

## The Primary Stage of Grades (4-5) School Year 2022 - 2023

Name: \_\_\_\_\_

Unit (5): Properties of matter  
Worksheet (2)

Date: / /

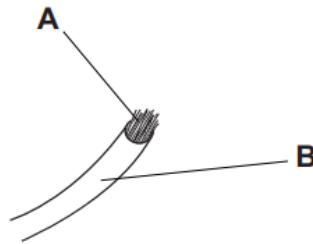
Grade 5 CP (All sections)

### Objective:

- Identify properties of materials including: mass, melting point, boiling point and solubility.
- Analyze given data to identify different substances.
- Identify different lab tools and their uses.

### Question 1:

Wires are used in electrical circuits.



Complete the sentences.

Choose from the following words.

**conductor    copper    insulator    plastic    reflector    wood**

These words can be used once, more than once or not at all.

Material **A** is .....

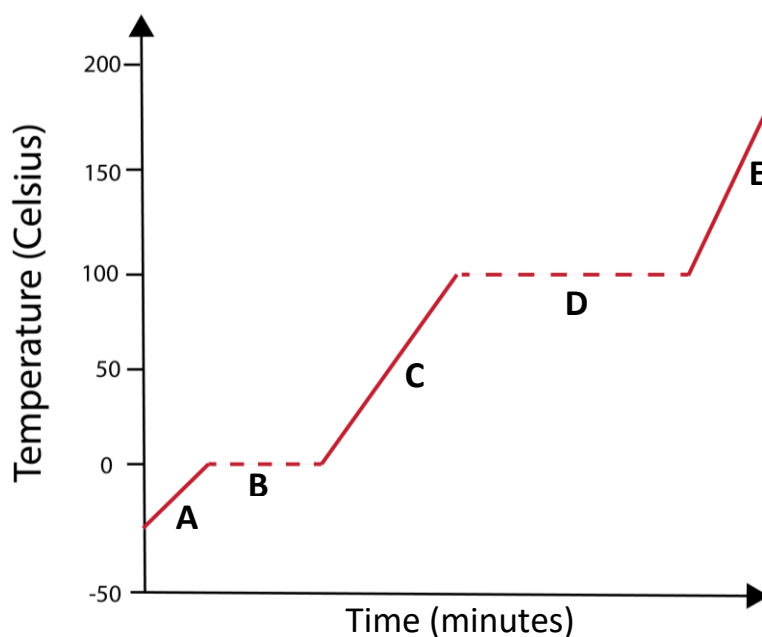
This material is used because it is a good .....

Material **B** is .....

This material is used because it is a good .....

**Question 2:**

The following line graph shows the heating curve of a substance:



- a. What is the state of the substance at point A? .....
- b. What is the state of the substance at point C? .....
- c. What is the change of state taking place in region B?

.....

- d. What is the change of state taking place in region D?

.....

- e. What is the melting point of the substance?

.....

How did you know?

.....

- f. What is the boiling point of this substance?

.....

How did you know?

.....

**Question 3:**

The three states of matter are solid, liquid and gas.

**(a)** The table shows the state of matter at room temperature of some substances.

Complete the table by putting ticks (✓) in the correct boxes.

Water has been done for you.

substance	state of matter at room temperature		
	solid	liquid	gas
carbon dioxide			
gasoline			
mercury			
water		✓	
wood			

**(b)** Copper has a melting point of 1083 °C.

What change of state happens when copper **melts**?

..... **to** .....

**(c)** Copper has a boiling point of 2567 °C.

What change of state happens when copper **boils**?

..... **to** .....

**(d)** Copper is heated to 2000 °C.

What is the state of matter of copper at 2000 °C?

.....

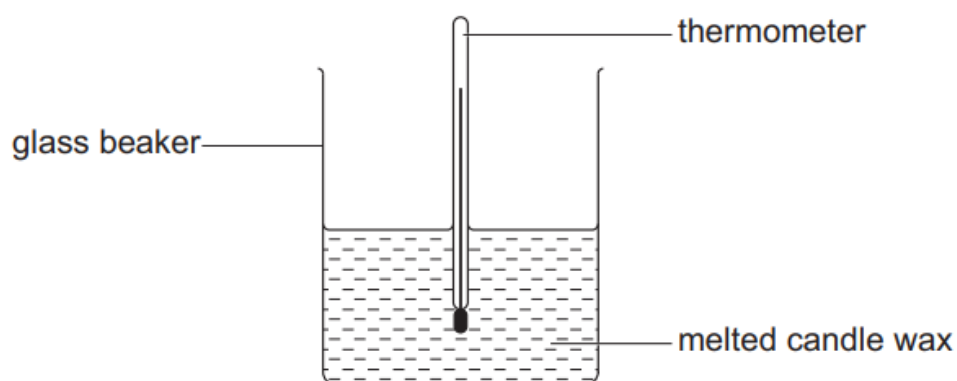
**(e)** What is meant by **the melting point** of a substance?

.....

**Question 4:**

Gabriella investigates the cooling of melted candle wax.

Here is the apparatus she uses.



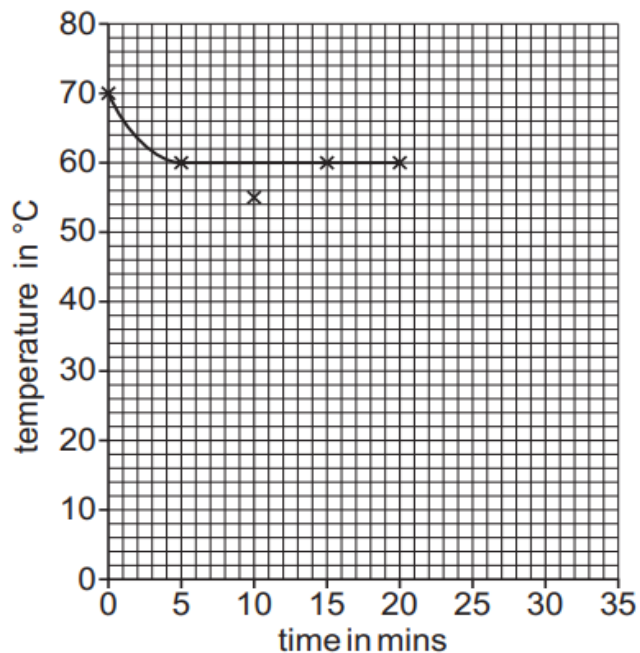
She measures the temperature of the candle wax every 5 minutes.

Here are her results.

<b>time in minutes</b>	<b>temperature in °C</b>
0	70
5	60
10	55
15	60
20	60
25	55
30	50

(a) Gabriella has plotted the first five results on this graph.

Plot the other two results.



(b) Complete the line graph.

(c) One of the results is **not** correct, it does **not** fit the pattern.

This result is at ..... minutes.

**Question 5:**

(a) Pierre is sorting metals in a recycling yard.

He is using a magnet to help him.

Which objects will be attracted towards the magnet?

Circle the correct answers.

**Brass button**

**copper tube**

**gold ring**

**iron bath**

**Lead pipe**

**silver coin**

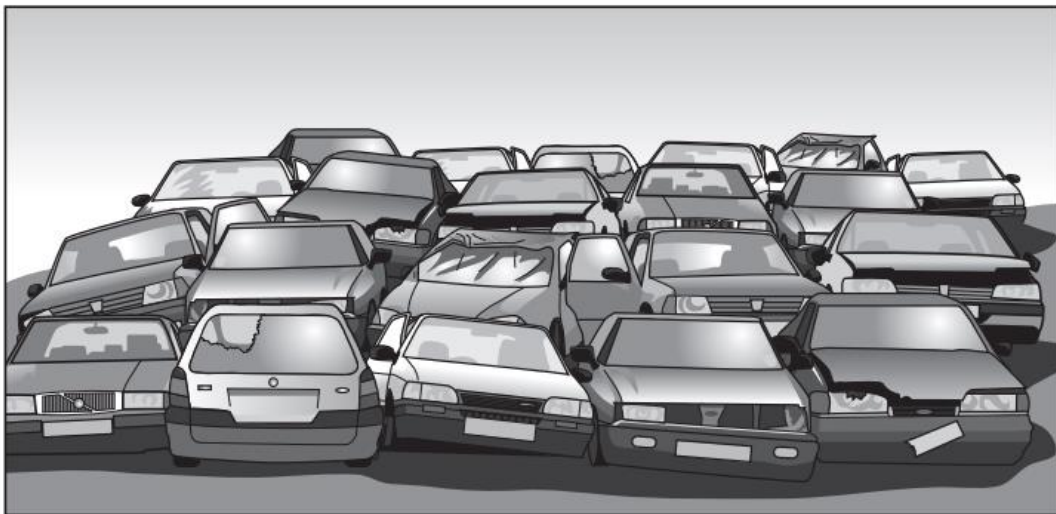
**steel wire**

**zinc foil**

(b) Some cars are made from steel.

Other cars are made from aluminium.

The picture shows cars in a scrapyard.



Suggest how steel cars can be separated from aluminium cars.

.....

Explain why this method works.

.....

.....

.....

**Question 6:**

(a) Some materials conduct electricity.

Circle **two** materials that conduct electricity.

**copper**

**glass**

**iron**

**paper**

**plastic**

**sand**

**wood**

**rubber**

(b) 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

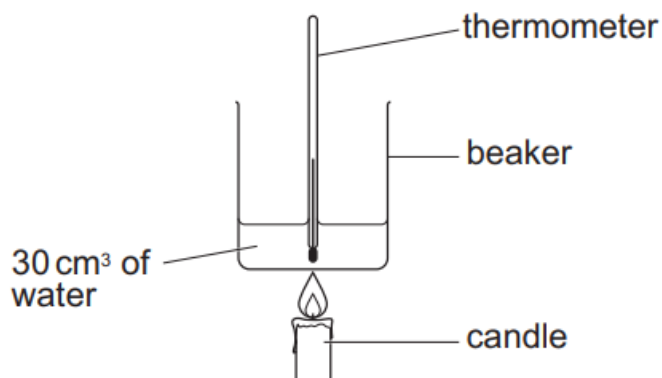
melting point above 100 °C

non-poisonous

**Question 7:**

Pierre uses a candle to heat a beaker of water.

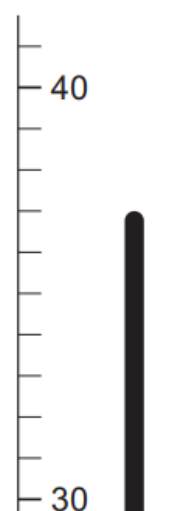
Here is a diagram of his experiment.



**(a)** The diagram shows the thermometer after 10 minutes.

What is the temperature of the water after 10 minutes?

..... °C



**(b)** At the start the temperature of the water was 20 °C.

What is the temperature increase?

..... °C

**(c)** Pierre continues to heat the beaker.

What happens to the water when its temperature reaches 100 °C?

.....

**(d)** Pierre sees some liquid wax at the top of the candle.

What process has happened to the solid wax?

.....



**Question 8:**

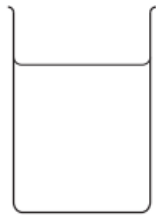
Blessy investigates the evaporation of water.

She measures  $100\text{ cm}^3$  of water and puts this into a beaker.

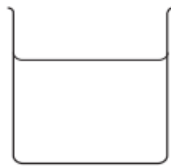
She measures the time for all the water to evaporate.

Blessy repeats the experiment three more times.

Each time she uses a different sized beaker.



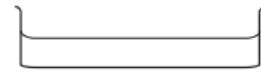
beaker **A**



beaker **B**



beaker **C**



beaker **D**

**(a)** Blessy always uses  $100\text{ cm}^3$  of water.

Explain why.

..... [1]

**(b)** Blessy thinks that the temperature of the water affects the time taken for all the water to evaporate.

Write down a possible prediction for the effect of **temperature**.

.....  
..... [1]

**(c)** Which factor affecting the rate of evaporation is Blessy investigating?

.....

**(d)** Knowing that water in all the beakers has the same temperature, predict from which beaker will water evaporate the fastest?

.....

**Question 9:**

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

**material**

**description**

petrol

black solid

gold

flammable liquid

nitrogen

melting point of 0 °C

polythene plastic

colourless gas

water

shiny solid

mercury

attracted to a magnet

flexible and colourless solid

silver liquid

**Question 10:**

Anastasia finds this information about some materials.

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

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

Choose from the table.

.....

**(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.

<b>soluble materials</b>	<b>insoluble materials</b>

(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 .....

**Question 11:**

State the use of each of the following laboratory tools:

Tool	Use	Tool	Use
 forcemeter		 balance	
 measuring cylinder		 stop clock	
 ruler		 thermometer	

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.

.....

(b) One of the substances is water.

Which substance?

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

.....

(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**.

.....

(d) Substance **D** melts at 1535°C.

What happens when a substance melts?

.....

**Question 13:**

Carlos adds some salt to a beaker of water.

He also adds some sand to another beaker of water.

Complete these sentences about adding salt and sand to water.

Choose from the words below.

**condenses**

**evaporates**

**dissolves**

**insoluble**

**soluble**

**solute**

**solvent**

(a) Salt ..... in water to make a solution.

(b) Water is the ..... in this process.

(c) Salt is the ..... in the solution.

(d) When all water ..... from the salt solution  
a white solid is left behind.

(e) Sand does not make a solution when mixed with water because it is  
.....

**Question 14:**

The table shows the properties of some substances.

<b>substance</b>	<b>state at room temperature</b>	<b>colour</b>	<b>soluble in water</b>
chalk	solid	white	no
copper sulfate	solid	blue	yes
gasoline	liquid	colourless	no
iron sulfate	solid	green	yes
magnesium sulfate	solid	white	yes

**(a)** Which substances are insoluble in water?

.....

**(b)** Rajiv mixes gasoline and water.

Suggest what he would see.

.....

.....