Science Department

2023/2024

Year 7

Term 1 , Revision Pack

Name: …….

Class: ……

1 Two groups of pupils investigated the factors affecting the time taken for an indigestion tablet to dissolve in 100 cm^3 of water.

Group 1 recorded their results in the table below.

results of group 1

tablet	time taken to dissolve (s)
whole tablet	34
broken tablet	28
finely crushed tablet	22

(a) What factor did group 1 change as they carried out their investigation?

_____

(b) Before the investigation, group 1 made a prediction.
They found this prediction was supported by the results in the table.

What prediction did group 1 make?

_____

_____

(c) Group 2 investigated how the temperature of the water affects the time taken for a whole tablet to dissolve.

Here are their results.

results of group 2

temperature of water (°C)	time taken to dissolve (s)
65	24
40	35
15	90
5	100

What factor did group 2 change as they carried out their investigation?

_____

_____

(d) What pattern do the results recorded by group 2 show?

_____

_____

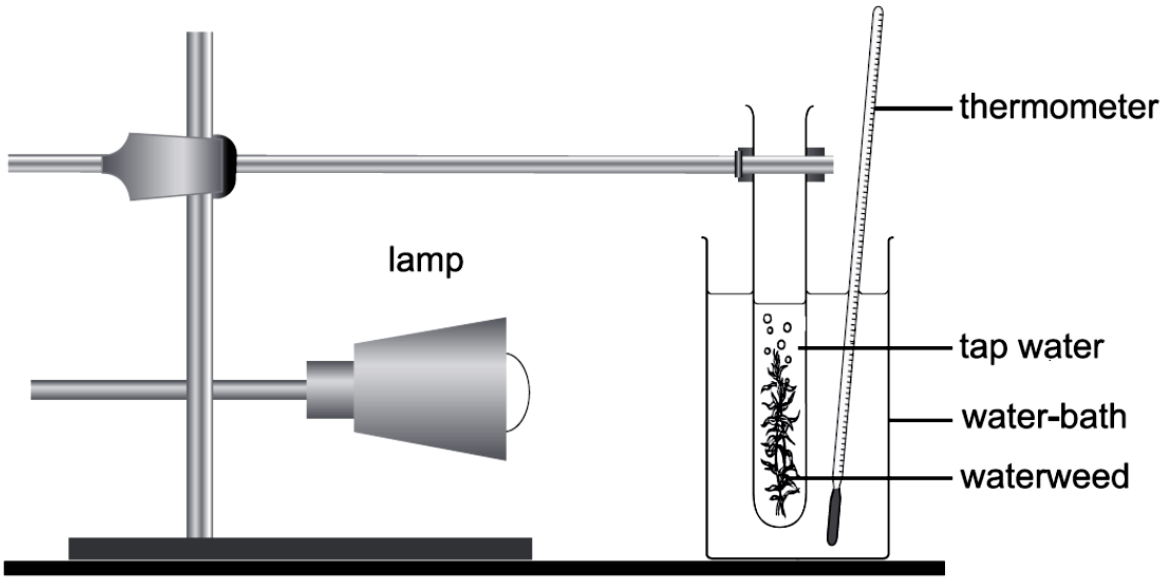
(e) Look at the results presented by group 1 and group 2.
Both groups used the same type of tablet.

Estimate the temperature of water used by group 1.

_____ °C

2 Suzi investigated how temperature affects the number of bubbles produced by waterweed in one minute.

She set up the experiment as shown below.



When the temperature of the water was 10°C the waterweed did **not** produce bubbles.

(a) Suzi increased the temperature of the water in the water-bath to 20°C.
The waterweed started to produce bubbles.
She waited two minutes before starting to count the bubbles.

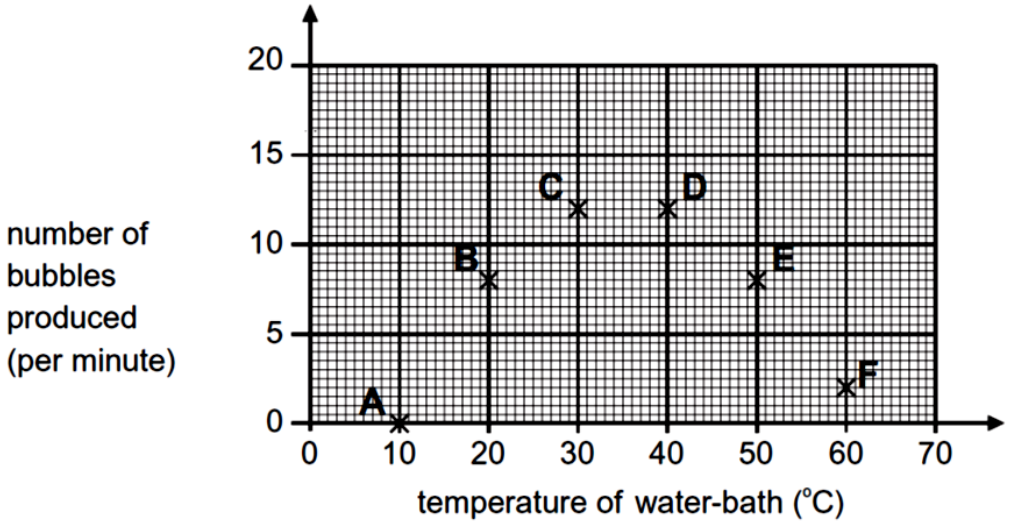
Explain why she waited for two minutes before she started to count the bubbles.

_____

_____

(b) Suzi counted the number of bubbles produced at six different temperatures.

Her results are shown on the graph below.



(i) Draw a smooth curve on the graph.

(ii) Use your curve to find the temperature of water which produced the most bubbles per minute.

_____°C

(c) Suzi predicted that the higher the temperature the more bubbles would be produced.

Which points on the graph support Suzi's prediction?

_____

(d) Suzi's data does **not** show clearly the exact temperature at which most bubbles were produced.

How could she improve the data she collects to find this temperature?

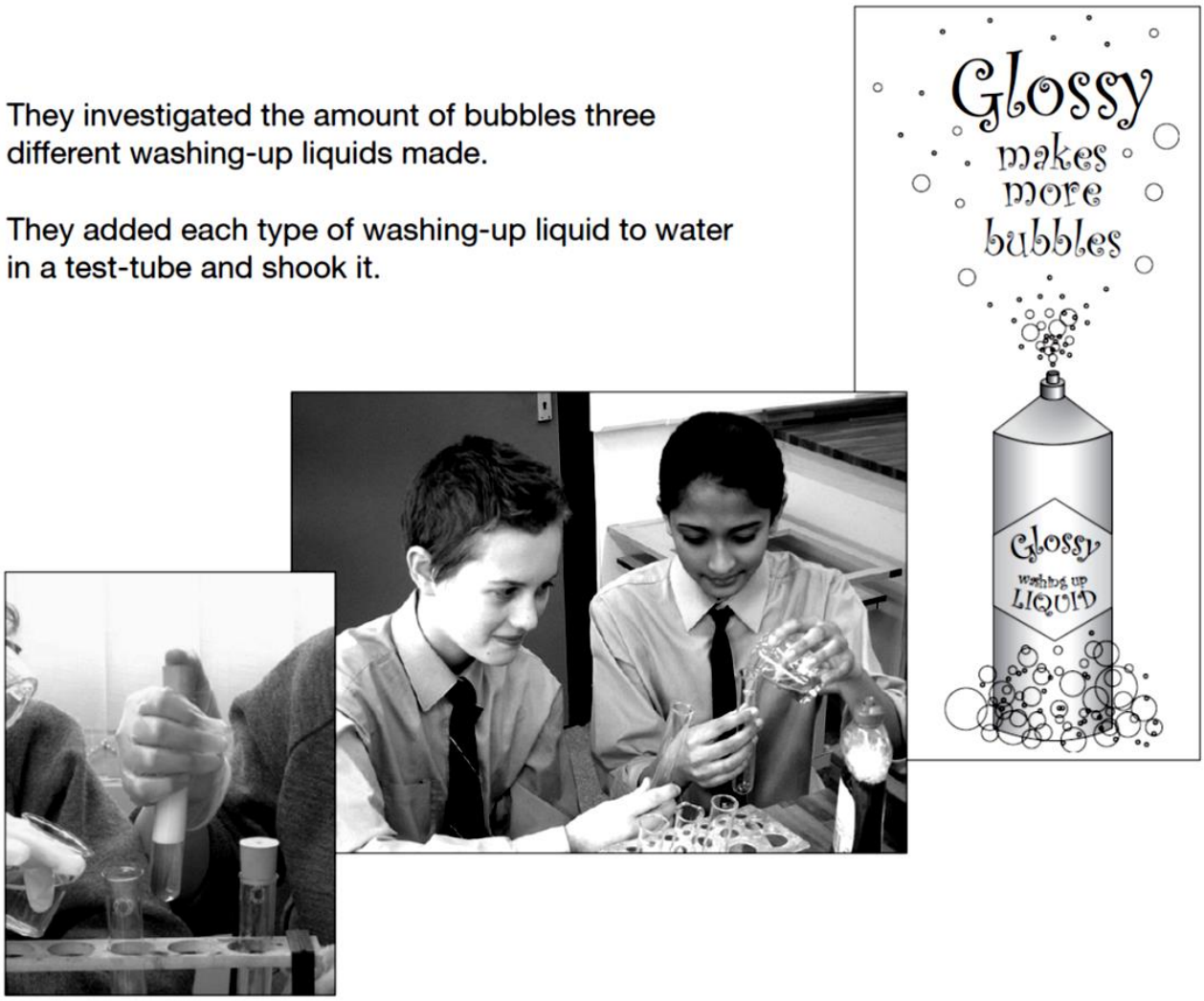
_____

_____

3 Alan and Aysha saw a poster claiming that Glossy washing-up liquid makes more bubbles than other washing-up liquids.

They investigated the amount of bubbles three different washing-up liquids made.

They added each type of washing-up liquid to water in a test-tube and shook it.



(a) What would they see if the results of their test supported the claim made on the poster?

1 mark

_____

(b) Why should they use the same volume of washing-up liquid in each test-tube?

1 mark

_____

(c) The first time they tried this investigation **all** the washing-up liquids made bubbles which went to the tops of the test-tubes.

Why was this a problem?

1 mark

_____

_____

(d) Jane tried the investigation again using less washing-up liquid in each test-tube.

She made a prediction about Shine washing-up liquid.

The photograph shows her results.

Glossy **Shine** **Fresh**

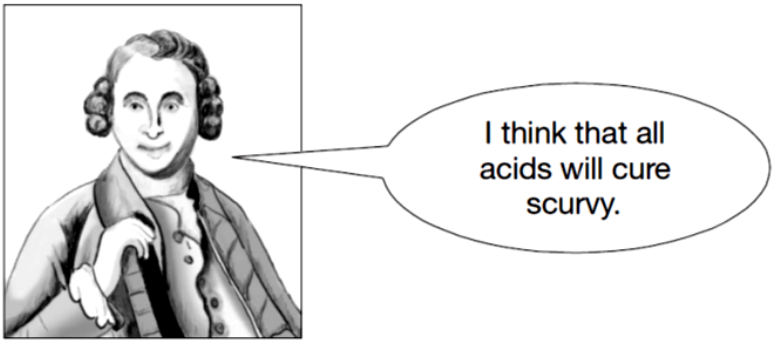
Jane's results support her prediction about Shine.

What was Jane's prediction?

1 mark

_____

4. Sailors used to suffer from an illness called scurvy caused by a poor diet on long journeys.
James Lind was a doctor who tested treatments for scurvy. He predicted that **all acids cure scurvy**.



He gave 6 pairs of sailors with scurvy exactly the same meals but he also gave each pair a different addition to their diet.

pair of sailors	addition to their diet	effect after one week
1	some apple cider	beginning to recover
2	25 drops of very dilute sulphuric acid to gargle with*	still had scurvy
3	2 teaspoons of vinegar	still had scurvy
4	half a pint of sea water*	still had scurvy
5	2 oranges and 1 lemon	recovered
6	herbs and spices and acidified barley water	still had scurvy

(a) Does the evidence in the table support the prediction that all acids cure scurvy?
Tick the correct box.

☐ yes ☐ no

Use the table to explain your answer.

1 mark

_____

_____

***DANGER! DO NOT TRY THIS.**

(b) (i) Give the **one** factor James Lind **changed** in this experiment.
(This is called the independent variable.)

1 mark

_____

(ii) Give the factor James Lind **examined** in this experiment.
(This is called the dependent variable.)

1 mark

_____

(c) James Lind's evidence suggested that oranges and lemons cured scurvy.

At a later time, other scientists did the following:

- They separated citric acid from the fruit.
- They predicted that citric acid would cure scurvy.
- They tested their prediction by giving pure citric acid as an addition to the diet of sailors with scurvy.
- They found it did **not** cure scurvy.

The scientists had to make a different prediction.

Suggest a new prediction about a cure for scurvy that is consistent with the evidence collected.

1 mark

_____

_____

(d) Explain why it is necessary to investigate the effects of changes in diet over a period of more than one week.

1 mark

_____

_____

_____

_____