

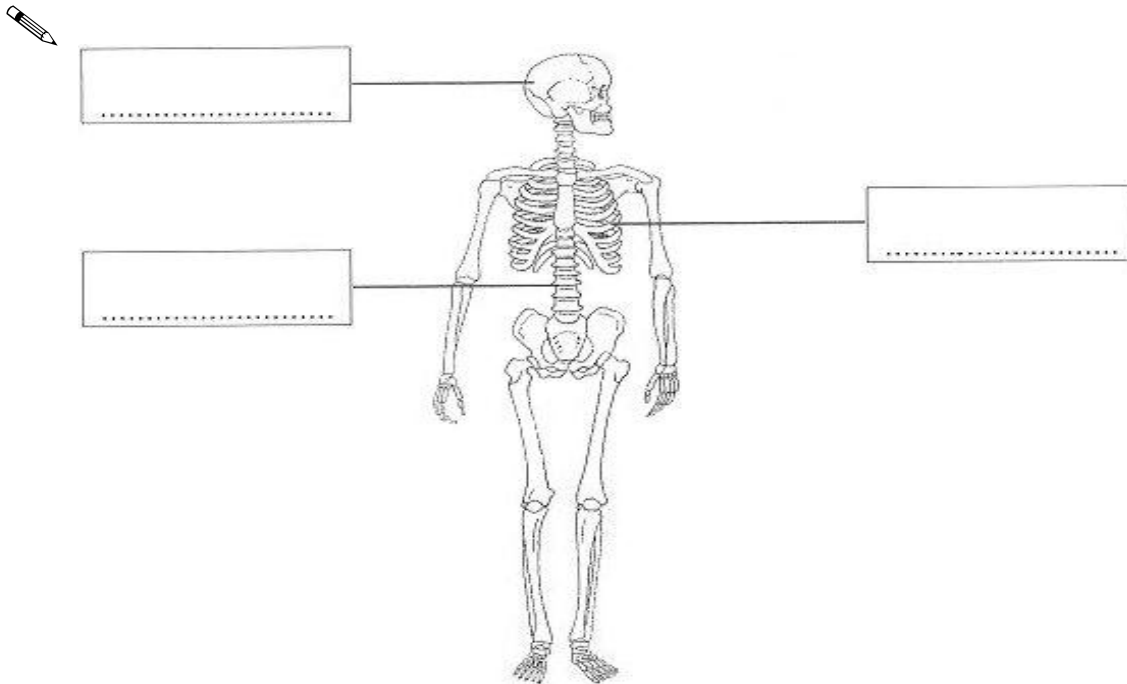
1. The Skeleton

(a) This is a drawing of a human skeleton.

Name the parts of the skeleton.

Write **ONE** word in each box below.

1 mark



1 mark

(b) Describe **TWO** different ways that the skeleton is important to the human body.

(i)

.....

1 mark


(ii)

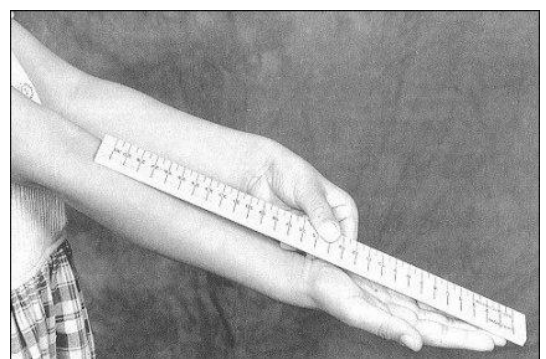
.....

1 mark

(c) The boxes below show the length of one person's hand at different stages of the life cycle.

Draw lines to match each length of hand to the correct stage of the life cycle.

 5 cm	child
20 cm	adult
15 cm	baby
12 cm	teenager



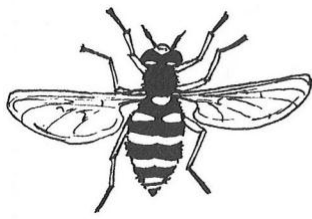
1 mark

2. Mini-beasts

(a) Some children find four mini-beasts.

They make a table about their observations.

Complete **Table 1** below by adding the names of these four mini-beasts.



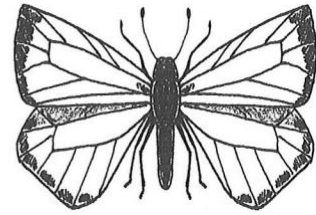
hoverfly



spider



ant



butterfly

Table 1

Name	Legs	Wings	Antennae
.....	6	4	2
.....	6	2	2
.....	6	0	2
.....	8	0	0

1 mark

(b) The children have some ideas about where to put the mini-beasts when they have finished studying them.

Tick **ONE** box to show where the children should put the mini-beasts.



in a safe place
away from the road

in a pot with food
and water

in the place where
they were found

in a dark place
under a log

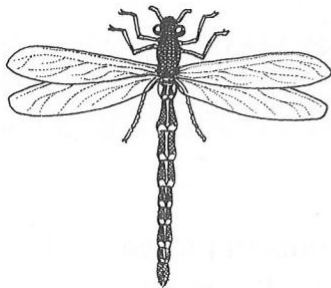
1 mark

(c) The children find more mini-beasts and make a new table.

Table 2

Name	Legs	Wings	Antennae	Notes
crane fly	6	2	2	long thin tail
dragonfly	6	4	2	long thin tail
housefly	6	2	2	none
tiger moth	6	4	2	hairy body

Use **Table 2** to help you name these two mini-beasts.



(i)

(ii)

1 mark

(d) It would be easier to name the mini-beasts if the children made a key.

Tick **TWO** boxes to show which features would be useful in a key to separate the four mini-beasts in **Table 2**.

Tick **TWO** boxes.



has 6 legs

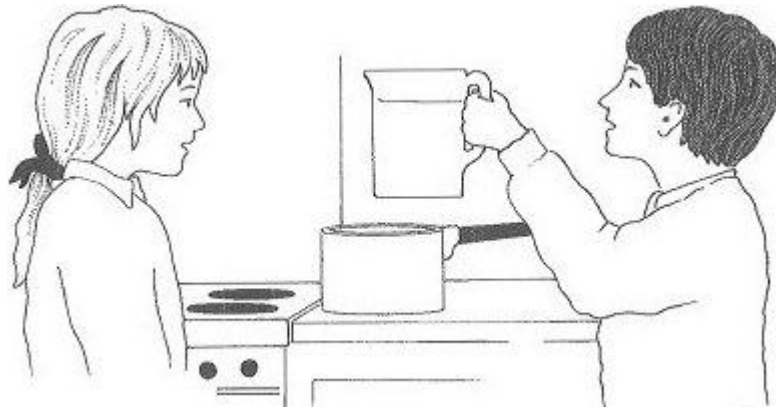
has a long thin tail

has 4 wings

has 2 antennae

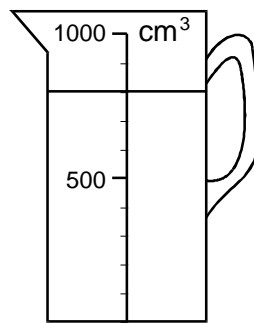
1 mark

3. Cooking rice



(a) Rebecca and Josh are cooking rice at home.

They measure some water in a jug.



How much water did they measure?



..... cm³

1 mark

(b) They put the water into a metal saucepan.

They put the saucepan on the cooker.

Why is **metal** a good material for the saucepan?

Tick **ONE** box.



It is very heavy.

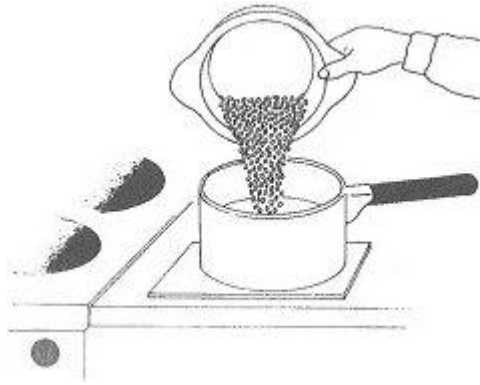
It is opaque.

It conducts electricity well.

It conducts heat well.

1 mark

- (c) After five minutes, the water starts to boil.
Josh puts the uncooked rice into the saucepan.



The metal saucepan is hot.
The wooden handle of the saucepan is still cool.

Explain why the **wood** is cool but the **metal** is hot.



.....
.....

1 mark

- (d) Rebecca and Josh must be careful with the hot saucepan, so that they do not burn themselves.

Describe **ONE** other thing that might burn the children while they are cooking the rice.



.....

1 mark

4. Hot drinks

- (a) Class 6H want to find the best cup to keep drinks hot.

Tick **ONE** box to show which property is most important when choosing the best cup to keep a drink **hot**.



strong

flexible

transparent

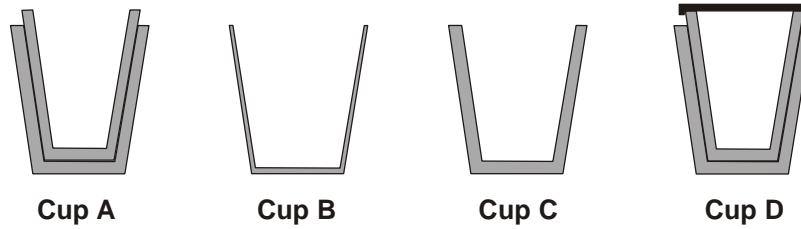
hard

insulating

waterproof

1 mark

(b) The class use the cups shown below. The cups are all made from the same material.



Write **A**, **C** or **D** in each row of the table below to show which cup gave each set of results.

Cup B has been done for you.



Cup	Temperature (°C) at...		
	0 mins	15 mins	30 mins
.....	70	64	60
.....	70	59	54
.....	70	53	46
.... B	70	49	40

1 mark

(c) Look at the pictures of the cups. Cup B cooled the quickest.

Explain why cup B cooled the quickest.



.....

1 mark

(d) The class measure the temperature of the drink in one of the cups for a longer time. The graph below shows their results.

Look at the graph.

(i) After how many minutes did the drink stop cooling down?



.....
minutes

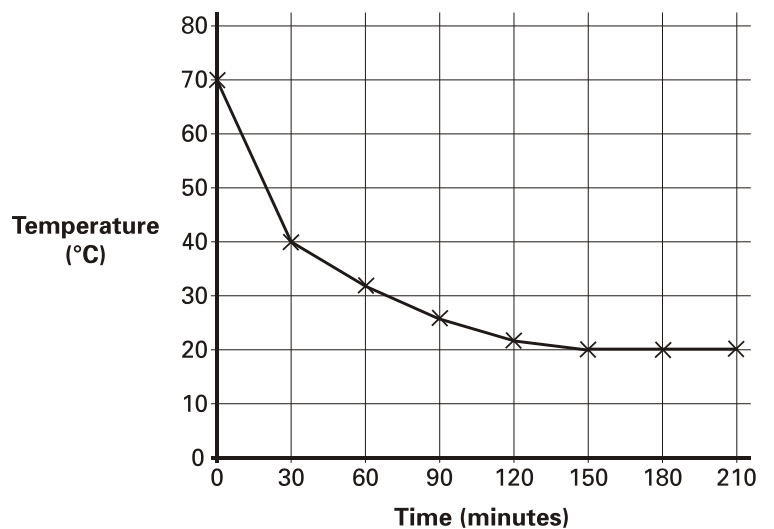
1 mark

(ii) Explain why the drink stopped cooling down.



.....
.....

1 mark



5. Sweets

- (a) Alisha and Peter have some small sweets.

Peter puts one on his tongue.



Peter made a plan to test his idea that the sweet **dissolves**.

Peter's plan

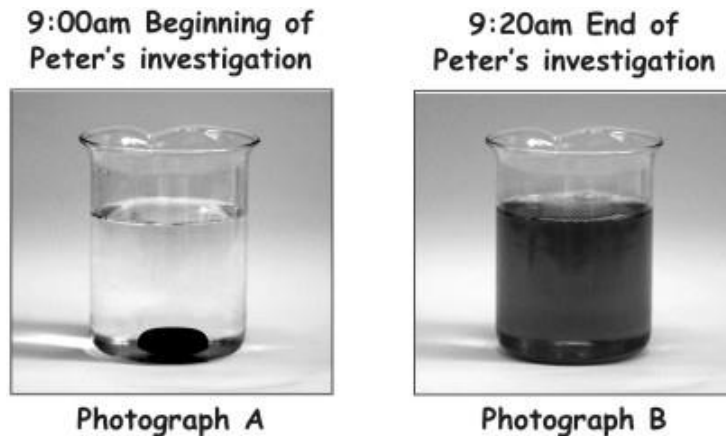
Step 1	Step 2	Step 3
Put sweet in 50cm ³ of cold water.	Leave the sweet from 9:00am until 11:00am.	Observe the result.

How long did Peter plan to leave the sweet in water?

.....hours

1 mark

- (b) Peter took photographs of the sweet in the beaker at the beginning and the end of his investigation.



What part of his plan did Peter change when he carried out the investigation?

.....

1 mark

- (c) Look at the photographs A and B.

Use the evidence in photographs A and B to write a conclusion for Peter's investigation.

.....

1 mark

(d) Alisha made a plan to test her idea that the sweet **melts** rather than dissolves.

Where should Alisha put her sweet to test her idea that it **melts**?

Tick **ONE** box.



a cold place

a hot place

a dry place

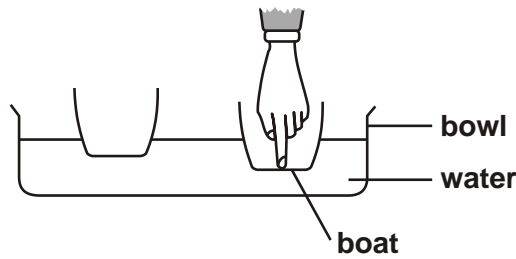
a wet place

1 mark

6. Boats

(a) Mike puts two boats in a bowl of water. They float on the water.

Mike pushes down on one of the boats with his finger.



Tick **ONE** box to show what Mike can feel as he pushes down.



The force from the water pushing the boat up.

The force from the water pushing the boat down.

The force from the air pushing the boat up.

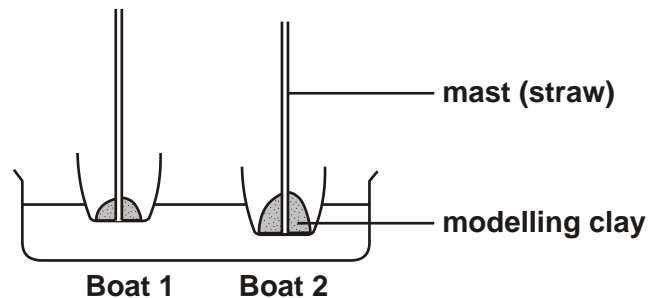
The force from the air pushing the boat down.

1 mark

(b) Mike makes masts for the boats with straws.

He attaches the masts to the boats using modelling clay.

Explain why boat 2 floats lower in the water than boat 1.



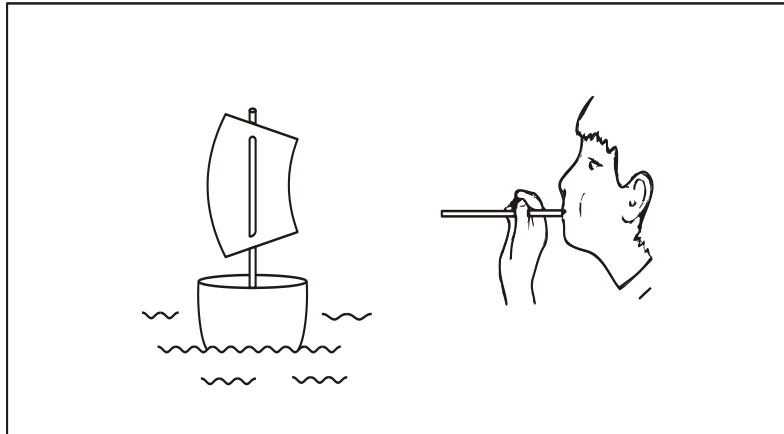
.....

1 mark

(c) Mike makes sails for the boats out of paper.

He uses a straw to blow one of the boats along.

Draw an arrow on the picture to show the direction of the force pushing the boat along.



1 mark

(d) What is the name of the force that slows the boat down?



.....

1 mark

(e) Mike blows the boat when it has a big sail.

Then he puts a small sail on the boat and blows with the same force.



Big sail



Small sail

The big sail makes the boat go faster.

Explain why the bigger sail makes the boat go faster.

Write about the forces on the sail in your answer.



.....

.....

1 mark

7. **Electricity**

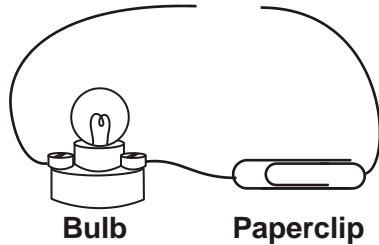
- (a) Peter is making a circuit with a bulb. He wants to use the circuit to find out if a metal paperclip allows electricity to pass through.

What name is given to the property of metals that allows electricity to pass through?



1 mark

- (b) This is Peter's circuit:



Name the **ONE** piece of equipment Peter **must** add to his circuit to see if the paperclip allows electricity to pass through.



1 mark

- (c) Peter can tell from his circuit that the paperclip allows electricity to pass through.

What happens in Peter's circuit to show him that the paperclip allows electricity to pass through?



1 mark

- (d) Peter tests four more objects in his circuit.



Metal coin



Iron nail



Plastic ruler



Steel spoon

Only **one** object does **not** allow electricity to pass through.

He puts his results in a table.

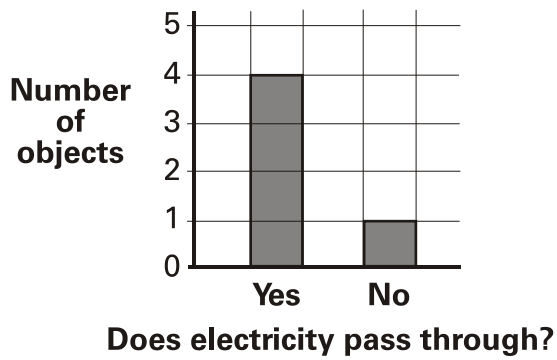
Write **yes** or **no** in each box of the table to show if electricity passes through each object.



Name of object	Paper-cl ip	Metal coin	Iron nail	Plastic ruler	Steel spoon
Does electricity pass through?	yes				

2 marks

(e) Peter draws a bar chart to show his results.



Peter says 'The table is better than the bar chart to show my results. It gives me extra information.'
Look carefully at the table and bar chart.

What extra information does the table give?



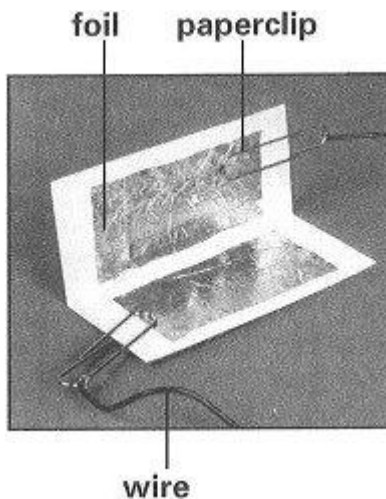
.....
.....

1 mark

8. Circuits

(a) The children make a working model of a lighthouse.

The switch in the circuit is made of card and aluminium foil.



In the picture, the switch is open.

What will happen to the bulb when the switch is closed?



.....

1 mark

(b) Explain why this will happen when the switch is closed.



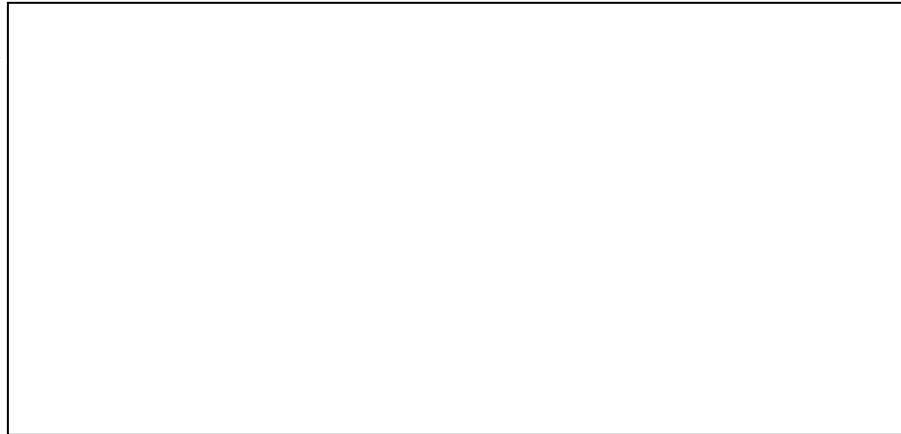
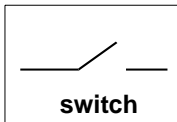
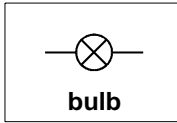
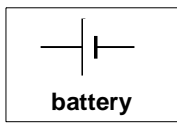
.....
.....

1 mark

(c) Their circuit has one battery, one bulb and one switch.

Draw a circuit diagram to show their circuit.

Use only these symbols.

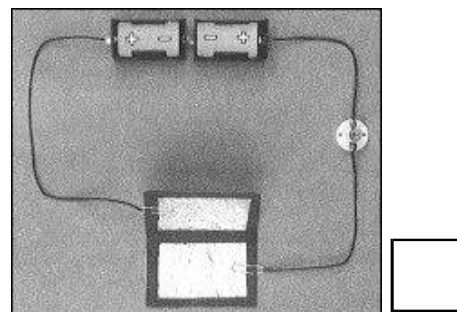
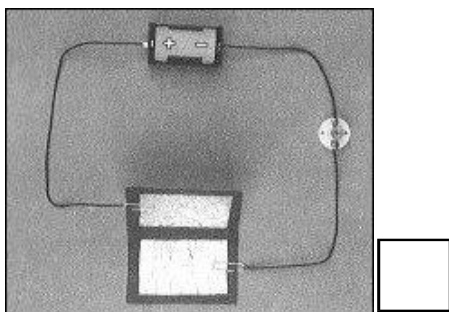
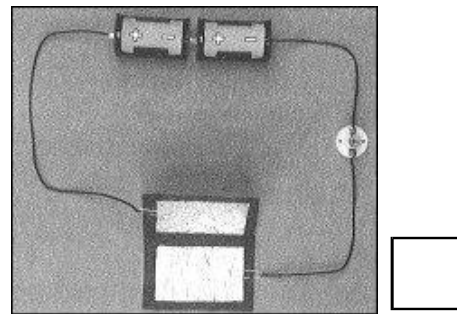
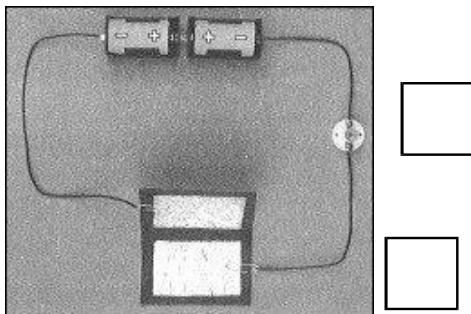


1 mark

(d) The children want the bulb to glow more brightly. They use new batteries.

In which of the circuits below would the bulb glow most brightly when the switch is closed?

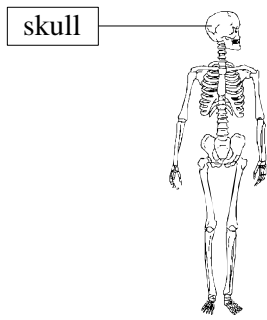
Tick **ONE** box.



1 mark

1. (a) (i)(ii) Award **TWO** marks for correct identification of **all three**:

2

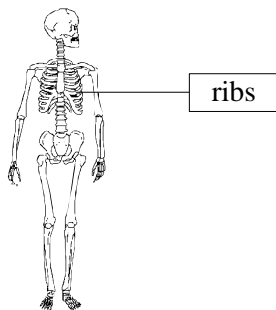


Allow:

- cranium.

Do not give credit for:

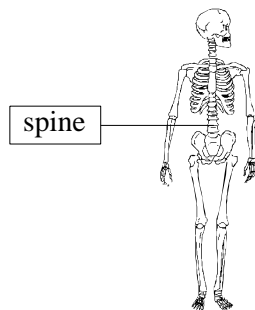
- head.



Allow:

- ribcage.

or



Allow:

- vertebra;
- backbone.

If you are unable to award two marks, award **ONE** mark for any **two** correctly identified.

Do not give credit for only one correctly identified.

(b) (i) Award up to **TWO** marks for descriptions of the function of the skeleton in any of the following categories: Up to 2m

NOTE: only one scoring response can be credited from each category.

Movement

- it is needed to move;
- it helps you move/run/other specific movement;
- it has joints in it so that you can move.

Allow:

- you can't walk/stand up without a skeleton;
- muscles are joined to it/for muscles to pull on.

Support

- stand/upright/straight;
- it gives you shape;
- prevents collapse.

Allow:

- for muscles to be attached/pull on;
- stops you being floppy.

Protection

Give credit for a correct response that goes beyond the key stage 2 programme of study:

- it protects your organs;
- the ribs protect your heart;
- the skull prevents damage to the brain.

Importance to blood cells

Give credit for a correct response that goes beyond the key stage 2 programme of study:

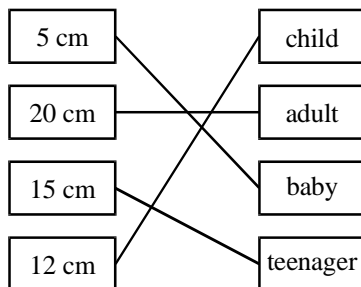
- it makes red blood (cells).

Do not give credit for an insufficient 'support' response that does not recognise the substance of the other parts of the body:

- *without it, you would be (like) a puddle;*
- *it stops you being (like) jelly;*
- *it stops you wobbling;*
- *it holds your body/organs together.*

(c) Award **ONE** mark for:

1



[5]

2. (a) Award **ONE** mark for all four animals correctly placed: 1(L4)

Name	Legs	Wings	Antennae
butterfly	6	4	2
hoverfly	6	2	2
ant	6	0	2
spider	8	0	0

Do not give credit for an insufficient response that replaces 'butterfly' or 'hoverfly' with 'fly'.

- (b) Award **ONE** mark for: 1(L3)

in the place where they were found

<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>

- (c) Award **ONE** mark for correctly naming **both** animals: 1(L4)

- (i) dragonfly; **and**
- (ii) housefly;
- [in that order].

Do not give credit for an insufficient response for naming either insect as 'fly'.

- (d) Award **ONE** mark for **both** boxes ticked: 1(L5)

<input type="checkbox"/>	has a long thin tail	<input checked="" type="checkbox"/>
has 4 wings	<input checked="" type="checkbox"/>	<input type="checkbox"/>

[4]

- 3.. (a) Award **ONE** mark for: 1

- 800.

Allow:

- 790–810 inclusive.

Do not give credit for a response with incorrect units.

- (b) Award **ONE** mark for: 1

- | |
|--------------------------|
| <input type="checkbox"/> |
| <input type="checkbox"/> |
| <input type="checkbox"/> |
- It conducts heat well.

(c) Award **ONE** mark for a **comparative** response indicating that both wood and metal conduct heat, but at different rates: 1

- heat travels more easily through metal than through wood;
- the heat does not travel through the wood as easily;
- metal is a better conductor;
- wood is a poorer conductor.

Allow: a reference to both wood and metal in **absolute** terms:

- metal conducts heat, but wood does not;
- the metal conducts heat, but wood is an insulator.

Do not give credit for an insufficient response which indicates that the metal is over the heat but the wood is not.

Do not give credit for a response using an incorrect synonym for conduction:

- metal absorbs the heat better.

Do not give credit for an insufficient response that does not compare or refer to both materials:

- wood is a poor conductor;
- wood does not conduct heat;
- metal is a conductor;
- wood is an insulator.

(d) Award **ONE** mark for any of the following immediate safety hazards identified: 1

- the heating element on the cooker (which gets very hot);
- the flames/fire from a (gas) cooker;
- the boiling water (as the rice cooks);
- steam (rising) from the saucepan.

Allow:

- a metal spoon could get hot (and burn you);
- the rice.

Do not give credit for a response that identifies safety hazards which are not related to the process of cooking:

- they might slip on the floor;
- they might break a glass jar;
- they might leave the gas turned on.

Do not give credit for:

- saucepan [given].

4. (a) Award **ONE** mark for: 1(L4)
- insulating

- (b) Award **ONE** mark for correctly placing **all three** cups in the table: 1(L4)

Cup	Temperature (°C) at...		
	0 mins	15 mins	30 mins
...D...	70	64	60
...A...	70	59	54
...C...	70	53	46
...B...	70	49	40

- (c) Award **ONE** mark for an indication that cup B is thinner: 1(L4)

- cup B is not as thick as the other cups
- it is the thinnest.

Award **ONE** mark for a response identifying that cup B is less well insulated:

- there is less insulation.

ONE mark may be awarded for an indication that cup B is thin, but which does not include a comparison:

- the material is (very) thin*
- it is not insulated well.*

ONE mark may be awarded for a response stating that cup B is made of less material:

- it has less /least material/insulator*
- it does not have much material.*

ONE mark may be awarded for a response recognising that cup B is not a good insulator:

- it is a weak insulator.*

Do not give credit for an insufficient response:

- it does not have a lid [cups A and C also do not have lids]*
- it only has one layer [cup C also has one layer]*
- it is not a thermal insulator*
- it is not insulated.*

- (d) (i) Award **ONE** mark for: 1(L5)

- 150 minutes.

ONE mark may be awarded for a response in the range of 121–150 minutes inclusive.

- (ii) Award **ONE** mark for an indication that the temperature of the drink has reached the temperature of the surroundings: 1(L5)

- the drink has cooled to room temperature
- the temperature of the air around the drink is the same as the drink's temperature

- it was at the temperature around it.

ONE mark may be awarded for:

- *the drink was as cold as it could go in that room.*

Do not give credit for an insufficient response indicating that the drink could not get any colder:

- *the drink was as cold as it could go.*

Do not give credit for an insufficient response:

- *it was at the normal temperature.*

[5]

5. (a) Award **ONE** mark for indicating the amount of time planned for the investigation: 1(L3)

- 2 hours.

Do not give credit for an insufficient response:

- *from 9 until 11.*

- (b) Award **ONE** mark for recognising that the investigation took a different amount of time than planned: 1(L4)

- the time he left the sweet
- he did not leave it as long as he said he would
- (he changed) the time (it took).

ONE mark may be awarded for:

- *he left it for 20 minutes*
- *he did not leave the sweet until 11.00*
- *he ended his investigation at 9.20*
- *the sweet took less time to dissolve (than he thought).*

Do not give credit for a response that includes incorrect science:

- *the temperature.*

Do not give credit for an insufficient response that describes the outcome rather than the change in the plan:

- *the sweet dissolved.*

Do not give credit for an insufficient response indicating Peter took photos:

- *he took some photos of the sweet.*

- (c) Award **ONE** mark for a conclusion relating to dissolving which is consistent with the evidence: 1(L4)

- the sweet has dissolved
- the time taken for the sweet to dissolve was 20 minutes
- the water got darker as the sweet dissolved.

ONE mark may be awarded for an observational response:

- *the sweet cannot be seen after 20 minutes*
- *the water changed colour.*

Do not give credit for a response that includes

incorrect science which goes beyond the evidence:

- *if you leave a sweet in your mouth it will melt*
- *the sweet takes 2 hours to dissolve in 50cm³ of cold water*
- *the more you keep it in water, the more it dissolves*
- *the sweet dissolved in his mouth.*

Do not give credit for an insufficient response:

- *it disappeared/has gone*
- *it could not have melted.*

(d) Award **ONE** mark for: 1(L3)

- a hot place
-

[4]

6. (a) Award **ONE** mark for: 1(L3)

- The force from the water pushing the boat up.
-

(b) Award **ONE** mark for recognising that the larger lump of modelling clay makes boat 2 sit lower in the water or that boat 2 is heavier: 1(L3)

- boat 2 has more clay;
- the lump of clay in boat 2 is bigger/ heavier;
- the clay makes it heavier;
- the heavier the boat, the lower it sinks;
- it is heavier/weights more;
- there is more force (pulling/pushing) down.

ONE mark may be awarded for an absolute response implying that boat 2 has more modelling clay than boat 1:

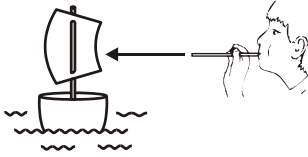
- *boat 2 has a lot of clay;*
- *boat 2 is heavy.*

Do not give credit for an insufficient response:

- *the clay is weighing down the boat;*
- *boat 2 floats lower because of the modelling clay;*
- *there is a force.*

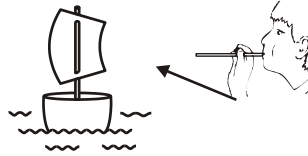
- (c) Award **ONE** mark for a horizontal arrow pointing left drawn **anywhere** on the picture: 1(L3)

■



ONE mark may be awarded for an arrow pointing left that is within 45° of the horizontal:

■



Do not give credit for an insufficient response where a line is drawn from the straw to the sail with no arrowhead.

- (d) Award **ONE** mark for: 1(L4)
- friction.

ONE mark may be awarded for:

- air resistance;
- water resistance;
- drag.

Do not give credit for a response that includes incorrect science:

- gravity/weight.

Do not give credit for an insufficient response describing friction:

- (the force from the) air/water/wind.

- (e) Award **ONE** mark for a response indicating that the big sail will have a greater pushing/blowing force on it: 1(L5)

- the force on the big sail is larger;
- there is more sail for the blowing force to act on;
- there is a bigger force because it has more sail to push;
- the small sail will not get as much pushing force so it will be slower.

ONE mark may be awarded for a response indicating that the big sail catches or traps more air/wind, pushing it along (faster/further):

- the bigger sail catches more wind and is pushed faster;
- more air will collect in the big sail to push it along.

Do not give credit for a response that includes incorrect science:

- air resistance makes the boat go faster.

Do not give credit for an insufficient response where the forces on the sail have not been described:

- *the bigger the sail, the faster the boat [this is a consequence of a bigger force, not a description of the force];*
- *the big sail will catch the wind better;*
- *a bigger sail will catch more wind;*
- *the small sail does not get as much wind;*
- *the wind will blow the bigger sail faster [given].*

[5]

7. (a) Award **ONE** mark for a response indicating conductivity: 1(L5)

- (electrical) conductor.

Do not give credit for a response that includes incorrect science:

- *thermal conductor.*

(b) Award **ONE** mark for naming a cell: 1(L3)

- battery (in a holder).

ONE mark may be awarded for:

- *power pack*
- *power source.*

Do not give credit for an insufficient response:

- *switch.*

(c) Award **ONE** mark for a response indicating the bulb will light up: 1(L3)

- the bulb will light
- the bulb will turn on.

ONE mark may be awarded for:

- *the bulb will work/switch on*
- *if the bulb lights up*
- *the bulb heats up.*

Do not give credit for an insufficient response:

- *electricity will flow*
- *the circuit will work*
- *it conducts*
- *it heats up.*

(d) Award **TWO** marks for a correct response for all four objects: 2(L3)

<i>Name of object</i>	<i>Paper-clip</i>	<i>Metal coin</i>	<i>Iron nail</i>	<i>Plastic ruler</i>	<i>Steel spoon</i>
<i>Does electricity pass through?</i>	<i>yes [given]</i>	yes	yes	no	yes

or If you are unable to award two marks, award **ONE** mark for a correct response for **two** or **three** objects. 1

(e) Award **ONE** mark for a response recognising the table is better because it shows which objects conduct electricity: 1(L5)

- the table tells you which objects conduct
- the bar chart tells you the number of objects but the table shows the number and the objects which allow electricity to pass through.

ONE mark may be awarded for:

- which objects/things
- types of objects
- the names (of the objects)
- it tells you what the materials are
- that the electricity does not go through the ruler.

Do not give credit for an insufficient response which refers only to 'the objects' (as this could refer to the number or type of object) rather than to the name of the objects:

- it tells you the objects that Peter is testing
- the objects (that Peter tested on).

Do not give credit for an insufficient response:

- the bar chart just gives the number of objects.

[6]

8. (a) Award **ONE** mark for an awareness that the bulb will light: 1

- the light will go on;
- the bulb will light;
- it will go on;
- it will turn on.

Allow:

- might light up.

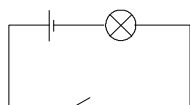
(b) Award **ONE** mark for recognition of a complete circuit or recognition that current can flow: 1

- the circuit is complete;
- aluminium/the switch conducts electricity;
- electricity/current can flow through it;
- electricity runs through it/passes through;
- switch connects the circuit;
- it makes a circuit;
- full circuit;
- there is no gap in the circuit;
- the switch conducts electricity.

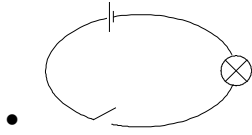
Do not give credit for:

- the switch is closed [given];
- the two sides touch each other.

(c) Award **ONE** mark for a drawn circuit which includes the **THREE** symbols: 1



- or non-rectilinear circuits, eg



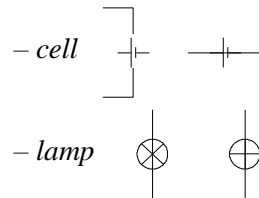
Allow:

- reversed polarity of battery.
- Switch



Do not give credit for:

- circuits containing symbols not given;*
- circuit diagrams with gaps of more than 2mm;*
- extra components;*
- incorrectly drawn components, eg*



(d) Award **ONE** mark for:

1

<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

[4]

Total Time : 60 minutes

Total possible score: 37

Approximate Level Guidance:

<13 <L3

13 - 17 L3c

18 – 22 L3b

23 – 27 L3a

>27 Level 4+