

Measuring Reaction Rates Homework – Student Edition

1. Sodium thiosulfate reacts with hydrochloric acid to produce a cloudy yellow precipitate. A group of students investigated the effect of temperature on this reaction. Their results are as follows:

Temperature °C	Time taken for the precipitate to form (s)
20	100
30	60
40	25
50	10

- a) Draw a graph to display the above results.
- b) At what temperature was the reaction rate the fastest?
- c) Use the graph to find the predicted rate of reaction at 35°C
2. When a metal is placed in acid, hydrogen gas is released. This can be used to determine the reaction rate as is seen in the following results:

Time (s)	The volume of gas produced (cm ³)
0	0
10	25
20	80
30	178
40	245
50	275
60	290
70	290
80	290

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- a) Display the results as a graph of gas volume against time.
- b) At which point was the rate of reaction the fastest?
- c) What volume of gas was produced after 45 seconds?
- d) At which point did the reaction end?
- e) Sketch a line on the to show how the trend would change if the temperature of the acid was increased.
3. The table below shows the reaction of an acid with lumps of metal and its change in mass over time.

Time (s)	Mass loss (g)
0	0
20	0.2
40	0.45
60	0.66
80	0.85
100	1.02
120	1.15
140	1.31
160	1.41
180	1.48
200	1.54

