MOUNT CARMEL INTERNATIONAL SCHOOL, AKOLA

Cambridge International

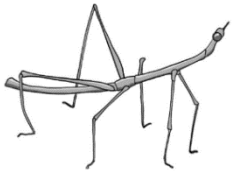
TERM END EXAM - II Subject: Science Date: 08.04.2024

Student's Name: _____ Roll No. _____ Grade: 7

Marks: 80 Time Duration: 150 minutes Invigilator's Sign.

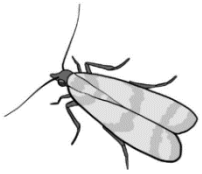
1. Sureka is learning about living and non-living organisms.

a. Sureka finds some living organisms in the school grounds. The diagrams show the organisms she has found. Write a Dichotomous key to help her class identify the organisms she has found. **(2)**



stick insect

jumping spider



meal moth

black kite

b. The black kite is a medium-sized bird that belongs to the species M.*migrans.* **(1)**

Which of these statements best describes a species? Tick the correct box.

A group of organisms that look exactly the same. ☐

An organism that can breed to produce infertile offspring. ☐

An organism that has been selectively bred to produce the best features. ☐

A group of organisms that can breed with one another to produce fertile offspring. ☐

2. The list shows six of the seven life processes that are found in all living things. (1)

Movement	Reproduction	Sensitivity
Growth	Respiration	Excretion

a. Complete the list to show the missing life process.

_____

b.Living things can be classified as single celled or multicellular. Write whether each organism is single celled or multicellular. **(3)**

Yeast _____

Bacteria _____

Insect _____

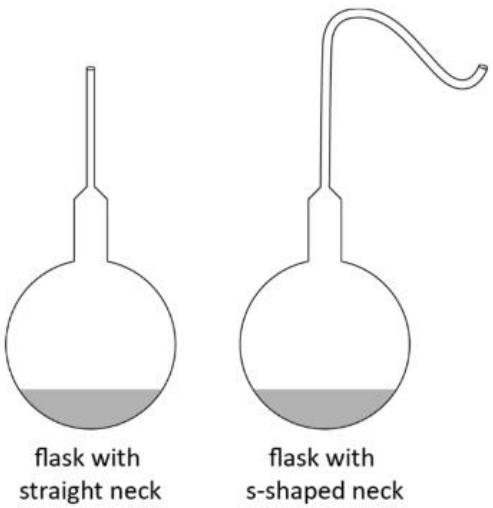
c. Chicken pox is a disease caused by the varicella zoster virus. Scientists do not classify the varicella-zoster virus as a living organism.Explain why the varicella-zoster virus is not considered to be a living organism. **(1)**

_____

_____

_____

3. Louis Pasteur believed that microorganisms could arise from non-living matter such as the air. He put equal amounts of nutrient broth from boiled meat into two long-necked flasks. Nutrient broth is the liquid made from boiling meat in water.He left one flask with a straight neck. The other he bent to form an S shape to trap any microbes in the air.



Pasteur boiled the broth in each flask to kill any microorganisms in the liquid. The small tubes at the end of each flask were left open and the flasks were left in the same conditions for three weeks. After three weeks Pasteur noticed that the broth in the straight-necked flask was discolored andcloudy, but the broth in the S-shaped flask had not changed. (4)

a. Write down one variable Pasteur would have needed to control in his experiment.

_____

_____

b. Complete the sentences to write down what conclusions can be made from Pasteur's observations.

i. The broth in the flask with the S-shaped neck did not spoil because

_____

_____

ii. The broth in the flask with the straight neck became cloudy and discoloured because

_____

_____

c. Did Pasteur's results support his prediction. Explain your answer.

_____

_____

_____

4. In the 16th century people thought living things could come from non-living things. FrancescoRedi didn't think this was true, so he used the scientific method to test the idea.He set up three jars containing the same type and quantity of meat. One jar was open, one jar was sealed, and the other jar had a thick gauze covering the top to stop the flies touching themeat. The diagram shows the jars after two weeks.

Redi's hypothesis was that flies laid eggs on the rotting meat, and maggots developed from those eggs.

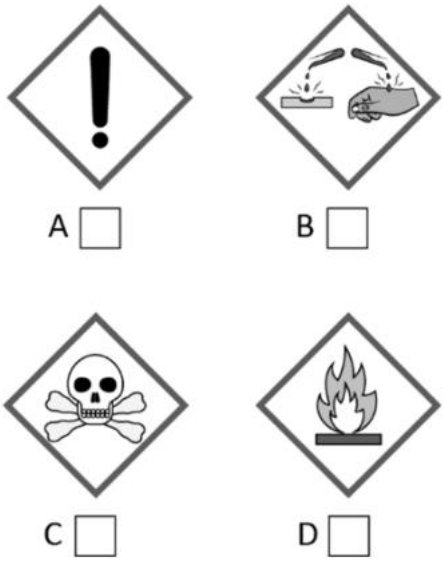
a. Do the results of Redi's experiment support his hypothesis? **(1)**

_____

_____

_____

5. A teacher tells her class that a chemical is corrosive. Identify the hazard symbol for a corrosive chemical. Tick (✓) the correct box. **(1)**



6.a. Draw an write the state of matter in which the particles are moving very quickly in all directions. **(1)**

b.The particle model is used to show how particles are arranged and how the particles move in solids, liquids and gases. The particle model has strengths and limitations.

(i) Write down one strength of the particle model**.** **(1)**

_____

_____

_____

(ii) Write down one limitation of the particle model. **(1)**

_____

_____

_____

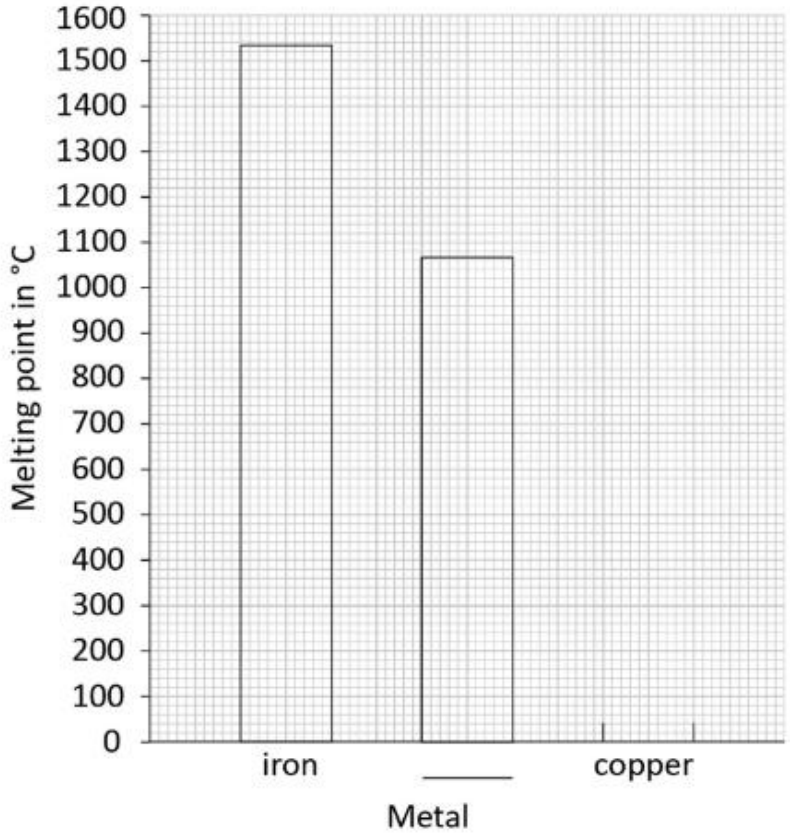
7. Deep space is an example of a vacuum. Write down the meaning of the word vacuum. **(1)**

_____

_____

_____

8. Complete the graph showing Pheobe's results.



a. Draw a bar to show the melting point of copper. **(1)**

_____

b. Write the missing label on the graph. **(1)**

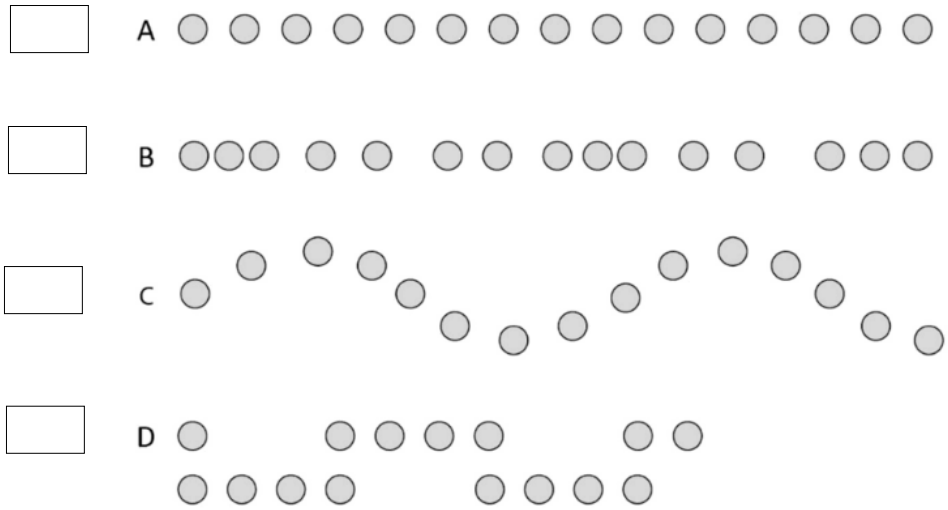
c. Suggest why it would be a good idea for another scientist to repeat Pheobe's experiment. **(1)**

_____

d. Calculate the difference between melting point of iron and melting point of gold. **(1)**

_____

9.Which diagram, A, B, C or D, shows the arrangement of particles in a sound wave? Tick the correct box. **(1)**

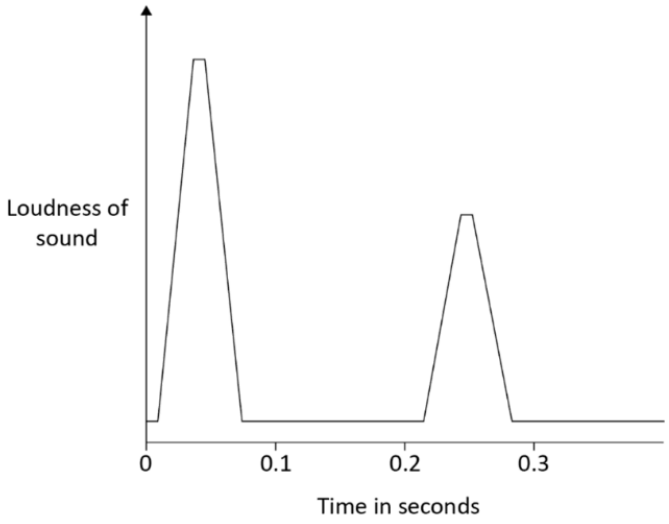


10. Safia walks next to a tall cliff. When her friend calls 'hello' to her once, she hears the word twice.

a. Name the process that causes the second sound and explain why a second sound is heard**.** **(1)**

_____

b. Later that day, Safia and her friend return to the cliff with a microphone and a recording device to measure the loudness of the sounds. They produce a graph to show the loudness of the sound when one of them says a word once.

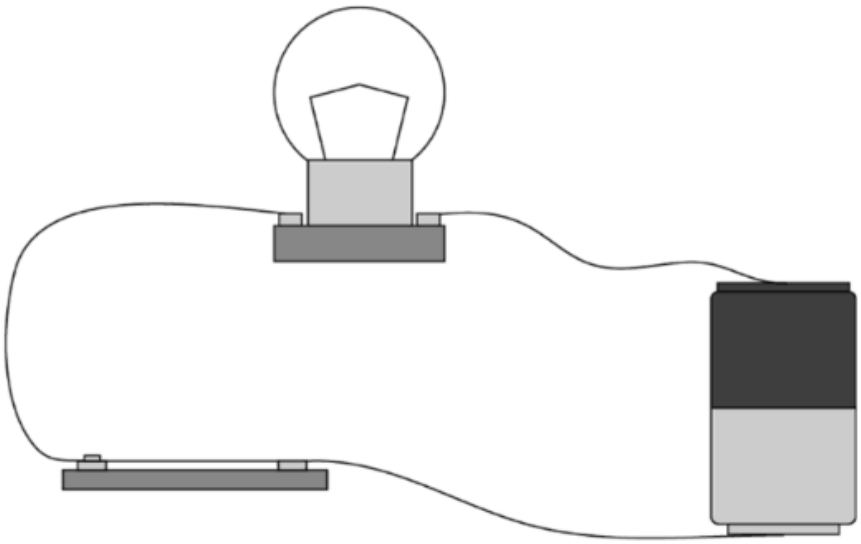


What does each peak of the graph show? **(1)**

_____

_____

11.The diagram shows an electrical circuit.



a. Draw three arrows on the diagram (one on each wire) to show the flow of electrons.

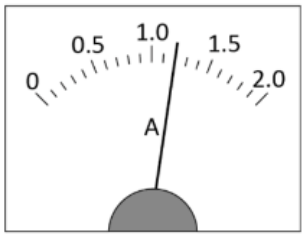
(1)

b. Write down what will happen to the flow of electrons if the switch is opened. **(1)**

_____

_____

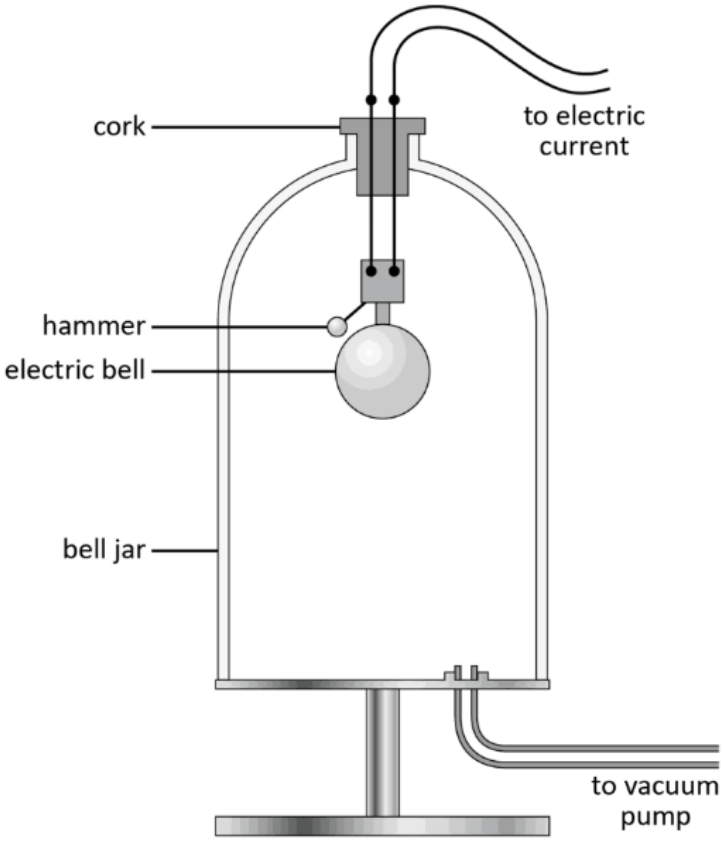
12. James investigates the electrical circuit. The diagram shows the current reading.



a. Write down the current measured. **(1)**

_____

13. Blake investigates sound. She uses the apparatus shown in the diagram



As air is pumped out of the container Blake observes that the sound becomes gradually quieter until she cannot hear it.

Blake writes the following conclusion:

As the amount of air decreases, the bell vibrates more slowly until eventually it stops.

a. Evaluate Blake's conclusion. **(1)**

_____

_____

14. A microphone transfers the energy from sound waves to electric current. Lily and Angelique investigate how the electric current produced in a circuit by a microphone is affected by the loudness of sound. They use a sound meter to measure the loudness in decibels (dB). The louder the sound, the greater the number of decibels. They take three separate readings of current for each loudness of sound. This table shows their results.

Loudness of sound in dB	Current produced in A			Means current in A
	Reading 1	Reading 2	Reading 3	
40	0.60	0.64	0.62	0.62
50	0.75	0.77	0.77	_____
60	0.92	0.92	0.95	_____

a. One of the readings is anomalous. Identify this reading. **(1)**

Loudness _____dB Reading (1, 2 or 3) _____

b. Which means current causes a sound with a loudness of 50 dB? Circle the correct answer. **(1)**

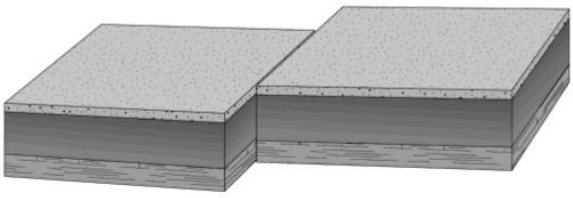
0.76 A 0.51A 0.81A 0.93 A

c. Calculate the mean current for a loudness of 60 dB. Write your answer in the table**.**

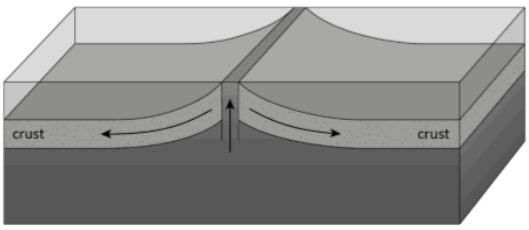
(1)

15. The diagrams show tectonic plate boundaries.

a. Add two arrows to the diagram below to show how these plates move to cause an earthquake. **(1)**



b. Name the structure formed by the plate movement shown in the diagram below**.** **(1)**



_____

16. The diagrams show how the surface of the Earth is thought to have changed over time.

a. Explain how these diagrams support Wegener's hypothesis of continental drift**.** **(1)**

_____

_____

_____

b.The continents of Africa and South America are moving apart at a rate of about 1.5 cmper year. Calculate how far they move apart in 200 million years. Give your answer in kilometers. **(2)**

17 Gabriella has a hypothesis that tectonic movement is causing mountains nearby to rise. Gabriella proposes to take measurements to test this hypothesis.

a. Do you think that Gabriella can test her hypothesis in this way? Explain your answer.

(1)

_____

_____

_____

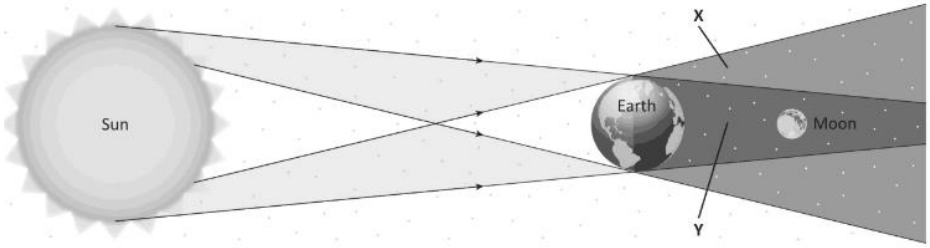
b. Suggest one other evidence that Gabriella could look for. **(1)**

_____

_____

_____

18. The diagram shows an eclipse.



a. Write down the type of eclipse. **(1)**

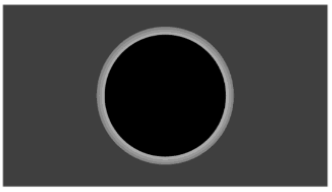
_____

b. Name the regions labelled X and Y. **(2)**

_____

_____

19. Oliver hears from his teacher that there will be a solar eclipse soon. He predicts that the sky will get darker until the Moon appears to cover the Sun completely. He uses a telescope to observe the eclipse. He shines the light from a telescope onto a piece of paper. He does not look directly into the telescope.The image shows what he observes.



(a) Explain why Oliver shone the light onto paper. **(1)**

_____

_____

(b) Evaluate Oliver's prediction. **(1)**

_____

_____

20.A pathogen is something that causes a disease. Many pathogens are viruses or bacteria.

The table shows some diseases caused by pathogens.

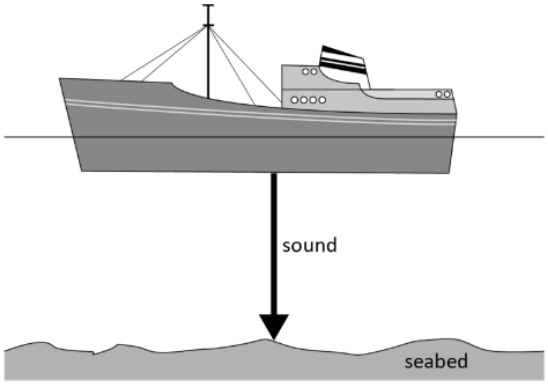
Disease	Caused by pathogen
Chicken pox	Virus
COVID-19	Virus
Measles	Virus
Tetanus	Bacterium

b. Living pathogens can be treated with antibiotics. Which of the diseases in the table can be treated using antibiotics? **(1)**

_____

_____

21. The diagram shows the ship.



a. Draw an arrow on the diagram to complete the path of the sound wave. **(1)**

b. The ship measures the total distance the sound wave travels as 500 m. What is the depth of the seabed? Show your working. (Speed of sound in water 1500 m per sec.) **(2)**

22. Jamie is talking to his wife Linda. He is standing in the kitchen and Linda is in the next room. Explain why Jamie and Linda can hear each other talking, even though they are not in the same room. **(1)**

_____

_____

_____

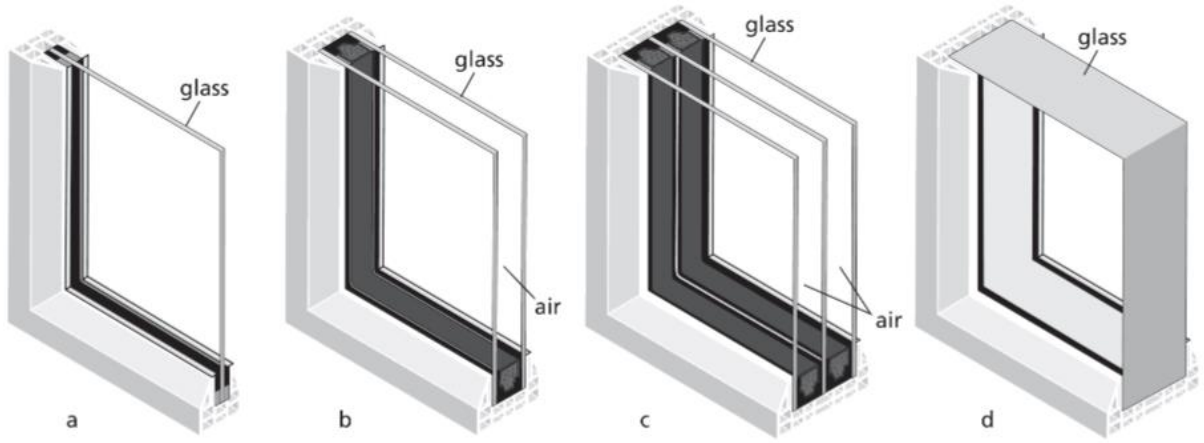
23. Solar eclipses cannot be seen from the planet Venus. Explain why not. **(1)**

_____

_____

_____

24. Professor Green lives near an airport. Every time an aircraft passes over, it is very noisy inside the house. She decides to replace all the windows to reduce the amount of noise. The diagrams show four different choices of window designs.



a. Which design, a, b, c or d, will be the best at keeping out noise? Explain your choice.

(2)

_____

_____

_____

_____

_____

25. Chen used a piece of fresh cake and stored it in the open for 14 days. He recorded his observations in a table.These are Chen's results.

Day	Percentage of the surface of cake covered in mold
0	0
2	15
4	40
6	70
8	85
10	90
12	95
14	100

a. Describe the pattern shown in Chen's results. **(1)**

_____

_____

b. Chen's teacher says that the reliability of his results is low. Explain how Chen could increase the reliability of his results. **(1)**

_____

_____

26. Ultrasound describes a type of sound wave. These sound waves are used in medical devices to check the health of babies before they are born. The statements describe how the device works. Write a number against each statement to show the correct order. **(5)**

The device produces an ultrasound wave that travels through the mother's womb. ☐

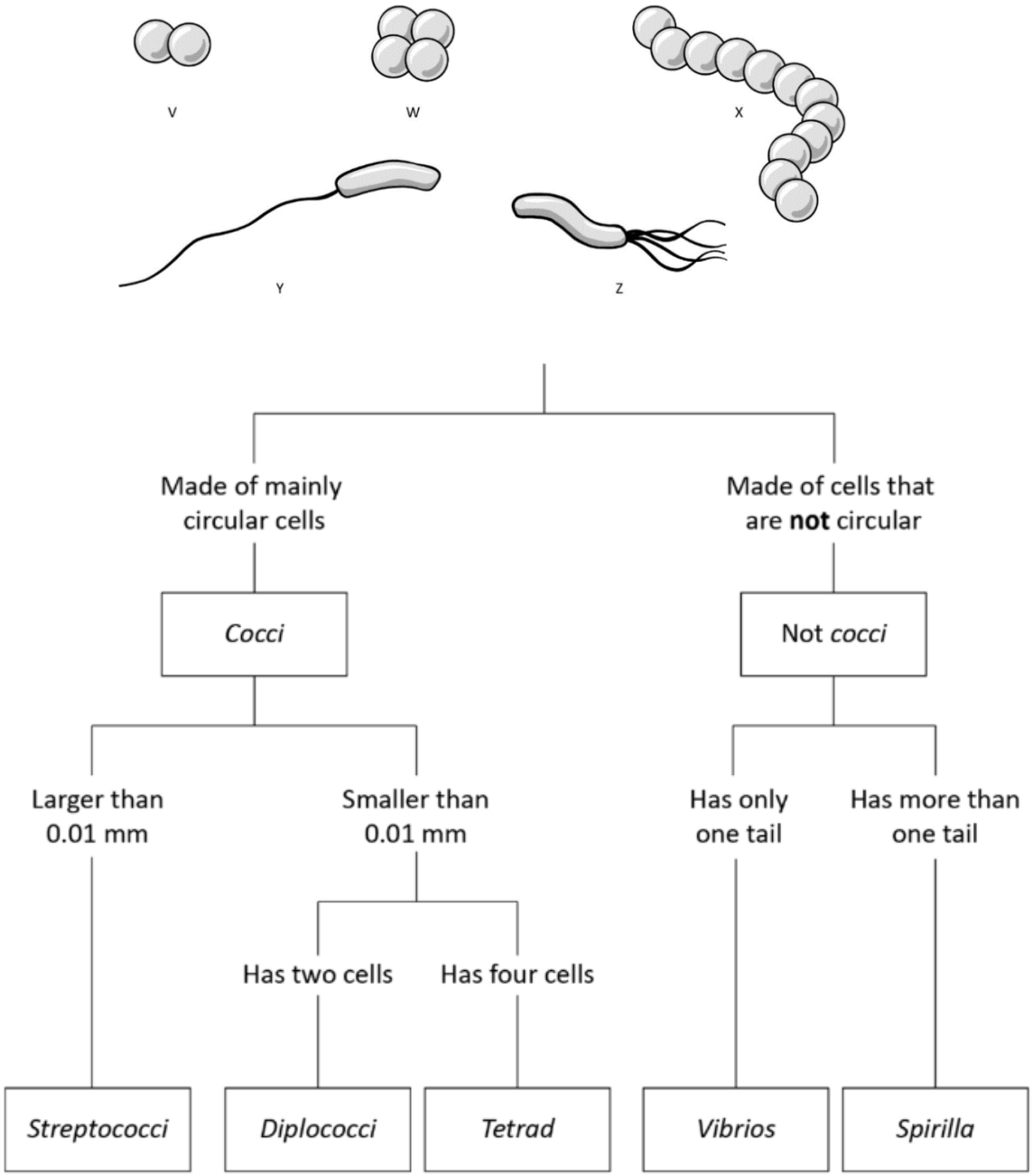
The time it takes for the echo to reach the device measures the distance the wave travels. ☐

The echo is detected by the device. ☐

The device uses the distances measured to produce an image of the baby. ☐

The wave is reflected off the baby, causing an echo. ☐

27. The diagram shows five types of microorganism called bacteria, which all consist of at least one cell. They have been labelled with the letters V, W, X, Y and Z.A scale bar is shown. (5)



Use the key to find the names of the bacteria labelled V, W, X, Y and Z.

Write your answers in the table.

Name	Letter
Diplococci	
Spirilla	
Streptococci	
Tetrad	
Vibrios	

28. Metals and non-metals have different properties. Haowen was provided with solid objects by his teacher. They are listed below.

plastic rod	iron nail	cling film	tin foil
copper wire	sheet of paper	glass cup	

a. List the metals that were given to Haowen. **(1)**

_____

_____

b. List the non-metals that were given to Haowen. **(1)**

_____

_____

29. Mr. Lee leaves some bread, dried fruit and pickled vegetables in his cupboard while he goes on holiday. The term 'pickled' means that the vegetables have been soaked and stored in vinegar. When he gets back, the bread is moldy. But the dried fruit and pickled vegetables are not moldy. Explain why. (2)

_____

_____

_____

_____

30. Bahula is investigating ways of stopping food going bad by using some fresh fruit and some salt. She cuts two equally sized pieces of mango and rubs salt over one of the pieces. She then puts each piece into a different jar. (3)

Jar 1: Mango rubbed in salt

Jar 2: Mango without salt

a. What scientific question is Bahula trying to answer?

_____

_____

b. Bahula writes a prediction: 'I predict the mango that is not rubbed in salt will go bad before the mango rubbed in salt. Write an explanation for Bahula's prediction.

_____

_____

c. Bahula leaves the jars for two weeks. She then observes the two jars. What evidence might support her prediction?

_____

_____

31. Two students are investigating some unknown solutions. Rhadish thinks that solution A is an acid but Khalid disagrees. Describe a test that would show who was right. **(1)**

_____

_____

_____

32. The table gives some information about two types of alloy.

Alloy	**Main elements found in this alloy**
Duralumin	Aluminium and copper
Stainless steel	Iron and chromium

Rajiv used sources on the internet to find out about the properties of duralumin and stainless steel. He found that: duralumin is very lightweight and strong but corrodes (breaks down) quickly. Stainless steel is heavy and corrodes slowly.

a. Rajiv suggested that duralumin would be a good alloy to build aircraft. Do you agree with Rajiv? Explain your answer. **(1)**

_____

_____

b. Rajiv's friend suggested that stainless steel would be a better alloy to build aircraft. Do you agree with Rajiv's friend? Explain your answer. **(1)**

_____

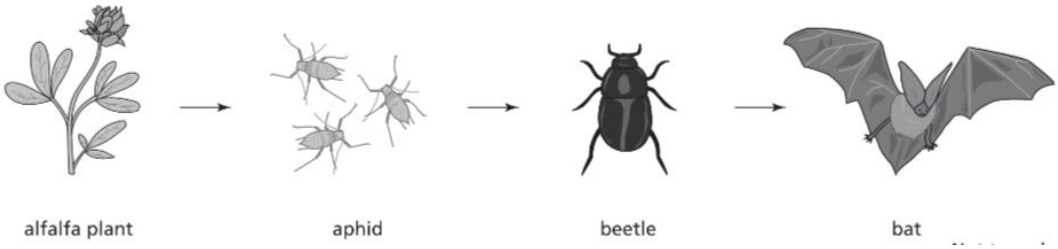
_____

c. The elements found in the alloys in the table are mostly metals. However, alloys can contain non-metals. Write down a non-metal element that is used in some types of alloys, including mild steel. **(1)**

_____

_____

33. **The diagram shows a food chain for organisms that live in an area of farmland. (5)**



Animal	Predator	Prey	Both
Aphid			
Beetle			
Bat			

a. Complete the table to show whether each of the organisms is a predator, prey or both. Add one tick to each row.

b. In this food chain, the alfalfa plant is the producer. What is meant by 'producer'?

_____

_____

c. Many microorganisms live in the soil of the farmland. Microorganisms are important for healthy growth of the alfalfa plants. Explain why.

_____

_____

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