

# Science Quick Quizzes

## Year 4 Answers

### Year 4 States of matter Quick Quiz Answers

Q1. Water

Scott has a plastic bottle with water in it.

He wants to freeze the water by putting the bottle in a freezer.

Complete the labels by writing **solid** or **liquid** in each box.

(i) The bottle **before** going into the freezer.

**bottle**

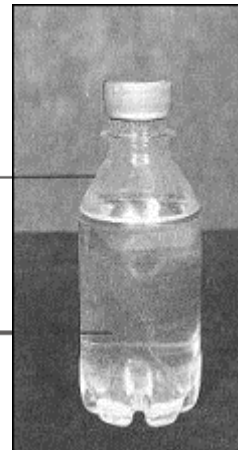


Solid ✓

**water**



Liquid ✓



1 mark

(ii) The bottle just **after** being in the freezer for 24 hours.



**bottle**



Solid ✓

**ice**



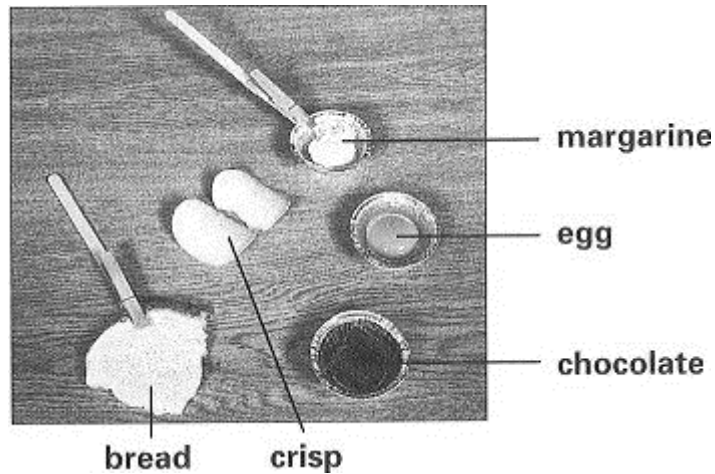
Solid ✓

1 mark

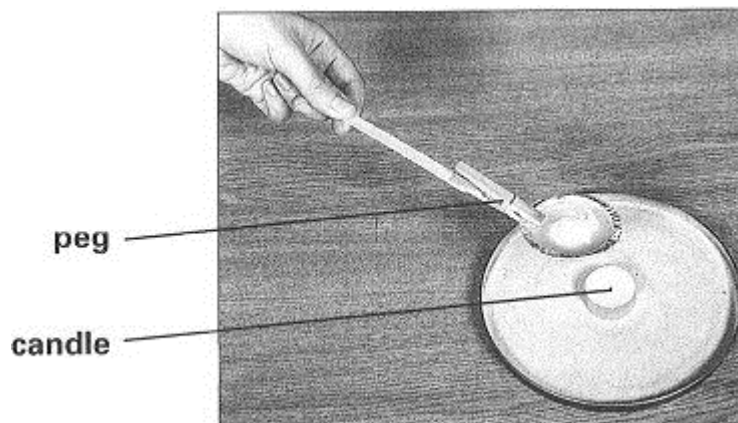
Q2. Heating and Cooling

(a) Some children want to see how food changes when it is heated and cooled.

They have five different kinds of food.



They use a small candle to heat each kind of food, then leave each to cool.



They use a peg to hold the food over the lighted candle.

Why is it **safer** to hold the food with a peg instead of with the hand?

So, you don't burn your hand because the aluminium foil case gets very hot when it is in the flame. ✓

1 mark

(b) To be safe, they put sand around the candle to hold it upright.

Give another reason why **sand** is a good material to have around a **lighted** candle.

Sand cannot catch fire – it is not flammable. ✓ (Alternative: Sand is not a good conductor, so does not get very hot.)

1 mark

(c) When margarine is heated, it melts and becomes a liquid.

When it cools, it goes back to a solid. This is a **reversible** change.

Complete this table.

Write **yes** or **no** in each box.

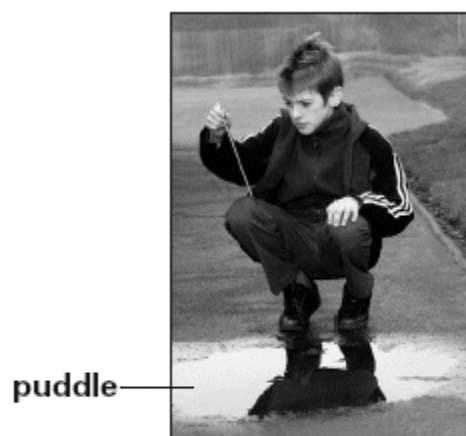


Food	Change when heated	Is the change reversible?
Margarine	melts	yes
Egg	changes colour	no ✓
Chocolate	melts	yes ✓
Bread	becomes toasted	no ✓
Crisp	burns	no ✓

(½ mark for each correct answer) 2 marks

Q3. Ice

(a) Tom is measuring the air temperature outside.



What is temperature a measure of?




How hot or cold something is ✓

.....

1 mark

(b) Tom records the air temperatures in the table below.


(i) Write **yes** or **no** to show if Tom could find ice on the puddle each day.



	Day				
	Mon	Tues	Wed	Thurs	Fri
Temperature (°C)	3	-2	-1	-1	6
Could Tom find ice on the puddle? Yes or no?	no ✓	yes ✓	yes ✓	yes ✓	no ✓

(All answers must be correct to get the mark) 1 mark

(ii) Explain why there could be ice on the puddle on the days you chose.



Water freezes (turns from a liquid to a solid) at 0°C so  
.....  
at any temperature less than this the water could have  
frozen to form ice ✓


1 mark

#### Q4. Keeping cool

(a) Jamal is thinking about how to keep ice cubes from changing into water on a hot day.

Jamal says 'I think if you put the ice cubes inside lots of plastic bags they will stay frozen for longer.'

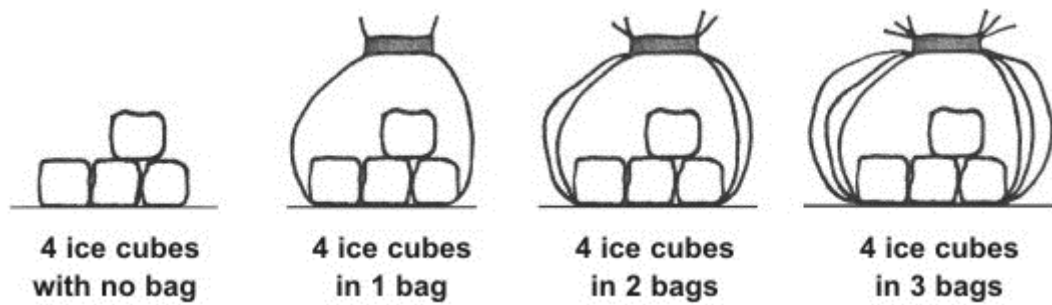
Tick **ONE** box to show what sort of statement Jamal has made.



an observation	<input type="checkbox"/>	a prediction	<input checked="" type="checkbox"/>
a conclusion	<input type="checkbox"/>	a measurement	<input type="checkbox"/>

1 mark

(b) Jamal puts four ice cubes in different numbers of plastic bags.



He records the time it takes the ice cubes to change to water.

Name the process that describes the change from ice to water.

 Melting ✓


1 mark

(c) Jamal records his results in a table.

Number of plastic bags	Time for ice to change to water (minutes)
0	140
1	160
2	205
3	225

Choose **ONE** word from the box below to complete the sentence about the plastic bags.

dissolved   condensed   heated   insulated   evaporated

 The table shows that the ice is .....insulated ✓..... by the plastic bags so that the ice changes to water more slowly.

1 mark

(d) Tick **ONE** box to show the temperature of water when it changes to ice.



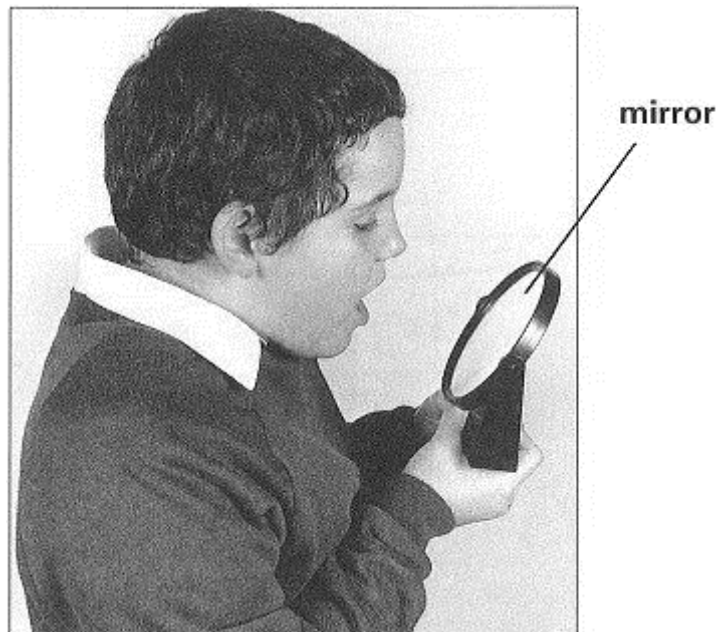
-10°C ☐      0°C ☒ X ✓      10°C ☐      100°C ☐

1 mark

Q5. Breathing

(a) Nick breathes onto a mirror.

It becomes misty.



Choose one reason that helps to explain why the mirror becomes misty when he breathes on it.

Tick **ONE** box.



The mirror is hotter than his breath.

☐

The mirror is colder than his breath.

☒

The mirror is the same temperature as his breath.

☐

The mirror is dry.

☐

1 mark

(b) Name the process that makes the mist appear on the mirror.




Condensation ✓

1 mark

(c) After a few moments, the mist has gone.

Nick has **not** wiped the mirror.

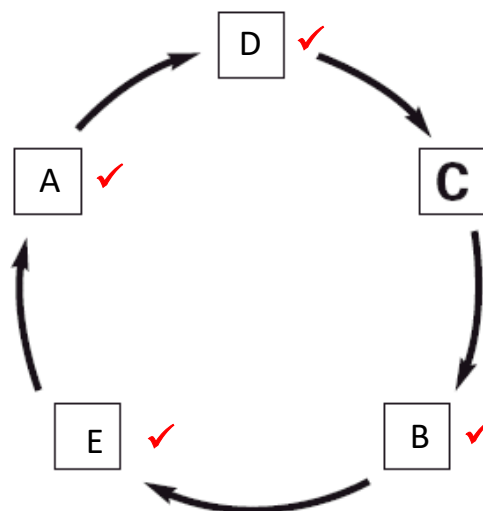
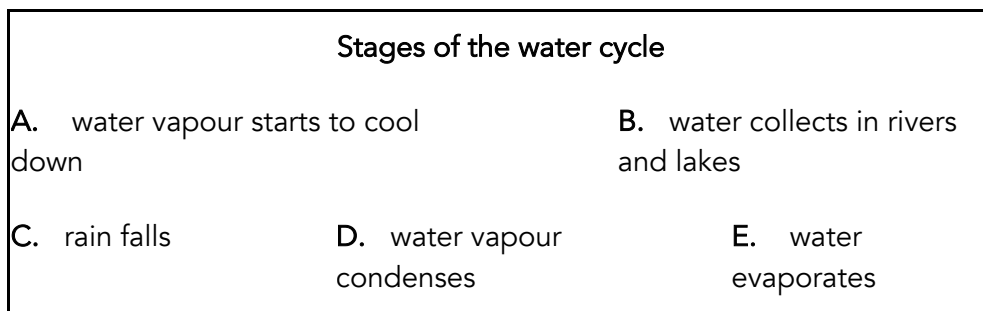
What has happened to the mist to make the mirror look clear again?

 The tiny water droplets on the mirror (the condensation) has evaporated. ✓

1 mark

#### Q6. Watering plants

Rain falling is part of the water cycle. Write the letters **A–E** on the diagram to show the order of the stages in the water cycle. One stage is done for you.



(1/2 mark for each correctly placed letter) 2 marks

Total: /18

## Year 4 Sound Quick Quiz Answers

### Q1. Drums

- (a) This is a picture of a famous musician. Her name is Evelyn Glennie. She plays the drums.



Evelyn moves the drumstick downwards to hit the drum skin. Then the drumstick bounces back up.



Tick **ONE** box to show what force causes the drumstick to bounce up after it has hit the drum skin.



a pushing force from the drum skin

☒

a pushing force from gravity

☐

a pulling force from the drum skin

☐

a pulling force from gravity

☐

1 mark

- (b) Evelyn is deaf. She cannot hear the drum with her ears.






When she has bare feet, she can feel the drum’s sound with her feet.


The sound can travel from the drum through the air to Evelyn’s feet.

Name **ONE other** thing that the sound can travel through from the drum to get to Evelyn’s feet.

 The floor ✓

1 mark


(c) What can Evelyn feel with her feet when the drum makes a sound?

 She can feel the vibrations in the floor ✓

1 mark

(d) Evelyn can change the way she plays the drum.  
She can make the sound get louder or higher.

Tick **ONE** box on each row of the table to show if the sound will get louder or higher.



How Evelyn plays the drum	The sound...		
	gets higher.	gets louder.	does not get higher or louder.
with a tighter drum skin	✓		
hit the drum with more force		✓	
hit the drum faster with the same force			✓

( All three ticks required to get a mark) 1 mark

Q2. Straw sounds

(a) Polly has a straw. She cuts one end of the straw.



She blows into the cut end of the straw. It makes a sound.



The sound is caused by vibrations.

Name **TWO** things that vibrate to cause this sound.

 The straw ✓ and the air ✓

(1/2 mark for each correct answer) 1 mark

- (b) Polly thinks that changing the length of the straw may change how high or low the note is.

What is the scientific name for how high or low a note is?

 pitch ✓


1 mark

- (c) Polly cuts four identical straws into different lengths.



Her friends blow gently into the straws. The note from each straw is different. Some notes are high and some are low.

Describe how the length of a straw affects how high or low the note is.

 The shorter the straw the higher the note, the longer the straw, the lower the note. ✓

1 mark

- (d) (i) Tania says 'Polly's test is not a fair test because a different person is blowing into each straw.'

Why might Polly's test **not** be a fair test if different people blow into each straw?

Some people might blow air through the straw more quickly.  
Some people might have a bigger breath (or similar). ✓

1 mark

(ii) Polly says 'It might not be a fair test even if one person blows into each straw.'

Explain why it might **not** be a fair test even if one person blows into each straw.

They might not blow the straw in the same way each  
time – sometimes gently and sometimes stronger. ✓

1 mark

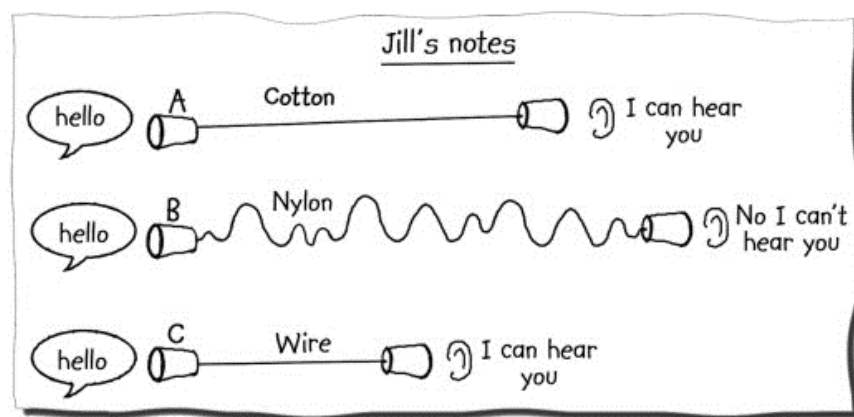
### Q3. Travelling sounds

- (a) Jill investigated whether or not sound travelled through different materials.

She made three telephones using plastic cups.

She used different materials to connect the cups.

One child talked through the telephone and Jill listened.




Look at Jill's notes of her investigation.

How many different materials did Jill test?

Three ✓

1 mark

(b) What was the factor Jill observed or measured to collect her results?

 Whether she could hear the sound or not. ✓


1 mark

(c) Jill changed three factors at the same time.

Complete the list to show the **THREE** factors Jill changed in this investigation

The first one has been done for you.


1. The tightness of the line .....

 2 The type of string ✓

3 The length of the string ✓

2 marks

(d) Why is it important to change only **ONE** factor at a time in an investigation?

 If you change more than one, you don't know which factor it was that affected your observations/measurements. ✓

1 mark


(e) Jill carried out her investigation of sound travelling through different materials again. She made sure only one factor was changed.

Jill described her conclusion.



Jill's teacher said this was **not** a useful science conclusion for her investigation.

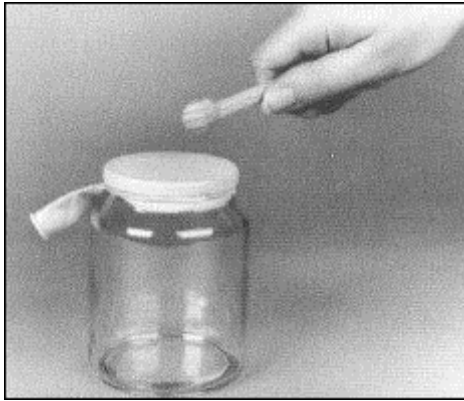
Why was Jill's conclusion **not** a useful science conclusion?

 She didn't carry out a fair test, so it is not fair to compare the results she got for the three materials. She hasn't explained what she means by 'best'. ✓

1 mark

#### Q4. Sound

(a) Carina makes a drum by stretching a balloon over the top of a jam jar.



She hits the stretched balloon with a beater.

It makes a sound.

What does the sound travel through to reach Carina's ears?


 The air ✓

1 mark

(b) She pulls the balloon more tightly over the jar.


This changes the pitch of the sound.

(i) Describe what pitch means.

 How high or low a note/sound is. ✓

1 mark

(ii) How does the pitch change when the balloon is tighter?

 It becomes higher. ✓

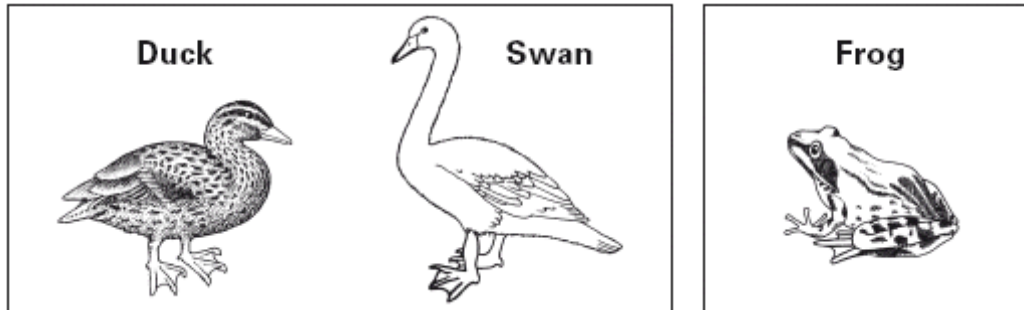
1 mark

Total: /18

## Year 4 Living things and their habitats Quick Quiz Answers

### Q1. River wildlife

- (a) Some children visit a river and see a duck, a swan and a frog. The children use the features of the animals to sort the duck and swan into one group and the frog into another.



- (i) Name a feature of the duck and the swan that puts them in the **same** group **without** the frog.

..... **Beak/webbed feet/feathers** ✓

1 mark

- (ii) Describe a feature the children could use to put the duck and the swan into **different** groups.

..... **Length of neck/colour** ✓

1 mark

- (b) Ducks can be sorted into different groups.

Tick **ONE** box to show why it is a good idea to sort the ducks into groups.



to help rescue ducks from polluted rivers

☐

to help identify different ducks

☒

to work out what a baby duck will look like when it grows

☐

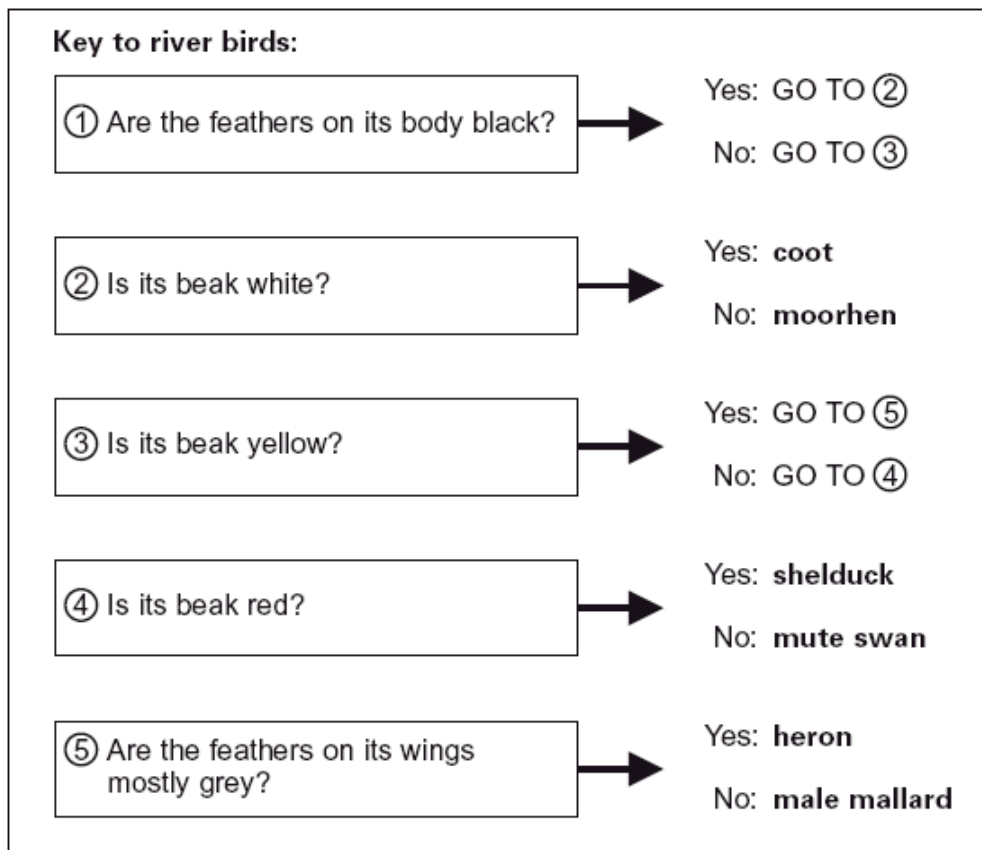
because there are a lot of plants ducks like to eat


☐

1 mark

- (c) The children use the key below to identify some other birds they see.

Use the key to name **TWO** birds that have black feathers on their bodies.




 coot ✓ and moorhen ✓

2 marks

(d) Use the key to answer the question below.

What colour are the wings and beak of a heron?

 The wings are Mostly grey ✓

The beak is yellow ✓

1 mark

## Q2. Sorting animals

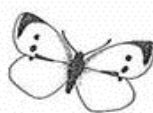
(a) Some children went to their local zoo. They saw these animals:



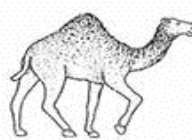
ostrich



cow  
wk




butterfly



camel



sparrowha

 Tick **TWO** boxes to show which **two** things the cow and camel have in common.

They both have horns.	<input type="checkbox"/>	They both have fur or hair.	<input checked="" type="checkbox"/>
They both have a hump.	<input type="checkbox"/>	They both have four legs.	<input checked="" type="checkbox"/>


1 mark

(b) Mandy and Halim sort all the animals using the following table.

Write the names of the **five** animals above into the correct boxes in the table.

One has been done for you.

You can write more than one animal in each box.

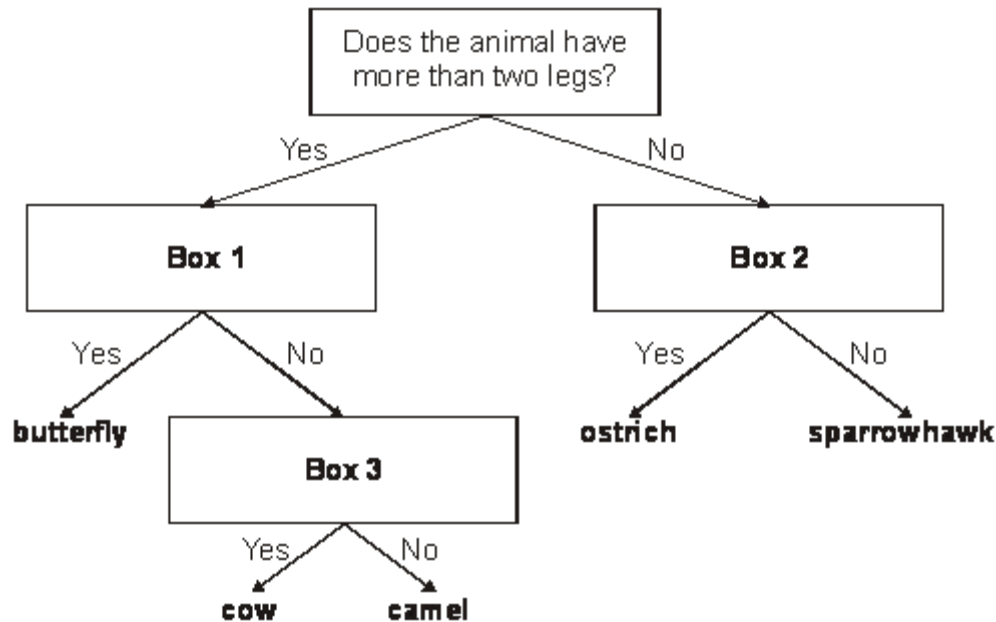


	Has feathers	Does not have feathers
Can fly	Sparrow hawk ✓	Butterfly ✓
Cannot fly	ostrich	Cow, Camel ✓

2 marks

(c) Mandy and Halim sort the animals using the key below.





Three questions are missing from their key.

Circle **1**, **2** or **3** next to each question below to show which box in the key the question goes in.

Question	The question goes in box ...		
Does it have a long neck?	1	<b>2</b>	3
Does it have horns?	1	2	<b>3</b>
Does it have antennae?	<b>1</b>	2	3

1 mark

(d) It is important for scientists to classify animals into groups.

Tick **ONE** box to show the best reason for classifying animals.

to compare the many types of animal

☒

to find out which animals eat them

☐

to find out which animals live in trees

☐

to help find animals in the wild

☐

1 mark

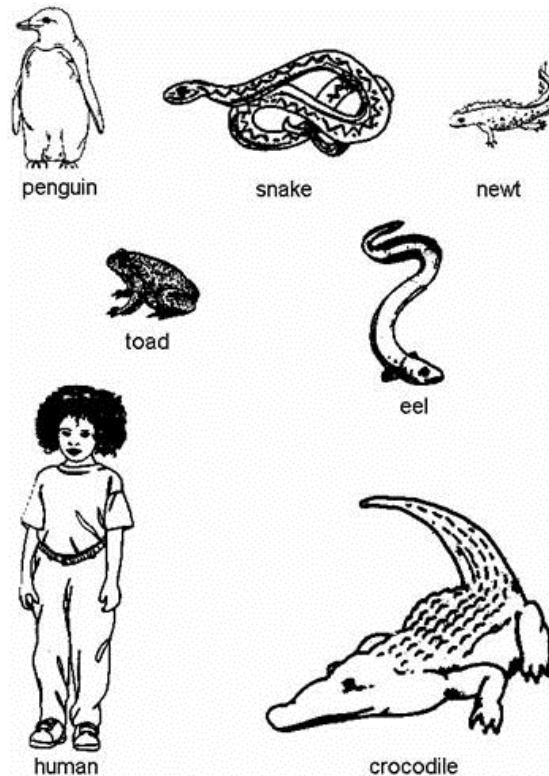
Q3. Living things


Use the information on below to put the animals in groups.

Write the name of **each** animal in the correct box on the next page.

Two have been done for you.

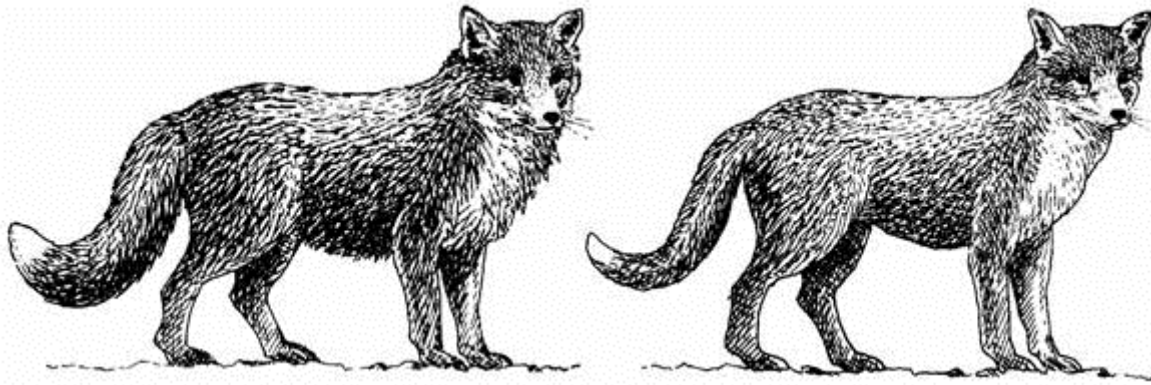
Some boxes have more than one animal.



If it	.. has hairy skin, .. feeds milk to young and .. is warm-blooded	 then it is a	<b>mammal.</b> <i>human</i>
If it	.. has feathers, .. lays eggs and .. is warm-blooded	 then it is a	<b>bird.</b> <i>penguin</i>
If it	.. has dry scaly skin, .. crawls on land, .. lays eggs and .. is cold-blooded	 then it is a	<b>reptile.</b> Snake or Crocodile ✓
If it	.. lives on land and in water and .. lays eggs in water	 then it is an	<b>amphibian.</b> newt ✓
If it	.. lives in water and .. has gills and fins	 then it is a	<b>fish.</b> Eel ✓

3 marks

- Q4. (a) Here are pictures of two fully grown foxes from different parts of the world.



A

B

Fox A is adapted to a cold part of the world.

It has a thick layer of fur.

Write **ONE** other way some mammals are adapted to cold climates.

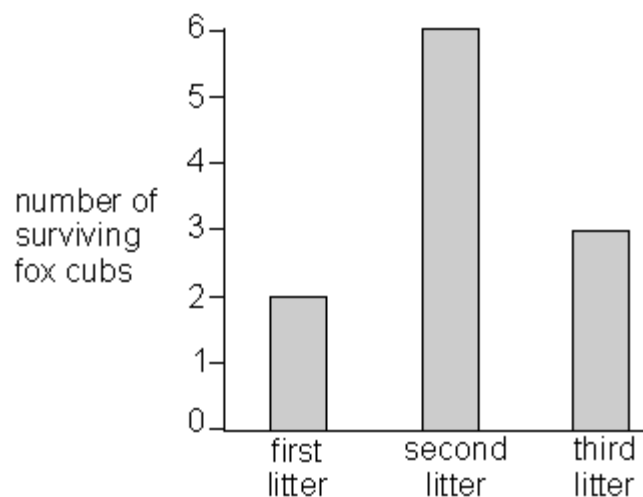
*White fur to camouflage* White fur to camouflage/large feet to spread weight on snow ✓

1 mark

- (b) A female fox gave birth to a litter of cubs in three successive years.

Each litter had six live cubs born into it.

The graph shows how many fox cubs survived to become adults from each litter.



Write **ONE** possible reason for the change in the number of fox cubs that survived from the third litter compared with the second litter.

 Not enough prey to eat/ predators have eaten them (badgers/golden eagles) ✓

1 mark

(c) The number of adult foxes in the area changed over three years.

Year	1994	1995	1993
Number of adult foxes	11	16	14

Write **ONE** possible reason for the change in numbers of adult foxes from 1994 to 1995.

 Fox hunting/lower numbers of prey to eat ✓

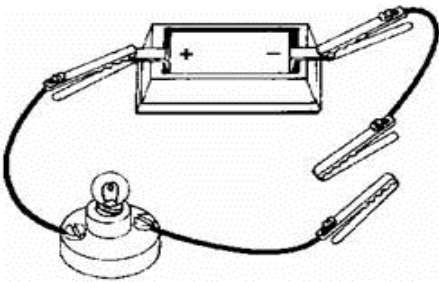
1 mark

Total: /17

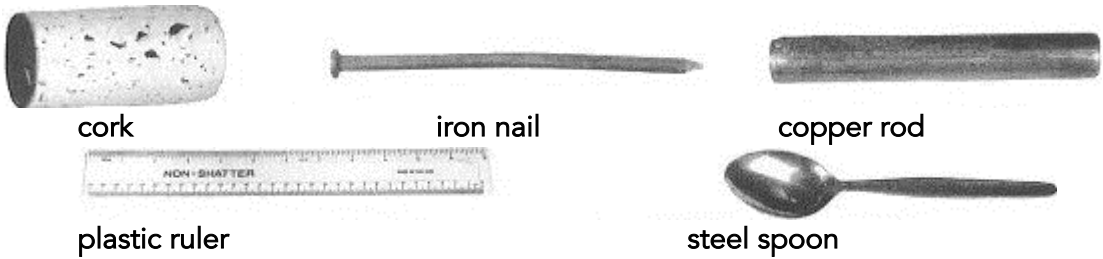
Year 4 Electricity Quick Quiz Answers

Q1. Simple circuit

(a) Sue has a cell (battery), some wire and a bulb. She makes a simple circuit.



Sue joins these objects into the circuit, to see if the bulb lights:



She records her results in this table

Object	A	B	C	D	E
		spoon			
Bulb lights?	No	Yes	Yes	No	Yes

Object **B** is the steel spoon.

Complete the sentences below to say what objects **A** and **C** are.

- (i) Object **A** is either the **Cork ✓** ..... or the **Plastic ruler ✓** .....
- (ii) Object **C** is either the **Copper rod ✓** ..... or the **Iron nail ✓** .....

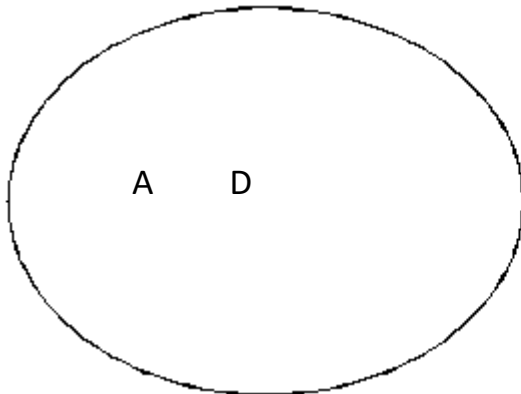
1 mark

1 mark

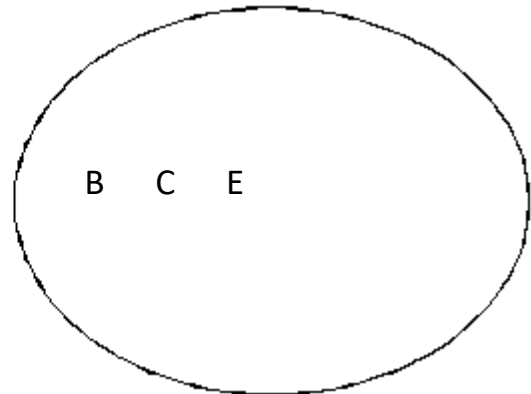
(b) Some of the objects are electrical insulators. Some are electrical conductors.

Use the information in Sue’s table. Write **A**, **B**, **C**, **D** and **E** in the correct group below to sort the objects.

Electrical insulators



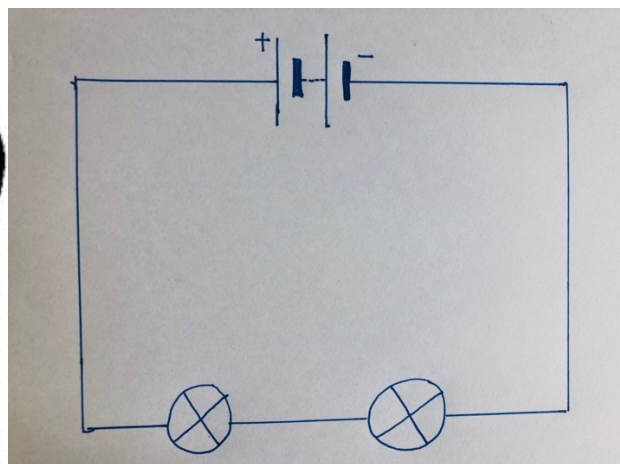
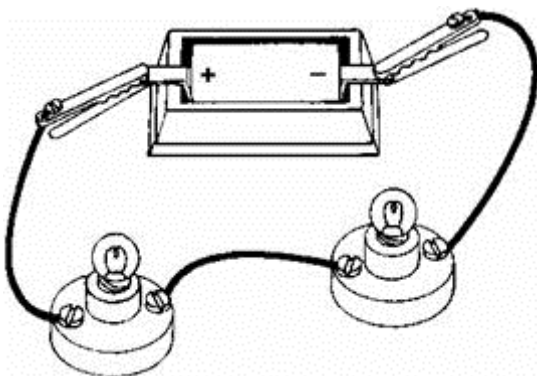
Electrical conductors



1 mark

(c) David makes a circuit with two bulbs and one cell (battery).  
He draws a picture of it.

In the space below, draw a circuit diagram of David's circuit.  
Use symbols.

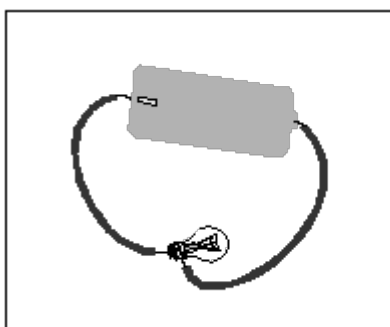


1 mark

Note: Pupils should be drawing the symbol for a battery (as shown) not a single cell.

## Q2. Electricity

Tick **ONE** box for each circuit to show whether the bulb **will** or **will not** light.

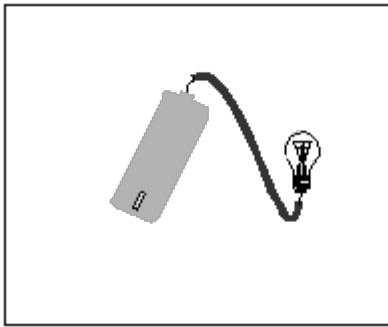



will light

will not light

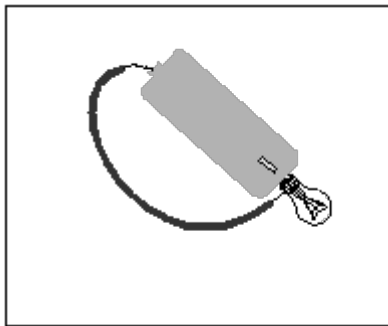



1 mark



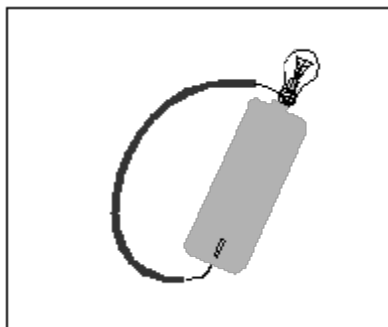
	will light	will not light
	<input type="checkbox"/>	<input checked="" type="checkbox"/>


1 mark



	will light	will not light
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 mark



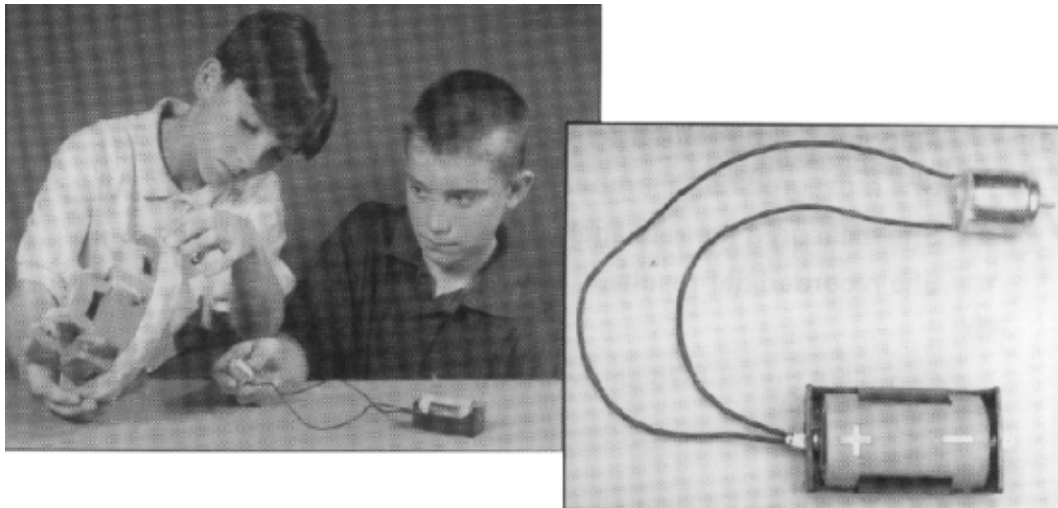
	will light	will not light
	<input checked="" type="checkbox"/>	<input type="checkbox"/>

1 mark

### Q3. Circuits


(a) Two children made a model fairground ride.

They connected a battery to an electric motor to make the model turn.



The motor is not working.

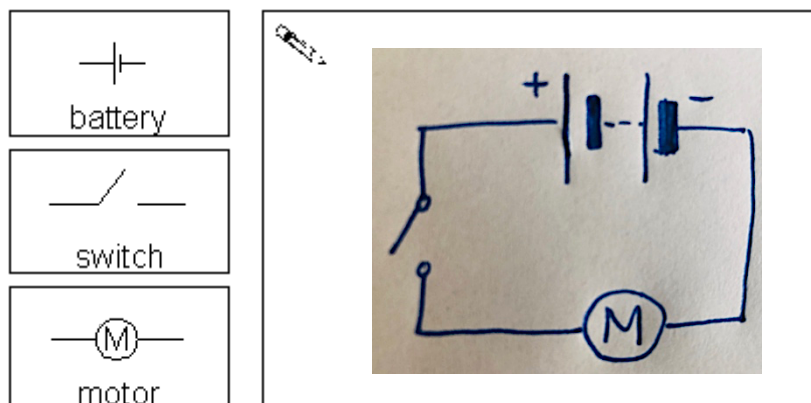
What is wrong with this circuit?

 The two wires are both connected to the positive end of the battery. For a complete circuit there needs to be a complete loop from the positive to the negative end of the battery. ✓

1 mark

(b) Draw a circuit diagram in which the switch can be used to turn the motor on and off.

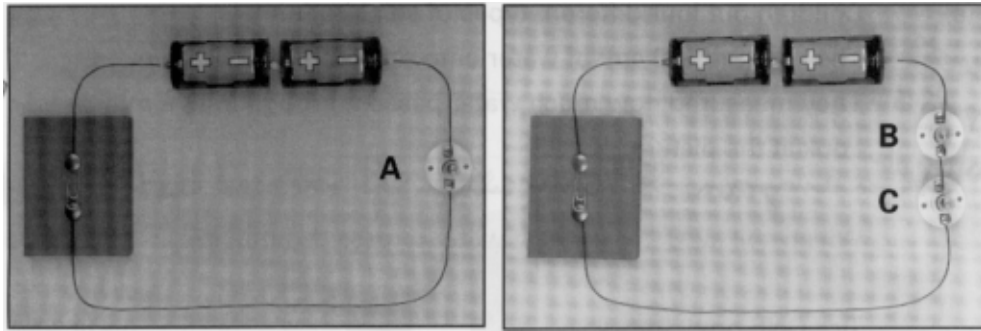
You **MUST** use these three symbols in your diagram.



1 mark

(c) Here are two different circuits which use the same kind of battery and bulb.





Which bulb will be the brightest?

Tick **ONE** box.



bulb A



bulb B



bulb C

1 mark

(d) The outside of this plug is made of plastic so that you do not get a shock when you plug it in.



Explain why the **plastic** helps to make the plug safe.



Plastic is an insulator; electricity cannot travel through it. ✓

1 mark

(e) Why is it dangerous to put a plug in when the plug is wet?



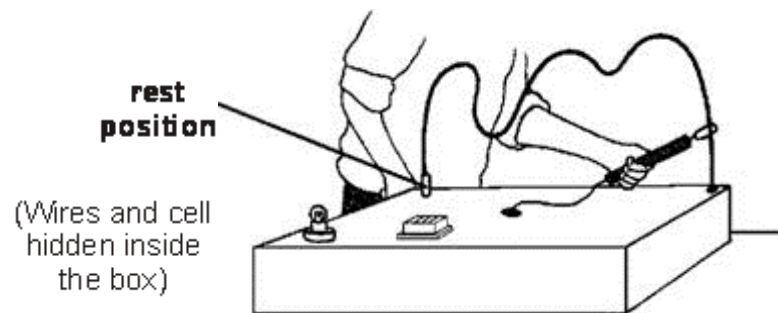
Water is a conductor; electricity can pass through it to your hand and give you an electric shock. ✓

1 mark

Q4. The Steady Hand Game

(a) Sita has made a game. In her game, she has to move a metal ring along a piece of thick wire until it reaches the rest position.

When she is moving it, the metal ring must not touch the wire. If it touches the wire, a bulb will light and a buzzer will make a noise.



The metal ring and the thick wire both let electricity through.

What is the scientific name for materials that let electricity through?

Conductor. ✓

1 mark

(b) Sita made the rest position by covering the wire with an insulating material. When she puts the metal ring down on the rest position, the bulb and buzzer cannot work.

Which materials might Sita have used to **insulate** the wire for the rest position?

Tick the three correct boxes.



clear sticky tape

☒

copper wire

☐

plasticine

☒

newspaper

☒

steel wool

☐

aluminium foil

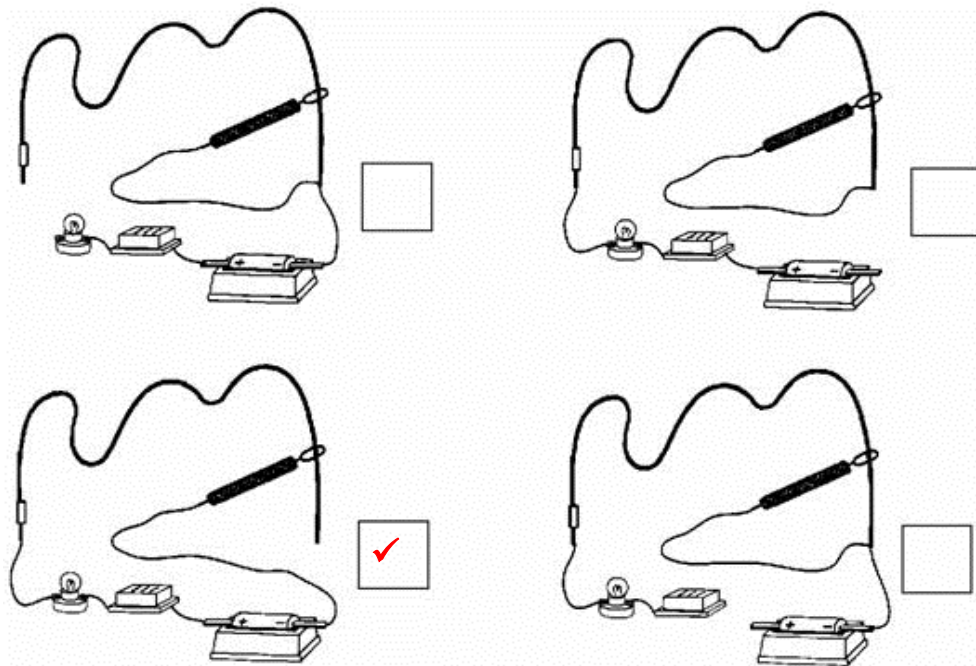
☐

2 marks

(c) The bulb and buzzer will only work in Sita's game when the metal ring touches the wire.

Tick **ONE** box to show which is the correct circuit for her game.

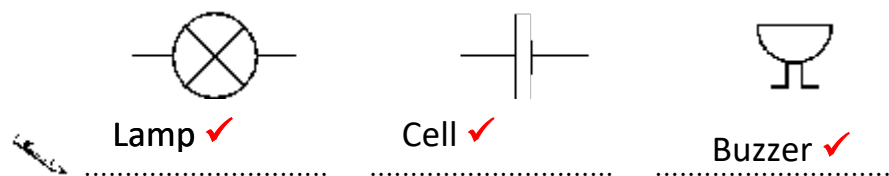
*Kalinda*



1 mark

(d) To make the electrical circuit for the game, Sita uses a buzzer, a bulb and a cell (battery).

Label the symbols below by writing **buzzer**, **bulb** or **cell**.



1 mark

(e) Kalinda plays the game. She thinks the buzzer should be louder.

How can Sita change her circuit so that the **same** buzzer makes a louder sound?

*Kalinda*

Add more batteries/Increase the voltage of the battery ✓

1 mark

Total: /19

## Year 4 Animals including humans

### Q1. Tooth care

- (a) Four children record how often they brush their teeth.


Name	Before breakfast	After breakfast	Before tea	Before bed
Mike	✓			✓
Ian		✓		✓
Lucy	✓		✓	
Molly		✓	✓	

Look at the table. Which child is **likely** to have the healthiest teeth?

 Ian ✓

1 mark

- (b) Why does brushing help to reduce tooth decay?

 It removes the plaque (harmful bacteria) that causes decay. ✓

1 mark

- (c) Which of the following would help most in reducing tooth decay?

Tick **ONE** box.



drink more  
orange juice

☐

eat less sugar

☒

eat less fat

☐

eat more  
vegetables

☐

1 mark

### Q2. Teeth

- (a) Rosie is doing a survey about canine teeth. She counts the number of adult canine teeth each pupil in year 4 has. She also counts the number of adult canine teeth each pupil in year 6 has.

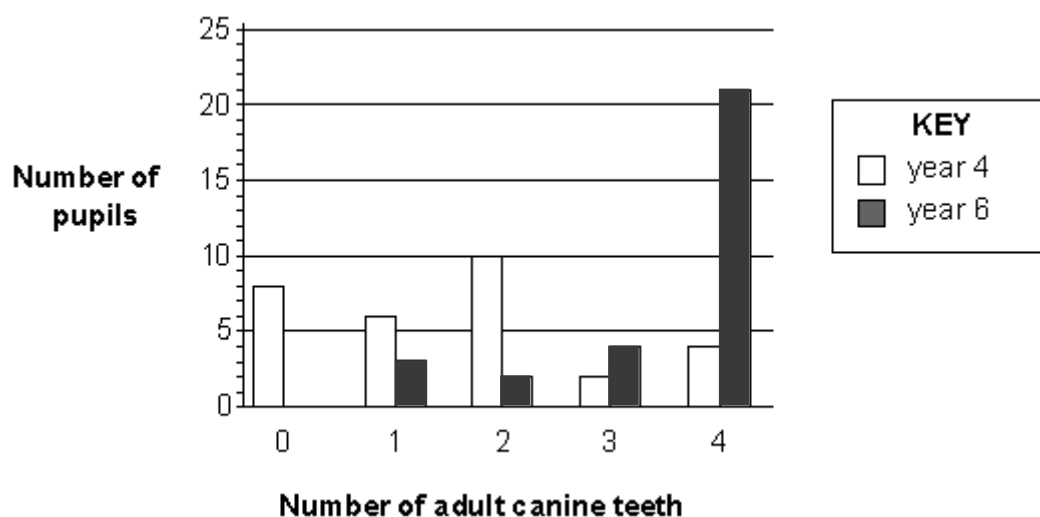
Number of adult canines	Number of pupils	
	Year 4	Year 6
0		
1		
2		
3		
4		

How many pupils in year 4 have only **two** adult canine teeth?

 ..... **10** ✓ .....pupils

1 mark

(b) Rosie draws the bars for year 4 and year 6 on the graph below to show her results. She has not shaded in the bars for year 6. Shade in the bars for year 6 on the graph below. Use the key and table to help you.



1 mark

(c) Rosie knows that to keep her teeth healthy she should not eat too many sweets and other sugary foods.

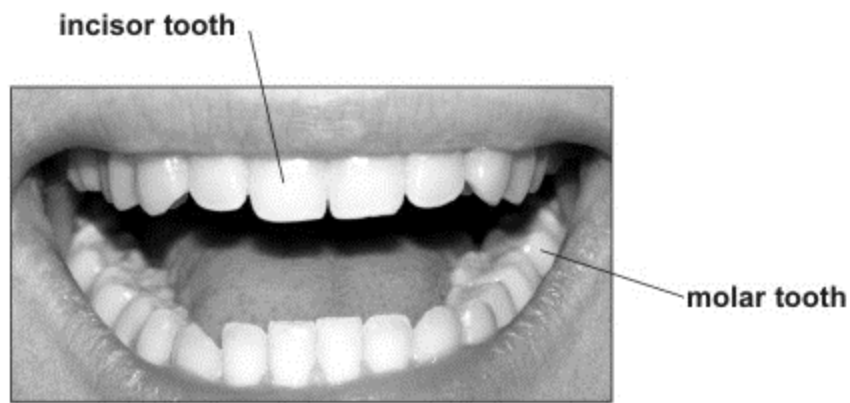
Name **ONE other** thing that Rosie can do to help her teeth healthy.



..... Include calcium rich food and drink in her diet/ brush twice a day/ clean between teeth with floss/ no carbonated drinks ✓

1 mark

(d) Different teeth have different functions when we eat food.




What function do the **incisor teeth** have that molar teeth do not?

 Cutting food ✓

1 mark

(e) Write **true** or **false** next to each of the statements below.

True or false?

 Children lose their first teeth and grow new teeth.

True ✓

Human teeth can reproduce.

False ✓

1 mark

Q3. Living things



frog



slug



kestrel



lettuce

Slugs can eat lettuces.

Kestrels can eat frogs.

Frogs can eat slugs.

(a) Write this as a food chain.



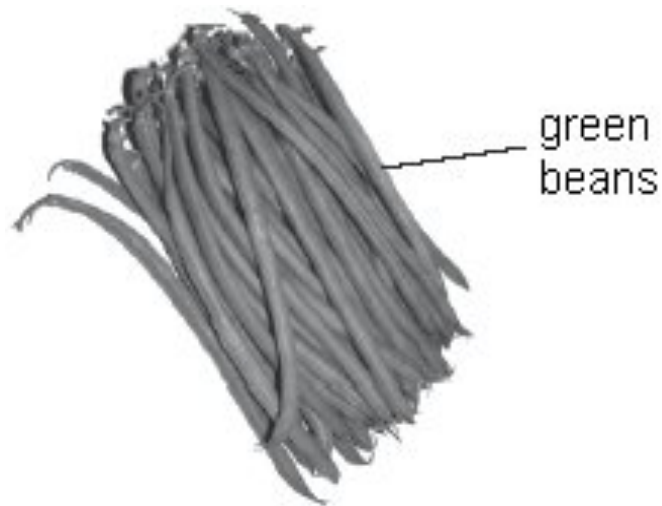
1 mark

(b) Write the name of the producer in this food chain.

lettuce ✓

1 mark

Q4. (a) Green beans contain vitamin C.



Which other food is a good source of vitamin C?  
Tick the correct box.

cheese

chicken

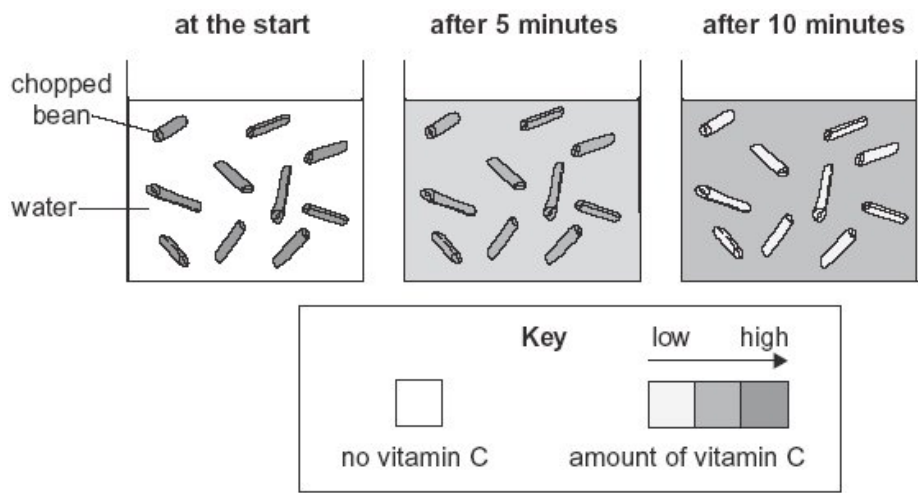
eggs

oranges

☐☐☐☒

1 mark

(b) The amount of vitamin C changes in the beans and in the water as the beans are cooked. The shading shows how it changes.



Use the diagram. How does the **amount of vitamin C** in the beans and in the water change as the beans are cooked? Tick one box in each row.

amount of vitamin C	increases	decreases	stays the same
in the beans		✓	
in the water	✓		

1 mark

(c) Cheese is a source of calcium.

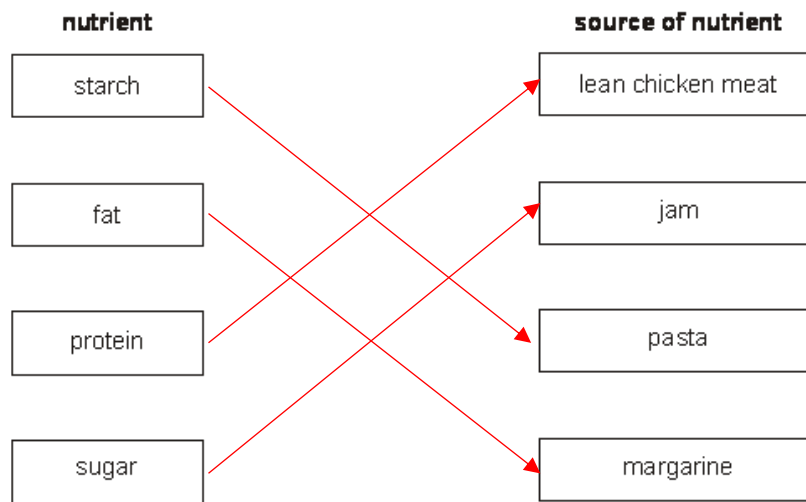
Why do we need calcium?

Helps us grow strong teeth and bones ✓

1 mark

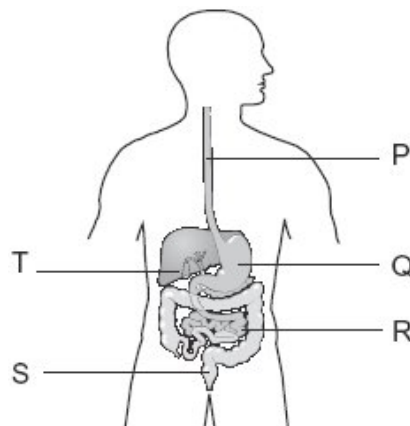


(d) Draw a line from each nutrient to a good source of that nutrient in our diet.



2 marks

(e) The diagram shows part of the human digestive system.



(i) Write the letter which labels the gullet.

.....P ✓

1 mark

(ii) Write the letter which labels the stomach.

.....Q ✓

1 mark

Total: /17