

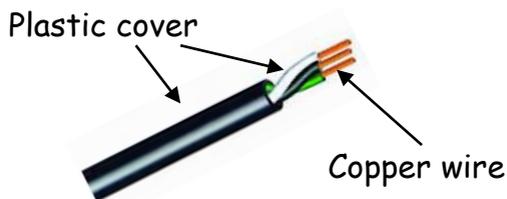
# Y5 Material Properties

1) When making the following items, the materials they are made from must be carefully selected. Name **two** of the material properties that are important for each item and the materials they are made from if they are to do their job properly. The words below will help you. You may also use your own material property words. (4 marks)

hard    soft    transparent    impermeable    opaque    permeable  
 magnetic    rough    rigid    translucent    smooth    flexible    warm

Rubber hot water bottle	Copper kettle	Net curtains	Wooden bowl	Leather jacket
				
Fridge magnets	Drinking glass	Bath towel	Steel keys	Plastic umbrella
				

2) Wires are usually made from two materials, copper and plastic. Explain why? (1 mark)




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3) Which of the following materials will dissolve in water? (1 mark)

Tick **TWO** boxes.

butter	<input type="checkbox"/>	sugar	<input type="checkbox"/>	granite	<input type="checkbox"/>
salt	<input type="checkbox"/>	oil	<input type="checkbox"/>	sand	<input type="checkbox"/>

4) Lucy and Pip investigated how much sugar dissolved in 100ml of water at room temperature. This table shows their results:

Number of spoonfuls of sugar	Did it all dissolve in 100ml of water?
1	yes
2	yes
3	yes
4	yes
5	no
6	no

a. Lucy says that when they added the sugar to the water at the beginning of their investigation, it disappeared. Explain why this statement is incorrect. (1 mark)

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b. Explain why 5 spoonfuls of sugar stopped dissolving in 100ml of water. (1 mark)

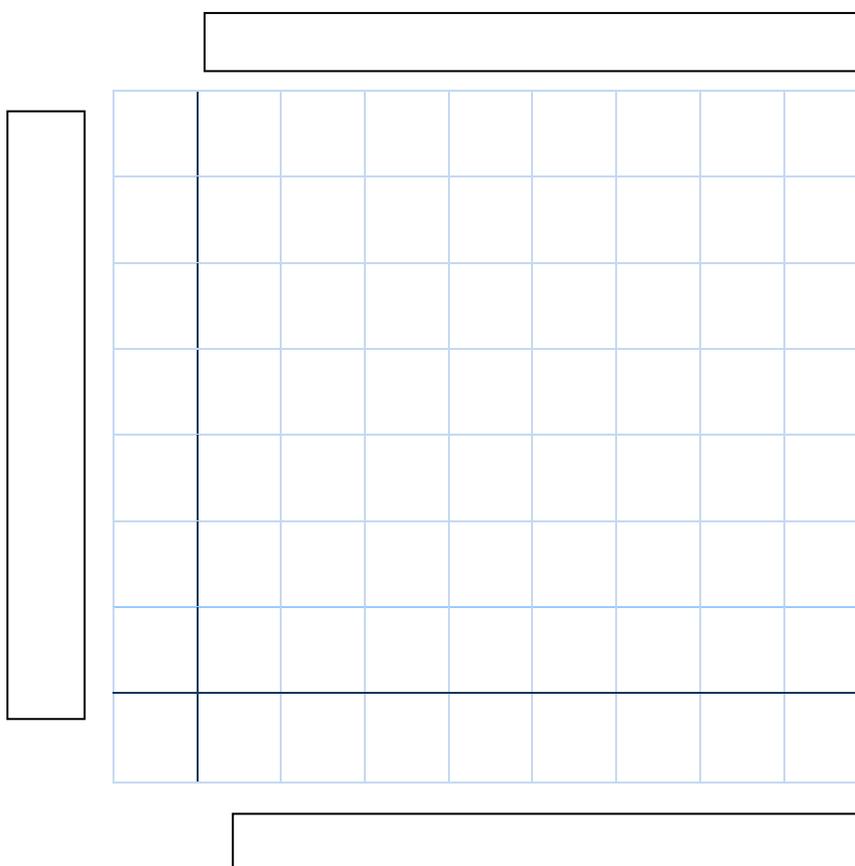
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5) a. The table below shows the time it takes one sugar cube to dissolve in 400ml of water, but at different temperatures. Plot these results into a block graph. (3 marks)

Temperature $^{\circ}\text{C}$	0	20	40	60
Time taken to dissolve (seconds)	65	50	30	10



b. What do the results tell you about the temperature of water and the rate at which sugar cubes dissolve? (2 marks)

c. Write down three things that you would have to do when carrying out this investigation to make sure you carried out a **fair test**. (2 marks)

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

6) a. Four teaspoons of salt dissolve in 500ml of cold water. The water looks clear but tastes salty. Describe how this salt could be separated from the water? (2 marks)



\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Look at the mixtures below and the equipment. Explain how you would separate each mixture using the equipment available. You can use any of the equipment available more than once. (4 marks)

**Equipment**



Mug



Spoon



Sieve



Magnet



Ladle



Jug



Iron filings and sand

This is the equipment I would select: \_\_\_\_\_

This is how I would separate this mixture:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Small pebbles and sand

This is the equipment I would select: \_\_\_\_\_

This is how I would separate this mixture:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7) Heating causes some materials to change. Some of these changes are reversible and some are irreversible. Look at the changes caused to these materials by heating and say whether these changes are reversible or irreversible. (2 marks)



Melting chocolate

This is a \_\_\_\_\_ change.



Melting chocolate

This is a \_\_\_\_\_ change.



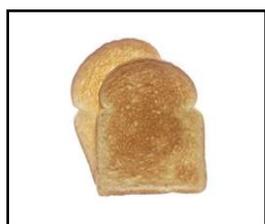
Melting chocolate

This is a \_\_\_\_\_ change.



Melting chocolate

This is a \_\_\_\_\_ change.



Melting chocolate

This is a \_\_\_\_\_ change.



Melting chocolate

This is a \_\_\_\_\_ change.

8) Explain what will happen to this puddle on a warm sunny day. (1 mark)




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9) When designing certain items and products it is vital that the materials selected are transparent, translucent or opaque. Look at the products below and say whether it is important for them to be transparent, translucent or opaque. (1 marks)

Sleeping mask



It is important that the sleeping mask is

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Reading glasses



It is important that the reading glasses are

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Sun glasses



It is important that the sun glasses are

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