

FREE STANDING MATHS QUALIFICATION

Making Sense of Data Foundation level

Rates of Reaction in a Chemical Experiment

A student carried out an experiment to find the rate of reaction when hydrochloric acid was added to crushed calcium carbonate.

The mass of hydrochloric acid and the mass of calcium carbonate were found before the experiment was started. Once the two chemicals were mixed in a beaker the total mass was recorded at regular intervals. This allowed the student to find the total mass loss over the various periods of time. The mass loss indicated how much carbon dioxide had been given off. At the end of the experiment the total mass loss was calculated for each interval of time and plotted against the time.

The graph produced is shown overleaf with the table of results. Study the graph and write a brief description of what happened in the experiment.

Note

This will help you to meet the following Coursework Portfolio requirement.

What you need to produce:	You must:
4. Two brief written descriptions of what two line graphs drawn by someone else tells you about the situations they represent.	for each written description, explain, if relevant, what: <ul style="list-style-type: none">• any intercepts with the graph's axes• gradients• the general shape tell you about the real situation.



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Crushed Calcium Carbonate Results

Time/s	Mass/g	Total Mass Loss/g
0	80.906	0.000
15	80.774	0.132
30	80.764	0.141
45	80.757	0.149
60	80.750	0.156
75	80.744	0.162
90	80.733	0.173
120	80.721	0.185
150	80.716	0.190
180	80.699	0.207
240	80.686	0.220
300	80.672	0.234
420	80.660	0.246
600	80.646	0.260

