

Bài tập 1

The first timepieces that were worn are the so called clock watches of the mid 16th century. They were quite different from the modern day wristwatch in several respects. They were made almost completely from brass and were not round but cylindrical in shape with a hinged metal cover instead of a glass face. This was in the form of a grill so that the hour hand – there was no minute hand or second hand – could be seen without opening it.

Another difference was that these clock watches were almost entirely decorative in purpose and were worn in the same way as a necklace or a brooch, typically being attached to the clothing or hung around the neck. Part of the reason for this is that the many of the first watch makers were jewellers by trade, men who had to find a new form of work after Calvin banned the wearing of jewellery in 1547. So they brought the skills of ornamentation to their new craft. So while the most famous clock watches were the plain Nuremburg Eggs made by Peter Henlein, who is sometimes credited with the invention of the watch, the designs rapidly became increasingly ornate and included shapes such as flowers, stars and animals. Indeed, the nobility, who were the only people able to afford these timepieces, bought them almost exclusively for their appearance and not for timekeeping purposes for the simple reason that they would often gain or lose several hours in the course of a day.

Are the following statements true, false, or not given in the text?

1. Clock watches only had one hand.
2. Peter Henlein first worked as a jeweler.
3. All the first clock-watches were ornate.

Bài tập 2

Performer Houdini

Harry Houdini (1874 to 1926) was a Hungarian-American illusionist and stunt performer, noted for his sensational escape acts. He first attracted attention as “Harry Handcuff Houdini” on a tour of Europe, where he challenged police forces to keep him locked up. Soon he extended his repertoire to include chains, ropes slung from skyscrapers, straitjackets under water, and having to hold his breath inside a sealed milk can.

In 1904, thousands watched as Houdini tried to escape from special handcuffs commissioned by London’s Daily Mirror newspaper. Another stunt saw him buried alive and only just able to claw himself to the surface. While many suspected that these escapes were faked, Houdini presented himself as the scourge of fake magicians and spiritualists. As President of the Society of American Magicians, he was keen to uphold professional standards and expose fraudulent artists. He was also quick to sue anyone who pirated his stunts.

Are the following statements true, false, or not given in the text?

1. Houdini was more successful in Europe than in America.
2. Many people were skeptical about Houdini’s escape acts.
3. He took legal action against those who tried to copy him.

Bài tập 3

THE FALKIRK WHEEL

A unique engineering achievement.

The Falkirk Wheel in Scotland is the world's first and only rotating boat lift. Opened in 2002, it is central to the ambitious £84.5m Millennium Link project to restore navigability across Scotland by reconnecting the historic waterways of the Forth & Clyde and Union Canals.

The major challenge of the project lays in the fact that the Forth & Clyde Canal is situated 35 metres below the level of the Union Canal. Historically, the two canals had been joined near the town of Falkirk by a sequence of 11 locks - enclosed sections of canal in which the water level could be raised or lowered - that stepped down across a distance of 1.5 km. This had been dismantled in 1933, thereby breaking the link. When the project was launched in 1994, the British Waterways authority were keen to create a dramatic twenty-first-century landmark which would not only be a fitting commemoration of the Millennium, but also a lasting symbol of the economic regeneration of the region.

Numerous ideas were submitted for the project, including concepts ranging from rolling eggs to tilting tanks, from giant seesaws to overhead monorails. The eventual winner was a plan for the huge rotating steel boat lift which was to become The Falkirk Wheel. The unique shape of the structure is claimed to have been inspired by various sources, both manmade and natural, most notably a Celtic double headed axe, but also the vast turning propeller of a ship, the ribcage of a whale or the spine of a fish.

The various parts of The Falkirk Wheel were all constructed and assembled, like one giant toy building set, at Butterley Engineering's Steelworks in Derbyshire, some 400 km from Falkirk. A team there carefully assembled the

1,200 tonnes of steel, painstakingly fitting the pieces together to an accuracy of just 10 mm to ensure a perfect final fit. In the summer of 2001, the structure was then dismantled and transported on 35 lorries to Falkirk, before all being bolted back together again on the ground, and finally lifted into position in five large sections by crane. The Wheel would need to withstand immense and constantly changing stresses as it rotated, so to make the structure more robust, the steel sections were bolted rather than welded together. Over 45,000 bolt holes were matched with their bolts, and each bolt was hand-tightened.

The Wheel consists of two sets of opposing axe-shaped arms, attached about 25 metres apart to a fixed central spine. Two diametrically opposed water-filled 'gondolas', each with a capacity of 360,000 litres, are fitted between the ends of the arms. These gondolas always weigh the same, whether or not they are carrying boats. This is because, according to Archimedes' principle of displacement, floating objects displace their own weight in water. So when a boat enters a gondola, the amount of water leaving the gondola weighs exactly the same as the boat. This keeps the Wheel balanced and so, despite its enormous mass, it rotates through 180° in five and a half minutes while using very little power. It takes just 1.5 kilowatt-hours (5.4 MJ) of energy to rotate the Wheel -roughly the same as boiling eight small domestic kettles of water.

Boats needing to be lifted up enter the canal basin at the level of the Forth & Clyde Canal and then enter the lower gondola of the Wheel. Two hydraulic steel gates are raised, so as to seal the gondola off from the water in the canal basin.

The water between the gates is then pumped out. A hydraulic clamp, which prevents the arms of the Wheel moving while the gondola is docked, is removed, allowing the Wheel to turn. In the central machine room an array of ten hydraulic motors then begins to rotate the central axle. The axle connects to the outer arms of the Wheel, which begin to rotate at a speed of 1/8 of a revolution per minute. As the wheel rotates, the gondolas are kept in the upright

position by a simple gearing system. Two eight-metre-wide cogs orbit a fixed inner cog of the same width, connected by two smaller cogs travelling in the opposite direction to the outer cogs - so ensuring that the gondolas always remain level. When the gondola reaches the top, the boat passes straight onto the aqueduct situated 24 metres above the canal basin.

The remaining 11 metres of lift needed to reach the Union Canal is achieved by means of a pair of locks. The Wheel could not be constructed to elevate boats over the full 35-metre difference between the two canals, owing to the presence of the historically important Antonine Wall, which was built by the Romans in the second century AD. Boats travel under this wall via a tunnel, then through the locks, and finally on to the Union Canal.

Questions 14-19

Do the following statements agree with the information given in Reading Passage 2?

In boxes 14-19 on your answer sheet, 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*

14. The Falkirk Wheel has linked the Forth & Clyde Canal with the Union Canal for the first time in their history.

15. There was some opposition to the design of the Falkirk Wheel at first.

16. The Falkirk Wheel was initially put together at the location where its components were manufactured.

17. The Falkirk Wheel is the only boat lift in the world which has steel sections bolted together by hand.
18. The weight of the gondolas varies according to the size of boat being carried.
19. The construction of the Falkirk Wheel site took into account the presence of a nearby ancient monument.

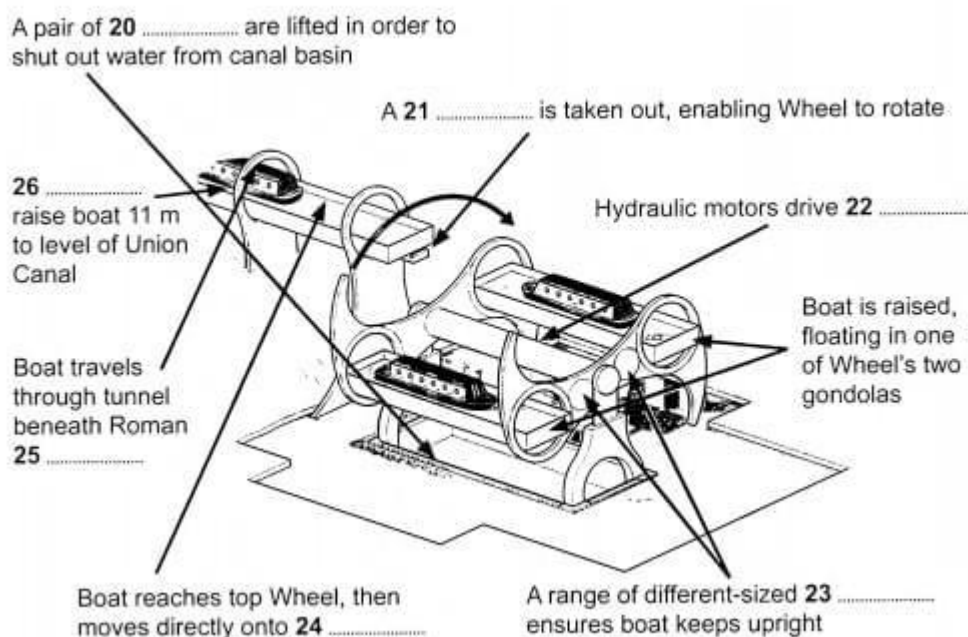
Questions 20-26

Label the diagram below.

Choose **ONE WORD** from the passage for each answer.

Write your answers in boxes 20-26 on your answer sheet.

How a boat is lifted on the Falkirk Wheel



Bài tập 4

PROGRAMMABLE PLANTS

In electronics, even the most advanced computer is just a complex arrangement of simple, modular parts that control specific functions; the same integrated circuit might be found in an iPhone, or in an aircraft. Biologists are creating this same modularity in – wait for it – plants, by designing gene "circuits" that control specific plant characteristics – color, size, resistance to drought, you name it.

The relatively new, interdisciplinary field is synthetic biology – the design of genetic circuits, just like in electronics, that control different functions and can be easily placed in one organism or the next. Most of today's synthetic biologists work with simple microorganisms, like E. coli or yeast.

A CSU team led by June Medford, professor of biology, and Ashok Prasad, associate professor of chemical and biological engineering, is doing the same thing, but in the much more complex biological world of plants.

1. The scientists are using a technique from electronics to control specific plant properties.
2. Some synthetic biologists work with genetic circuits of mammals.
3. Most of synthetic biologists work with mammals.

Bài tập 5

Michael Faraday, (1791- 1867) was an English scientist who contributed to the fields of electromagnetism and electrochemistry. Although Faraday received little formal education he was one of the most influential scientists in history, and historians of science refer to him as having been the best experimentalist in the history of science.

The young Michael Faraday, who was the third of four children, having only the most basic school education, had to educate himself. At fourteen he became the apprentice to George Riebau, a local bookbinder and bookseller. During his seven-year apprenticeship he read many books, including Isaac Watt's The Improvement of the Mind, and he enthusiastically implemented the principles and suggestions contained therein.

In 1812, at the age of twenty, and at the end of his apprenticeship, Faraday attended lectures by the eminent English chemist Humphry Davy. Faraday subsequently sent Davy a three-hundred-page book based on notes that he had taken during these lectures. Davy's reply was immediate, kind, and favorable. When one of the Royal Institution's assistants was sacked, Davy was asked to find a replacement, and appointed Faraday as Chemical Assistant at the Royal Institution.

According to the article, are these statements true, false or not given?

1. Many experts regard Faraday as the foremost experimentalist of all time.
2. Faraday educated himself by reading books that were recommended to him by George Riebau.
3. Faraday came to the attention of a famous chemist after he wrote a book based on the chemist's lectures.

Bài tập 6

Read the passage below and answer questions from 1-7.

Adults and children are frequently confronted with statements about the alarming rate of loss of tropical rainforests. For example, one graphic illustration to which children might readily relate is the estimate that rainforests are being destroyed at a rate equivalent to one thousand football fields every forty minutes - about the duration of a normal classroom period. In the face of the frequent and often vivid media coverage, it is likely that children will have formed ideas about rainforests - what and where they are, why they are important, what endangers them - independent of any formal tuition. It is also possible that some of these ideas will be mistaken.

Many studies have shown that children harbour misconceptions about 'pure', curriculum science. These misconceptions do not remain isolated but become incorporated into a multifaceted, but organized, conceptual framework, making it and the component ideas, some of which are erroneous, more robust but also accessible to modification. These ideas may be developed by children absorbing ideas through the popular media. Sometimes this information may be erroneous. It seems schools may not be providing an opportunity for children to re-express their ideas and so have them tested and refined by teachers and their peers.

Despite the extensive coverage in the popular media of the destruction of rainforests, little formal information is available about children's ideas in this area. The aim of the present study is to start to provide such information, to help teachers design their educational strategies to build upon correct ideas and to displace misconceptions and to plan programmes in environmental studies in their schools.

The study surveys children's scientific knowledge and attitudes to rainforests. Secondary school children were asked to complete a questionnaire containing five open-form questions. The most frequent responses to the first question were descriptions which are self-evident from the term 'rainforest'. Some children described them as damp, wet or hot. The second question concerned the geographical location of rainforests. The commonest responses were continents or countries: Africa (given by 43% of children), South America (30%), Brazil (25%). Some children also gave more general locations, such as being near the Equator.

Responses to question three concerned the importance of rainforests. The dominant idea, raised by 64% of the pupils, was that rainforests provide animals with habitats. Fewer students responded that rainforests provide plant habitats, and even fewer mentioned the indigenous populations of rainforests. More girls (70%) than boys (60%) raised the idea of rainforest as animal habitats.

Similarly, but at a lower level, more girls (13%) than boys (5%) said that rainforests provided human habitats. These observations are generally consistent with our previous studies of pupils' views about the use and conservation of rainforests, in which girls were shown to be more sympathetic to animals and expressed views which seem to place an intrinsic value on non-human animal life.

The fourth question concerned the causes of the destruction of rainforests. Perhaps encouragingly, more than half of the pupils (59%) identified that it is human activities which are destroying rainforests, some personalising the responsibility by the use of terms such as 'we are'. About 18% of the pupils referred specifically to logging activity.

One misconception, expressed by some 10% of the pupils, was that acid rain is responsible for rainforest destruction; a similar proportion said that pollution is destroying rainforests. Here, children are confusing rainforest destruction

with damage to the forests of Western Europe by these factors. While two fifths of the students provided the information that the rainforests provide oxygen, in some cases this response also embraced the misconception that rainforest destruction would reduce atmospheric oxygen, making the atmosphere incompatible with human life on Earth.

In answer to the final question about the importance of rainforest conservation, the majority of children simply said that we need rainforests to survive. Only a few of the pupils (6%) mentioned that rainforest destruction may contribute to global warming. This is surprising considering the high level of media coverage on this issue. Some children expressed the idea that the conservation of rainforests is not important.

The results of this study suggest that certain ideas predominate in the thinking of children about rainforests. Pupils' responses indicate some misconceptions in basic scientific knowledge of rainforests' ecosystems such as their ideas about rainforests as habitats for animals, plants and humans and the relationship between climatic change and destruction of rainforests.

Pupils did not volunteer ideas that suggested that they appreciated the complexity of causes of rainforest destruction. In other words, they gave no indication of an appreciation of either the range of ways in which rainforests are important or the complex social, economic and political factors which drive the activities which are destroying the rainforests. One encouragement is that the results of similar studies about other environmental issues suggest that older children seem to acquire the ability to appreciate, value and evaluate conflicting views. Environmental education offers an arena in which these skills can be developed, which is essential for these children as future decision-makers.

Questions 1-7

1. The plight of the rainforests has largely been ignored by the media.
2. Children only accept opinions on rainforests that they encounter in their classrooms.
3. It has been suggested that children hold mistaken views about the 'pure' science that they study at school.
4. The fact that children's ideas about science form part of a larger framework of ideas means that it is easier to change them.
5. The study involved asking children a number of yes/no questions such as 'Are there any rainforests in Africa?'
6. The study reported here follows on from a series of studies that have looked at children's understanding of rainforests.
7. A second study has been planned to investigate primary school children's ideas about rainforests.

Bài tập 7

Watching television makes toddlers fatter and stupider at primary school, according to new research. Scientists who tracked the progress of pre-school children found that the more television they watched the worse they were at mathematics, the more junk food they ate, and the more they were bullied by other pupils.

The findings, which support earlier evidence indicating television harms cognitive development, prompted calls for the Government to set limits on how much children should watch. American paediatricians advise that under-twos should not watch any television and that older children should view one to two hours a day at most. France has banned shows aimed at under-threes, and Australia recommends that three to five year-olds watch no more than an hour a day. Britain has no official advice.

Researchers said that pre-school is a critical time for brain development and that TV watching displaced time that could be spent engaging in “developmentally enriching tasks”. Even incremental exposure to TV delayed development, said the lead author Dr Linda Pagani, of Montreal University.

According to the article, are these statements true, false or not given?

1. Scientists believe that there is a link between the amount of television young children watch and their mental ability.
2. Shows aimed at under-twos are banned in the USA.
3. Children’s television programming is more strictly controlled in France than in Britain

Bài tập 8

Do the following statements agree with the information in the text? Mark them:

T if the statement agrees with the text

F if the statement does not agree with the text

NG if there is no information about this in the text

Chilies

Chiles originate in South America and have been eaten for at least 9,500 years. Organised cultivation began around 5,400BC. Christopher Columbus was the first European to encounter chilies, when he landed on the island of Hispaniola in 1492. He thought it was a type of pepper and called it the “red pepper”, a name still used today. After their introduction to Europe they were an immediate sensation and were quickly incorporated into the diet. From there they spread to Africa, India and East Asia.

The reason for the chili’s “hotness” lies in a chemical called Capsaisin. Capsaisin causes temporary irritation to the trigeminal cells, which are the pain receptors in the mouth, nose and throat. After the pain messages are transmitted to the brain, endorphins, natural pain killers, are released and these not only kill the pain but give the chili eater a short lived natural high. Other side effects include: an increased heart rate, a running nose and increased salivation and sweating, which can have a cooling effect in hot climates.

The reason for the presence of Capsaisin is thought to be to deter animals from eating the fruit. Only mammals feel the burning effects; birds feel nothing. As

birds are a better method of distributing the seeds, which pass intact through their guts, Capsaisin would seem to be a result of natural selection.

The smaller chilies tend to be the hottest. This may reflect the fact that they tend to grow closer to the ground and are therefore more vulnerable to animals.

The heat of a chili is measured on the Scoville scale. The hottest types such as the Habenero and the Scotch Bonnet rate between 100,000 and 300,000, the world famous Tabasco sauce rates at 15,000 to 30,000, about the same as the Thai prik kee nu, while the popular Jalapeno is between 5,000 and 15,000. Powdered chili is 500 to 1,000 and the mild capsicins and paprikas can range between 100 and 0.

Questions 1 - 5

1. Chilies became popular as soon as they were brought into Europe.
2. Capsaisin causes significant damage to the mouth.
3. Chilies can be part of a birds diet.
4. All large chilies grow high off the ground.
5. People breed chilies for their heat.

Bài tập 9

All our life, so far as it has definite form, is but a mass of habits," William James wrote in 1892. Most of the **choices** we make each day may feel like the products of **well-considered decision** making, **but they're not. They're habits**. And though each habit means relatively little on its own, over time, the meals we order, what we say to our kids each night, whether we save or spend, how often we exercise, and the way we organize our thoughts and work routines have enormous impacts on our health, productivity, **financial security**, and happiness. One paper published by a Duke University researcher in 2006 found that **40 percent** or more of the actions people performed each day **weren't actual decisions, but habits**.

*Do the statements below agree with the ideas expressed by the author?
Write YES, NO or NOT GIVEN.*

1. The majority of **choices** we make on a daily basis are **conscious decisions**.
2. **Saving money** is the key to **financial security**.
3. **Habits** account for at least **40 percent** of the **things we do each day**.

Bài tập 10

Read the following passage about elephant intelligence.

Most contemporary ethologists view the elephant as one of the world's most intelligent animals. With a mass of just over 5 kg, an elephant's brain has more mass than that of any other land animal, and although the largest whales have body masses twenty times those of a typical elephant, a whale's brain is barely twice the mass of an elephant's brain. In addition, elephants have a total of 300 billion neurons. Elephant brains are similar to humans' and many other mammals' in terms of general connectivity and functional areas.

Elephants manifest a wide variety of behaviours, including those associated with grief, learning, mimicry, play, altruism, use of tools, compassion, cooperation, self-awareness, memory, and communication. Further, evidence suggests elephants may understand pointing: the ability to nonverbally communicate an object by extending a finger, or equivalent.

Elephants are thought to be highly altruistic animals that even aid other species, including humans, in distress. In India, an elephant was helping locals lift logs by following a truck and placing the logs in pre-dug holes upon instruction from the mahout (elephant trainer). At a certain hole, the elephant refused to lower the log. The mahout came to investigate the hold-up and noticed a dog sleeping in the hole. The elephant only lowered the log when the dog was gone.

(Source: Wikipedia)

Are the following statements true, false or not given?

- 1) An elephant's brain is larger than that of a whale.
- 2) In some respects, an elephant's brain resembles the human brain.
- 3) Elephants can copy the behaviour of humans.
- 4) Elephants may understand a certain type of body language.
- 5) The story about an elephant in India is an example of altruism.

Bài tập 11

Read the following passage about geometry

Geometry (from the Ancient Greek: γεωμετρία; geo- "earth", -metron "measurement") is a branch of mathematics concerned with questions of shape, size, relative position of figures, and the properties of space. The earliest recorded beginnings of geometry can be traced to ancient Mesopotamia and Egypt in the 2nd millennium BC.

An important application of geometry is in the field of architecture. Apart from the mathematics needed when engineering buildings, architects use geometry for several reasons: to define the spatial form of a building; to create forms that are considered harmonious; to lay out buildings and their surroundings according to mathematical, aesthetic and sometimes religious principles; to decorate buildings with mathematical objects such as tessellations; and to meet environmental goals, such as to minimise wind speeds around the bases of tall buildings.

In the graphic arts, geometry can be seen in the use of perspective, which may be described as the approximate representation, generally on a flat surface (such as paper), of an image as it is seen by the eye. The two most characteristic features of perspective are that objects appear smaller as their distance from the observer increases, and that they are subject to foreshortening, meaning that an object's dimensions along the line of sight appear shorter than its dimensions across the line of sight.

(Adapted from Wikipedia)

Do the following statements agree with the passage?

Answer yes, no or not given.

1. Humans have used geometry for well over two thousand years.
2. Religious buildings are often decorated with geometric patterns.
3. Many artists do not realise that they are using geometry.
4. Perspective, in the graphic arts, involves the use of size to imply distance.

Bài tập 12

Read the following text about photosynthesis in plants.

Although some of the steps in photosynthesis are still not completely understood, the overall photosynthetic equation has been known since the 1800s.

Jan van Helmont began the research of the process in the mid-1600s when he carefully measured the mass of the soil used by a plant and the mass of the plant as it grew. After noticing that the soil mass changed very little, he hypothesised that the mass of the growing plant must come from the water, the only substance he added to the potted plant. His hypothesis was partially accurate—much of the gained mass also comes from carbon dioxide as well as water.

In 1796, Jean Senebier, a Swiss pastor, botanist, and naturalist, demonstrated that green plants consume carbon dioxide and release oxygen under the influence of light. Soon afterwards, Nicolas-Théodore de Saussure showed that the increase in mass of the plant as it grows could not be due only to uptake of CO₂, but also to the incorporation of water.

According to the text, are the following statements true, false or not given?

1. We now fully understand the process of photosynthesis.
2. Van Helmont's hypothesis did not take into account that plants consume carbon dioxide.
3. De Saussure demonstrated that both carbon dioxide and water contribute to an increase in mass in plants as they grow.

Bài tập 13:

Read the following passage about how parents speak to infants.

'Parentese'

Parentese, the exaggerated, drawn-out form of speech that people use to communicate with babies, apparently is universal and plays a vital role in helping infants to analyse and absorb the phonetic elements of their parents' language. An international study shows that infants are so good at analysing this speech that by the age of 20 weeks they are beginning to produce the three vowel sounds common to all human languages — “ee,” “ah” and “uu.”

“Parentese has a melody to it. And inside this melody is a tutorial for the baby that contains exceptionally well-formed versions of the building blocks of language,” explains Patricia Kuhl, a University of Washington neuroscientist.

The new study examined differences in how American, Russian and Swedish mothers speak to their infants and to other adults. The study shows that parentese is characterised by over-articulation that exaggerates the sounds contained in words. Mothers in the study were, in effect, sounding out “super-vowels” to help their infants learn the phonetic elements of language.

“In normal, everyday speech adults generally race along at a very fast pace,” Kuhl says. “But we know it is easier to understand a speaker when they stretch out sounds. That’s why we tend to speak more slowly and carefully to increase understanding when we teach in the classroom or talk to strangers. We also do this unconsciously with babies, giving them an improved verbal signal they can capitalise on by slowing down and over articulating.”

(Source: www.washington.edu)

Do the statements below agree with the author's claims?

Write yes, no or not given.

1. 'Parentese' is not common to all cultures.
2. Parents tend to lengthen and over-emphasise certain sounds when speaking to infants.
3. Adults are aware that they need to use parentese when speaking to babies.