

## Y9 Snow Work

Complete all questions in the following activity. If you have not got graph paper to draw the graph you may use a computer or make an accurate sketch graph.

Please have a go at all sections - we will go through it during tomorrow's lesson.

### Breakdown of hydrogen peroxide using manganese (IV) oxide

- 3** The results in these tables come from a student who was investigating the breakdown of hydrogen peroxide using manganese(IV) oxide and grated raw potato.

**Table 1** *Using manganese(IV) oxide*

Temperature in °C	Time taken in s
20	106
30	51
40	26
50	12

See next page for the remainder of the questions.

**Table 2** *Using raw grated potato*

Temperature in °C	Time taken in s
20	114
30	96
40	80
50	120
60	no reaction

- a** Draw a graph of the results using manganese(IV) oxide. [4 marks]
- b** State what these results tell you about the effect of temperature on a catalysed reaction. Explain your observation. [3 marks]
- c** Draw a graph of the results when raw grated potato was added to the hydrogen peroxide. [4 marks]
- d** What is the name of the enzyme found in living cells that catalyses the breakdown of hydrogen peroxide? [1 mark]
- e** What does this graph tell you about the effect of temperature on an enzyme-catalysed reaction? [2 marks]
- f** Explain the difference between the reactions catalysed by an enzyme and by manganese(IV) oxide. [4 marks]
- g** How could you change the second investigation to find the temperature at which the enzyme works best? [1 mark]