



## Planning an investigation into how size of marble chips affects the rate of reaction

Assessment criteria descriptors	Poor	Adequate	Good	Excellent
Organisation of ideas	Ideas are disorganised and it is difficult to follow the practical method suggested.	There is a clear title. It is possible to understand the method intended. (1 mark)	There is a clear main title. The aim, diagram and method are separated and the method is clear and easy to follow. (2 marks)	The title gives the reader the key information about the plan. Aim, diagram and method are separated and labelled with sub-headings. The method is precise and concise. (3 marks)
Diagram	No diagram is provided.	The diagram is messy/drawn in pen. Labelling is incomplete. (1 mark)	The diagram is neatly drawn with a pencil and ruler. Labels are all correct. (3 marks)	The diagram clearly shows key information about how to carry out the practical. It complements the method given. (4 marks)
Fair test	Fair testing is mentioned vaguely, but no suggestions of how to improve are given.	One suggestion for making the experiment fair is given. (1 mark)	Two or three suggestions for conducting a fair test are given. (3 marks)	Four or more distinct suggestions for carrying out a fair investigation are given. (4 marks)
Suitable method of comparing the rate of reaction	The method is incomplete. No way of comparing the rate of reaction in each case is given.	The method described would work. A <b>qualitative</b> method for comparing the rate of reaction is suggested. (4 marks)	The method described would work well. A <b>quantitative</b> method of comparing the rate of reaction, such as measuring the decrease in mass or volume of carbon dioxide produced. (7 marks)	The method described would work well and give <b>reliable</b> results. The volume of carbon dioxide released in a given time is measured using a suitable method. (8 marks)
Safety	The method is unsafe.	The method is safe. (1 mark)	Suitable safety information is given. (3 marks)	Student has used hazcards/student safety sheets to research the potential hazards of the chemicals selected. (5 marks)
Prediction	No prediction given.	Prediction stated and explained. (1 mark)	Prediction stated and the reasons for the prediction explained in terms of collisions. (4 marks)	Prediction stated and explained. Evidence of research into how surface area affects the rate of reaction and a clear explanation in terms of collision theory. (6 marks)