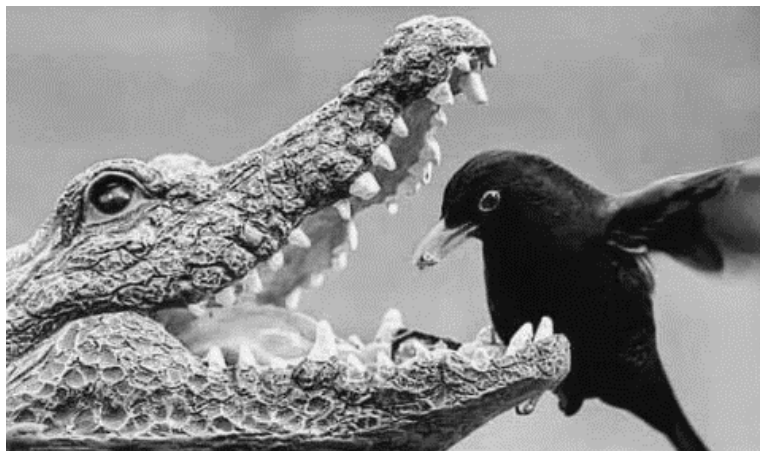


Annual Examinations for Middle Schools 2023

YEAR 7 **INTEGRATED SCIENCE** **TIME: 1h 30min**

Name: _____ Class: _____

1. James was watching a YouTube video. He watched a bird eating seeds when a crocodile attacked and ate the bird. The video described the crocodiles as 'powerful reptiles'.



- a. Use the information above to draw the food chain described in this video.

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(4)

- b. State whether each of the statements below is 'True' or 'False'.

crocodiles are herbivores	
birds have a body covered with feathers	
crocodiles lay eggs in water	
birds are producers	

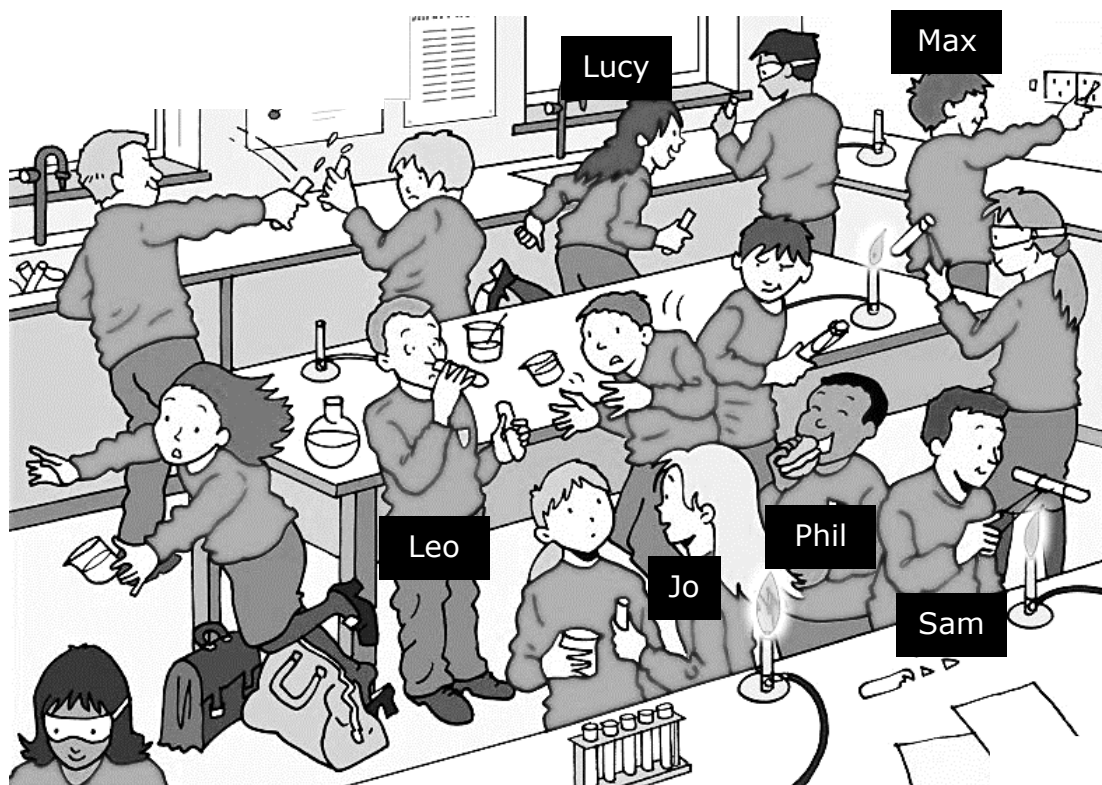
(4)

- c. If seeds are not eaten by the birds, they can germinate into a new plant. Name the vital function being described.

_____ (1)

Total: 9 marks

2. a. The picture below shows a group of students who went into the Science lab without their teacher's permission and behaved incorrectly.



Choose FOUR named students and explain what each one is doing wrong.

Student's name	Behaviour

(4)

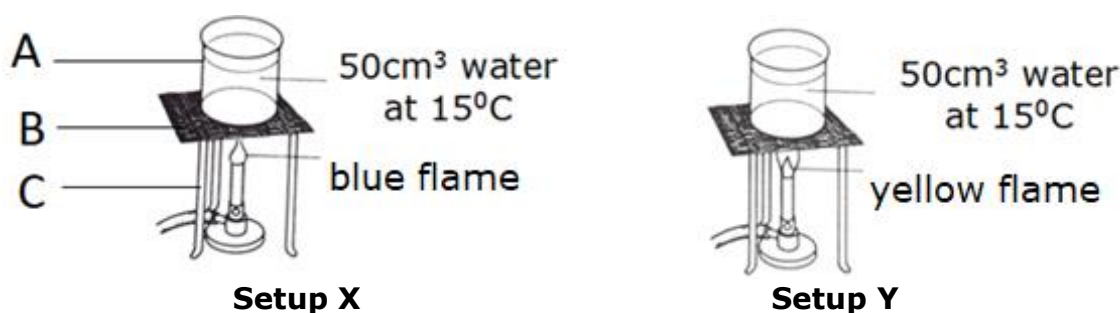
- b. The students' incorrect behaviour can start a fire. Fill in the boxes in the fire triangle below to include the 3 components required for a fire to start.



(3)

Total: 7 marks

3. Theo carried out an experiment to check which Bunsen flame would make 50cm³ of water reach boiling point faster. He used the two setups below.



- a. In which setup is the Bunsen burner's air-hole open? _____ (1)

- b. Name the apparatus labelled 'A', 'B', and 'C'.

A		B		C		(3)
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- c. Name the measuring instruments used by Theo to measure:

i. 50cm³ of water: _____

ii. 15°C: _____ (2)

- d. In which setup is the beaker of water expected to boil faster? Give a reason for your answer.

 _____ (2)

- e. Theo waited till the water in the beaker started boiling.

i. What is the temperature of boiling water? _____ (2)

ii. State TWO observations Theo made when the water reached boiling point.

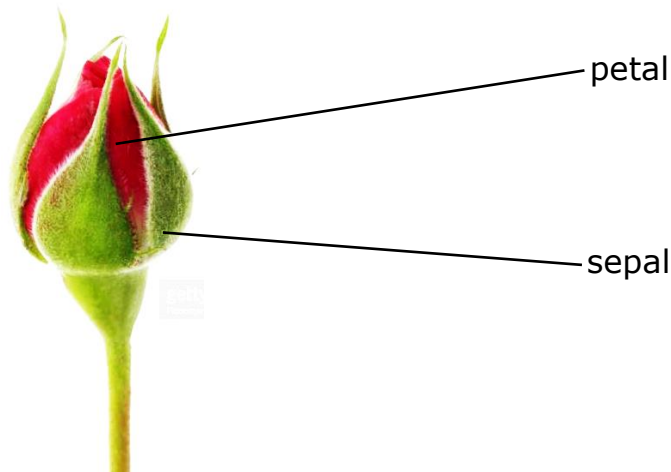
 _____ (2)

- f. State TWO precautions Theo had to take to make sure he had a fair test.

 _____ (2)

Total: 14 marks

4. The diagram shows an insect-pollinated flower when still a bud. The sepals can be seen enclosing the petals.



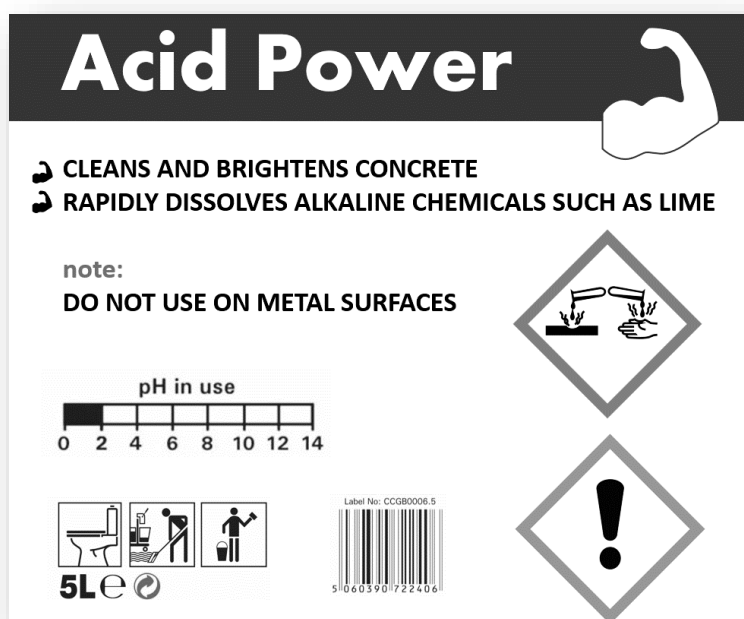
- a. i. The sepals are green. Name the part of the plant cell that makes sepals look green, and state its function.
- Cell part: _____
- Function: _____ (2)
- ii. These petals are bright red. Explain the importance of bright red petals to this flowering plant.
- _____
- _____ (2)
- b. i. Apart from insect-pollination, name ONE other method of pollination used by plants.
- _____ (1)
- ii. Name the flower part that produces pollen.
- _____ (1)
- iii. Mention ONE characteristic of the flower's female sex organ that allows it to receive pollen.
- _____ (1)
- c. Pollen is a specialised plant cell.
- i. Name ONE specialised animal cell.
- _____ (1)
- ii. State the function of the specialised animal cell named above.
- _____ (1)

- d. This plant is anchored firmly to the ground by its roots. Describe ONE other function of the roots and explain its importance.

(2)

Total: 11 marks

5. a. The picture shows the label of an acid used for heavy duty cleaning.



- i. State how the label shows that this chemical should be handled with care.

(1)

- ii. The label indicates that this product has a pH 2. Describe the steps you would follow to confirm the pH of this product.

(2)

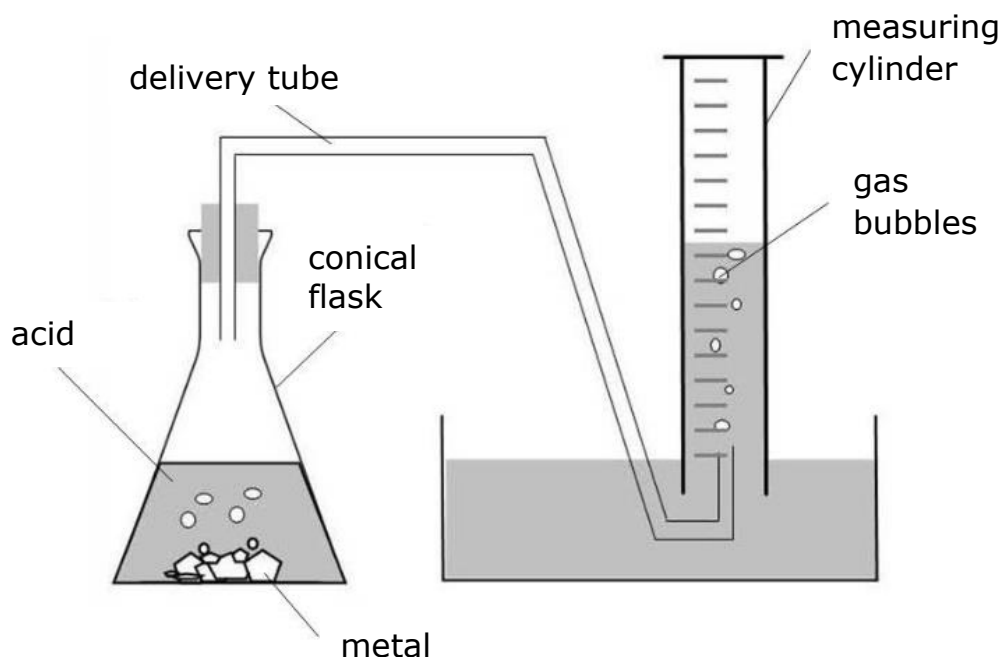
- iii. Use the information on the label to state what will happen to a strip of red litmus paper when dipped in lime.

(1)

- iv. Name the type of reaction between this acid product and lime.

(1)

- b. The label warns against the use of this product on metals. Using the setup below, a lab scientist investigated what happens when this acid is added to metals. He observed bubbles of a gas being released.



- i. Name the gas collected in the measuring cylinder.

_____ (1)

- ii. Describe a test that confirms the presence of the gas collected in the measuring cylinder.

_____ (1)

- c. The table below indicates the preferred soil pH of 4 different crops.

crop	potato	peas	cabbage	asparagus
preferred pH	pH 5	pH 6	pH 7	pH 8

- i. Name the crop that a farmer should grow if the soil is slightly alkaline.

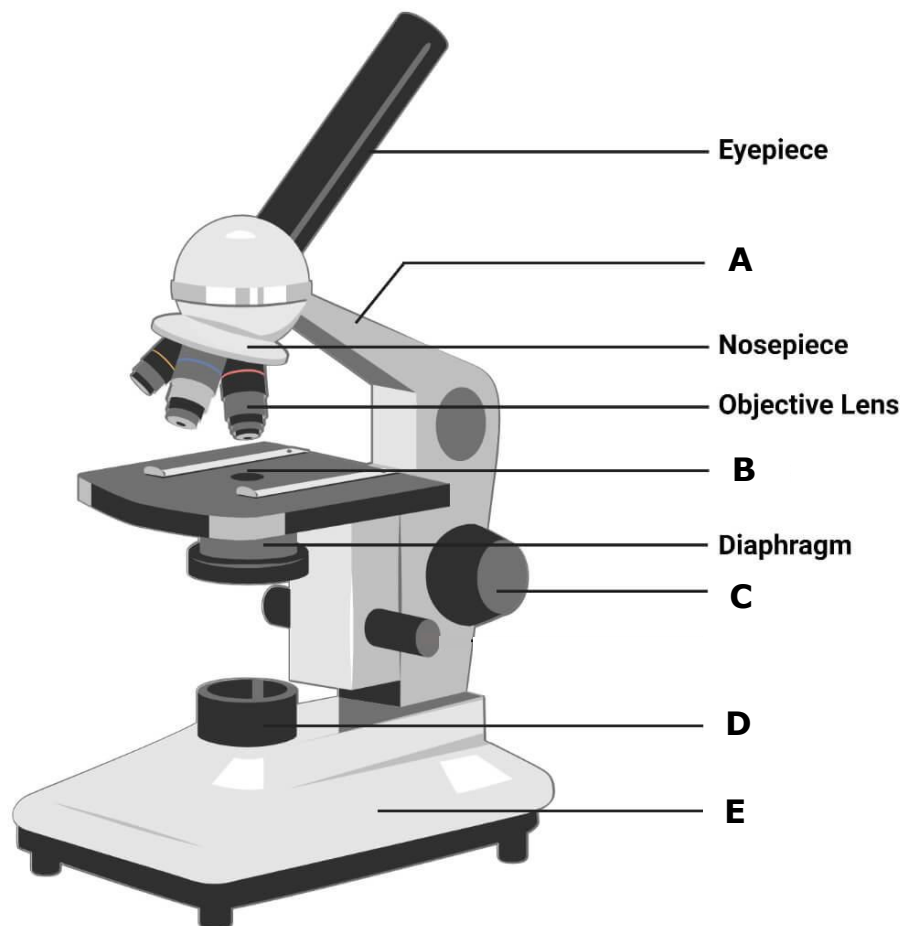
_____ (1)

- ii. Name the crop that a farmer should grow if the soil is neutral.

_____ (1)

Total: 9 marks

6. a. Most medical laboratories are equipped with a light microscope that can be used to observe cells which are too small to be seen with the naked eye. A light microscope is shown in the labelled diagram below.



- i. From the labels marked '**A**', '**B**', '**C**', '**D**' and '**E**', give the letter indicating the place where a lab scientist should place a slide with cells.

_____ (1)

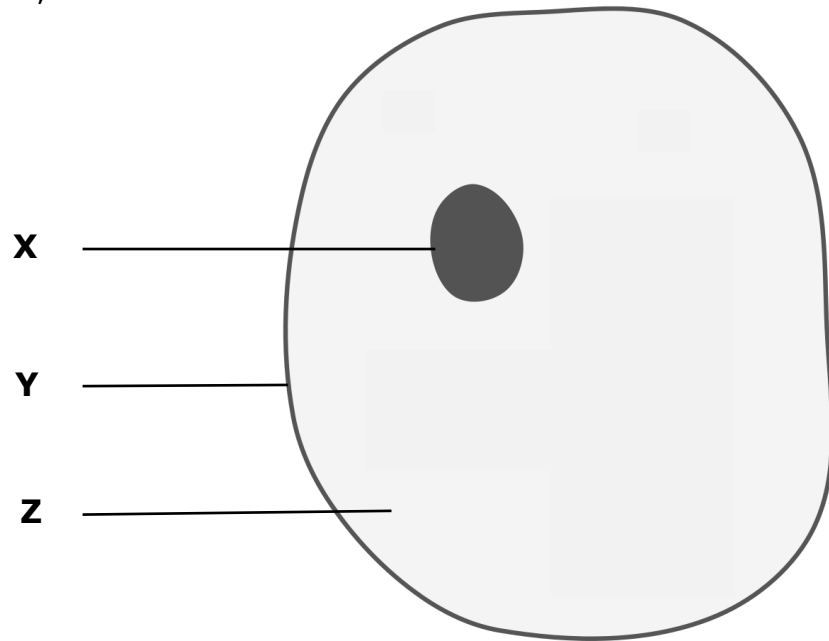
- ii. Explain the function of the part labelled '**C**'.

_____ (1)

- iii. The scientist states that, 'the eyepiece also contributes to obtaining a magnified image'. State whether you agree with this statement, giving a reason for your answer.

_____ (2)

- b. A typical animal cell can be seen in the diagram below. Three structures are labelled 'X', 'Y' and 'Z'.



- i. Identify the letter that represents the nucleus.

_____ (1)

- ii. Name the part labelled 'Z' and describe ONE of its function.

Name: _____

Function: _____ (2)

- iii. A student states that, 'a typical plant cell looks different from this animal cell'. Name TWO differences between an animal and a plant cell.

_____ (2)

Total: 9 marks

7. a. Put in the correct order, the following steps about the process of human reproduction:

birth	production of sex cells		
pregnancy	sexual intercourse	fertilisation	

Step 1: _____

Step 2: _____

Step 3: _____

Step 4: _____

Step 5: _____

(5)

- b. i. A woman is **not** pregnant. Using the options in the boxes below, write the day of the menstrual cycle, next to the menstrual cycle phases listed in the table underneath.

Day 1 of menstrual cycle	Day 5 of menstrual cycle
Day 14 of menstrual cycle	Around day 15 of menstrual cycle

	Menstrual cycle phase	Day of the menstrual cycle
1	uterus lining starts to build up again	
2	egg almost reaches uterus and dies	
3	uterus lining breaks and starts getting lost through vagina	
4	ovary releases an egg	

(4)

- ii. From the list of menstrual cycle phases above, write the phase that will show the woman that she is not pregnant.

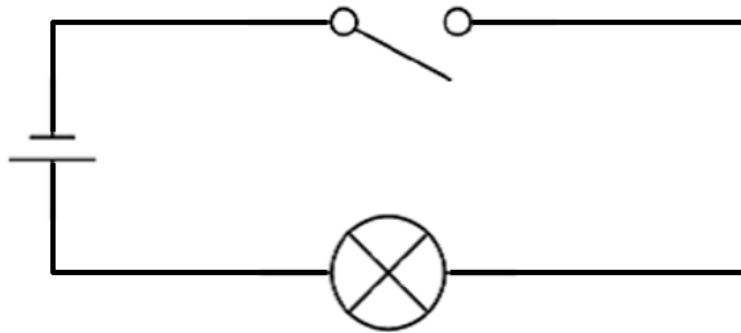
_____ (1)

Total: 10 marks

8. a. None of the lamps in circuits 'A', 'B' and 'C' are lighting up. Give a reason why the lamp in each circuit is not lighting up.

i.

Circuit **A**

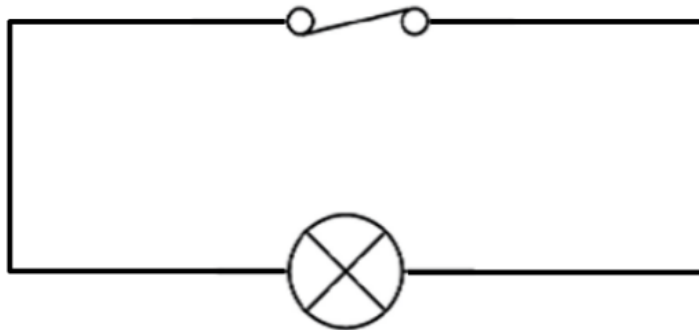


Lamp in circuit A will not light up because _____

(1)

ii.

Circuit **B**

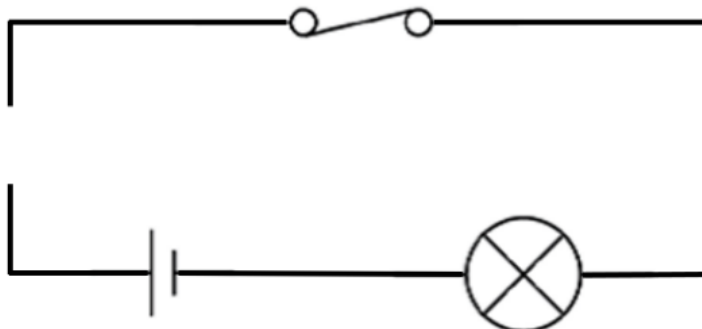


Lamp in circuit B will not light up because _____

(1)

iii.

Circuit **C**



Lamp in circuit C will not light up because _____

(1)

- b. i. Martha is a licenced electrician. She connected the lights in a house in parallel and not in series. Give ONE reason why she took this decision.

(1)

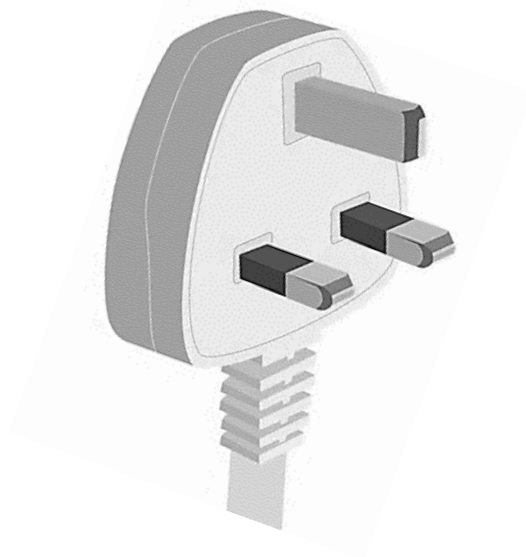
- ii. Martha uses rubber gloves when working on circuits that are connected to the main electricity supply. Explain the use of rubber gloves.

(1)

- iii. Martha's first job was in a power station running on fuel. Identify the main energy change in this power station.

(2)

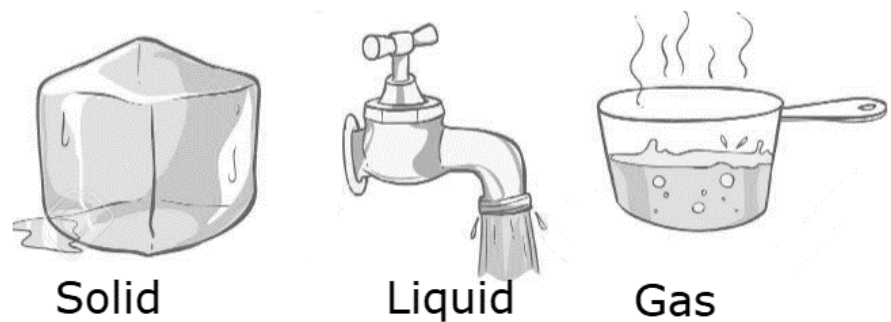
- c. Plugs connect electrical equipment to the electrical power supply. On the diagram label a part of the plug that is a conductor of electricity.



(1)

Total: 8 marks

9. Students observed that water can exist in 3 different states, as shown in the diagram below.

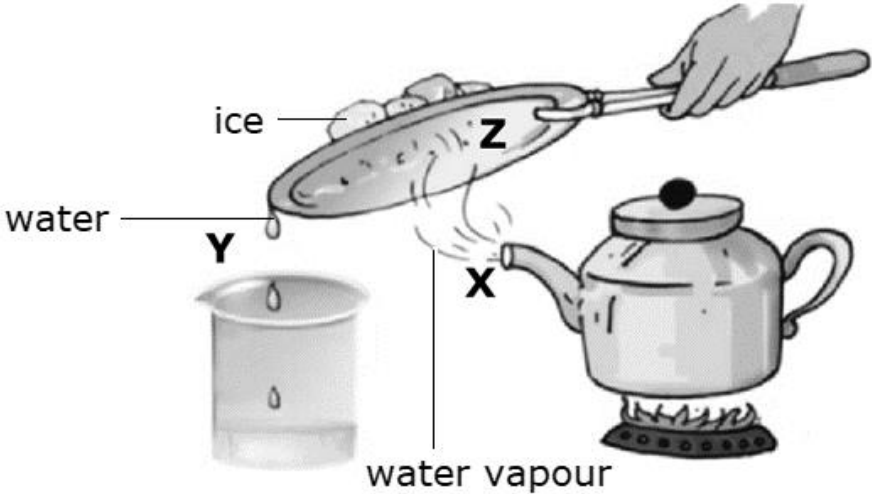


- a. i. State one reason why water is important for living things, in each of its states.

State	Reason why it is important
Solid	
Liquid	
Gas	

(3)

- ii. During an experiment, students set up the apparatus shown below.



During this experiment, they could observe **evaporation**, **condensation**, and **melting**. State which letter represents each process.

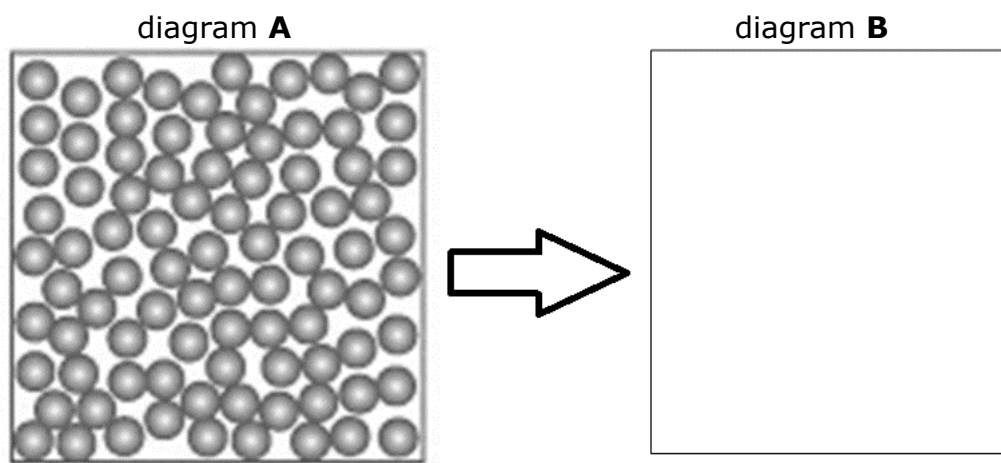
X: _____

Y: _____

Z: _____

(3)

- b. Diagram 'A' below shows the particles of water in the kettle before lighting up the burner.
- i. Complete diagram 'B' to show what happened to the particles when water started boiling.



water in the kettle

boiling water in the kettle (2)

- ii. Explain what happened to the particles as the temperature started increasing.

(2)

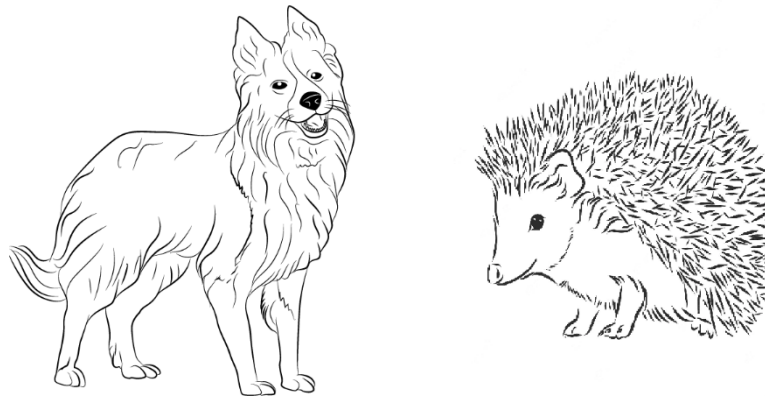
- c. Particle arrangement varies from state to state, making the properties of solids, liquids, and gases different. Read the properties below and state whether they belong to solids, liquids and gases.

Property	Solid, Liquid or Gas?
The particles take the shape of the container's bottom.	
The particles can be easily compressed.	
The particles are arranged in a regular pattern.	
The particles can only vibrate.	

(4)

Total: 14 marks

10. Jennifer observed that her dog was sharing its dinner with a hedgehog that visited the garden every evening.



(not drawn to scale)

- a. Both the dog and the hedgehog are vertebrates and have fur. Name the group of vertebrates to which they belong. (1)
- _____
- b. Both the dog and the hedgehog are said to be warm-blooded. Explain the meaning of the term warm-blooded. (1)
- _____
- c. Other than having fur or hair and being warm-blooded, state TWO characteristics common to this group of vertebrates. (2)
1. _____
2. _____
- d. Jennifer observed the behaviour of both her dog and the visiting hedgehog. From the list below, tick (✓) the statements that describe an observation.

the dog is called Chloe	
the hedgehog is about 20cm long	
Jennifer thought of naming the hedgehog Lulu	
the hedgehog had longer bristles at the back of its body	
the hedgehog had a greyish colour	

(3)

- e. During a car ride with her dad, Jennifer observed these symbols on the road. Her dad said that hedgehogs are endangered.



- i. Give the meaning of the term endangered.

_____ (1)

- ii. Explain why such signs on the road are useful.

_____ (1)

Total: 9 marks

END OF PAPER – CHECK YOUR WORK

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