Materials properties – Checkpoint Primary chemistry

1. No.10

Different materials have different properties.

Draw a line between each **material** and its correct **property**.

material	property
	colourless gas
copper	attracted towards a magnet
gasoline	silver liquid
oxygen	red-brown solid
salt	flammable
steel	white solid
	soft

[5]

2. No.16

Here is a table of information about some materials.

material	is it attracted to a magnet?	does it have a melting point below 20 °C?	is it transparent?
A	no	no	yes
B	no	no	no
C	no	yes	yes
D	yes	no	no
E	no	yes	no

One of the materials is **water**.

Circle the material that is water.

A **B** **C** **D** **E**

[1]

3. No.4

Copper is a very useful material.

Copper is used to make cooking pots and electrical wires.

Tick (✓) the correct property of copper.

dull	☐
high melting point	☐
soft	☐
soluble in water	☐
weak	☐

[1]

4. No.12

Look at this list of materials.

material	property			
	is it hard?	**is it flexible?**	**is it transparent?**	**is it a liquid at room temperature?**
A	yes	yes	no	no
B	yes	no	no	no
C	yes	yes	no	no
D	no	no	yes	yes
E	no	yes	no	no
F	yes	yes	yes	no
G	no	no	no	yes

(a) Which **two** materials are see-through? ..... [1]

(b) Which material is water? ..... [1]

(c) Material **E** is suitable to make clothes.

Write down the **best two** reasons why material **E** is suitable to make clothes.

1 .....

2 .....

[2]

5. No.7

This question is about materials.

(a) A compass contains a magnetic material.

Complete the sentence.

The name of one magnetic material is ..... . [1]

(b) Complete these sentences about the uses and properties of materials.

Glass is used to make windows.

We use glass because ..... .

Wool is used to make clothes.

We use wool because ..... .

Plastic is used to make food containers.

We use plastic because ..... .

Concrete is used to make bridges over roads.

We use concrete because ..... .

[4]

6. No.4

Here is a list of properties.

flexible	**brittle**
good conductor of electricity	**poor conductor of electricity**
good conductor of heat	**poor conductor of heat**
high melting point	**low melting point**
soluble	**insoluble**

(a) Copper is used to make a cooking pot.

Explain why.

Choose **two properties** from the list.

1 .....

2 .....

[2]

(b) Copper is used to make electrical wires.

Explain why.

Choose **two properties** from the list.

1 .....

2 .....

[2]

7. No.6

Different materials are used to make the containers for drinks.

These materials include aluminium, glass, plastic and steel.

Here is a table of information about these materials.

Complete the table.

material	is it a metal?	is it attracted to a magnet?	is it transparent?	is it soluble in water?
aluminium	.....	no	no	.....
glass	no	.....	.....	no
plastic	.....	.....	yes	no
steel	yes	yes	.....	.....

[4]

8. No.6

Different materials have different properties.

Look at the table.

It shows some properties of six materials.

material	hardness (1 = soft and 10 = hard)	melting point (1 = low and 10 = high)	solubility in water	strength (1 = weak and 10 = strong)
A	9	10	soluble	9
B	4	10	insoluble	1
C	3	9	insoluble	10
D	10	10	insoluble	10
E	4	4	insoluble	6
F	9	9	insoluble	9

(a) Which material in the table **dissolves** in water?

.....

[1]

(b) It is **not** possible to tell which of material **C** or material **D** is the stronger.

Explain why.

.....

.....

[1]

(c) Mike sorts the materials into two groups.

Group 1 – materials **A**, **D** and **F**

Group 2 – materials **B**, **C** and **E**

Which property did Mike use to sort the materials?

.....

[1]

9. No.4

Draw a line between each **material** and **one** correct **description** of the material.

material	description
	black solid
petrol	flammable liquid
gold	melting point of 0 °C
nitrogen	colourless gas
polythene plastic	shiny solid
water	attracted to a magnet
	flexible and colourless solid

[5]

10. No.8

Orange juice is stored in plastic bottles.

(a) Plastic is insoluble in water.

What does insoluble in water mean?

..... [1]

(b) It is important that the plastic used to make orange juice bottles is insoluble in water.

Explain why.

.....

..... [1]

(c) Name **one other** property of plastic that makes it suitable for making orange juice bottles.

.....

.....

..... [1]

(d) Glass can also be used to make bottles for storing orange juice.

Suggest **one disadvantage** of using glass instead of plastic to make the bottles.

.....

..... [1]

11. No.12

It is possible to identify a substance from looking at its properties.

Here are some properties of six substances.

substance	melting point in °C	boiling point in °C	Is it magnetic?	Is it a good conductor of heat?
A	1470	3010	yes	yes
B	–77	–10	no	no
C	0	106	no	no
D	1535	2750	yes	yes
E	0	100	no	no
F	–20	100	no	no

(a) Which **two** substances could be steel?

Choose from **A**, **B**, **C**, **D**, **E** or **F**.

..... **and** .....

Explain your answer.

..... [2]

(b) One of the substances is water.

Which substance?

Choose from **A**, **B**, **C**, **D**, **E** or **F**.

..... [1]

(c) The temperature in a laboratory is 25 °C.

Which substance is a gas in this laboratory?

Choose from **A**, **B**, **C**, **D**, **E** or **F**.

..... [1]

(c) The temperature in a laboratory is 25 °C.

Which substance is a gas in this laboratory?

Choose from **A**, **B**, **C**, **D**, **E** or **F**.

.....

[1]

12. No.3

Here are some properties of four substances.

substance	Does it rust?	Does it dissolve in water?	Is it poisonous?	Is it strong?
A	yes	no	no	yes
B	no	no	yes	yes
C	no	no	no	yes
D	no	yes	no	no

(a) Buckets are used to carry water.

Which material could **not** be used to make a bucket?

Choose from **A**, **B**, **C** or **D**.

.....

Explain your answer.

.....

.....

[2]

(b) Substance **A** is used to make cars.

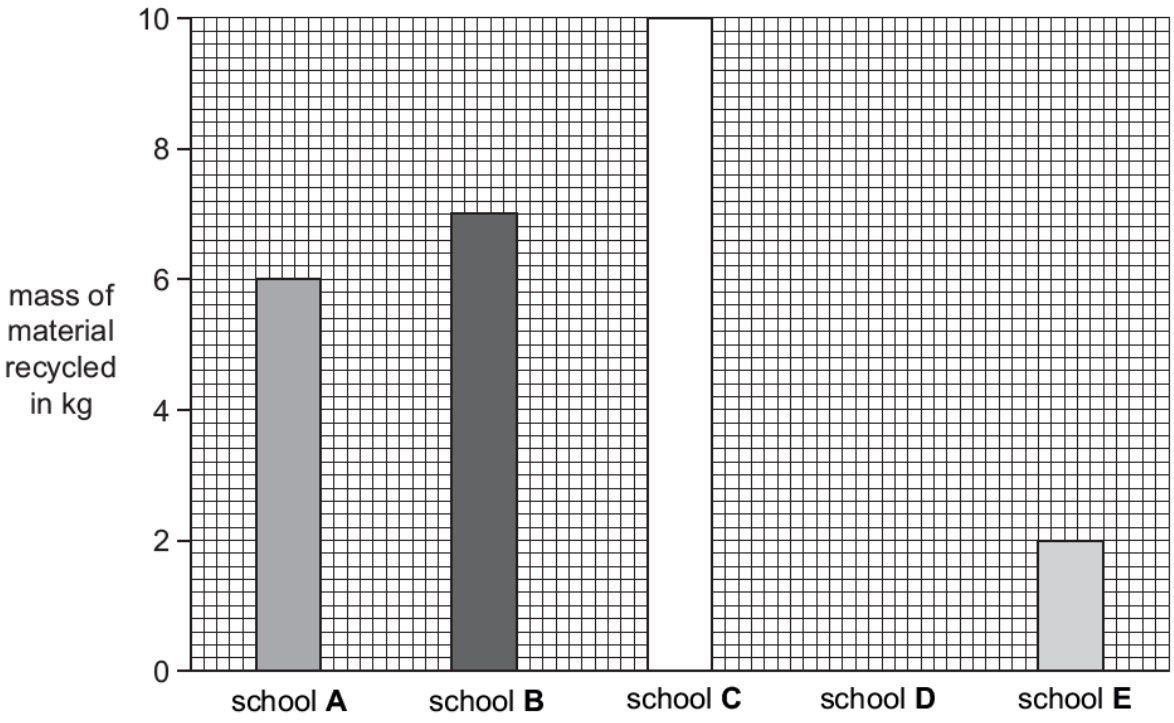
Explain why.

Use information from the table.

..... [1]

13. No.7

Chen collects information about recycling in different schools.



(a) Write down the mass of material recycled by school **B**.

..... kg [1]

(b) School **D** recycles 1kg **less** than School **A**.

Draw the bar for school **D** on the bar chart. [1]

(c) Chen makes a conclusion.

He says

'School C recycles the most.

I think this is because school C is the biggest school with the most children.'

Suggest one **other** reason why school **C** recycles the most.

.....

..... [1]

14. No.8

The table below shows some properties of six materials.

material	hardness (1 = soft and 10 = hard)	melting point (1 = low and 10 = high)	soluble in water	strength (1 = weak and 10 = strong)
A	9	10	yes	9
B	4	10	no	1
C	5	9	no	10
D	10	10	no	10
E	4	4	no	6
F	9	9	no	9

(a) Material **E** has a low melting point.

What is the meaning of the words melting point?

.....

.....

..... [2]

(b) A cutting tool needs to be very hard, have a high melting point and be very strong.

Which material is the best to make a cutting tool?

Circle the correct answer.

A **B** **C** **D** **E** **F**

[1]

15. No.6

Cups for hot drinks are often made from foam plastic.

One reason why foam plastic is used is because it does **not** dissolve.

Write two **other** reasons why foam plastic is used to make a cup for hot drinks.

1 .....

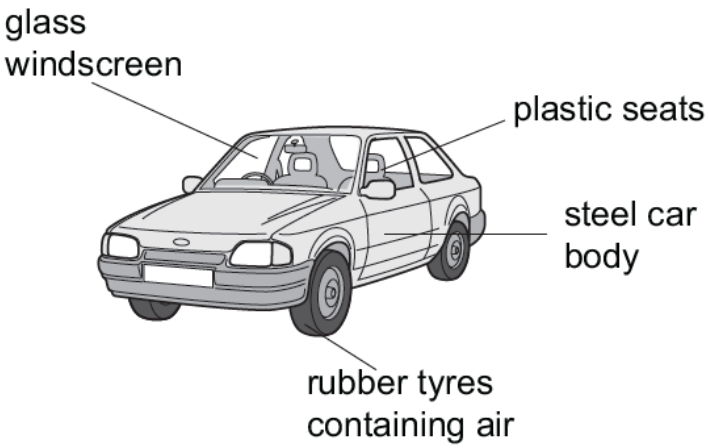
2 .....

[2]

16. No.2

Safia owns a motor car.

The diagram shows some of the materials used to make her car.



(a) Which labelled material in the diagram is attracted to a magnet?

..... [1]

(b) Give one reason why glass is used to make the car windscreen.

..... [1]

(c) Steel is used to make the car body because it will **not** rust and is quite cheap.

Give one **other** reason why steel is suitable to make the car body.

..... [1]

(d) The car engine burns gasoline.

What type of change is the burning of gasoline?

Circle the correct answer.

irreversible **reversible**

Explain your answer.

.....

..... [1]

17. No.4

Materials have specific properties.

Draw a line between each **material** and the correct **property** of the material.

material	property
	white solid
carbon dioxide	flammable liquid
gasoline	melting point of 0 °C
mercury	colourless gas
steel	silver liquid
water	attracted to a magnet
	pink solid

[5]

18. No.5

Here are the properties of some materials.

material	hard or soft	magnetic or non-magnetic	soluble or insoluble in water
A	hard	non-magnetic	insoluble
B	hard	magnetic	insoluble
C	soft	non-magnetic	insoluble
D	hard	non-magnetic	soluble

(a) A mixture contains **A** and **B**.

Which method would you use to separate this mixture?

Tick (✓) the correct box.

condensation ☐

evaporation ☐

filtration ☐

magnetic attraction ☐

[1]

(b) A solution contains **D** in **water**.

Which method would you use to separate pure **D** from this solution?

Tick (✓) the correct box.

condensation	☐
evaporation	☐
filtration	☐
magnetic attraction	☐

[1]

(c) A mixture contains **C** and **water**.

Which method would you use to separate this mixture to get **C** and water?

Tick (✓) the correct box.

condensation ☐

evaporation ☐

filtration ☐

magnetic attraction ☐

[1]

(d) A mixture contains **C**, **D** and **water**.

Which two methods would you use to separate the mixture to get both pure **C** and pure **D**?

Tick (✓) the **two** correct boxes.

condensation ☐

evaporation ☐

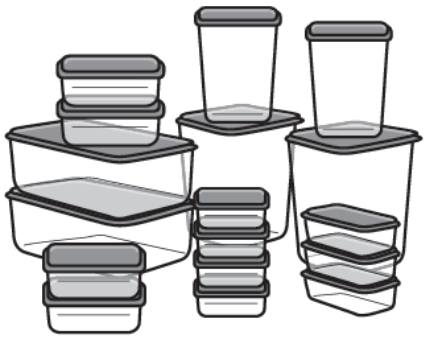
filtration ☐

magnetic attraction ☐

[1]

19. No.8

Plastic is often used to make containers for food.



Which properties must this plastic have to make containers for food?

Tick (✓) the **three** correct properties of the plastic.

conducts electricity	☐
conducts heat	☐
insoluble in water	☐
magnetic	☐
melting point above 100 °C	☐
non-poisonous	☐

[2]

20. No.14

Anastasia finds this information about some materials.

material	is it a solid, liquid or a gas?	colour of material?	does it dissolve in water?	does it have a high or low melting point?
carbon dioxide	gas	colourless	yes	low
gold	solid	gold	no	high
hydrogen	gas	colourless	no	low
iron	solid	grey	no	high
magnesium sulfate	solid	white	yes	high
marble	solid	white	no	high
mercury	liquid	silver	no	low
paraffin	liquid	colourless	no	low

(a) Which material is a solid attracted to a magnet?

Choose from the table.

..... [1]

(b) Anastasia sorts these materials into two groups.

One group is **soluble** in water and the other group is **insoluble** in water.

Use the information about materials to complete these groups.

soluble materials	insoluble materials

[2]

(c) Anastasia sorts the materials into two **different** groups.

group A	group B
carbon dioxide	gold
hydrogen	iron
mercury	magnesium sulfate
paraffin	marble

Which **two** questions in the table does Anastasia use to sort the materials?

1 .....

2 .....

[2]

21. No.18

Anastasia finds this information about some materials.

material	is it a solid, liquid or a gas?	colour of material?	does it dissolve in water?	does it have a high or low melting point?
carbon dioxide	gas	colourless	yes	low
gold	solid	gold	no	high
hydrogen	gas	colourless	no	low
iron	solid	grey	no	high
magnesium sulfate	solid	white	yes	high
marble	solid	white	no	high
mercury	liquid	silver	no	low
paraffin	liquid	colourless	no	low

(a) Which material is a solid attracted to a magnet?

Choose from the table.

..... [1]

(b) Anastasia sorts these materials into two groups.

One group is **soluble** in water and the other group is **insoluble** in water.

Use the information about materials to complete these groups.

soluble materials	insoluble materials

[2]

(c) Anastasia sorts the materials into two **different** groups.

group A	group B
carbon dioxide	gold
hydrogen	iron
mercury	magnesium sulfate
paraffin	marble

Which **two** questions in the table does Anastasia use to sort the materials?

1 .....

2 .....

[2]

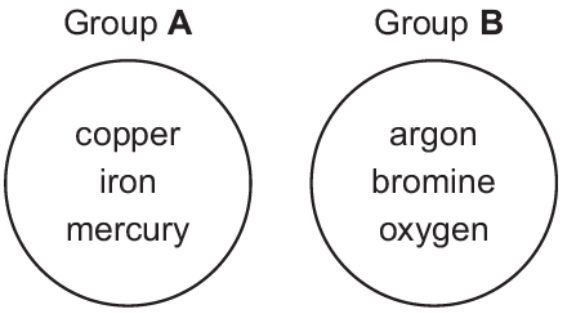
22. No.9

The table shows the properties of some elements.

element	does it conduct electricity?	solid, liquid or gas at room temperature	does it react with acid?	colour
argon	no	gas	no	colourless
bromine	no	liquid	no	orange
copper	yes	solid	no	pink
iron	yes	solid	yes	grey
mercury	yes	liquid	no	silver
oxygen	no	gas	no	colourless

(a) Chen sorts the elements into two groups.

Here are his two groups.

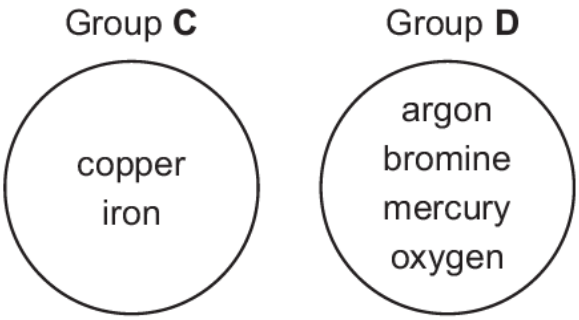


What property does Chen use to sort these elements?

..... [1]

(b) Blessy also sorts the elements into two groups.

Here are her two groups.



What property does Blessy use to sort these elements?

..... [1]

23. No.9

Look at this list of everyday materials.

chalk	**salt**
copper	**sand**
gasoline	**steel**

(a) Which of these materials is attracted towards a magnet?

..... [1]

(b) Which of these materials is a white solid that is soluble in water?

..... [1]

(c) Which of these materials is a **liquid** at room temperature?

..... [1]