



Name: \_\_\_\_\_

Class: \_\_\_\_\_

## Student worksheet

### 1.3 Scientists design their own experiments

Pages 8–9

## Designing experiments

- 1 For all of the 'What if?' questions on page 8, write a hypothesis and identify the dependant variable, independent variable and three control variables in the spaces below.

- a What if the balloon was blown up more?

Hypothesis \_\_\_\_\_

Dependant variable \_\_\_\_\_

Independent variable \_\_\_\_\_

Three control variables \_\_\_\_\_

- b What if the string had less friction?

Hypothesis \_\_\_\_\_

Dependant variable \_\_\_\_\_

Independent variable \_\_\_\_\_

Three control variables \_\_\_\_\_

- c What if the string had more friction?

Hypothesis \_\_\_\_\_

Dependant variable \_\_\_\_\_

Independent variable \_\_\_\_\_

Three control variables \_\_\_\_\_



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d What if the straw were shorter?

Hypothesis \_\_\_\_\_

Dependant variable \_\_\_\_\_

Independent variable \_\_\_\_\_

Three control variables \_\_\_\_\_

## Extend your understanding

- 2 An experiment was performed where a student dropped a fizzy Alka-Seltzer tablet in 100mL of room temperature water and timed how long it took the tablet to dissolve.

Students were then given four 'What if?' questions to investigate the ways to make a chemical reaction go faster.

- What if the water was warmer?
- What if the tablet was crushed into powder?
- What if the tablet was coated in Vaseline?

a In each of the questions, what is the variable that you are testing? What is the name of this variable?

\_\_\_\_\_

b Name the three factors that you are changing in the above questions.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c For two of the 'What if?' questions above, write a hypothesis and identify the dependant variable, independent variable and three control variables in the spaces below:

Question 1 \_\_\_\_\_

Hypothesis \_\_\_\_\_

Dependant variable \_\_\_\_\_

Independent variable \_\_\_\_\_

Three control variables \_\_\_\_\_



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Question 2 \_\_\_\_\_

Hypothesis \_\_\_\_\_

Dependant variable \_\_\_\_\_

Independent variable \_\_\_\_\_

Three control variables \_\_\_\_\_

- d After designing your experiment you complete it in the laboratory. The next day, one of your classmates replicates your experiments, but finds that their Alka-Seltzer tablet dissolves faster every time. State one possible reason that this may be happening.