

Subject: Chemistry

Topic: Rate of chemical reactions

Level: S.4

Learning Objectives

1. Content:

Students should be able to:

describe the relationship between the rate of chemical reaction and time from a graph plotted from an experiment

2. Language:

Students should be able to:

1. use the following language pattern and vocabulary to describe the relationship between the rate of chemical reaction and time:

This implies that...

2. give a title to a graph plotted to represent experimental results

S.4 Chemistry
Rate of Reactions
Worksheet 1

Name: _____ No.: _____ Class: _____ Date: _____

Activity 1



Individual work

A. Pre-lesson

1. Do this part before the lesson.
2. Refer to your textbook Chapter 9 to complete this part.
3. Consider the chemical reaction between zinc and dilute hydrochloric acid (Include all physical states in the equations):

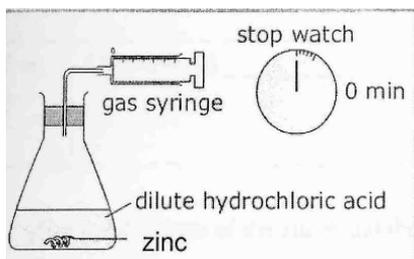
Word equation:	Zinc + hydrochloric acid →
Chemical equation:	
Ionic equation:	

4. From the ionic equation, we know that we can measure the reaction rate by measuring:
 - a. the amount of zinc used up per minute, or
 - b. the amount of dilute hydrochloric acid used up per minute, or
 - c. the amount of hydrogen produced per minute, or
 - d. the amount of zinc ion produced per minute.
5. Which of the above amounts are measurable?

6. How can we measure them?

B. A typical graph on the rate of reaction

Experimental set-up:

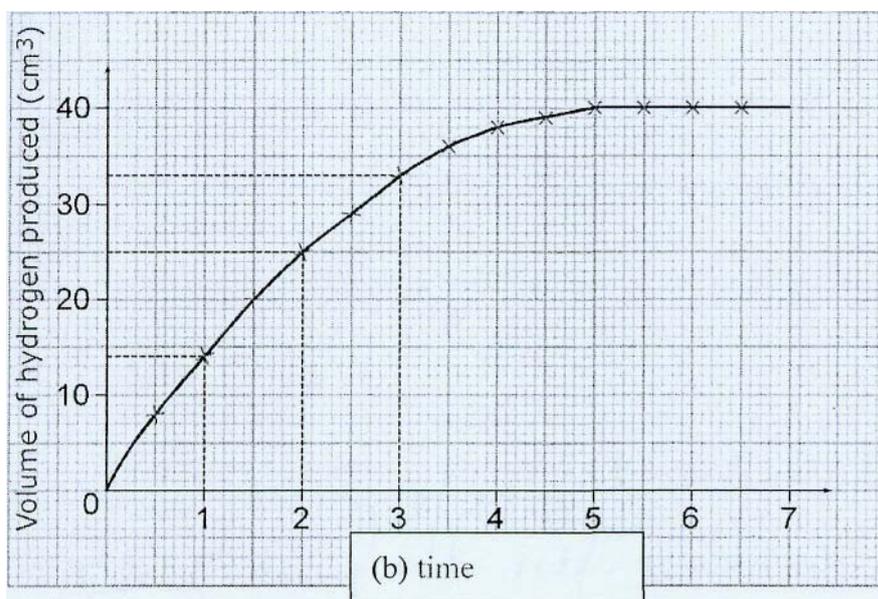


From this experiment, we can measure

_____ with _____.

If you plot the experimental result on a graph paper, you can describe the graph in this way:

Title of graph:



Tips:

How do we give a title to this kind of graph?

A graph showing
(quantity which the y
axis represents)
against (quantity
which the x axis
represents) **for the**

Vocabulary tips:

Steep (adj): having a sharp slope or incline.

"**This implies that**" is usually followed by the deduction from the previous sentence.

Flat (adj): parallel to the ground. (Note that this word has multiple meaning

Region	Description	Interpretation
t=0 to t=1	The slope of the curve is _____ at the first minute.	This implies that _____.
t=1 to t=2	The slope of this curve is _____ at the first minute than at the third minute.	This implies that _____.
t=5 to t=7	The curve _____.	This implies that _____.

How are the slope of the curve and the rate of reaction related to each other?

Tips:

To describe the relationship, you may use the following sentence structure:

When (description of the curve), (interpretation).

We should use **simple present tense** as they are general