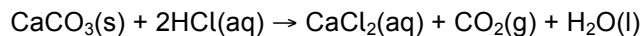
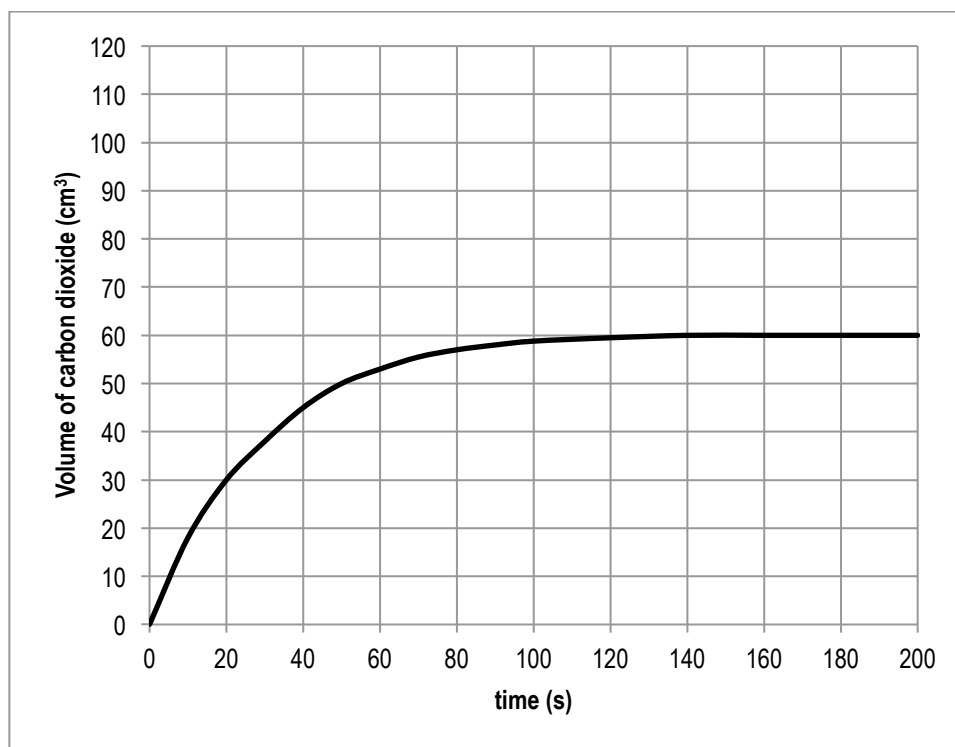




A student carried out a series of experiments to measure the volume of carbon dioxide gas formed when hydrochloric acid reacts with an excess of calcium carbonate.



This line is when 50 cm³ of 0.10 mol/dm³ hydrochloric acid reacts with small calcium carbonate chips at 20°C.



- Sketch and label lines for similar reactions done under the conditions shown.
 - 50 cm³ of 0.10 mol/dm³ hydrochloric acid reacts with small calcium carbonate chips at 40°C
 - 50 cm³ of 0.10 mol/dm³ hydrochloric acid reacts with calcium carbonate powder at 20°C
 - 50 cm³ of 0.05 mol/dm³ hydrochloric acid reacts with small calcium carbonate chips at 20°C
 - 50 cm³ of 0.20 mol/dm³ hydrochloric acid reacts with small calcium carbonate chips at 20°C
 - 25 cm³ of 0.20 mol/dm³ hydrochloric acid reacts with small calcium carbonate chips at 10°C
- For the original graph, find the mean rate during the first 20 seconds.

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- For the original graph, draw a tangent to find the rate at 20 seconds in cm³/s

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