

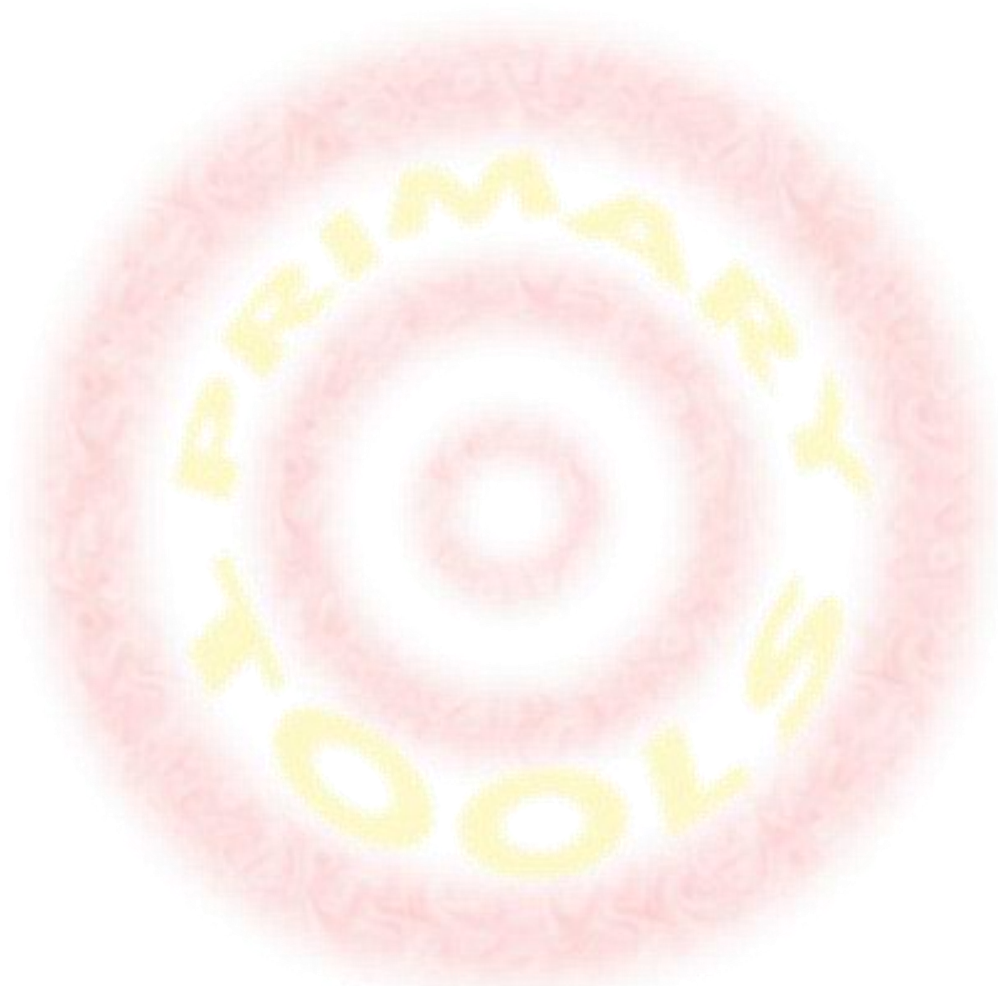
Total Score: _____ /29 Approx Level: _____

45 minutes

3

Name: _____

Date: _____



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Year 3 End of Year Science Test

1. **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?



.....

1 mark

(b) Why does brushing help to reduce tooth 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

2. **Growing Seeds**

(a) Martin and Jane are growing seeds.



Tick **ONE** thing all the seeds **must** have to **start** to grow.



light

water

salt

soil

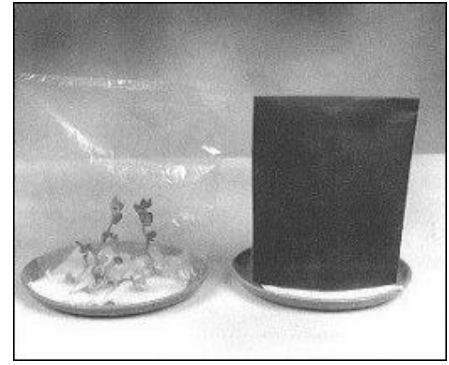
1 mark

(b) The seeds start to grow.

Martin covers the seedlings with a polythene bag. Jane covers her seedlings with black paper.

After a few days the leaves of Jane's seedlings are yellow.

Why do the seedlings under the black paper have **yellow** leaves?



.....

1 mark

(c) Martin's seedlings grow strong and healthy leaves.

Explain why **the leaves** are important to a plant.



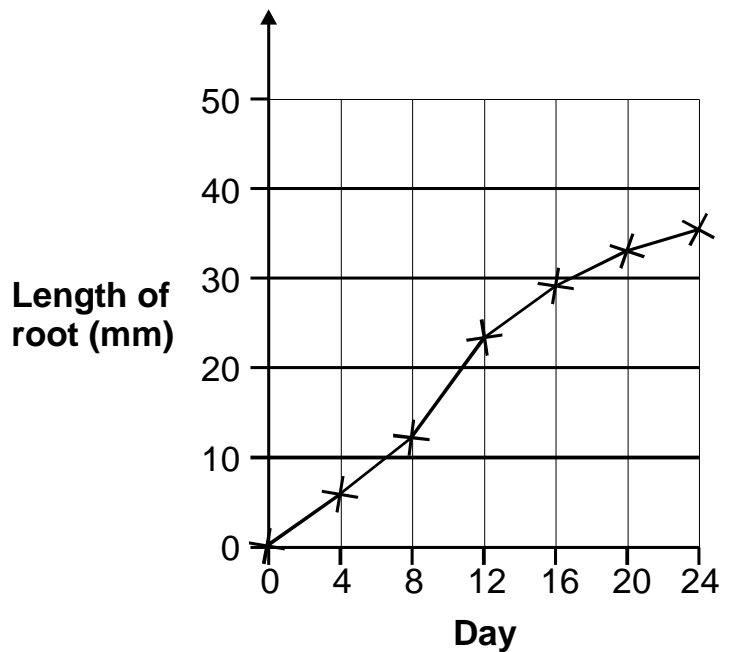
.....

1 mark

(d) Martin measures the roots of his pea seedlings.

Graph to show rate of growth of roots

Look at the graph.



When are the roots growing **fastest**?

Tick **ONE** box.



day 0 to day 4

day 8 to day 12

day 16 to day 20

day 20 to day 24

1 mark

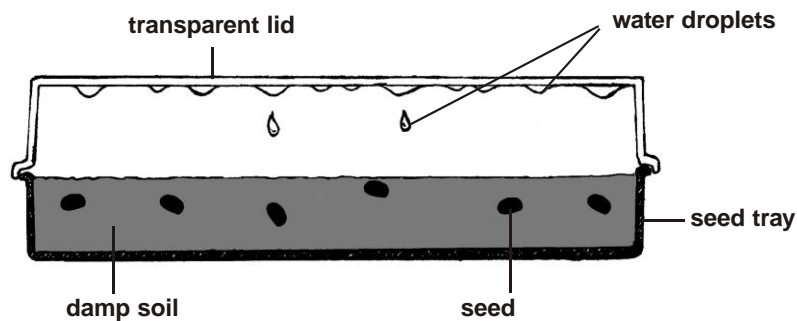
3. Seedlings

(a) Nadif is growing some plants from seeds.



He takes a seed tray and fills it with damp soil. He plants some seeds. Then he puts a transparent lid over the top.

Nadif checks his seeds each day. He notices that drops of water appear on the inside of the lid.

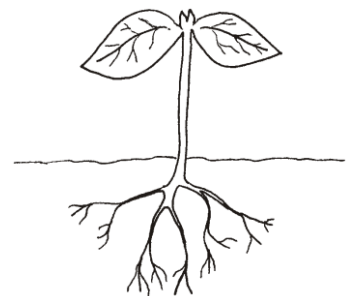


What is the scientific name for the process where water vapour changes into water?



1 mark

(b) First, the small seedling uses food in the seed to help it grow. As it grows, the food in the seed is used up. Then the young plant makes new food for growth.



In what part of the plant is new food made for growth?



1 mark

(c) Why is important for the young plant that the lid of the seed tray is transparent?



1 mark

(d) The root of the young plant anchors it into the soil.

Give **ONE** other way the root helps the young plant grow.

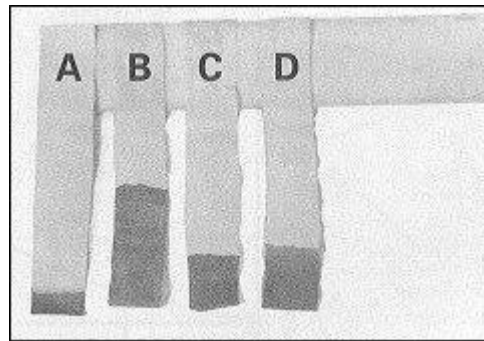
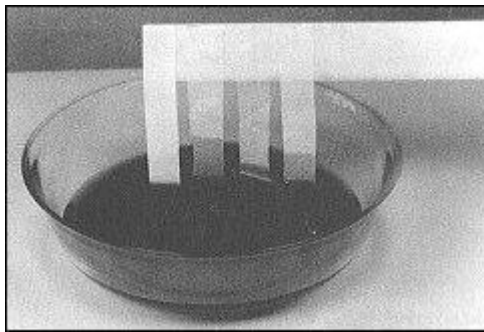


.....
.....

1 mark

4. Absorbent materials

(a) Absorbent materials **soak up** water well.
Kay and Robin have four equal strips of different types of paper.
They want to find out which is most absorbent.



They dip the strips into coloured water, then take them out again.

This picture shows the pieces of paper after they are taken out of the water.

How can you tell from the picture that material B has soaked up the most water?



.....
.....

1 mark

(b) Circle **TWO** materials that soak up water well.



Kitchen roll

Cotton fabric

Plastic sheet

Aluminium foil




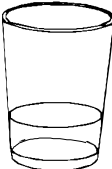




1 mark

5. Changes

Kim and Juan change the way some things look. The pictures below show the changes.

Which changes are reversible?

Tick **ONE** box for each change.

		Is this change reversible?	
		Yes	No
<p>Bread</p> 	<p>Toast</p> 		
<p>Ice</p> 	<p>Water</p> 		
<p>Paper</p> 	<p>Ash</p> 		
<p>Plasticine</p> 	<p>Plasticine snail</p> 		

2 marks

6. Liquids

(a) Aisha and Adil investigated five different liquids.

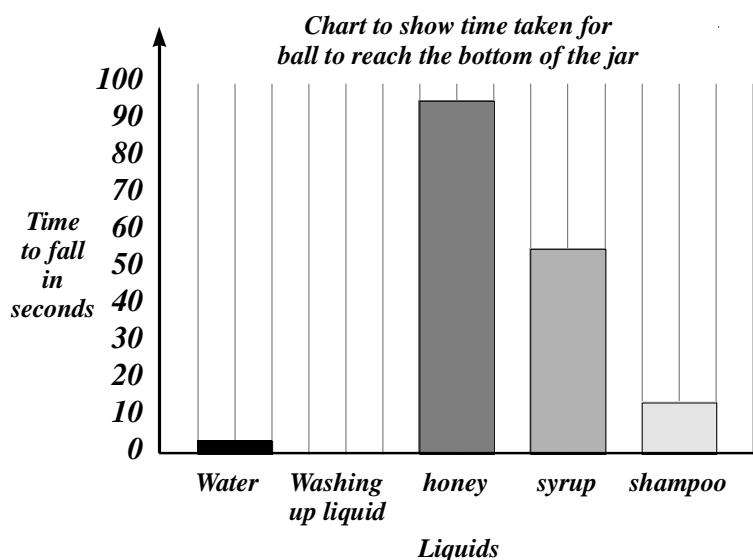


They put 500 cm^3 of each liquid into five tall jars.

They dropped a ball of modelling clay into each jar.

They measured the time it took for the ball to fall through each liquid to the bottom of the jar.

They recorded their results.



The ball took **10 seconds** to fall through washing-up liquid. Draw the bar on the chart to show the time taken for the ball to fall through washing-up liquid.

1 mark

(b) Look at the bar chart.

In which liquid did the ball fall most slowly?



.....

1 mark

7. Hardness of rocks

- (a) Jamila did a scratch test on four different types of rock to see which was the hardest.



She used four different objects to scratch each rock.

This table shows her results:

Rock	Was scratched by ...			
	fingernail	coin	matchstick	plastic knife
marble	X	✓	X	X
sandstone	X	✓	X	✓
granite	X	X	X	X
talc	✓	✓	✓	✓

Which rock could Jamila's fingernail scratch?



.....

1 mark

- (b) Jamila worked out that granite was the hardest rock she tested.

What evidence in the table did Jamila use to find out that granite was the hardest rock she tested?



.....

.....

1 mark

- (c) Use the information in the table.

Write the name of each rock in the boxes below, to show the order of the rocks from softest to hardest.

One has been done for you.



(d) As Jamila was doing her test, she realised it was hard to keep her test fair.



Tick **ONE** box to show why it was hard for Jamila to keep her test fair.

The rocks were different sizes.

The shapes of the objects were different.

Some of the objects were harder than others.

It was difficult to scratch each rock with the same force.

1 mark

(e) Jamila carries out some more tests on her rocks. She uses the table below to record the new information she learns from her tests.

	Permeable	Not permeable
Feels rough	sandstone	granite
Does not feel rough	talc	marble

Use the information from the table to write **TWO** new things Jamila learnt about **granite**.



1.

2.

1 mark

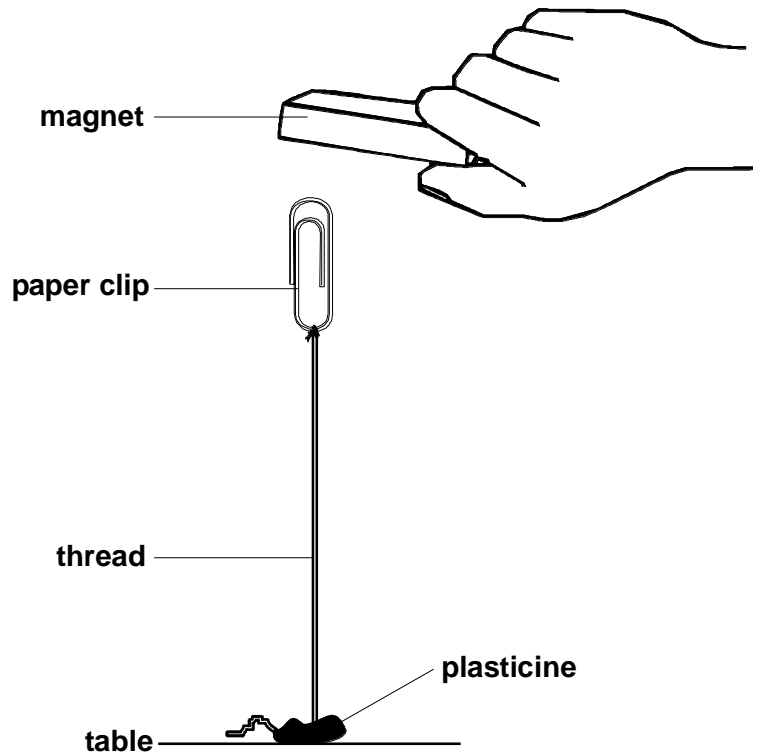
8. Exploring magnetism

(a) Sarah ties a paper clip to a piece of thread.

She sticks the thread to the table.

She holds a magnet above the paper clip.

Draw an arrow on the picture below to show the direction of the magnetic force acting on the paper clip.



1 mark



(b) What happens to the paper clip when Sarah lifts the magnet away?



.....

1 mark (a)
1 mark (b)

(c) Sarah repeats her experiment using different objects instead of the paper clip.

Which of the following will act in the same way as the paper clip?

Tick **ONE** box.



aluminium foil

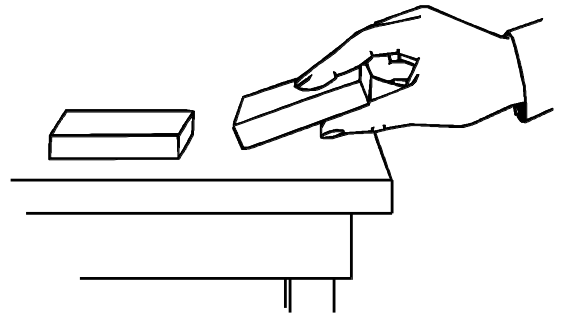
plastic pen lid

steel pin

wooden match

1 mark

(d) Joel has two magnets. He puts one on the table. He holds the other magnet close to it, like this:



The magnets do not touch each other, but the magnet on the table is pushed away.

Why is the magnet on the table pushed away?



.....
.....

1 mark

9. Lamp

(a) At night, Ben switches on the lamp in his room.

There is a shadow of the chair on the floor.

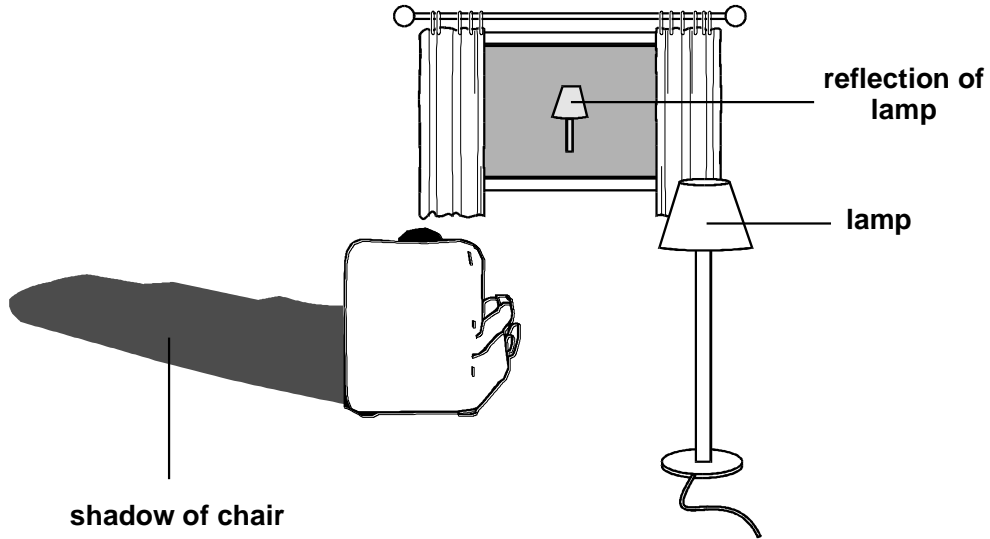
Explain how the shadow is formed from the light of the lamp.



.....
.....

1 mark

(b) Ben looks at the window, and sees a reflection of the lamp.



Why is there a reflection of the lamp in the window?

Tick **ONE** box.

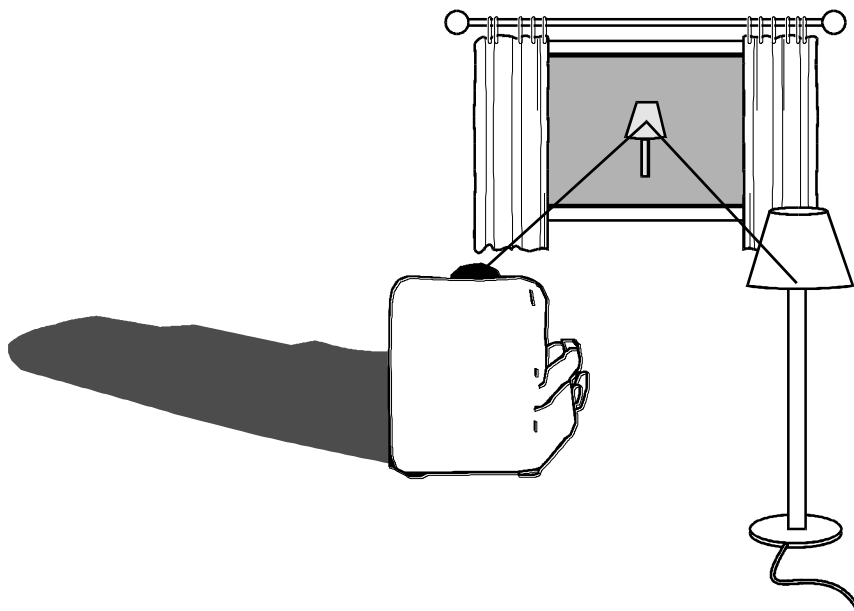
There is a reflection of the lamp in the window because the window is . . .



shiny	<input type="checkbox"/>	hard	<input type="checkbox"/>
strong	<input type="checkbox"/>	solid	<input type="checkbox"/>

1 mark

(c) Draw **TWO** arrowheads on the lines in the picture below to show how light travels to let Ben see the reflection of the lamp.



1 mark

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

- Ian.

(b) Award **ONE** mark for an understanding that brushing removes plaque/food/bacteria/acid/sugar from teeth: 1

- it does not let sugar build up;
- it (helps) get rid of
- bacteria/plaque/acid.

Allow:

- it makes the teeth clean;
- the fluoride in the toothpaste prevents tooth decay.

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

- it brushes the decay off;
- use toothpaste.

Do not give credit for an insufficient response that does not show awareness of the cause of decay:

- it makes teeth whiter/brighter;
- it makes the teeth healthy;
- it fights/stops bacteria.

(c) Award **ONE** mark for: 1

- eat less sugar
-

2. (a) Award **ONE** mark for: 1

- water

(b) Award **ONE** mark for an understanding that the seedlings under the black paper are yellow because of lack of light: 1

- they did not get any light/sunlight;
- there was no light/sunlight on them.

Give credit for a correct response that goes beyond the key stage 2 programme of study, which refers to a lack of chlorophyll.

Do not give credit for an insufficient response that does not explain the colour of the leaves:

- they had no food;
- they had no water;
- they had no soil.

(c) Award **ONE** mark for an understanding of the function of the leaves: 1

- leaves take in light/air;
- they provide/give/make/produce food.

Allow:

- the leaves feed the plant;
- the leaves store food for the plant;
- the leaves let water escape.

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

- the leaves carry out photosynthesis/respiration;
- the leaves collect/get energy from the Sun/sunlight;
- the leaves produce/contain chlorophyll;
- the leaves let gases in and out;
- leaves rot down/decay and recycle nutrients.

Do not give credit for an insufficient response:

- they get the Sun;
- they store water;
- they protect the plant;
- they take in water;
- they help the plant to grow.

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

- they make energy;
- they breathe [plants respire; breathing is the action of the lungs moving air in and out].

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

day 8 to day 12

[4]

3. (a) Award **ONE** mark for: 1(L4)

- condensation.

Do not give credit for an insufficient response that describes condensation:

- the water vapour turns back to liquid when it cools down
- liquidisation/liquidising.

(b) Award **ONE** mark for a response indicating that food for growth is produced in the leaves:

- leaves.

ONE mark may be awarded for a response that acknowledges that food for growth is produced (to a lesser extent) in other green parts of the plant:

- stem/stalk.

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

- roots
- flowers/petals.

(c) Award **ONE** mark for an understanding that (young) plants need light when they start to grow: 1(L4)

- because the (young) plants need light
- because growing plants need light (to make food)
- plants use light to make food.
- **Give credit** for a correct response that goes beyond the key stage 2 programme of study:
- to photosynthesis.

ONE mark may be awarded for a response that describes light going through the clear plastic, but does not indicate that the plant uses/needs it:

- because it lets light in
- light goes through the clear plastic
- so the (sun)light goes through
- so the plant gets light.

ONE mark may be awarded for:

- for (sun)light
- light.

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

- so the seeds can see the light
- so it can get food from the light.

Do not give credit for an insufficient response:

- so the seedlings can grow
- to keep it warm
- so you can see through it to check them.

(d) Award **ONE** mark for an indication that the roots take up/soak up water and/or minerals: 1(L5)

- the roots absorb water/minerals
- they take up moisture.

ONE mark may be awarded for:

- the roots absorb/get nutrients
- they carry water
- they drain/take/draw water from the soil.

Do not give credit for a response that includes incorrect science indicating that the root gives the young plant food:

- they take/send up/bring it food
- they feed it
- they gather/absorb food.

Do not give credit for a response that includes incorrect science indicating an active anthropomorphic mechanism:

- the roots collect/gather/drink/suck/pull up water.

Do not give credit for an insufficient response indicating a supporting function in which anchoring works in conjunction with the stem:

- the roots keep the plant upright.

Do not give credit for an insufficient response that implies the roots anchor the plant to the ground:

- they hold it in the ground [given].

Do not give credit for an insufficient response where 'goodness' is used in place of 'nutrients', 'water' or 'minerals':

- they take up goodness.

Do not give credit for an insufficient response that does not recognise the role of the roots:

- nutrients/moisture (in the soil).

[4]

4. (a) Award **ONE** mark for an indication that the height or area of the water mark is greater on material B than on the other strips:

1

- the water has travelled furthest up paper B.

Allow:

- it has the highest line;
- the colour on B is higher;
- B has more/the most colour on it.

Do not give credit for an insufficient response:

- by measuring the length;
 - the line shows you;
 - it has a high level;
 - it has a long, bold strip of colour;
 - of the strip is dark;
- [these do not make a comparison];
- B has absorbed/soaked up most water [given];
 - B is the most damp [given];
 - B is darker [implies the colour is more concentrated].

- (b) Award **ONE** mark for **both**: 1
- | | |
|---------------|----------------|
| Kitchen roll | Cotton fabric |
| Plastic sheet | Aluminium foil |

5. Award **TWO** marks for **all four** changes correctly classified: 2

	Yes	No
<i>bread</i>		✓
<i>ice</i>	✓	
<i>paper</i>		✓
<i>plasticine</i>	✓	

or

If you are unable to award two marks, award **ONE** mark for a correct classification of **three** of the changes. 1

[2]

6. (a) Award **ONE** mark for a bar drawn accurately: 1

- washing up liquid at/on 10 seconds [part of the drawn line must touch 10 seconds].

Allow:

- a bar line or horizontal line showing 10 seconds.

Do not give credit for written responses.

- 10 seconds.*

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

- honey.

[2]

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

- talc.

- (b) Award **ONE** mark for a response indicating that granite was the only rock not to be scratched by the objects: 1(L4)

- none of the objects were able to scratch granite, but some could scratch the other rocks;
- all the other rocks were scratched by at least one object;
- fewer objects/tools could scratch granite than the others.

Allow:

an absolute response that does not describe whether the other rocks were scratched:

- no object could scratch granite;
- it could not be scratched.

Do not give credit for an insufficient response that does not interpret the table:

- it only has crosses, where the other rocks have at least one tick.*

- (c) Award **ONE** mark for all the rocks written in the correct place: 1(L4)

talc	sandstone	marble	granite
------	-----------	--------	---------

- (d) Award **ONE** mark for: 1(L5)
- | | | |
|----------------------------|--|-------------------------------------|
| <input type="checkbox"/> | | <input type="checkbox"/> |
| • <input type="checkbox"/> | It was difficult to scratch each rock with the same force. | <input checked="" type="checkbox"/> |

- (e) Award **ONE** mark for identifying that granite feels rough **and** is not permeable: 1(L4)
- granite is rough/not smooth; **and**
 - granite is not permeable/water cannot pass through granite.

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

- water can pass through granite.

Do not give credit for an insufficient response describing the results of the scratch test:

- granite is hard to scratch.

[5]

8. (a) Award **ONE** mark for an upward arrow drawn anywhere on the diagram: 1

↑

- (b) Award **ONE** mark for a recognition that the paper clip will fall: 1
it will go down;
it lands on the table

*Do not give credit for an insufficient response:
it will stay on the string;
the thread will drop down.*

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

steel pin

- (d) Award **ONE** mark for an indication that like poles repel: 1
- magnets repel each other when you hold two like poles together;
 - like poles repel;
 - he must have put North to North/South to South;
 - he put the same ends/poles close to each other;
 - he put the same/red ends together.

Allow:

- magnets repel each other.

Do not give credit for an insufficient response:

• the magnetic force pushes the other magnet away [repetition of stem];

• he must have put red to red [no reference to ends/poles];

• they do not attract [this does not necessarily imply repulsion].

9. (a) Award **ONE** mark for an understanding that light cannot pass through opaque objects. 1

The response **must** make reference to **light** or **opacity**:

- the chair blocks (some of) the light (from the lamp);
- light cannot pass through the chair;
- the chair is opaque.

Allow:

- the light is blocked.

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

- *light goes around the chair.*

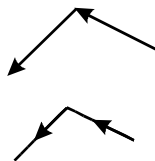
***Do not** give credit for an insufficient response that does not explain shadow formation:*

- *light cannot get past the chair [it passes on either side];*
- *light travels in straight lines [does not explain];*
- *the light cannot bend around the chair.*

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

- shiny
-

- (c) Award **ONE** mark for arrowheads drawn in the following directions: 1



***Do not** give credit if only one arrowhead is drawn correctly.*

Total Time : 45 minutes

Total possible score: 29

Approximate Level Guidance:

<8 <2a

8 - 11 L2a

12 – 15 L3c

16 – 19 L3b

20 – 23 L3a

>23 Level 4+