "intelligent", By this, we mean it is able to display human levels of intelligence. Artificial intelligence refers to a machine's ability to carry out human thought processes and display human-like responses. For example, machines that can speak, think, learn and even be emotionally aware. The ultimate challenge in AI is for scientists to create an equally intelligent being.

### **How does it work?**

All actions performed by machines are carefully programmed using commands and algorithms (mathematical equations) which instruct the machine how to respond to specific stimuli (prompts). Some machines are able to 'learn' but this isn't truly AI. It just usually means that the machine can retain new information that is presented to it or that it can recognise and respond to new stimuli. In fact, it is so difficult to create AI that scientists haven't even been able to create a robot that can hold a basic conversation yet.

### **How can it be used?**

One application of AI is in healthcare. Some hospitals in the UK are trying out AI systems to ensure that the patients who require the most urgent care get it. The technology analyses test results and assesses the risk of abnormal results. It then communicates directly with the correct specialist or doctor by displaying a notification on a smartphone. This technology is already saving lives and saving nurses up to two hours per day, meaning they can spend more time with the patients who need it most.

### **AI ethics**



The creator of any new technology should consider the impact of their new technology on society. For instance, AI could improve our lives and make them easier in many ways. However, if we manage to create machines with human-like intelligence and capabilities, we may have to worry about if they will ultimately take control of us.

**Check these words:** human thought process, commands, abnormal results, ethics, impact  
**Language in Use**

**Phrasal verbs/Prepositions**

1 Complete the sentences with the phrasal verbs in the diagram in the correct form.

Down: break, turn, close, cut, live. back.

1 Jill was driving an old truck so she hoped it wouldn't ... (stop working)

2 Ulan should ..... on the amount of junk food he eats. (reduce)

3 Berik painted his house pink and now his friends will never let him ..... it ..... (forget it)

4 After weeks of negotiating the funding for his experiments, the professor finally ..... and accepted a lower offer. (admitted defeat)

5 Akbota was offered a job as a professor, but she ..... it ..... (didn't accept)

6 Everything in that shop is half price because it's ..... (ceasing to operate)

**2 Choose the correct preposition.**

1 Aizhan is doing research about/on a new cancer drug.

2 Berik purchased the goods in/at a good price.

3 Cameron advises people to/for pursue their dreams.

4 Kanat wants to follow in/after the footsteps of his father and become an explorer.

5 Fatiha works best when she is under/below pressure.

**Collocations**

**3 Fill in:** body, huge, artificial, invasive, molecular, medical, operations, lifesaving, virtual reality.

1 ... surgery

2 ... applications

3 ... language

4 ... antibiotics

5 ... biology

6 perform ...

7 ... headset

8 ... distances

9 ... intelligence

**Word formation**

**4 Complete the sentences with a word formed from the word in capitals.**

1 Building a human brain will be one of the greatest ..... breakthroughs in history. (SCIENCE)

2 Edison's greatest challenge was the ..... of a practical light bulb. (DEVELOP)

3 Taking a nap can improve ..... (CONCENTRATE)

4 One day, nano-robots may be used for the ..... of serious diseases. (TREAT)

**Words often confused**

**5 Choose the correct word.**

1 The nano-spider can be classified/identified as a robot.

2 What is the robot's body consisted/composed of?

3 He has gained/won a lot of awards for his work.

4 The museum has free permission/admission.

### Kazakhstan in Action!

Read and fill in the correct word.

- From the countries 1) ..... the Commonwealth of Independent States, Kazakhstan 2) ..... the third place for the number of inventions.
- Lots of inventions that help prepare national food products such 3) ..... kurt, kumis, shubat, tary and zhent have 4) ..... patented.
- Victor Hegay from Semey, Kazakhstan invented a robot guide 5) ..... blind people while he was in the 7th grade. The robot guide can help blind people navigate without help from 6) ..... people.

### Progress Check

#### INSECT FARMING: is this the future?

The nutritional benefits of entomophagy (or eating insects) are well known. Insects are a low-cholesterol, low-fat source of protein. A burger patty, for example, contains roughly 18% protein and 18% fat. Cooked grasshopper, meanwhile, contains up to 60% protein and only 6% fat. What is more, the fat in insects is of the healthy unsaturated kind rather than the unhealthy saturated kind. Entomophagy has been practised throughout Asia, Africa, and Latin America for centuries. Among westerners, however, the practice is barely existent. Indeed, it is virtually taboo to consume insects in Europe and North America. But this could one day change as traditional sources of protein (i. e. meat) become insufficient to feed the world's growing population. Supporters of entomophagy believe insect farming may solve world food shortages as it is far more efficient than animal farming. One hundred pounds of animal feed, for example, produces 45 pounds of cricket but just 10 pounds of beef. British entomologist Stuart Hine, however, believes that while insect farms will be helpful, they may not be the entire answer. Hine points out that insect diseases can spread rapidly enough to kill a farm's entire stock in a day. "Insects aren't the ultimate solution if the world desperately needs food," says Hine. "We would need to turn to something more efficient - like huge vats of worms."

### Reading

1 Read the text and answer the questions.

1 Why are insects a good dietary choice?

2 How is the practice of entomophagy distributed across the world?

3 Why might insect farms one day become a reality in Europe and the USA?

4 in what way is insect farming more efficient than cattle farming?

5 What is one possible drawback to insect farming?

5x2=10 marks

### Listening

**2 You are going to listen to someone talking about a scientific development. Listen and decide if the following statements are T (true) or F (false).**

1 The giant robot worm has been designed by search and rescue researchers. ....

2 The robot worm is based on an actual animal. ....

3 Previous robotic worms bumped into obstacles. ....

4 One current problem with the robot is that it can get stuck. ....

5 In the future, the robot worm will be coated in different materials to deal with different environments. ....

5x2=10 marks

### Progress Check

**3 Fill in:** launched, administer, set, reach, revolutionised, retain, create, detect, perform.

1 Some people think robots will make it difficult for humans to ..... their jobs.

2 John's job is to ..... software that can help doctors diagnose patients.

3 Nanobots could be programmed to ... drugs to specific cells in the body.

4 Robots could ..... operations soon.

5 In the future, spider-bots could be used by doctors to ..... disease.

6 If you are very determined, you will ..... your goal.

7 You will achieve more if you ..... yourself a target.

8 Sputnik 1 was ..... in 1957.

9 Alexander Fleming ..... medicine when he accidentally discovered penicillin.

9x2=18 marks

### 4 Choose the correct option.

1 There are hundreds of **interactive/effective** exhibits at the museum.

2 A robot could perform **molecular/invasive** surgeries with more precision than a human.

3 There are many medical **appliances/applications** for robots in the future.

4 In the future, nanobots could treat disease at a molecular **grade/level**.

5 Some museum exhibits allow visitors to get **life-like/hands-on experience**.

5x1=5 marks

**5 Fill in:** optimistic, confident, focused, persistent, open-minded, ambitious.

1 Aidar is very ..... he gives all of his attention to his work.

2 Assel always looks on the bright side - she's very ...

3 Ulan is ... he is happy to accept other people's ideas.

4 Saule is so ..... that she plans to build the world's most advanced robot.

5 I'm very ... in my own ability to design a great invention.

6 Nurlan is very .....; he never gives up.

6x2=12

marks

### 6 Change the following from direct into reported speech.

1 "Researchers will probably develop more nano products in the future," he said.

2 "Have you seen the documentary on nano-robots?" he asked her.

3 "My brother visited the Natural History Museum last week," she said.

4 "I was studying for my school exams," Kanat said.

5 "How long have you been living here?" he asked me.

5x2=10

marks

### 7 Choose the correct word.

1 There were lots **of/a little/much** people at the conference.

2 **Every/Few/All** of these ideas are fantastic!

3 **Any/Many/Much** of Edison's inventions failed.

4 Jim spends **many/a good deal of/several** time checking his equipment.

5 **Only a few/no/any** explorers attempt to reach the North Pole.

5x2=10

marks

### 8 Choose the correct particle.

1 **Put on/up** the headset and watch the simulation.

2 In the future, robots could be used to carry **in/out** surgeries.

3 Don't give **up/out**. Try again.

4 Yesterday, she came **up/across** some old photos.

5 A group of scientists worked **out/up** how to build a humanoid robot.  
marks

5x1=5

9 Write a for-and-against essay about using robots in everyday life (120-180 words).

20 marks

Total: 100 marks

### Check your Progress

- talk and write about inventions & scientific experiments \_\_\_\_\_
- design/write about a robot \_\_\_\_\_
- talk and write about successful people \_\_\_\_\_
- write a for-and-against essay \_\_\_\_\_

GOOD ✓ VERY GOOD ✓✓ EXCELLENT ✓✓✓

## Lesson22

### VIII Unit. Space X

#### Lesson 8.1. Things you did not know about space

**Vocabulary:** space, mysterious events, space colonisation, computer-generated imagery (CGI)

**Grammar:** the passive, conditionals: types 2 & 3, mixed conditionals, reported speech (revision)

**Phrasal verbs:** keep, let, pick

**Word formation:** forming abstract nouns from verbs/adjectives

**Writing:** a film review

**Culture Corner:** NASA: Reaching for the stars

**Curricular (Literature):** The Day of the Triffids

### Vocabulary

#### Amazing facts about space

1 a) Fill in: atmosphere, surface, stars, radio, dwarf, particles, waves, solar, telescopes.

b) Listen and check.

#### SPACE FACTS

You cannot hear sound in space because there are not enough. 1).....for sound 2) .....to travel through. However, astronauts can communicate thanks to 3).....waves.

**MOON:** The footprints of the astronauts will stay on the moon's 4) ..... for #1 least 100 million years.

This is because the moon has no 5)..... so there's no wind or water to wash them away.

**SUN:** 6)..... like our sun give light and warmth to planets like ours. As they grow older they get hotter and expand, pulling the planets nearby towards them, and eventually swallowing them completely. This may happen to the Earth - but not for another love billion years or so!

**PLUTO:** The 7)..... planet, Pluto, lies in a dark and mysterious place in our 8)..... system and was named by an 11-year-old girl called Venetia Burney in 1930. She had read about Greek and Roman mythology and she thought of calling it Pluto.

**JUPITER:** The red spot on Jupiter is a giant storm with winds reaching 640 kmph. It's been there since people first looked at Jupiter through 9) ..... around 400 years ago.

### Over to you!

- Which two facts about space impressed you the most? Tell the class.
- What else would you like to know about space? Discuss in groups.

## UFO tour

### THE TRUTH

Isn't out there... or is it?

The annual UFO festival in Roswell, New Mexico attracts thousands of visitors each year to this remote desert town. This year, we sent travel journalist Ruth Bradley to take part in a new UFO Discovery Tour to visit key sites in the area where the famous 1947 Roswell UFO case unfolded. Did her out-of-this-world experience make her a true believer?

When I was first asked by my editor to report on a UFO discovery tour, my heart sank. **1** ...

A few days later, I was greeted at the airport in New Mexico by the tour's friendly guide and the other enthusiastic UFO-spotters in my group. We were driven to the hotel along busy freeways lined with UFO diners, UFO souvenir shops and even UFO motels. Little grey aliens stared down at us from billboards and road signs with huge insect eyes. **2** ... If nothing else, I had the feeling I would be having some fun on this assignment! The following morning, we were taken to the spot in Roswell where a cattle farmer, Mack Brazel, came across some large pieces of metal and a huge hole in the ground on 8th July, 1947. Our guide told us that shortly after Mr Brazel reported what he had seen, the newspaper wrote that he had seen a flying saucer. The next day, however, they changed the story and reported that it wasn't a UFO at all, but simply a weather balloon. I wandered away from the group and looked around in the grass, half hoping to find one last piece of debris from the craft **3** ... had to admit, the story so far was fascinating and I found myself looking forward to the next stage of the tour where we would be shown "Building 84". This was the huge aircraft hangar on the old army base where the remains of the strange craft were taken to be examined. It was an impressive sight. **4** ... They said it was made of a material as light as plastic, as strong as steel, impossible to burn and covered in strange hieroglyphics. Others described seeing alien bodies. The day ended with a visit to the UFO Museum and I was fascinated by some creepy sketches of alien bodies on autopsy tables which were drawn by a nurse working in the base hospital at the time. **5** ...

The next day, we visited the town of Socorro where, in 1964, Lonnie Zamora, a respected police officer, reported an oval shaped object with two small creatures inside. As he drew near, blue flames burst from the craft and **it soared into the sky**. When Zamora came back with other officers, all that could be seen were burn marks on the ground and strange footprints. The locals in this area have many stories like this one and I asked whether we were going to go back home with a UFO story of our own **6** ...

That night, we camped out in one of the Nevada Desert's UFO hotspots. As we looked up into the dark sky, one couple from Phoenix, Arizona, told me about the night in March 1997 when they saw a weird formation of lights **hovering** above the city. They weren't alone; the strange phenomenon had been witnessed by over 10,000 locals and there is even video footage of it **7** ...

What better souvenir to take back to the editor than a photo of a real UFO!

I'm still doubtful whether UFOs and aliens exist. However, after spending night under the stars in the **eerie** Nevada Desert, I have to admit that it title from a far-off world decided to land on Earth, I wouldn't be intelligent at all surprised if this was the place they chose to visit!

### Check these words

unfold, report (on), sceptic, freeway, lined with, billboard, assignment, spot, cattle farmer, weather balloon, debris, aircraft, hangar, army base, remains, eye-witness account, hieroglyphics, autopsy, oval-shaped, burst, hotspot, weird, formation, doubtful, eerie, rattlesnake.

### Vocabulary & Reading

**1 Listen and read the headlines. What do you think happened in these incidents?**

A 8th July, 1947

FLYING Saucer Captured on ranch in Roswell region

B Strange Wreckage & Alien Bodies Examined At Roswell Army Base

**C POLICE OFFICER REPORTS SIGHTING OF ALIEN SPACECRAFT IN SOCORRO, NEW MEXICO**

**D THOUSANDS WITNESS STRANGE LIGHTS OVER PHOENIX, ANIZONA**

**2 Now read the title of the text and the introduction. What do you expect to read about? Read through to find out.**

**3 Read the text again. Seven sentences are missing. Match each sentence (A-H) to the gaps (1-7). There is one extra sentence. Justify your answers.**

**A** Instead, I **disturbed** an enormous rattlesnake and quickly made my way back!

**B** I was a bit **disappointed** that i saw nothing worth photographing that night.

**C** "Wait until tonight," the tour guide told me.

**D** I couldn't help smiling at these amazing sights.

**E** I started to lose hope during the night.

**F** As we headed back to the hotel, I stared up into the starry night and couldn't help wondering if anyone - or anything -was looking down!

**G** I just couldn't understand why I was being sent - me, a true sceptic!

**H** Eye-witness accounts later described the craft as unlike anything that had ever been seen on Earth.

**4 Think! Listen to the text. What is the writer's purpose? How has her attitude towards aliens changed?**

**5 Choose the correct words in bold. Then make sentences using the other options.**

**1** The **trip/tour** to New Mexico wasn't very long.

**2** We were shown the exact **spot/mark** where the spacecraft crashed.

**3** They lost their way around the **dessert/desert**.

**4** The experts **examined/experienced** the remains of the spacecraft.

**5** We had a great view of the crash **site/sight** from the hilltop.

**6** The **locals/natives** in Roswell are used to UFO-spotters.

**7** People disagree about the **events/facts** that took place in Roswell.

**6 Match the words/phrases in bold with their meanings: moved quickly up, bothered, felt unhappy, destroyed remains, walked without a purpose, strange & frightening, floating in the same position, scary.**

**7 Grammar The passive**

**a) When do we use the passive? How is it formed? Which tenses do not have a passive form?**

**b) Find examples of the passive in the text.**

**c) Rewrite the following sentences in the passive.**

**1** Kanat put up the tent.

**2** The mayor has recently opened the UFO museum.

**3** Lots of UFO-spotters visit Roswell, New Mexico.

**4** People are making preparations for the town's first UFO festival.

**5** Ulan is starting a UFO tour in the area.

**6** Locals have seen many strange lights in the desert.

**7** They will publish Nurlan's book about local mysteries next month.

**8 Rewrite the headlines in Ex. 1 in the passive.**

## Speaking & Writing

**9** You went on the tour with Ruth. Write a paragraph about your experience. Read it to the class.

## 8b Moving out

### Vocabulary Space

**1** Say the names of the planets in our solar system. Listen and check.

## Reading

**2** Read the title of the text and the quote. What could the problems of space colonisation be? How could these problems be solved? Read to find out.

*"I don't think the human race will survive the next 1,000 years unless we spread into space."*

Stephen Hawking, English physicist & cosmologist.

### SPACE COLONISATION:

#### Future or Fantasy?

Since Neil Armstrong set foot on the moon on 20th July, 1969 and declared "One small step for man, one giant leap for mankind", people have been dreaming about creating futuristic communities in space. Science fiction films such as 2001: A Space Odyssey and Star Wars have filled our minds with images of spacecraft travelling at the speed of light to colonies on other planets in another solar system. Until now, these ideas have just been fantasy, but now leading scientists such as Stephen Hawking say that colonising space is the only answer for the future survival of mankind; otherwise we will die out. **1** ... But is space colonisation really possible? One solution would be for us to move to space stations orbiting near Earth. After all astronauts have already been living on NASA's International Space Station (ISS) continuously since 2000. The ISS gets its power from solar panels, it generates its own oxygen and even recycles water, but there's still a huge problem; all of its food and other supplies have to be sent from Earth. **2** ... So maybe colonising the moon would be a better solution! The moon has rich resources which could be used to construct a colony. Also, in 2009, scientists found water on the moon, which could be used to extract oxygen for breathing. **3** ... There is no atmosphere on the moon and it is boiling hot during 13 days of sunlight and then freezing cold during 13 days of darkness. So any human colony there would have to live in a huge indoor biosphere". Mars would be another option, but the problems there would be similar to those on the moon. Scientists have suggested creating a more Earth-like atmosphere there by releasing carbon dioxide and warming it up, but this could take about 1,000 years! Stephen Hawking believes that the best solution is to look for Earth-like planets to colonise, "If only 1% of the 1,000 or so stars within 30 light years of Earth had an Earth-sized rocky planet in just the right place for life, there would still be 10 planets for colonisation in our 'neighbourhood'," Hawking said. **4** ... Travelling on Voyager 1, the fastest spacecraft we've ever sent into space, it would take over 700,000 years to get to Alpha Centauri, the closest star system. Hawking, though, believes that new technologies could soon help us to travel just below the speed of light. **5** ... . If we had endless amounts of money for space exploration, we would have already overcome these problems and built the first space colonies. The fact is, it costs about £6,000 to put half a kilo of anything into near-Earth orbit.

**6** ... Just imagine - if people hadn't given Columbus money for his voyage to America in 1492, NASA probably wouldn't even exist today! So, although there are many challenges to overcome, Professor Hawking still believes it will only be a matter of time before we are living in space. **7** What do you think? Is space truly 'the final frontier'?

*that supports life*

*\* an environment*

**Check these words:** colonisation, leap, mankind, wipe out, catastrophe, meteor, nuclear war, orbit, solar panel, generate, supplies, resources, construct, colony, extract, atmosphere, carbon dioxide, warm sth up, endless, exploration, overcome, afford, centuries, millenia, final frontier

**3 For each gap 1-7, choose from the sentences A-H the one that best fits each gap. One sentence is extra. Compare with your partner. Justify your answers.**

- A Humans would need to be self-sufficient to survive in space long-term.
- B The only question is whether this happens in years, centuries or millennia.
- C Exploring space, however, is not without risk.
- D This costs a lot of money.
- E Nevertheless, Professor Hawking believes that we can afford to give 0.25% of the world's financial resources to colonise space.
- F He believes that sooner or later we will be wiped out by a catastrophe such as a meteor or nuclear war.
- G That way, we could reach the next star to Earth in just 6 years.
- H However, even if we found the perfect planet, we might not be able to get there at the moment.

**4 Fill in:** self-sufficient, overcome, warm up, afford, release.

- 1 Eventually, they managed to ..... their problems.
- 2 The ISS isn't ..... because it can't produce or make everything that it needs.
- 3 Climate change could ..... the Earth by 3°C by 2100.
- 4 Power stations ..... carbon dioxide and other greenhouse gases into the atmosphere.
- 5 Only the world's richest can ..... to be a space tourist; it costs about \$20 million!

**5 Choose the correct words. Check in your dictionaries.**

- 1 **Supplies/Resources** such as food and equipment are sent to the ISS from Earth.
- 2 Hawking believes we can **pass/overcome** all the problems and colonise space.
- 3 Some scientists believe a huge asteroid or comet could **extract/wipe** out life on Earth.
- 4 There are many options for colonising space; the possibility possibilities are **endless/continuous**.

**6 a) When do we use Conditional types 2 and 3? Give an example for each type.**

**Mixed conditionals**

**b) Study the table. Find examples in the text.**

IF-CLAUSE	MAIN CLAUSE
((type 2) If we hold the technology to travel foster. (but we don't)	((type 3) we would have colonised other planets by now (we haven't)
(type 3) If Tim had studied Medicine, (but he didn't)	(type 2) he would be a doctor now, (he isn't)

**7 Rewrite the sentences using mixed conditionals, as in the example.**

- 1 Angie doesn't like science-fiction films, so she didn't go to the cinema with the others. If Angie liked science-fiction films, she would have gone to the cinema with the others.
- 2 Mark didn't hand in his project, so he won't pass the astronomy course.
- 3 Greg was studying all night, so he's tired now.
- 4 Janet is interested in astronomy, so she visited the planetarium yesterday.

**Speaking & Writing**

**8 Listen and read the article in Ex. 2 again, then tell your partner three reasons why colonising space is difficult. Add one more reason of your own.**

*Colonising space is difficult because colonies would have to be self-sufficient.*



**9 Think! Close your eyes and imagine you're in a spacecraft. What are you doing and what can you see and hear? How do you feel? Tell your partner.**

*I'm wearing a spacesuit and I'm floating around in the spacecraft. Out of the window i can see stars ...*

**10 Think! Would you like to live in a space colony? Why (not)? Write a few sentences on this topic. Tell the class.**

## Lesson23

**Lesson 8.2. Analyzing of sci-fi film from different perspectives (physics, biology, economics)**  
**Sci-fi films**

### Vocabulary

**1 Check these words in the Word List.**

•computer-generated imagery • three-dimensional • visual effects • virtual image • simulation camera

### Study skills

#### Predicting content

The key words of a text help you predict its content.

**Check these words:** computer-generated imagery, three-dimensional, visual effects, virtual images, reflector, headgear, integrate, simulation camera, state-of-the-art technology.

### A New Dimension to ART

**A** Computer-generated imagery (CGI) has greatly influenced and changed the way we see and do things that would have been impossible to even imagine before. Over the years, three-dimensional computer graphics and animation have been 5 applied to all areas of the media such as, films, television programmes and video games to enhance the visual and special effects. Each project added new inventions or techniques to make the virtual images more realistic, but one film came along to combine the media and bring the technology many light. 10 years ahead; Avatar.

**B** When James Cameron, the director and creator of Avatar, first imagined the world of Pandora and the Na'avi humanoid tribe, there was no available technology to help him make his dream come true, He had to wait a few years for technology 15 to catch up to him and finally start filming in 2001. Although CGI was widely used in many box-office hits, there were some limitations. Motion capture techniques were used to create digital or animated characters. This was done by having actors wear suits full of markers with reflectors on them which 20 recorded their movements on a computer. Graphic artists would then combine these images with their 3D graphic designs and animation and produce realistic movement and action for their characters. However, this technology could not show detailed human expressions or realistic landscapes. 25 Cameron found a way to do just that.

**C** In Avatar, the characters not only have a full range of natural body movements, but complete facial expressions as well. Cameron helped develop a one-of-a-kind technique to copy the movements of lips, eyes and mouths. Actors were given special headgear to wear equipped with a camera. As a result, every muscle and eye movement was recorded and used to make the digital characters in the film truly authentic and lifelike. To make the world of Pandora even more realistic, many fields of knowledge were used and integrated with art. Experts in biology, engineering and physics worked closely with talented artists and illustrators to create this magnificent world. Great attention to detail was applied to each creature, character and the surrounding environment, including every plant and leaf. Somehow, that wasn't enough for the director; he had to take it a step further.

**D** After years of dreaming about it, Cameron developed the first 3D camera that combined the live action scenes with the computer-generated scenes. Video-gaming technology was used along with a virtual camera and a simulation camera

to create a virtual production stage for the director through a computer. But how is that possible, you might ask? CG images were sent to the virtual camera while the simulation-cam combined CG characters and the designed environments into the 3D Fusion camera. After all, fusion means to join many things together to make one. All the director had to do was look through the eyepiece and direct these virtual scenes as if he would a live action scene. This had never been done before. With the use of state-of-the-art technology, a strong team of experts and creative artists and loads of imagination, the director had managed to interact with and control every aspect of the virtual film he was directing. **E**

The film, Avatar, with its 3D effects, managed to absorb the audience into the world of Pandora and give them a feeling of interaction like that of a video game. While video games have not succeeded yet in creating realistic 3D worlds for players, the ground breaking technology used in the film will certainly lead the way. The same teams that worked on the film released a 3D Avatar game, but they are also working on improving the three dimensional experience for future projects.

**2 a) How could the words in Ex. 1 be related to Cameron's Avatar? What else would you like to know about it? Write down three questions.**

**b) Listen to the text. Can you answer your questions in Ex. 2a?**

**3 Read the article. For questions 31-6, choose the best answer A, B, C or D. Give reasons for your answers.**

**1 How does CGI improve virtual images?**

- A It makes them three-dimensional.
- B It animates them.
- C It combines all areas of the media.
- D It makes them more believable and true-to-life.

**2 The director of the film Avatar**

- A based it on a real tribe
- B came up with the idea himself.
- C saw it all in a dream.
- D started filming immediately.

**3 The writer finds Cameron's 'headgear' (para C)**

- A unique.
- B very realistic.
- C not good enough.
- D beautiful.

**4 Specialists were used**

- A to study the world of Pandora.
- B to visit the world of Pandora.
- C to create a believable environment.
- D to record all movements.

**5 According to the text, what did Cameron accomplish in this film?**

- A He interacted with his audience.
- B He introduced innovative technology to the field.
- C He did something impossible.
- D He played all the characters.

**6 In paragraph E We learn that Avatar**

- A will soon be available as a game.
- B gave audiences a more interactive experience.
- C was as authentic as a video game.
- D has successfully helped create 3D video games.

#### **4 Answer the following questions.**

- 1 Why did it take Cameron a long time to produce Avatar?
- 2 How did Cameron manage to combine live-action scenes with computer-generated scenes?

#### **5 Find words in the text which mean:**

- Para A: affected, was developed
- Para B: broadly, join together
- Para C: produce, really, combined
- Para E: fascinate, sense, made available to the public

#### **Grammar**

##### **Reported Speech (Revision)**

#### **6 Rewrite the sentences in reported speech.**

- 1 "Avatar has spectacular special effects," he said.
- 2 "Can we make the characters look more realistic?" she asked.
- 3 "We used state-of-the-art technology to create the film," they said.
- 4 "Who are the main characters in the film?" David asked me.
- 5 "Do you think the film will be a box office hit?" she asked him.
- 6 "We need to improve computer technology further," the scientist says.

#### **Speaking & Writing**

**7 a) Use the main ideas in each paragraph to give the class a summary of the text.**

**b) Think! What makes Avatar a special film? In three minutes write a few sentences. Tell your partner or the class.**

**8 Use the Internet and other resources to find out more information about CGI. Talk about: what it is, applications, future uses. Present your findings to the class.**

#### **Writing**

##### **A film review**

##### **Writing tip**

A **film review** is a short description to inform readers of a TV show or film you've watched. Present tenses are usually used as well as a variety of adjectives to make your description more specific and interesting.

A review usually includes:

- **an introduction** giving background information about the film e. g. the title, type of film, the name of the director.
- **a main body** consisting of two paragraphs, one presenting the main points of the plot and the other with general comments on the plot, the main characters, special effects, etc.
- **a conclusion** in which you recommend/don't recommend the film, giving reasons.

#### **FILMS**

**1** Rogue One, directed by Gareth Edwards, is one of the latest instalments in the world-famous Star Wars film series. It is an exciting sci-fi fantasy film that is a prequel to the original Star Wars film, A New Hope which was released in 1977.

**2** In the film, a group of people called the Rebel Alliance work together to try to steal the plans for the Death Star, a space station that is being built by the Galactic Empire. The Rebel Alliance try to discover the Death Star's weaknesses so that they can destroy it before it destroys them.

**3** The storyline is gripping from start to finish. The characters are well-developed and the film has an impressive cast, too. The lead role of Jyn Erso is played by Felicity Jones who gives a superb performance. The film's fast-moving plot, action-packed battle scenes and spectacular special effects will keep you on the edge of your seat.

**4** I thoroughly enjoyed watching this film and would highly recommend it. If you've enjoyed the other films in the Star Wars series then you won't be disappointed by Rogue One. It's a must-see.

**1 Read the review and match the paragraphs (1-4) to the headings A-D below.**

- A ... summary of the plot
- B ... background information about the film
- C ... writer's opinion/recommendation with reasons
- D ... general comments on the film

**2 Choose the correct word/phrases. Check in a dictionary.**

- 1 The film is **set/based** at the beginning of the 20th century.
- 2 This film is **set in/is based on** a true story.
- 3 The **main/chief** character is 12-year-old Artemis.
- 4 Overall, I found the film **thick/dull**, but it had an interesting **plot/twist** at the end.
- 5 This exciting film is sure to be a **bestseller/box office hit**.
- 6 Tom Cruise plays the **lead/main** role in this film.
- 7 The film had **stunning/fast-paced** special effects.

**3 Which adjectives has the writer used to describe the following in the review in Ex. 1?**

- 1 ..... sci-fi fantasy film
- 2 ..... plot
- 3 ..... battle scenes
- 4 ..... cast
- 5 ..... performance
- 6 ..... special effects

**4 Fill in:** gripping, well-developed, predictable, likeable, surprising.

- 1 The plot is so ..... you can guess what's going to happen right from the beginning.
- 2 This is an absolutely ..... film - I just couldn't stop watching.
- 3 The ..... characters are so..... that you feel like you know them personally by the end of the film.
- 4 The ending is very ..... - I definitely wasn't expecting it!

### **Recommending**

**5 a) Fill in the gaps with the phrases in the list.**

- well worth seeing • is definitely for you
- make sure it's this one • in my opinion
- box office hit • you are looking for
- won't regret it • would definitely recommend

A 1) ..... this film to anyone who enjoys action-packed films. Bradley Cooper's performance is superb.

It's 2) .....

B If 3) ..... a fast-paced, gripping plot, this film 4) ..... It's sure to be of the year's 5) .....

C If you watch one film this year, 6) ..... You 7) ..... 8) ....., it's the director's best film so far.

**b) Which sentences does the writer use to recommend the film in the review in Ex. 1?**

### **Grammar**

### The passive (Revision)

**6 Find the passive forms in the film review. Then, rewrite these sentences in the passive.**

- 1 James Gunn directed Guardians of the Galaxy.
- 2 In the film, the aliens were attacking the astronauts.
- 3 Thousands of people are watching the new sci-fi film at the cinema.
- 4 Ryan Gosling plays the lead role in Blade Runner 2049.
- 5 The film uses simplistic special effects.
- 6 Lots of people are highly recommending this film.
- 7 In this film, the spaceship's crew are exploring the depths of outer space.
- 8 In the past, directors did not use 3D technology in their films.

### Your turn

**7 Read the rubric and underline the key words, then answer the questions.**

A website is asking for film reviews. Write your review of a sci-fi film you have seen, describing the plot, making general comments about it and giving your recommendation (120-180 words).

- 1 What do you have to write?
- 2 Who is going to read it?
- 3 What tense(s) will you use?
- 4 Which of the following should you include?

title & type of film \_\_\_\_\_  
how the film ends \_\_\_\_\_  
name of director \_\_\_\_\_  
how many of your friends have seen it \_\_\_\_\_  
whether you recommend it \_\_\_\_\_  
main points of plot \_\_\_\_\_  
where you can buy it \_\_\_\_\_  
general comments on characters/plot/etc \_\_\_\_\_

**8 Use the plan and the phrases from the Useful language box to write your review in Ex. 7.**

#### Plan

**Para 1:** background information (title, type, director)

**Para 2:** main points of the plot

**Para 3:** general comments (plot, special effects, etc)

**Para 4:** recommendation & reasons

#### Useful language

**Background:** This is a fascinating/exciting/etc film directed by ...; The film is set/takes place in ...

**Main points of the plot:** The film is about/In the film/It tells the story of ...

**General comments:** The plot/storyline is boring/predictable/ thrilling/gripping/fast-paced/dramatic/clever etc ...; The main character(s) is/are well-developed/ likeable/etc. There is a(n) impressive/talented cast. (Name) gives a superb/ excellent/amazing performance in the lead role as ... . The special effects are spectacular/simplistic/ stunning/imaginative etc.

**Recommendations:** I thoroughly recommend this film with its ...; This is bound to be a box office hit.; This is a highly entertaining/fantastic film.; Don't bother watching this. It's a must-see/well worth seeing...

#### Culture Corner

**1 What do you know about NASA? What do the acronyms NASA and ISS stand for? Think of two questions about NASA. Listen and read the text. Can you answer your questions?**

**2 Read the text again, and mark the statements as T (true), F (false) or DS (doesn't say).**

- 1 NASA made a lot of money from its early achievements. ...
- 2 Astronauts first walked on the moon in 1972. ...
- 3 The ISS constantly travels around the Earth. ...
- 4 One NASA department protects the planet from alien invasions. ...
- 5 Trips to the ISS launch from Florida. ...
- 6 The US space shuttle programme ended due to a lack of money. ...

**3 a) Fill in:** operations, technology, aeronautics, exploration, science, planetary.

- 1 .....of space
- 2 human exploration and .....
- 3 ..... division
- 4 space ... .. department
- 5 Office of ..... Protection
- 6 ..... research division

**b) Use the completed phrases to talk about NASA.**

**4. Tell the class three things that impressed you from the text.**

**Reaching for the Stars**

NASA - the United States' National Aeronautics and Space Administration agency - was created in the 1950s. Its mission was to lead the way in the exploration of space both near Earth and beyond it, and in particular to transport people to the moon and back by the end of the 1960s. This ambition of President John F Kennedy's was, of course, achieved in 1969. In fact, 12 astronauts walked on the moon during a number of missions between then and 1972. NASA is divided into four departments. The aeronautics research division is concerned with improving transport into, and through, space. The space technology department develops hardware, software and machinery to improve space exploration. The human exploration and operations department oversees activity that involves people, including missions to the International Space Station (ISS), which is in orbit around Earth constantly. Finally, the science division helps to further understanding of the universe, including the Earth, which it studies by satellite. This division also includes the Office of Planetary Protection, and one of this office's responsibilities is defending the Earth from hostile aliens! NASA launches spacecraft from Cape Canaveral in Florida, which was chosen for its southerly position. Because the state of Florida is closer to the equator than most other US states, NASA rockets get maximum help from the rotation of the planet when they take off for space. However, NASA astronauts who are sent to the ISS now begin their journeys in Kazakhstan, as the US brought its space shuttle programme to an end in 2011. ISS missions now begin and end at the Baikonur Cosmodrome near Tyuratam in southern Kazakhstan. This is the very same location from which Yuri Gagarin, the first man to go to space, began his journey back in 1961.

**Did you know?**

If you're interested in observing the International Space Station, you can ask NASA to send you an email or text message alert when it passes over where you live.

**Check these words:** mission, hardware, orbit, equator, rotation

**5 Find out more information about the Baikonur Cosmodrome near Tyuratam. Present your information to the class.**

Curricular: Literature

**1 The picture shows some triffids. What do you know about the book *The Day of the Triffids*? Listen to find out.**

**2 Read the text. For each gap (1-7), choose from the sentences (A-H) the one that best completes each gap. There is one extra sentence.**

A She realised that should not be so, and turned on the light.

B To my amazement, the window was wide open.

C I crossed the bedroom on tiptoe and pulled the window shut sharply.

D It missed the goggles, and the first thing i did in the outhouse was to wash it off my face.

E They didn't try anything or do anything there.

F I took no risks when I went to fetch them.

G Four months later they broke in again.

H They're just plants.

**3 Match the words in bold with: the front part of your foot, hit sharply, invaders, violently, turned quickly.**

**4 Write the adjectives the author uses to describe the following:**

1 ..... stings

2..... sky

3..... darkness

4 ..... leaves

5 ..... clothing

6 ..... helmet

7..... knife

8 ..... spray

**5 Think! Listen and read the text. Imagine you are in a car surrounded by triffids. What can you hear and see? How do you feel? Tell your partner.**

The Day of the Triffids by John Wyndi

"I wish", I told Susan, irritably, "you'd not keep on saying they hear, as if they were animals. They're not. They don't hear! **1** ... "

"All the same, they do hear, somehow," Susan said. "Well -- anyway.

we'll do something about them," I promised. As time went on, the numbers collected along the fence continued to increase in spite of our traps. **2** ... They simply settled down, wriggled their roots into the soil, and remained. At a distance they looked as inactive as any other hedge. But if one doubted their alertness it was only necessary to take a car down the tane. To do so, you had to battle through such viclously slashing stings that it was necessary to stop the car at the main road and wipe the windscreen clear of poison. Early one morning, Susan came running in to tell us that the things had broken in, and were all around the house. The sky outside her bedroom window was grey, but when she went downstairs, she found everything there in complete darkness. **3** ... The moment she saw leathery green leaves pressed against the windows, she guessed what had happened. **4** ... Even as it closed a sting whipped up from below and smacked against the glass. We looked down on a group of triffids standing ten or twelve deep against the wall of the house. The flame-throwers were in one of the outhouses. **5** ... In thick clothing and gloves, with a leather helmet and goggles under a wire mask I hacked my way through the triffids with the largest carving knife I could find. The stings whipped and slapped at the wire mask so frequently that the poison began to come through in a fine spray. **6** ... I didn't dare use a thrower more than once to clear my way back for fear of setting the door and window frames on fire, but it moved them enough for

me to get back unharmed. ... Two more days passed before Susan and i could be sure that we had searched every corner of the enclosure and accounted for the very last of the intruders. 7 ...

**Check these words:** irritably, trap, settle down, hedge, doubt, alertness, lane, slashing sting, wipe, break in, whip up, smack, flame-thrower, outhouse, wire, hack, unharmed, enclosure, account (for), mist

## Language in Use

### Phrasal verbs/Prepositions

#### 1 Choose the correct particle.

**keep away:** prevent access to, hold back

**keep off:** stay away, prevent from stepping/climbing on sth

**keep on:** continue

**keep up with:** move at the same speed

**let down:** disappoint

**let out (of):** release (from prison/captivity)

**pick on:** treat unkindly

**pick out:** choose

**pick up:** 1) lift with hands 2) take someone away in a car

1 Please **keep off/away** the grass!

2 Don't worry. Anna will never let you **out/down**.

3 The girls kept up **with/on** talking.

4 Mark has just been let **out/down** of prison.

5 I'll pick you **up/out** at 7:00 at the airport.

#### 2 Choose the correct preposition.

1 They had lots of things **in/at** common.

2 He is an expert **for/on** strange creatures.

3 He blamed himself **for/on** the mistake.

4 Why is that man staring **to/at** us?

5 Some species of animals are few **in/at** number.

### Words often confused

#### 3 Choose the correct word.

1 The festival **attracts/draws** a lot of visitors.

2 Her heart **dropped/sank** as the plane took off.

3 They **wandered/wondered** away from the group looking for any remaining debris.

4 We all **admitted/accepted** the tour was great.

5 Is it possible to **take/bring** dinosaurs back to life?

### Word formation

#### 4 Fill in the sentences with the correct word derived from the word in brackets.

##### Forming abstract nouns from verbs/adjectives

We can use **-ance** (import - importance).

**-ence** (occur - occurrence), **-cy** (accurate - accuracy),

**-ion** (predict - prediction), **-(i)ness** (lazy - laziness),

**-ity** (popular - popularity) to form nouns from verbs/adjectives.

1 The ..... of the strange lights over the city was reported on the evening news. (APPEAR)

2 The Smiths enjoy the ...(QUIET) and ..... (PRIVATE) of their beautiful home in the country.

3 Loren Coleman owns a large ..... of artefacts from strange creatures. (COLLECT)

4 What's the ..... between an allosaurus and a T-rex? (DIFFER)

5 UFO-spotting is a popular ..... in New Mexico. (ACTIVE)

### Collocations



**5Fill in:** weather, lifelong, annual, demand, native, travel, video, full, welcome, drive, highly, closely.

1..... festival  
2 ..... journalist  
3..... balloon  
4 ..... footage  
5..... passion  
6 to ..... evidence

7 ..... tribes.  
8 ..... secretive  
9 a ..... addition  
10 to ..... you crazy  
11 ..... moon  
12 ..... resemble

### **Kazakhstan in Action!**

**Read and choose the correct word.**

- The 16th International Astronomy Olympiad took 1) **part/place** in Almaty and was a very successful event for all who took 2) **part/place**.
- The Baikonur Cosmodrome is the largest operational spaceport 3) **in/of the** world. It is located in a semi-arid region 4) **when/where** temperatures go from 45 degrees Celsius in summer to -40 degrees Celsius in the winter.
- An 8th grade student from 5) **-/the** Kostanay region called Oleg Lilo 6) **created/formed** a mini-laboratory with a camera and a laser to study the Moon.
- In order to visit the Baikonur Cosmodrome you 7) **have/need** special permission 8) **if/unless** you are travelling with a tour group

### **Reading**

**1 Choose from the sentences (A-H) the one which fits each gap (1-7). There is one extra sentence.**

#### **A BUCKETFUL OF WORLDS**

It's raining planets. Members of the science team for NASA's Kepler telescope have recently discovered more than 1,200 worlds orbiting distant stars. Of these, approximately 50 could be Earth's doubles. In other words, worlds that might be fit for life. This is big news and the search for radio transmissions from these worlds has already begun.

**1** ... Simply because it would tell us that a planet is home to inhabitants with technological knowledge. For 200 millennia, our species knew of only seven bodies: the sun, moon and five bright planets with names from Roman mythology. **2** ... His discovery of Uranus suggested that more planets might be hiding in the dark, outer areas of our solar system. Within a century and a half, Neptune and Pluto were also discovered. Then there was nothing until 1995, when Swiss astronomers announced that a planet was racing around a rather ordinary star, 50 light years away.

**3** ... It was so close to its sun that daytime temperatures on the surface would be several thousand degrees. In the years since then, teams of astronomers have used large, ground-based telescopes to hunt for more planets. So far they've found more than 500 extrasolar planets, which is nearly one a week. **4** ... This incredible NASA telescope is able to find many planets at the same time. Apart from Kepler's ability to uncover multiple new worlds, it has another talent that the traditional methods don't yet have; the ability to find small planets that aren't too close to their suns. Planets that are the size of Earth and in orbits that mean they might enjoy temperatures that could support life. This is an obvious motivation for the SETI Institute\* to point their antennas in their direction.

**5** ... No clearly extraterrestrial transmissions have been found. Here's the promise though. These early results from Kepler suggest that approximately 3 percent of all stars could have a habitable planet. Within a thousand light years of Earth there are at least 30,000 of these habitable worlds. Perhaps they're only habitable and not inhabited. **6** ... Or perhaps they have intellectually-challenged life. Maybe, but Kepler is still searching. **7** ... Sure, nothing has been found so far, but 30,000 is a big number!

\* *SETI = Search for Extraterrestrial Intelligence*

**A** It was a world at least half the size of Jupiter.

**B** It's possible that they could all be dry and empty.

- C More Earth-like planets will be found in the next few years, and they'll be observed very carefully for the telltale signs of intelligence.
- D Then in 1781, the English astronomer William Herschel saw a new world beyond Saturn.
- E But this is not likely.
- F So far, they have searched these worlds for signals over one small slice of the radio dial.
- G That is, until Kepler's big announcement.
- H Finding a signal would be very shocking. 7x2=14 marks

## 2 Listening

**You will hear an interview with an author about her book. For questions 1-10 fill the gaps.**

The interviewer describes Kelly's book as a ..... 1 and a combination of styles.

Kelly says in her book a ..... 2 meets an alien.

The alien in the book is based on an ..... 3 description.

People who usually read ..... 4 will also enjoy the book.

Kelly spent a year studying ..... 5 well-known

Kelly gives the example of the ..... 6 as strong proof of supernatural phenomena.

Kelly has written numerous ..... 7 on the supernatural.

Kelly consulted with UFO ..... 8 while writing her book.

The book will be in bookshops in ..... 9

Kelly's next project is to work on a ..... 10 about a haunted town. 10x1=10

marks

## Progress Check

**3 Fill in:** *soared, wandered, absorbed, extract, hovering, interact, construct, overcome, generate, applied.*

1 He reported seeing a flying saucer ..... above the city.

2 3D computer graphics can be ..... to films and video games.

3 We could live on Mars after we have ..... all the challenges.

4 The spaceship ... .. straight up into the sky.

5 Social robots can ..... with us using microphones and cameras.

6 We can ..... electricity using solar panels.

7 She ..... away from the group to look for some signs of UFOs.

8 It is possible to ... .. oxygen from water.

9 The audience were ..... by the spectacular special effects.

10 There are resources on the moon that we can use to ..... a colony. 10x1=10

marks

**4 Fill in:** *imagery, particles, dioxide, atmosphere, surface.*

1 Releasing carbon ... .. on Mars would make it warmer.

2 The scenery in the film was created using computer-generated .....

3 Space is a vacuum because it contains no .....

4 It would be difficult to live on the moon because it doesn't have a(n) .....

5 Mars is called the 'red planet' because it has got a red ... .. 5x2=10

marks

**5 Rewrite the following as conditional sentences.**

1 Didar was writing a report all night, so she's tired now.

2 Kairat isn't careful. He broke his camera.

3 They didn't program the machine, now it isn't working.

4 Sanzhar's alarm didn't go off. He was late for his science class.

5 I don't like robots. I didn't join the robotics club.

6 They ran out of money. They weren't able to run the mission.  
marks

6x2=12

**6 Rewrite the sentences in the passive.**

- 1 NASA's Cassini spacecraft was gathering data from Saturn for 13 years.
  - 2 Last week, the astronauts were planning a mission to Mars.
  - 3 Sultan is writing a report about the moon landings.
  - 4 Nowadays, directors are creating better films because of advanced equipment.
  - 5 Last year scientists developed new spacecraft to travel to the moon.
  - 6 Scientists monitor the giant storm on Jupiter.
  - 7 Creative artists are using state-of-the-art technology to create the film.
- marks

7x2=14

**7 Rewrite the following in reported speech.**

- 1 "I'm watching a documentary on space colonisation," he told her.
  - 2 "I was studying for my chemistry exam," he told her.
  - 3 "When will we visit the UFO museum?" the boy asked his mum.
  - 4 "Have you ever heard of the UFO festival in Roswell?" she asked Kanata.
  - 5 "You must finish your project on space as soon as possible," the teacher told the students.
- 5x2=10 marks

**8 Write a review of your favourite film for a magazine ( 120-180 words).**

20 marks

Total: 100 marks

**Check your Progress**

- talk and write about space
- talk and write about UFOs
- talk and write about space colonisation
- write a review of a film

GOOD ✓ VERYGOOD ✓✓ EXCELLENT ✓✓✓

**Lesson 24**

**Lesson 8.3. Independent project**

**Vocabulary:** scientific breakthroughs, celestial bodies, human anatomy, chemistry elements

**Grammar:** compound nouns/adjectives, -ing/-ed adjectives, comparisons, conditional Type 3, wish/if only, prepositional phrases, linkers

**Phrasal verbs:** hand, hang, join

**Word formation:** prefixes used with nouns to form nouns

**Writing:** an opinion essay

**Culture Corner:** British Science Week

**Curricular (Science):** Body Talk

**Vocabulary**

**Scientific breakthroughs**

**1 Look at the pictures. What do you know about these scientific breakthroughs? Tell the class.**

**2 Fill in:** universe, DNA, helix, elements, properties. Listen and check. Match the texts to the pictures.

**1 The periodic table of the elements - Dmitri Mendeleev - 1889**

This Russian chemist organised all of the chemical 1) ..... into groups based on their 2) ..... and left spaces for new elements to be discovered. This information is known as the periodic table of the elements and is used all over the world.

## **2 The Big Bang Theory - Georges Lemaitre - 1920s**

A Belgian physicist and astronomer was the first to suggest that our 3) ..... is expanding from a single point. His ideas became known as the Big Bang Theory which is one theory for how the universe was created.

## **3 DNA structure - James Watson & Francis Crick - 1953**

American scientist James Watson and British scientist Francis Crick discovered that our 4) ..... is not flat, but a 3D structure that twists around in a double 5) .....

### **Over to you!**

Think of two scientific breakthroughs. Present them to class.

### **The universe**

#### **Vocabulary**

#### **Celestial bodies**

#### **1 a) Listen and say. Then, read the dictionary entries.**

planet /planet/ (n) a large round object in space that moves around a star e. g. the Earth

asteroid /æstarəid/ (n) a small celestial body that moves around the sun (mainly between the orbits of Mars and Jupiter)

comet /kɒmt/ (n) a bright object with a long tail that travels around the sun

galaxy /gæləksi/ (n) a large group of stars and planets that extends over many billions of light years

star /stɑːz/ (n) a large ball of burning gas in space

meteor /mɪstɪə/ (n) a small mass travelling through space

moon /muːn/ (n) any planet's natural satellite

constellation /kɒnstələrʃən/ (n) a group of stars that form a pattern and are named after it

#### **b) Can you name the planets in our solar system? Listen and check.**

### **Reading**

**2 What do you know about the origins of the universe? What would you like to know about it? Write down two questions. Listen and read the text. Can you answer your questions?**

#### **How Did It All Begin?**

Throughout history, mankind has wondered about the origin of the universe. Has it existed eternally with no beginning or end, or was it created at some point in time? Physicists still can't say for certain how the universe came to exist, or why it exists, but they have several theories ...

**Check these words:** eternally, exist, startling discovery, expand, logically, explode, widely accepted, hypothesis, collapse, prior, trillion, endless, countless, expansion, contraction, infinite, motivation

### **Study skills**

#### **Setting a purpose**

Before you read a text, think what you already know about the topic. This will help you think what else you would like to learn about it.

**3 Read the article again, then for questions 1-8, choose from theories A-C. The theories may be used more than once. Which theory/theories:**

**1** say space, time, and matter have existed forever with no beginning or end?

**2** do most physicists support?

- 3 suggests a reason why our universe has the ideal conditions for supporting life?
- 4 says our universe came from an earlier universe?
- 5 say only one universe exists at any one time?
- 6 is supported by evidence we can see?
- 7 says our universe will eventually disappear?
- 8 says our universe we are living in is unique?

### A The Big Bang Theory

A Before the 20th century, people believed that the universe had existed forever, and had poked the same way forever, But in 1929, astronomers made a startling discovery. Looking through their telescopes they noticed that the galaxies in our universe are actually moving away from each other at enormous speed - our universe is expanding! If our universe is expanding, then logically at some point in the past the entire universe was contained in a single point in space. The Big Bang Theory states that about 14 billion years ago, our universe exploded out of nowhere from single point and it has been expanding ever since form the universe we know today. Our universe, in other words, has not existed forever. It had a definite beginning. Before our universe came into existence there was nothing ... no time, space, matter, energy ... nothing! The Big Bang created time, space and matter. The Big Bang Theory is currently the most **widely accepted** hypothesis for the origin of the universe. However, it still leaves many questions unanswered. For instance, it doesn't explain why the big bang happened in the first place.

### B The Cyclical Universe Theory

The Cyclical Universe Theory addresses the question, "What caused the big bang?" The answer it gives is the collapse and expansion of a prior universe. According to the Cyclical Universe Theory, our universe began when another universe collapsed violently into a **single point** then exploded out again. Trillions years from now, our own universe will stop expanding and begin to contract. Eventually, it will also collapse into a single point and explode out again giving rise to a new universe. Our universe is therefore just **the latest** in an endless series. Countiess universes have preceded this universe and countiess others will follow it, Space and time had no beginning, Cycles of expansion, contraction, collapse, and explosion have been going on forever.

### C The Multiple Universe Theory

According to the Multiple Universe Theory, what we have been calling the universe is actually nothing like we thought! it is just a single bubble in an infinite number of universes. We are actually living in a multiverse consisting of trillions of universes. The multiverse has existed forever, and each universe in it is different. The main motivation behind the Multiple Universe Theory is to provide an explanation as to why our universe seems to be so perfectly suited towards supporting life. For many people, this fact demands an explanation. They feel it is too much of a coincidence that the conditions in our universe just happen to be right to make life possible. The Multiple Universe Theory states that there is nothing mysterious about this. There are trillions upon trillions of universes in the multiverse and therefore at least a few of them will have conditions that make life possible. We simply happen to be living in one of these universes.

**4 Fill in:** expanding, exploded, collapse, prior, infinite.

- 1 Astronomers have discovered that our universe has been ... .. since it was formed.
- 2 Many universes may have existed ...to the one we are living in.
- 3 Our universe might actually be just one of a(n)... number of other universes.
- 4 One day our universe may ...and give rise to a new universe.
- 5 According to the Big Bang Theory, our universe... into existence from a single point.

## Lesson 37

### XIII Unit. Work and inventions

## Investigating the world of work.

1. Listen to the radio programme and do the exercise to practise and improve your listening skills.

### 1.1 Preparation: grouping

Do this exercise before you listen.

Write the inventions in the correct group.

If you don't know, have a guess!

Time travel machine	Indoor cloud-maker machine	Sign language translation gloves	Wing-suits (that enable you to fly)
Air-maker (for use on other planets)	Bio-fabric clothes (that change colour according to the wearer's mood)	Solar water distiller	Digital running shoes (that give you performance statistics)

Real inventions	Fictional inventions

## 2

Do this exercise while you listen. Circle *True* or *False* for these sentences.

- |    |  |             |              |
|----|--|-------------|--------------|
| 1. | Wing-suits allow people to fly or glide.   | <i>True</i> | <i>False</i> |
| 2. | Wing-suits are getting cheaper.  | <i>True</i> | <i>False</i> |
| 3. | Gabriele Diamanti's water distiller is powered by the sun.                           | <i>True</i> | <i>False</i> |
| 4. | The "enable talk gloves" help people to use sign language in really cold conditions. | <i>True</i> | <i>False</i> |
| 5. | James Cameron invented a new underwater camera.                                      | <i>True</i> | <i>False</i> |
| 6. | MIT students have invented a new type of ketchup.                                    | <i>True</i> | <i>False</i> |
| 7. | The last invention is a way of producing clouds indoors.                             | <i>True</i> | <i>False</i> |
| 8. | The science correspondent thinks the clouds are ugly.                                | <i>True</i> | <i>False</i> |

### **TRANSCRIPT** for New inventions

**Presenter:** Welcome to 'Tech-Today!' This week it's National Science & Engineering Week, so to celebrate we asked Jed our science correspondent to give us a round-up of new inventions.

**Jed:** Hi, yes, I've got some very interesting things to tell you about today, starting with a fun one. Wingsuits, those suits that look like bats and allow people to fly, or glide, at least. They're the ultimate in cool.

**Presenter:** But, they're not very new, are they?

**Jed:** Well, no, but the modern ones are better than ever and last October was the first ever world championship in China. The price is coming down, too. Now you can buy one for 600 to 2,000 dollars. It's still too expensive for me, but I suppose it'll keep coming down.

**Presenter:** OK, what about useful new inventions?

**Jed:** There are lots of those. There's a new solar water distiller created by Gabriele Diamanti aimed at parts of the world where it's hard to get clean drinking water. You pour in salty water and let the sun do the work for a few hours. Then, hey presto! You have clean water! It's a very simple device and fairly cheap to produce.

**Presenter:** Can I hear some doubt in your voice?

**Jed:** Well, they still need help with investment to start producing the distiller properly. So if anyone out there has money to invest in a great product ...?

**Presenter:** Absolutely. Get in touch with the designers.

**Jed:** Another useful invention which it would be good to see in production are "enable talk gloves". These were invented by some Ukrainian students to allow people with speech and hearing impairments to communicate with people who don't understand sign language. The gloves use sensors to translate sign language into text, then into spoken language using a smartphone. A brilliant invention!

**Presenter:** Yes, that could benefit thousands of people.

**Jed:** Another useful invention comes from a surprising source, James Cameron, the film director.

**Presenter:** The 'Titanic' director?

**Jed:** The very same. Cameron was part of a team, headed by engineer Ron Allum, which designed the Deepsea Challenger Submarine, capable of descending to the lowest parts of the sea, 10km down. Last year Cameron went down to the bottom of Challenger Deep, the deepest part of the sea in the world. He was the first person to do a solo dive there, and he stayed for three hours, the longest time so far.

**Presenter:** That sounds impressive!

**Jed:** Yes. We know so little about what's at the bottom of the ocean, and it's important to find out more. OK, so now for something useful in a different way. You know that feeling when you're trying to get tomato ketchup out of a bottle and it won't come out, but you're sure there's lots more in there?

**Presenter:** Yeah, of course. It's really annoying.

**Jed:** Well, a team of students at MIT, the Massachusetts Institute of Technology, have come up with a new product that you use to coat a glass or plastic bottle, and then what's inside, hair gel or mustard, or whatever, comes out really easily.

**Presenter:** So, it saves hours of frustration trying to get stuff out of bottles?

**Jed:** Exactly. Right, now for my favourite invention. This is really silly, but I love it. It's a way of producing clouds indoors.

**Presenter:** Clouds?

**Jed:** Yes. A Dutch artist has come up with a way of forming perfect, small, white clouds inside. They're just beautiful. I don't think you can do it yourself at home yet, though.

**Presenter:** I don't think I'd want to.

**Jed:** Oh, you would if you'd seen the photos. They're amazing.

**Presenter:** OK, Jed, thanks for that. We'll leave you with your head in the clouds and see you again next week!

**3. Use the questions below to generate some ideas for a new invention in your group.**

*Lead In Activities*



1. Think of simple products, machines, or devices in your life. Make a list of everyday inventions that make life more convenient or better than it was in the past. (Example: screw-top bottles, remote controls, portable battery for cell phone, etc.)

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

4 Think about your life at home, work, school, etc. What are some problems you would like to solve?

• At home:

\_\_\_\_\_

• At work:

\_\_\_\_\_

• At college \_\_\_\_\_

\_\_\_\_\_

• At ( ): \_\_\_\_\_

\_\_\_\_\_

5. Now, brainstorm a list of possible new inventions with your group. List all ideas and make notes about what they do.

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## Lesson 38

### Considering success in business

**11.2.2** understand specific information in unsupported extended talk on a wide range of general and curricular topics, including talk on a growing range of unfamiliar topics

**11.3.6** navigate talk and modify language through paraphrase and correction in talk on a wide range of familiar and some unfamiliar general and curricular topics

Are you a Marvel fan? Watch this video to find out about Stan Lee, the creator of Spider-Man.

Do the preparation task first. Then watch the video and do the exercises. Remember you can read the

transcript at any time.

Preparation

**1 Match the vocabulary with the correct definition and write a–h next to the numbers 1–8.**



- |  |   |
|--|---|
| 1..... live action<br>helps other people                     | a. someone in a film or story who has special powers and          |
| 2..... animated<br>books, etc.                               | b. a person or company that produces and sells magazines,         |
| 3..... a superhero   | c. a very famous and popular character in a story or film         |
| 4..... a publisher   | d. (of a film) involving actors, not drawn images or models       |
| 5..... a franchise<br>images                                 | e. (of a film or cartoon) made of hand-drawn or computerdrawn     |
| 6..... a cameo (appearance)<br>television,<br>films or music | f. involving several types of media, such as books,               |
| 7..... an iconic character<br>famous                         | g. a small part in a film, but played by someone very             |
| 8..... multimedia  | h. a series of films that are connected to each other by having a |
|  | continuing story or the same characters                           |

## 2. Check your understanding: true or false

### Circle True or False for these sentences.

1. Stan Lee was a comic book writer, editor and publisher. **True False**
2. Spider-Man was the only character he created. **True False**
3. There were a lot of superhero films in cinemas in the 1930s and 1940s. **True False**
4. In the 1960s he began writing comic books. **True False**
5. Stan Lee had major acting parts in many Marvel films. **True False**
6. The reason why his superheroes are successful is that they are perfect characters. **True False**

Video zone: Stan Lee, the man who invented Spider-Man – exercises

## 3. Check your vocabulary: gap fill

### Complete the sentences with words from the box.

Animated publisher assistant multimedia franchise  
comic books extraordinary ordinary live billions

1. In 1939, Stan started working as an \_\_\_\_\_ at Timely Comics, a small comic-book \_\_\_\_\_.
2. In the 1960s, Marvel comic characters appeared in \_\_\_\_\_ action and \_\_\_\_\_ films and television programmes.

3. Marvel is now a huge \_\_\_\_\_ company with a value of \_\_\_\_\_ of dollars.

4. Fans think of Stan Lee as the father of \_\_\_\_\_. The Marvel \_\_\_\_\_ that he

created is huge and very successful.

5. His characters show us that \_\_\_\_\_ people have the power to do \_\_\_\_\_

things.

#### **4 Discussion**

**Do you like comic books and superheroes? Who are your favourites, and why?**

### **Lesson 39**

#### **XIV Unit. STEM**

#### **Intelligent energy storage**

**1 Listen to the talk and discuss the questions with your partner.**

- What did the speakers talk about?
- What forms of renewable energy does Phil think not reliable?
- What does the tutor say the project should contain mainly?
- What did the ss decide to analyze in the project?

**2 Listen to the recording again and answer the questions. Write NO MORE THAN THREE WORDS AND/OR A NUMBER for each answer. Questions 1-4**

According to Phil, what are the 2 problems with some renewable energy sources?

1. \_\_\_\_\_

2. \_\_\_\_\_

List 2 things that Professor Jenkins wants to see in the students' report.

3. \_\_\_\_\_

4. \_\_\_\_\_

**Questions 5-7. Write NO MORE THAN THREE WORDS AND/OR A NUMBER for each answer. Complete the chart below.**

#### **Social energy production costs forecast**

Calculate the number of hours of  
**5.** \_\_\_\_\_ in the UK.



Estimate the number of hours of sunlight.



Determine the cost of supplying homes in the entire  
**6.** \_\_\_\_\_

Work out the power station construction costs.

Research what customers would be **7**  
\_\_\_\_\_ pay

The end

**3 Questions 8-10. Complete the summary below using words from the box. Write ONE option A-H next to 8-10.**

**Project content summary.**

The alternative energy project will cover 3 main areas: a comparison, a price  
**8.** \_\_\_\_\_ and an analysis. The students will use information given to them by their tutor and government **9.** \_\_\_\_\_. Using a system of comparison between the data sets they will **10.** \_\_\_\_\_ any discrepancies for further analysis.

A data  
B highlight  
C statistics

D demonstrate  
E prediction  
F evaluate

G reduction

**4. Discuss the following questions in groups.**

1. In what ways have industries used energy sources in an inefficient way?
2. What technological standards or advances should industries adapt to use energy sources more efficiently?
3. How can governments intervene to increase the efficiency of energy source use among industries?

## Lesson 40

### Discussing controversial issues

### Analyzing academic language

[https://ieltsmaterial.com/ielts-reading-test-in-2017/#Renewable\\_Energy](https://ieltsmaterial.com/ielts-reading-test-in-2017/#Renewable_Energy)

### Renewable Energy

An insight into the progress in renewable energy research

**A**

The race is on for the ultimate goal of renewable energy: electricity production at prices that are competitive with coal-fired power stations, but without coal's pollution. Some new technologies are aiming to be the first to push coal from its position as Australia's chief source of electricity.

**B**

At the moment the front-runner in renewable energy is wind technology. According to Peter Bergin of Australian Hydro, one of Australia's leading wind energy companies, there have been no dramatic changes in windmill design for many years, but the cumulative effects of numerous small improvements have had a major impact on cost. 'We're reaping the benefits of 30 years of research in Europe, without have to make the same mistakes that they did,' Mr Bergin says.

**C**

Electricity can be produced from coal at around 4 cents per kilowatt-hour, but only if the environmental costs are ignored. 'Australia has the second cheapest electricity in the world, and this makes it difficult for renewable to compete,' says Richard Hunter of the Australian Ecogeneration Association (AEA). Nevertheless, the AEA reports: 'The production cost of a kilowatt-hour of wind power is one-fifth of what it was 20 years ago,' or around 7 cents per kilowatt-hour.

**D**

Australian Hydro has dozens of wind monitoring stations across Australia as part of its aim to become Australia's pre-eminent renewable energy company. Despite all these developments, wind power remains one of the few forms of alternative energy where Australia is nowhere near the global cutting edge, mostly just replicating European designs.

**E**

While wind may currently lead the way, some consider a number of technologies under development have more potential. In several cases, Australia is at the forefront of global research in the area. Some of them are very site-specific, ensuring that they may never become dominant market players. On the other hand, these newer developments are capable of providing more reliable power, avoiding the major criticism of windmills – the need for back-up on a calm day.

**F**

One such development uses hot, dry rocks. Deep beneath South Australia, radiation from elements contained in granite heats the rocks. Layers of insulating sedimentation raise the temperatures in some location to 250° centigrade. An Australian firm, Geoenergy, is proposing to pump water 3.5 kilometres into the earth, where it will travel through tiny fissures in the granite, heating up as it goes until it escapes as steam through another drilled hole.

**G**

No greenhouse gases are produced, but the system needs some additional features if it is to be environmentally friendly. Dr Prue Chopra, a geophysicist at the Australian National University and one of the founders of Geoenergy, note that the steam will bring with it radon gas, along through a heat exchanger and then sent back underground for another cycle. Technically speaking, hot dry rocks are not a renewable source of energy. However, the Australian source is so large it could supply the entire country's needs for thousands of years at current rates of consumption.

**H**

Two other proposals for very different ways to harness sun and wind energy have surfaced recently. Progress continues with Australian company EnviroPower's plans for Australia's first solar chimney near Mildura, in Victoria. Under this scheme, a tall tower will draw hot air from a greenhouse built to cover the surrounding 5 km<sup>2</sup>. As the air rises, it will drive a turbine\* to produce electricity. The solar tower combines three very old technologies – the chimney, the turbine and the greenhouse – to produce something quite new. It is this reliance on proven engineering principles that led EnviroPower's CEO, Richard Davies, to state: There is no doubt this technology will work, none at all.'

**I**

This year, EnviroPower recognized that the quality of sunlight in the Mildura district will require a substantially larger collecting area than was previously thought. However, spokesperson Kay Firth says that a new location closer to Mildura will enable EnviroPower to balance the increased costs with extra revenue. Besides saving in transmission costs, the new site will mean increased revenue from tourism and use of power for telecommunications. We'll also be able to use the outer 500 metres for agribusiness.' Wind speeds closer to the tower will be too high for farming.

**J**

Another Australian company, Wavetech, is achieving success with ways of harvesting the energy in waves. Wavetech's invention uses a curved surface to push waves into a chamber, where the flowing water column pushes air back and forth through a turbine. Wavetech was created when Dr Tim Devine offered the idea to the world leader in wave generator manufacturers, who rather surprisingly rejected it. Dr Devine responded by establishing Wavetech and making a number of other improvements to generator design. Wavetech claims that, at appropriate sites, 'the cost of electricity produced with our technology should be below 4 cents per kilowatt-hour.

**K**

The diversity of forms of greenhouse – friendly energy under development in Australia is remarkable. However, support on a national level is disappointing. According to Richard Hunter of the AEA, 'Australia has huge potential for wind, sun and wave technology. We should really be at the forefront, but the reality is we are a long way behind.'

### *Questions 1-7*

Do the following statements agree with the information given in the text

*In your copybooks, 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 In Australia, alternative energies are less expensive than conventional electricity.

- 2 Geoenergy needs to adapt its system to make it less harmful to the environment.
- 3 Dr Prue Chopra has studied the effects of radon gas on the environment.
- 4 Hot, dry rocks could provide enough power for the whole of Australia.
- 5 The new Enviropower facility will keep tourists away.
- 6 Wavetech was established when its founders were turned down by another company.
- 7 According to AEA, Australia is a world leader in developing renewable energy.

Questions 8-13

Look at the following statements (Questions **8-13**) and the list of companies below. Match each statement with the correct company, **A-D**.

**NB** *You may use any letter more than once.*

- 8 During the process, harmful substances are prevented from escaping.
- 9 Water is used to force air through a special device.
- 10 Techniques used by other countries are being copied.
- 11 The system can provide services other than energy production.
- 12 It is planned to force water deep under the ground.
- 13 Original estimates for part of the project have been revised.

#### **List of Companies**

- A Australian Hydro
- B Geoenergy
- C Enviropower
- D Wavetech

### **Lesson 41**

#### **XV Unit. Reading for Pleasure**

#### **Learns read non-fiction**

#### **1 Read and translate**

Ernest Hemingway

#### **THE OLD MAN AND THE SEA**

#### **Part One**

He was an old man who fished alone in a skiff in the Gulf Stream and he had gone eighty-four days now without taking a fish. In the first forty days a boy had been with him. But after forty days without a fish the boy's parents had told him that the old man was now definitely and finally *salao*, which is the worst form of unlucky, and the boy had gone at their orders in another boat which caught three good fish the first week. It made the boy sad to see the old man come in each day with his skiff empty and he always went down to help him carry either the coiled lines or the gaff and harpoon and the sail that was furled around the mast. The sail was patched with flour sacks and, furled, it looked like the flag of permanent defeat.

The old man was thin and gaunt with deep wrinkles in the back of his neck. The brown blotches of the benevolent skin cancer the sun brings from its reflection on the tropic sea were on his cheeks. The blotches ran well down the sides of his face and his hands had the deep-creased scars from handling heavy fish on the cords. But none of these scars were fresh. They were as old as erosions in a fishless desert.

Everything about him was old except his eyes and they were the same color as the sea and were cheerful and undefeated.

“Santiago,” the boy said to him as they climbed the bank from where the skiff was hauled up. “I could go with you again. We’ve made some money.” The old man had taught the boy to fish and the boy loved him.

“No,” the old man said. “You’re with a lucky boat. Stay with them.”

“But remember how you went eighty-seven days without fish and then we caught big ones every day for three weeks.” “I remember,” the old man said. “I know you did not leave me because you doubted.” “It was papa made me leave. I am a boy and I must obey him.”

“I know,” the old man said. “It is quite normal.”

“He hasn’t much faith.”

“No,” the old man said. “But we have. Haven’t we?”

“Yes,” the boy said. “Can I offer you a beer on the Terrace and then we’ll take the stuff home.”

“Why not?” the old man said. “Between fishermen.” They sat on the Terrace and many of the fishermen made fun of the old man and he was not angry. Others, of the older fishermen, looked at him and were sad. But they did not show it and they spoke politely about the current and the depths they had drifted their lines at and the steady good weather and of what they had seen. The successful fishermen of that day were already in and had butchered their marlin out and carried them laid full length across two planks, with two men staggering at the end of each plank, to the fish house where they waited for the ice truck to carry them to the market in Havana. Those who had caught sharks had taken them to the shark factory on the other side of the cove where they were hoisted on a block and tackle, their livers removed, their fins cut off and their hides skinned out and their flesh cut into strips for salting.

When the wind was in the east a smell came across the harbour from the shark factory; but today there was only the faint edge of the odour because the wind had backed into the north and then dropped off and it was pleasant and sunny on the Terrace.

“Santiago,” the boy said.

“Yes,” the old man said. He was holding his glass and thinking of many years ago. “Can I go out to get sardines for you for tomorrow?”

“No. Go and play baseball. I can still row and Rogelio will throw the net.” “I would like to go. If I cannot fish with you. I would like to serve in some way.” “You bought me a beer,” the old man said. “You are already a man.”

“How old was I when you first took me in a boat?”

“Five and you nearly were killed when I brought the fish in too green and he nearly tore the boat to pieces. Can you remember?” “I can remember the tail slapping and banging and the thwart breaking and the noise of the clubbing. I can remember you throwing me into the bow where the wet coiled lines were and feeling the whole boat shiver and the noise of you clubbing him like chopping a tree down and the sweet blood smell all over me.”

“Can you really remember that or did I just tell it to you?”

“I remember everything from when we first went together.”

The old man looked at him with his sun-burned, confident loving eyes.

“If you were my boy I’d take you out and gamble,” he said. “But you are your father’s and your mother’s and you are in a lucky boat.” “May I get the sardines? I know where I can get four baits too.”

“I have mine left from today. I put them in salt in the box.”

“Let me get four fresh ones.”

“One,” the old man said. His hope and his confidence had never gone. But now they were freshening as when the breeze rises. “Two,” the boy said.

“Two,” the old man agreed. “You didn’t steal them?”

“I would,” the boy said. “But I bought these.”

“Thank you,” the old man said. He was too simple to wonder when he had attained humility. But he knew he had attained it and he knew it was not disgraceful and it carried no loss of true pride.

“Tomorrow is going to be a good day with this current,” he said.



“Where are you going?” the boy asked.

“Far out to come in when the wind shifts. I want to be out before it is light.”

“I’ll try to get him to work far out,” the boy said. “Then if you hook something truly big we can come to your aid.”

“He does not like to work too far out.”

“No,” the boy said. “But I will see something that he cannot see such as a bird working and get him to come out after dolphin.” “Are his eyes that bad?” “He is almost blind.” “It is strange,” the old man said. “He never went turtle-ing. That is what kills the eyes.” “But you went turtle-ing for years off the Mosquito Coast and your eyes are good.”

“I am a strange old man”

“But are you strong enough now for a truly big fish?”

“I think so. And there are many tricks.”

“Let us take the stuff home,” the boy said. “So I can get the cast net and go after the sardines.” They picked up the gear from the boat. The old man carried the mast on his shoulder and the boy carried the wooden boat with the coiled, hard-braided brown lines, the gaff and the harpoon with its shaft. The box with the baits was under the stern of the skiff along with the club that was used to subdue the big fish when they were brought alongside. No one would steal from the old man but it was better to take the sail and the heavy lines home as the dew was bad for them and, though he was quite sure no local people would steal from him, the old man thought that a gaff and a harpoon were needless temptations to leave in a boat.

They walked up the road together to the old man’s shack and went in through its open door. The old man leaned the mast with its wrapped sail against the wall and the boy put the box and the other gear beside it. The mast was nearly as long as the one room of the shack. The shack was made of the tough budshields of the royal palm which are called guano and in it there was a bed, a table, one chair, and a place on the dirt floor to cook with charcoal. On the brown walls of the flattened, overlapping leaves of the sturdy fibered guano there was a picture in color of the Sacred Heart of Jesus and another of the Virgin of Cobre. These were relics of his wife. Once there had been a tinted photograph of his wife on the wall but he had taken it down because it made him too lonely to see it and it was on the shelf in the corner under his clean shirt.

“What do you have to eat?” the boy asked.

“A pot of yellow rice with fish. Do you want some?”

“No. I will eat at home. Do you want me to make the fire?”

“No. I will make it later on. Or I may eat the rice cold.”

“May I take the cast net?”

“Of course.”

There was no cast net and the boy remembered when they had sold it. But they went through this fiction every day. There was no pot of yellow rice and fish and the boy knew this too. “Eighty-five is a lucky number,” the old man said. “How would you like to see me bring one in that dressed out over a thousand pounds?” “I’ll get the cast net and go for sardines. Will you sit in the sun in the doorway?”

“Yes. I have yesterday’s paper and I will read the baseball.” The boy did not know whether yesterday’s paper was a fiction too. But the old man brought it out from under the bed.

“Perico gave it to me at the bodega,” he explained. “I’ll be back when I have the sardines. I’ll keep yours and mine together on ice and we can share them in the morning. When I come back you can tell me about the baseball.”

“The Yankees cannot lose.”

“But I fear the Indians of Cleveland.”

“Have faith in the Yankees my son. Think of the great DiMaggio.”

“I fear both the Tigers of Detroit and the Indians of Cleveland.”

“Be careful or you will fear even the Reds of Cincinnati and the White Sox of Chicago.”

“You study it and tell me when I come back.”

“Do you think we should buy a terminal of the lottery with an eighty-five? Tomorrow is the eighty-fifth day.” “We can do that,” the boy said. “But what about the eighty-seven of your great record?” “It could not happen twice. Do you think you can find an eighty-five?” “I can order one.”

“One sheet. That’s two dollars and a half. Who can we borrow that from?” “That’s easy. I can always borrow two dollars and a half.”

“I think perhaps I can too. But I try not to borrow. First you borrow. Then you beg.” “Keep warm old man,” the boy said. “Remember we are in September.”

“The month when the great fish come,” the old man said. “Anyone can be a fisherman in May.”

“I go now for the sardines,” the boy said. When the boy came back the old man was asleep in the chair and the sun was down. The boy took the old army blanket off the bed and spread it over the back of the chair and over the old man’s shoulders. They were strange shoulders, still powerful although very old, and the neck was still strong too and the creases did not show so much when the old man was asleep and his head fallen forward. His shirt had been patched so many times that it was like the sail and the patches were faded to many different shades by the sun. The [18] old man’s head was very old though and with his eyes closed there was no life in his face. The newspaper lay across his knees and the weight of his arm held it there in the evening breeze. He was barefooted.

The boy left him there and when he came back the old man was still asleep. “Wake up old man,” the boy said and put his hand on one of the old man’s knees.

The old man opened his eyes and for a moment he was coming back from a long way away. Then he smiled. “What have you got?” he asked.

“Supper,” said the boy. “We’re going to have supper.”

“I’m not very hungry.”

“Come on and eat. You can’t fish and not eat.”

“I have,” the old man said getting up and taking the newspaper and folding it. Then he started to fold the blanket.

“Keep the blanket around you,” the boy said. “You’ll not fish without eating while I’m alive.”

“Then live a long time and take care of yourself,” the old man said. “What are we eating?”

“Black beans and rice, fried bananas, and some stew.” The boy had brought them in a two-decker metal container from the Terrace. The two sets of knives and forks and spoons were in his pocket with a paper napkin wrapped around each set.

“Who gave this to you?”

“Martin. The owner.”

“I must thank him.”

“I thanked him already,” the boy said. “You don’t need to thank him.”

“I’ll give him the belly meat of a big fish,” the old man said. “Has he done this for us more than once?”

“I think so.”

“I must give him something more than the belly meat then. He is very thoughtful for us.” “He sent two beers.” “I like the beer in cans best.” “I know. But this is in bottles, Hatuey beer, and I take back the bottles.” “That’s very kind of you,” the old man said. “Should we eat?”

“I’ve been asking you to,” the boy told him gently. “I have not wished to open the container until you were ready.”

“I’m ready now,” the old man said. “I only needed time to wash.” Where did you wash? the boy thought. The village water supply was two streets down the road. I must have water here for him, the boy thought, and soap and a good towel. Why am I so thoughtless? I must get him another shirt and a jacket for the winter and some sort of shoes and another blanket.

“Your stew is excellent,” the old man said.

“Tell me about the baseball,” the boy asked him.

“In the American League it is the Yankees as I said,” the old man said happily.” “They lost today,” the boy told him.

“That means nothing. The great DiMaggio is himself again.”

“They have other men on the team.”

“Naturally. But he makes the difference. In the other league, between Brooklyn and Philadelphia I must take Brooklyn. But then I think of Dick Sisler and those great drives In the old park.”

“There was nothing ever like them. He hits the longest ball I have ever seen.” “Do you remember when he used to come to the Terrace?”

“I wanted to take him fishing but I was too timid to ask him. Then I asked you to ask him and you were too timid.” “I know. It was a great mistake. He might have gone with us. Then we would have that for all of our lives.”

**2. Decide if the following sentences are TRUE or FALSE**

1. The old man was thin and skinny with his obvious wrinkles on face.	
2. The old man’s hands were covered with the deep scars from handling severe fish.	
3. Everything was old in him even his eyes.	
4. The boy denied to go to the sea with the old man again.	
5. 80 days without any fish followed by 3 weeks with plenty of prey.	
6. The boy left the old man because he doubted him.	
7. The boy has to listen to his father because he is a man.	
8. The old man believes that he will have a successful fishing.	

**3. Read and continue the sentence.**

1. The old man was suffering from ...

- a. skin cancer
- b. seasickness
- c. stomach cancer
- d. skin decease

1. The old man had deep scars on his hands which ...

- a. has been appeared recently
- b. were horrible consequences of hard work
- c. were not new ones

- d. did not seem significant injuries
2. The old man's eyes were the colour of the sea and they looked ...
    - a. sad and miserable
    - b. lovely and happy
    - c. undefeated and strong
    - d. happy and undefeated
  3. The old man had taught the boy to fish and the boy ...
    - a. admired him
    - b. did not want to see him
    - c. respected him
    - d. thought that he can not fish with him anymore
  4. The old man knew that the boy left him because ...
    - a. he can not fish anymore
    - b. his father ordered
    - c. he did not trust the old man
    - d. he gave up

## Lesson 42

### Learns read non-fiction

#### PRE-READING TASK

**1: Read the definitions and complete the sentences using the words in the box. Use correct form of the verbs.**

fossil (n) – the parts of a dead animal or a plant that have become hard and turned into rock  
 extinct (adj) - no longer in existence  
 civilian (n) - a person who is not a member of the armed forces or the police  
 skull (n) - the bone structure that forms the head and surrounds and protects the brain  
 hesitant (adj) – slow to speak or act because you feel uncertain, embarrassed or unwilling  
 specimen (n) – a single example of something, especially an animal or a plant

1. Two soldiers and one \_\_\_\_\_ were killed in the explosion.
2. The aquarium has some interesting \_\_\_\_\_ of unusual tropical fish.
3. The numbers of these animals have been falling steadily and they are now almost \_\_\_\_\_.
4. Her \_\_\_\_\_ was crammed with too many thoughts.
5. The \_\_\_\_\_ of the mammoth was found in the cave.
6. It was a few seconds before she heard a \_\_\_\_\_ reply.

## READING

### 2: *Read the text.*

Mary was born in England on 21st May 1799 in the seaside town of Lyme Regis, in Dorset. Many people visited the town for seaside holidays and the coast was well known for its many **fossils** of **extinct** creatures. Lyme Regis is especially rich in ammonites (which were then called 'Ammon's horn') as well as belemnites ('devil's fingers'). During the Napoleonic Wars, **civilians** were encouraged to holiday near home rather than abroad, so tourists flocked to seaside towns such as Lyme Regis. Around this time fossil hunting was also gaining traction. This pastime was perfect for fashionable Georgians seeking to add to their cabinets of curiosities.

As she grew up, she became interested in the stones and fossils on the beach and even sold them to tourists on her Father's stall. Soon afterwards, he died, but she continued to collect and sell the fossils and stones to support her family. Around 1811, when Mary was 12, Joseph found a strange-looking fossilized **skull**. Mary then searched for and painstakingly dug the outline of its 5.2-metre-long skeleton. By the time she was done, several months later, everyone in town knew she had discovered what must have been a monster. The mysterious **specimen** was studied and debated for years. It was eventually named *Ichthyosaurus*, or 'fish lizard' - though we now know it was neither fish nor lizard, but a marine reptile. It lived 201-194 million years ago. In 1823 Mary was the first to discover the complete skeleton of a *Plesiosaurus*, meaning 'near to reptile'. So strange was the specimen and so quickly had the news spread that soon there were rumours that the fossil was a fake. Despite her growing reputation for finding and identifying fossils, the scientific community was **hesitant** to recognise her work. In 1828 Mary uncovered a strange jumble of bones, this time with a long tail - and wings. Once again, news of her discovery travelled fast. Scientists from London to Paris theorised on this 'unknown species of that most rare and curious of all reptiles'. What she found were the first remains attributed to a Dimorphodon. It was the first pterosaur ever discovered outside Germany. The name Pterodactyl was coined later. Unlike ichthyosaurs and plesiosaurs, pterosaurs had wings and were believed to be the largest-ever flying animals.

Mary wasn't trained as a scientist but she soon became such an expert on fossils that scientists from all over England and the rest of the world visited her to buy fossils and ask for advice. Unfortunately though, a lot of the scientists claimed credit for her work but eventually, people realised how clever she was and some of them made sure she was rewarded for her skills and paid well for her hard work.

**3: Pretend that you have been asked by Mary to design a poster to advertise the fossils on her market stall. Make sure it is exciting and persuasive enough to make people want to visit and buy your fossils.**

It should have these things:

- A catchy slogan e.g. “Fantastic fossils!”
- Interesting pictures e.g. of fossils, the cliffs and Mary’s stall
- Information about where the stall is and what you can buy there

### **Lesson 43**

#### **XVI Unit. Recent advances in technology**

**A variety of technological, mobile and application tools for personal, educational and professional use educational and professional use**

**1. Reads the text carefully and underlines the most important information**

- **Writes down from the text at least three (unknown) words with the explanation**



#### **What Are Autonomous Robots, and Why Should We Care?**

What are autonomous robots? This might not be the big question on everyone’s mind, in between taking the kids to school and writing that report before tomorrow, but it is an important one to ask, as the development of these machines hums quietly along in parallel with our everyday lives. From robot helpers in our workplaces to autonomous vacuum cleaners in our homes, we are entering a new era of robot-human cohabitation, where little machines facilitate our lives in unprecedented ways.

To make the most out of robots, and ensure that everyone contributes to deciding how they change our lives, we need to be clued up. Robots, and their workings, can no longer remain unknown to us because they are becoming more and more ubiquitous in our societies—particularly in big cities. At Eliport, for example, we aim to revolutionise last-mile delivery with autonomous ground-robots. Our robots are likely to significantly change not just how deliveries are made, but also eventually how other city operations, such as street-cleaning or law-enforcement, are carried out.

We argued in our last article that understanding the ‘smart city’ concept is the only way to ensure that we have a say in how it impacts our living spaces.



## **So, what exactly are autonomous robots, and how do they work?**

Nowadays, basically every machine that helps people can be considered a robot. From the ATM on your street corner to the shiny coffee machine in your kitchen, automation is already a major part of the everyday. Concepts similar to robots have been around since the 4th century B.C in Greece, but the first official ‘robots’ were the industrial robots introduced in the early 20th century. They were pioneers in replacing the jobs that were too dangerous/repetitive for humans to do, working tirelessly where humans could not. Then came the mobile robots, around the middle of the 20th century, which could move in the air, in water, and on the ground. Today, we are seeing the rise of a more advanced kind of bot: the autonomous robot.

By definition, all robots are at least semi-autonomous, in that they will react to specific events and conditions without needing to be directed in real-time. An autonomous robot, however, is one that acts and behaves with a higher degree of independence. It can accomplish complex objectives on its own, without humans or wires (i.e. it does not need to be permanently plugged into an electrical source). It can also maintain itself, such as charging itself when necessary—as demonstrated by, for example, the Roomba vacuum cleaner. These robots are essentially a set of data (predetermined information) and behavioral rules, whose algorithms and environmental sensors allow them to do the job they have been programmed to do ‘autonomously’, and stay out of danger and trouble. This predefined information can be, say, a map of the environment, or a neural network of images that has already ‘learned’ to recognise people, animal, cars, etc.

Autonomous robots are generally mobile and can therefore move around on their own. Like all other mobile robots, autonomous ‘bots come in many different forms—from flying drones, to ground-based robots, to water-based and even underwater machines. At the moment, they are often limited to a given environment—such as a factory space, shopping mall, railway station, or warehouse. However, as the technology becomes more advanced, they will be put to use in a wider array of environments, from labs and research centers, to our streets (like our future ground-based robots) and the home. The possibilities are (nearly) endless.

The robot’s workplace is often challenging, frequently requiring work in areas that are too dangerous or difficult for humans to reach, and can contain chaotic and unforeseen variables. The exact type, orientation and location of the robot’s next object of work, for example, can all vary unpredictably (at least from the robot’s point of view). The robot must be able to deal with these changes and apply different solutions, although they occasionally need a little help from a human minder.

When it comes to sensors, as with software, different robots use different types. Simpler forms of autonomous robot, for example autonomous vacuum cleaners, rely on infrared or ultrasound sensors to navigate and ‘see’ their environment. Higher-level robots, like autonomous vehicles, tend to use cameras, radars (radio sensors) or lidars (laser sensors) that give them the ability to constantly identify and categorise the things they ‘see’. These sensors are essential for gathering the necessary data, along with that the robot may receive from other data sources such as maps, to allow it to constantly assess its environs and make real-time ‘decisions’. The more advanced robots need this decision-making ability in order to execute three principal tasks: obstacle avoidance, localisation and mapping, and route planning.

As robots’ environments often contain chaotic and unforeseen variables (see above), some robot developers are looking into ways to make robots ‘self-learning’, allowing them to acquire new methods of accomplishing their tasks or adapting to their changing surroundings. These ‘self-learning’ robots are sometimes called adaptive or intelligent robots; they use machine learning or deep-learning, both subsets of artificial intelligence (AI), to automatically learn and improve from experience. One example of this is Aibo, the AI Japanese robot pet.

The ins and outs of the technology can admittedly get very complicated but, essentially, autonomous robots are a fusion of (sometimes artificially intelligent) software, physical robotics hardware, and sensors. Their software could be referred to, metaphorically, as their ‘brain’, their sensors as their ‘senses’, and their hardware as their ‘body’. In the future, all autonomous robots are likely to use machine learning in some capacity, although a mixed approach—combining the different types of hardware and software above—will probably remain the most popular option.

Now, most autonomous robots are able to navigate their environment somewhat but are still in need of a fair bit of human assistance along the way. This is likely to change, however, in the next few years. As the technology grows more and more ‘intelligent’, and engineers develop more sophisticated hardware, software, and sensors, these robots will become much more independent. Widespread adoption of autonomous robots, which is likely to happen sometime in the future, will have a groundbreaking effect on society. These robots will facilitate not only the obvious things—such as e-commerce deliveries—but also help humans in cleaning, science and research, transport, law-enforcement and much more. Next week we will explore this in detail, looking at how autonomous robots are changing the physical, social and economic landscape of our cities right now, and how they will continue to do so in future.

**2. With easier access to the internet, many students are turning to online sources to study instead of libraries.**

**State some of the problems caused by this and methods to address them.**

**A plan**

<b>Introduction (problem, causes, consequences)</b>		
<b>M A I N  B O D Y</b>	<b>Problem 1 &amp; Solution</b>	
	My topic sentence:	
	Problem	Solution

<b>Y</b>		
<b>Conclusion (summary)</b>		
<i>In conclusion,</i>		
<hr/>		
<hr/>		
<i>All in all,</i>		
<hr/>		
<hr/>		

## Lesson 44

### Options for future careers. Producing information leaflets

#### Informational leaflet

**Task1 :** Some lecturers from abroad are due to visit your school for a series of seminars but they know very little about your area. You are President of the Student's Union and have been asked to write an information leaflet to be sent to the visitors in advance of their arrival. You should include details about school, the area and the activities that are available to them during their stay.

#### Descriptors: a learner

- writes 150 words
- uses formal language (words, phrases)
- divides leaflet into sections with subheadings
- uses appropriate tense (Passive voice, Present Simple)
- creates heading
- provide supporting arguments

Information leaflets are written in both formal and informal situations. They have the main heading, and are usually divided into sections with subheadings. They are written in the present tenses. The content should be presented in short, simple sentences. For formal leaflets, you

should use official language and you can write in the passive voice. For informal leaflets, you should write in the active voice and you can use persuasive language and idioms.

You should avoid:

- long headings/ subheadings
- including too much information in your leaflet
- slang and colloquial expressions

## Lesson 45

### Options for future careers. Producing information leaflets

1. Reading: Skim the article and identify the general idea of it.

Recent advances in technology. Options for future careers.

**A)** The old saying "find a job you love and never work a day in your life" puts a great deal of pressure on people who are trying to choose the right career. Can you really find one that is so enjoyable, it won't even feel like work? What are the best careers for the future? How will everything change? Is it possible to prepare for the jobs of tomorrow—today? Many of us would love to have definitive answers for these questions. But, of course, nobody can say for sure what the future holds. The best we can do is make educated guesses based on past and current trends. Still, even educated guesses can help us imagine some pretty **astonishing** possibilities. Here's one thing we know: Change will keep happening. As a result, the world will experience social, cultural, economic, environmental, and technological changes.

**B)** Predicting the best jobs for the future requires understanding that all kinds of variables will interact in complex and surprising ways. Many of tomorrow's jobs will likely result from today's scientific and technological advances. Science and Technology have brought about **remarkable** changes that may have been unthinkable just a few years back. And they keep making our lives simpler and faster.

**C)** When we think about science careers the first word that comes to mind is Engineering. Let's look at 3 **emerging** career options in sciences that are highly promising in this modern age.

#### **D)** 1. Artificial Intelligence and Machine Learning

In the computer-run world of today, you are bound to have heard the two **buzzwords**, 'Artificial Intelligence' and 'Machine Learning' flying around. But what are they exactly? Artificial Intelligence is a field of computer science that deals with the creation of smart machines and systems that have the ability to think and process information like humans do. For example, voice recognition systems like Siri and Alexa use the power of machine learning to understand human language and respond to it intelligently. Or consider Facebook, it recognizes familiar faces from your contact list using its algorithms and automatically makes accurate suggestions for tagging your friends.

#### **E)** 2. Big Data, Data Analytics and Data Science

Data exists in every form, the **purchases** you make at an online store, the type of accounts you follow on Instagram, and the words you search on Google are all data. Organizations value this data because it helps them understand patterns and trends and make business decisions according to the inferences drawn from the data. For example,

online shopping stores process data from thousands of customers to make better product recommendations.

**F) 3. Robotics**

When we imagine the distant future, say 10, 20, or even 50 years from now, what is something that always comes to mind? Even if you have never seen a single sci-fi movie in your life, you are still likely to answer ‘Robots’. Yet robots don’t exist in the **far-off** future anymore, and are very much a part of our present world. Robots are already being used to perform surgeries, automate industrial tasks, explore space, defuse bombs, and perform tasks that are too dangerous for humans. With the field of Robotics moving with such great force, there is a requirement of engineers to build and program them. Robotics engineers need the knowledge of mechanical engineering, electronics engineering, computer programming, artificial intelligence, machine learning, neural networks, and related areas.

**G)** So, recent advances in technologies provide you with many new options for future careers. What you need is just to make a right choice.

Task 1. There are some highlighted words in this article. Read the sentences with highlighted words again and identify their meaning.

- 1) What is the meaning of the word “**astonishing**”? (Paragraph A)
  - a) Big
  - b) Worthy
  - c) Surprising
- 2) What is the meaning of the word “**remarkable**”? (Paragraph B)
  - a) Significant
  - b) Big
  - c) Important
- 3) What is the meaning of the word “**emerging**”? (Paragraph C)
  - a) Great
  - b) New
  - c) Wonderful
- 4) What is the meaning of the word “**buzzwords**”? (Paragraph D)
  - a) Popular words
  - b) Modern words
  - c) Fashionable words
- 5) What is the meaning of the word “**purchases**”? (Paragraph E)
  - a) Privileges
  - b) Buying
  - c) Costs
- 6) What is the meaning of the word “**far-off**”? (Paragraph F)
  - a) Distant
  - b) Nearest
  - c) Real

Task 2. Read the article again very quickly. Summarise the information you read and answer in your own words to the questions below. Provide full answers.

- 7) Why are the above mentioned careers bounded with engineering?

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8) What is Artificial Intelligence?

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9) Why is data valuable for understanding of customers' choices?

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10) According to the content of this article, is the role of robots important for people?  
Why/ why not?

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**Descriptor**

**A learner**

- Skims the article and names the general idea of it
- Elicits the meaning of the highlighted words (5 out of 6)
- Provides full answers to the open-ended questions without copying the precise information from the text (3 out of 4)

**Total number of the correct answers**

\_\_\_\_\_ / 10

## Lesson 46

**Task 1. Read the texts and match the opinions with experts A- D. There is one opinion that you do not need.**

1. \_\_\_\_thinks that computers will find things out without the help of humans.

2. \_\_\_\_ predicts that people may be able to determine their own lifespan.
3. \_\_\_\_ predicts that medical advances will allow us to grow new limbs.
4. \_\_\_\_ thinks that we'll be able to communicate directly with search engines and they'll tell us what we need to know
5. \_\_\_\_ predicts that the human race will become extinct

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**A) Francis Collins, geneticist**

**Fifty years from now, millions of people will live past the age of 100 and remain healthy. This will happen because we'll be able to study each person's genetic code and find the best way to treat illnesses in that individual. In about fifty years' time, the most important question for our society might not be 'How long can humans live?', but 'How long do we want to live?'**

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**B) Elen Heber-Katz, biologist**

**I believe that soon we will be able to repair the human body in the same way that we can replace damaged parts of a car or a washing machine. Five years from now, we will be able to grow new fingers, and, a few years after that, new arms and legs. Within fifty years, replacing your whole body will be normal.**

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**C) Peter Norvig, director of research at Google**

**Today, people all over the world have access to billions of pages of text on the internet. At the moment, they use search engines to find information, but fifty years from now, people will simply discuss their needs with their computer, and the computer will make suggestions and provide usable information, not just a list of links. So, in the future technologies will be more advanced and effective.**

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**D) Eric Horvitz, researcher at Microsoft Research**

**In fifty years' time, computers will be much more intelligent than today, and this will change people's lives. Computers will help people work, learn, plan and decide. They will help people from different countries to understand each other by automatically translating from one language to another. Intelligent computers will work as scientists, and will start to make important discoveries on their own.**

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Task 2.

**Highlights a topic sentence blue, supporting sentences green and a concluding sentence red in each text.**

**Read the passage about a new tourism in Bhutan. Are the statements TRUE, FALSE or NOT GIVEN?**

1. The local people are worried about the future of their country.
2. The king was keen to change his country to attract more tourists.
3. The local people were unhappy with the restrictions on their dress.
4. The Bhutanese government was impressed with developments in nearby areas.
5. Visitors are unable to visit Bhutan without prior planning.

6. Children would find visiting Bhutan a boring experience.
7. The new resort will be similar to existing accommodation.

### **Tourism in Bhutan**

From government ministers to rice farmers, every Bhutanese you speak with will declare that his country is in constant, imminent peril. But the invading armies they fear are those of tourists, and the threat is to their traditional way of life. After taking the throne in 1974, King Jigme Singye Wangchuck instituted a number of policies designed to preserve the country's cultural identity. While making education a priority, he restricted corrupting influences like television (which was introduced only in 1999) and required citizens to wear the nation's traditional kimono-like garb.

Looking with horror at the many negative social, cultural and environmental effects that virtually unrestricted tourism was having on nearby developing countries, the government instituted a 'low-volume, high-value tourist policy in the 1970s that continues to this day. The only way to visit Bhutan is on a pre-arranged package deal that includes hotels, food, guide and driver. The packages cost a minimum of \$200 a day, although this is arguably not bad value, considering everything that comes with it. The policy succeeds in keeping the backpacking hordes away; only 7,000 tourists fly into Bhutan's one airport – which 'is serviced by just two planes – every year.

Bhutan is thus a place where travel still feels like an adventure, where the illusion of true exploration is occasionally still believable. Go to Bhutan, and you may well find yourself driving for hours along terrifying, winding mountain passes and then climbing to a monastery perched on a cliff that seems to defy all laws of physics. If you are lucky, you may be granted permission to enter the primary temple in the centre of the courtyard. Stepping over the high threshold and into the inner sanctuary, you can barely see, because the room is dark and the air is thick with a mixture of smoke from the gas lamps and incense. But slowly, brilliant murals reveal themselves, along with an elaborate altar, behind which a group of finely detailed and bronze Buddhas seems almost to glow. For a split second, it is possible to feel that you are the first non-Bhutanese who has ever seen such a sight. That feeling, of course, is solid travel-industry gold. And a new luxury resort is set to capitalize on the fact that until now, even at \$200 a day, no accommodation in Bhutan could be considered international quality. Even in the country's very best hotels, the best that can be promised is that the showers will probably be hot, the toilets will probably flush and the electricity will probably work.

### **Lesson 47**

#### **XVIII Unit. The clothes of chemistry**

##### **Introduction to the topic**

##### **Dressed to Dazzle**

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As high-tech materials invade high-street fashion, prepare for clothes that are cooler than silk and warmer than wool, keep insects at arm's length, and emit many pinpricks of coloured light.

The convergence of fashion and high technology is leading to new kinds of fibres, fabrics and coatings that are imbuing clothing with equally wondrous powers. Corpe Nove, an Italian



fashion company, has made a prototype shirt that shortens its sleeves when room temperature rises and can be ironed with a hairdryer. And at Nexia Biotechnologies, a Canadian firm, scientists have caused a stir by manufacturing spider silk from the milk of genetically engineered goats. Not surprisingly, some industry analysts think high-tech materials may soon influence fashion more profoundly than any individual designer.

A big impact is already being made at the molecular level. Nano-Tex, a subsidiary of American textiles maker Burlington, markets a portfolio of nanotechnologies that can make fabrics more durable, comfortable, wrinkle-free and stain-resistant. The notion of this technology posing a threat to the future of the clothing industry clearly does not worry popular fashion outlets such as Gap, Levi Strauss and Lands' End, all of which employ Nano-Tex's products. Meanwhile, Schoeller Textil in Germany, whose clients include famous designers Donna Karan and Polo Ralph Lauren, uses nanotechnology to create fabrics that can store or release heat.

Sensory Perception Technologies (Spn) embodies an entirely different application of nanotechnology. Created in 2003 by Quest International, a flavour and fragrance company, and Woolmark, a wool textile organisation, SPT is a new technique of embedding chemicals into fabric. Though not the first of this type, SPT's durability (evidently the microcapsule containing the chemicals can survive up to 30 washes) suggests an interesting future. Designers could incorporate signature scents into their collections. Sportswear could be impregnated with anti-perspirant. Hayfever sufferers might find relief by pulling on a T-shirt, and so on.

The loudest buzz now surrounds polylactic acid (PLA) fibres - and, in particular, one brand-named Ingeo. Developed by Cargill Dow, it is the first man-made fibre derived from a 100% annually renewable resource. This is currently maize (corn), though in theory any fermentable plant material, even potato peelings, can be used. In performance terms, the attraction for the 30-plus clothes makers signed up to use Ingeo lies in its superiority over polyester (which it was designed to replace).

As Philippa Watkins, a textiles specialist, notes, Ingeo is not a visual trend. Unlike nanotechnology, which promises to 'transform what clothes can do, Ingeo's impact on fashion will derive instead from its emphasis on using natural sustainable resources. Could wearing synthetic fabrics made from polluting and non-renewable fossil fuels become as uncool as slipping on a coat made from animal fur? Consumers should expect a much wider choice of 'green' fabrics. Alongside PLA fibres, firms are investigating plants such as bamboo, seaweed, nettles and banana stalks as raw materials for textiles. Soya bean fibre is also gaining ground. Harvested in China and spun in Europe, the fabric is a better absorber and ventilator than silk, and retains heat better than wool.

Elsewhere, fashion houses - among them Ermenegildo Zegna, Paul Smith and DKNY - are

combining fashion with electronics. Clunky earlier attempts involved attaching electronic components to the fabrics after the normal weaving process. But companies such as SOFTswitch have developed electro-conductive fabrics that behave in similar ways to conventional textiles.

Could electronic garments one day change colour or pattern? A hint of what could be achieved is offered by Luminex, a joint venture between Stabio Textile and Caen. Made of woven optical fibres and powered by a small battery, Luminex fabric emits thousands of pinpricks of light, the colour of which can be varied. Costumes made of the fabric wowed audiences at a production of the opera Aida in Washington, DC, last year.

Yet this ultimate of ambitions has remained elusive in daily fashion, largely because electronic textiles capable of such wizardry are still too fragile to wear. Margaret Orth, whose firm International Fashion Machines makes a colour-changing fabric, believes the capability is a decade or two away. Accessories with this chameleon-like capacity - for instance, a handbag that alters its colour - are more likely to appear first.

### Questions 1-6

Look at the following list of companies (1-6) and the list of new materials below. Match each company with the correct material.

Write the correct letter **A-H** next to the companies **1-6**.

*NB You may use any answer more than once.*

**1 Corpe Nove**

**2 Nexia Biotechnologies**

**3 Nano-Tex**

**4 Schoeller Textil**

**5 Quest International and Wool mark**

**6 Cargill Dow**

### New materials

A material that can make you warmer or cooler

B clothing with perfume or medication added

C material that rarely needs washing

D clothes that can change according to external heat levels E material made from banana stalks

F material that is environmentally-friendly

G fibres similar to those found in nature

H clothes that can light up in the dark

### Questions 7-14

Complete the summary below.

Write **NO MORE THAN TWO WORDS** from the Reading Passage for each answer.

### Major changes in fabrics

### Using plants

Nanotechnology will bring changes we can see, while the brand called **7** \_\_\_\_\_ will

help the environment. Fibre made from the **8** \_\_\_\_\_ plant has better qualities than silk and wool.

### **Electronics**

In first attempts to use electronics, companies started with a material made by a standard **9** \_\_\_\_\_ method and then they fixed **10** \_\_\_\_\_ to the material.

### **Luminex fabric**

- needs a **11** \_\_\_\_\_ to make it work.
- has already been used to make stage **12**. \_\_\_\_\_ is not suitable for everyday wear because it is too **13** \_\_\_\_\_.

The first products that can change colour are likely to be **14**. \_\_\_\_\_

## **Lesson 48**

### **Investigating the resources and processes involved in manufacturing clothes. Зачет**

Summative assessment for the unit «The clothes of chemistry»

Reading

**Task 1. Read the text and select if the statements below are TRUE, FALSE or NOT GIVEN.**

Trends in the Indian fashion and textile industries

At the beginning of the 21st century, with new designers and models, and more sensible designs, India has witnessed acceleration of fashion industry. As far as the global fashion industry

is concerned, Indian ethnic designs and materials are currently in demand from fashion houses and

garment manufacturers. India is the third largest producer of cotton, the second largest producer of

silk, and the fifth largest producer of man-made fibres in the world.

The Indian garment and fabric industries have many fundamental advantages, in terms of a cheaper, skilled work force, cost-effective production, raw materials, flexibility, and a wide range

of designs with sequins, beadwork, and embroidery. In addition, that India provides garments to international fashion houses at competitive prices, with a shorter lead-time, and an effective monopoly on certain designs, is accepted the whole world over. India has always been regarded as

the default source in the embroidered garments segment, but changes in the rate of exchange between the rupee and the dollar has further depressed prices, thereby attracting more buyers. So

the international fashion houses walk away with customised goods, and craftwork is sold at very low rates.

As far as the fabric market is concerned, the range available in India can attract as well as confuse the buyer. Much of the production takes place in the small town of Chapa in the eastern state of Bihar, a name one might never have heard of. Here fabric-making is a family industry; the

range and quality of raw silks churned out here belie the crude production methods and equipment.

Surat in Gujarat, is the supplier of an amazing set of jacquards, moss crepes and georgette sheers

- all fabrics in high demand. Another Indian fabric design that has been adopted by the fashion industry is the 'Madras check', originally utilised for the universal lungi, a simple lower-body wrap worn in southern India. This design has now found its way on to bandannas, blouses, home furnishings and almost anything one can think of.

Ethnic Indian designs with batik and hand-embroidered motifs have also become popular across the world. Decorative bead work is another product in demand in the international market. Beads are used to prepare accessory items like belts and bags, and beadwork is now available for haute couture evening wear too.

1. At the start of the 21st century, key elements in the Indian fashion industry changed. \_\_\_\_\_
2. India now exports more than half of the cotton it produces. \_\_\_\_\_
3. Conditions in India are generally well suited to the manufacture of clothing. \_\_\_\_\_
4. Indian clothing exports have suffered from changes in the value of its currency. \_\_\_\_\_
5. Modern machinery accounts for the high quality of Chapa's silk. \_\_\_\_\_
6. Some types of Indian craftwork which are internationally popular had humble origins. \_\_\_\_\_

### **Speaking**

**Task 2. Choose the question from the card on the topics "The cloth of chemistry", "Recent advances in technology", "Future careers"**

and be ready to answer it after the teacher starts the conversation. Produce a speech by giving extended answers to the questions. Share your ideas with the class. Teacher organizes a Socratic seminar, which helps him/her to assess learners while they are speaking on the topics and he/she prepares and cuts down questions and expressions beforehand.

Learners sit in a circle and answer the question using in their speech some formal and informal

These are some Socratic Seminar Ground Rules:

1. Speak so that all students can hear you.
2. Ask for clarification. Don't stay confused.
3. Speak without raising hands.
4. Stick to the point under discussion.
5. Don't interrupt.
6. Don't put down the ideas of another learner.

Questions for Socratic Seminar:

1. What do you think of the fashion industry?
2. How does fashion affect people's lives?
3. Do you think fashions changed as quickly in the past as today? Why or why not?
4. If you were a fashion designer, what kind of clothes would you design?
5. Do you read e-books? What are their advantages and disadvantages when compared with paper books?
6. Is there an electronic product you want these days? What is it? How will it make your life better?
7. Do you play computer games? What do you say to people who believe they are a waste of time?
8. What crazy future technology are you looking forward to? For example, flying cars or personal robots.
9. Many science fiction movies present a dark vision of the future. Are you optimistic or pessimistic about the future of humanity?
10. Do you think job satisfaction is more important than salary when choosing a job?
11. What skills do you think are needed to get a good job these days?
12. How has technology changed the way we work?
13. What jobs do you think are most valuable to society?