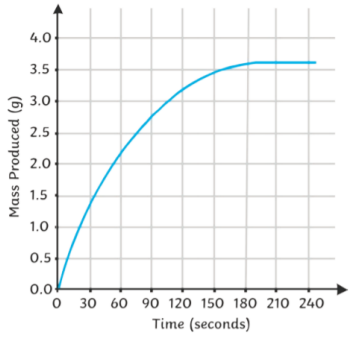
a

Describe in detail what the rate of reaction graph shows.



Why does it have this shape?

b

Describe how sodium thiosulfate can react with HCl in a practical.
Write it step by step.

1.

2.

3.

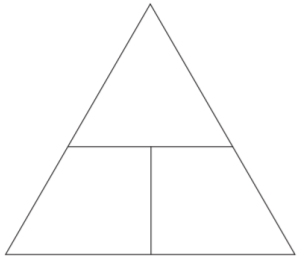
4.

5.

c

Complete the formula triangle to show the formula for calculating rates of reaction.

$$\text{mean rate of reaction} = \frac{\text{quantity of product formed}}{\text{time taken}}$$



Calculate the rate of reaction when:

The amount of product made is 650g and it takes 50 seconds to produce. Show your working out.

d

Explain what happens when a reaction is in equilibrium.

Why can reactions only reach equilibrium in a closed system?

e

Describe how increasing the surface area of a solid reactant affects the rate of reaction.

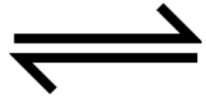
Why does this happen?

f

Write down the definition of a catalyst.

How do catalysts work?

g



What does this symbol show?

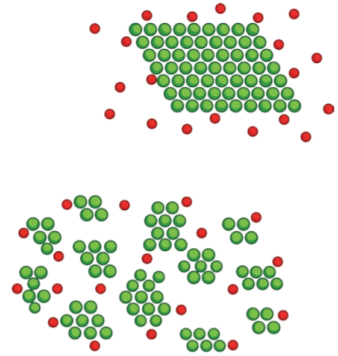
h

What is Le Chatelier's Principle?

Give an example of a condition that could be changed.

i

Discuss, in terms of collision theory, what happens to particles when they are heated.



j

When concentration increases explain why rate of reaction increases.
Use diagrams to help you explain.

a

Describe how marble chips and hydrochloric acid can react to produce carbon dioxide. Write it step by step.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

b

How can a balance be used to measure the amount of gas being produced? Choose the correct answer.

1. The quicker the mass lost, the quicker the reaction.
2. The slower the mass lost the quicker the reaction.
3. The quicker the mass is gained the quicker the reaction.

c

I am feeling confident in the following topics...

_____

_____

_____

_____

I need to work on the following topics...

_____

_____

_____

_____

d

Draw a graph of the following results. Add a curve of best fit.

Time	Volume of gas
0	0
10	11
20	16
30	19
40	21

Why would you add a tangent to the graph?

_____

_____

What does the steepness of the tangent show?

_____

_____

e

How can a graph be used to calculate the mean reaction rate?
Answer the question using the information:

- Work out when the reaction finished;
- Work out how much product formed;
- Divide by the time taken to finish.

The line goes flat at 70s and 80cm^3 of gas was produced.
Mean rate =

f

Sketch a graph to show a slow reaction.

Sketch a graph to show a quick reaction.

g

Find the mean rate of reaction between these 2 points:

At 30s, 20cm^3 of product had been produced and at 60s, 75cm^3 had been produced.

Mean rate = _____