4 Science and technology at home

AIMS: Vocabulary related to science and technology • Working with paraphrasing • Completing sentences

Part 1: Vocabulary


1


2


3


4

1a **The equipment in the pictures can all be found in the homes of many cooks. Match the words to the items.**

kitchen scales | measuring jug | flask | kettle

1 .....
2 .....
3 .....
4 .....

1b **Use the words from exercise 1a to complete these sentences.**

1 A ..... is probably the most used piece of kitchen equipment in many countries because most people enjoy hot drinks.
2 If you like hot food or hot drinks, it is worth buying a ..... to take with you to college or work.
3 I don't use ..... anymore when I am making bread: I just guess the quantities that I need.
4 A ..... is useful for holding, measuring and transferring liquids.

2a **Use the information in the table to complete the matching exercise below. The first one has been done for you.**

Word part	Meaning
-metre/-meter	measure, record
-logy	the science or study of

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Word part	Meaning
-graphy	the writing or drawing of
bio-	life
auto-	self
thermo-	temperature
eco-	related to physical surroundings
zoo-	animal
ge(o)-	the earth or land
hydro-	water
chrono-	time

1	barometer	**a**	an extremely accurate clock that is used especially by sailors at sea
2	chronometer	**b**	the study of the relationships between plants, animals, people and their environment, and the balances between these relationships
3	thermometer	**c**	the study of the Earth's structure, surface and origin
4	ecology	**d**	the study of the countries of the world and of such things as the land, seas, climate, towns and population
5	biology	**e**	the scientific study of animals
6	geology	**f**	the science related to the study of living things
7	zoology	**g**	an instrument that measures air pressure and shows when the weather is changing
8	hydrology	**h**	an instrument for measuring temperature, usually consisting of a narrow glass tube containing a thin column of a liquid which rises and falls as the temperature rises and falls
9	geography	**i**	the study and recording (mapping) of the oceans, seas and rivers
10	hydrography	**j**	the study of the distribution, conservation, use, etc. of the water of the Earth and its atmosphere

2b **Use the above information to complete the definitions for the following words.**

1 *a biography:* ..... about another person's .....
2 *an autobiography:* a book .....

Watch Out!

Knowing the meaning of word parts can often help you work out the overall meaning, but there are words where this does not work. For example, *dis-* often means 'opposite', *advantage / disadvantage*; *agree / disagree*; *appear / disappear*; *connect / disconnect*; *honest / dishonest*, but sometimes *dis* is not a separate word part or does not have that meaning, as in *disaster, discuss.*

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Part 2: Skills development

Exam information | Completing sentences

In the exam, you may be asked to complete sentences with words from the passage. The information will be in the same order as the questions.

Exam tip

The sentences will refer to information in the text, but this will be paraphrased and will include synonyms (words or expressions that mean the same) and antonyms (words or expressions that mean the opposite). You should scan the text to look for paraphrases of the sentences to find the section and information you need.

1 **Match the words with their (near) synonyms.**

1	device	**a**	investigation
2	research	**b**	from a distance
3	remotely	**c**	the future
4	magazines, books	**d**	gadget
5	tomorrow	**e**	curiosity
6	substance	**f**	material
7	interest	**g**	reading material

2 **Match the words with their (near) antonyms**

1	digital	**a**	the future
2	yesterday	**b**	deliberate
3	remote	**c**	commemorated
4	forgotten	**d**	analogue
5	lost	**e**	nearby
6	accidental	**f**	found

3 **In the following sentences, underline any words that refer to a similar idea or thing. The first one has been done for you.**

1. Your mobile phone contains small amounts of gold and platinum, as well as less valuable metals.
2. There are some materials that allow electricity to pass through them. These electrical conductors are used in many different appliances in the home.
3. Another example is electrical insulators, substances that do not let electricity pass through.
4. We sell any computer you can imagine, from the traditional desktop to tablet computers and other kinds of mobile computers, as well as cameras and e-readers.
5. Your smartphone's operating system may have the same or a different OS to the one controlling your tablet.

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Exam tip

Timing is very important in the IELTS exam, as you will have to answer 40 questions about three reading passages in one hour. In this type of exam question, you will be looking for detailed information, so you will need to use your scanning skills. Try to get used to scanning and working as fast as you can.

4 **Scan the text below for the following words, or their (near) synonyms. Try to find them all, or as many as you can, in less than 90 seconds. They are in the same order.**

1. parts
2. typical
3. crystal
4. include
5. circuits
6. a very large amount
7. coat (verb)
8. exceptional
9. corrode
10. tiny
11. transfer
12. surround
13. following
14. material
15. folded

Mobile phone components

An average basic mobile phone contains a circuit board, an antenna, a liquid crystal display, a keyboard, a microphone, a speaker and a battery.

Mobile metals

Mobiles contain many different metals:

- Copper is used for electrical circuits because it is a good electrical conductor.
- Silver is used in switches on the circuit boards and in the phone buttons because it is an even better electrical conductor. It lasts for millions of on/off cycles.
- Gold is used to plate the surfaces of the circuit board and the connectors. It is an excellent electrical conductor and does not corrode.
- Tantalum is used in the electronic components. It enables scientists to make mobiles very small.



Your mobile is also likely to contain palladium, platinum, aluminium and iron.

Electrical conductivity

Metals conduct electrical currents well. Non-metals usually make good insulators. In a mobile, electrical insulators surround the circuit.

Smart mobiles

The next generation of mobile could be made from 'smart' fabric. These types of fabric react to something in the environment and change. A smart fabric mobile could be folded and put in your pocket without breaking.

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Part 3: Exam practice

Exam tip

In the exam, do not be tempted to use any previous knowledge you may have on a particular topic. You must always answer according to the information given in the text.

Questions 1–5

Complete the sentences below. Choose NO MORE THAN TWO WORDS OR NUMBERS from the text for each answer.

i A compound cannot be separated without energy and a ..... .

ii Although mixtures consist of a combination of elements and compounds, it is possible for these to be ..... .

iii If flavourings were not added, people would probably ..... to consume margarine.

iv Flavours can only be described as natural if they have a natural ..... .

v Vanillin is chemically produced, but ..... in chemical composition to a natural flavouring.

Cupcakes are made from a mixture of ingredients. Different flavoured cupcakes have different mixtures. The icing used to decorate the cakes contains sugar, water, colouring and flavouring. Water and sugar are different types of compounds. These compounds are made from elements.

Elements, compounds and mixtures

Chemical substances occur in three types.

- Elements – these contain one type of atom only. They cannot be chemically broken down into simpler substances.
- Compounds – these contain two or more different elements bonded together. A chemical reaction is needed to break up a compound. This will involve energy.
- Mixtures – these may contain two or more elements and/or compounds. They are mixed in any proportion and can be separated out.

When a baker mixes the flour, sugar, fat, eggs, flavouring and colour together to make cupcakes, he or she is making a mixture. The icing sugar, water and colour make a different mixture. The sugar and water are compounds.

The compound water is made from the elements hydrogen and oxygen. Sugar contains the elements hydrogen, oxygen and carbon.





In this unit, we will be looking at flavourings, the substances that are added to food or drink to give it a particular taste. They are added because people would

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probably refuse to eat certain products without them. Margarine and ice cream, for example, would have unacceptable tastes, whereas certain jellies, some other sweets, and meat replacement products would have little or no taste.

Natural flavours are those found in nature. Those from vegetable sources include vanilla, strawberry, lemon and nuts. An example of an animal source is beef flavouring, added for example to chips. Essential oils and fruit juices can also be used to flavour foods. They are sourced in nature and obtained through physical processes such as distillation and fermentation.

Some animal flavours, such as bacon and beef flavour in crisps, are vegetarian because they are artificial rather than made from animal sources.

There are also nature-identical flavourings. An example is vanillin, which is often produced cheaply from lignin, a polymer, rather than from vanilla pods. These flavourings are chemically identical to natural flavourings, but have been produced chemically rather than naturally, e.g. by a process of chemical extraction. The human body does not notice the difference as their molecules are identical to natural ones.

Artificial flavourings consist of chemically synthesized compounds which have no source whatsoever in nature. Although the word natural has positive connotations, some natural flavours may have contaminated sources, which are harmful. Artificial flavours undergo strict testing because they are subject to laws (e.g. The European Flavouring Regulation (1334/2008) and may therefore be purer and safer. Using natural flavourings is also more expensive and may be considered a waste at a time when we are trying to preserve nature.

Glossary

polymer: a naturally occurring or synthetic compound

Progress check

How many boxes can you tick? You should work towards being able to tick them all.

Did you …

scan for words from the sentences or their equivalents in the text? ☐
remember that the questions are in the same order as the information in the text? ☐
skip a difficult question and then go back to it after you found the answer to the next one? ☐
base your answers on the text, not on your own guesses? ☐

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