

# Activities for Chapter 13

## Activity 13.1

### Measuring reaction time using a ruler

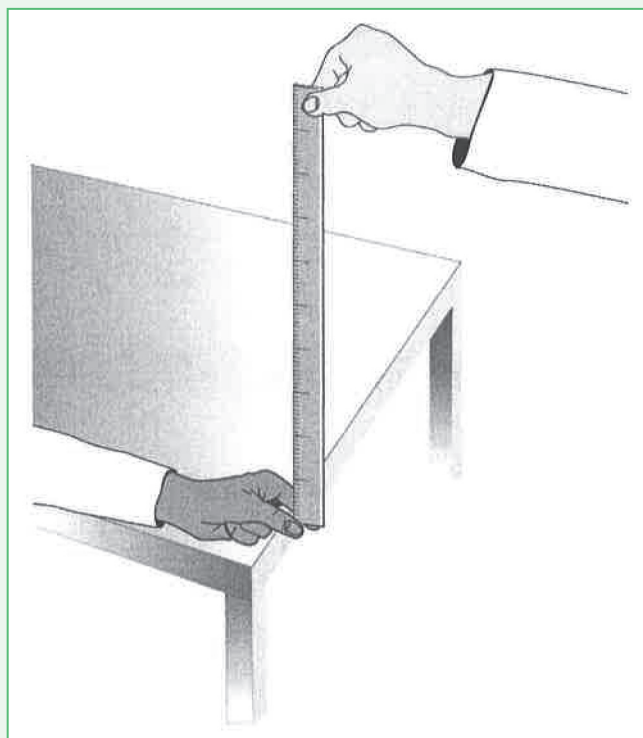
#### Skills

A03.1 Using techniques, apparatus and materials

A03.3 Observing, measuring and recording

For this experiment, you need to work with a partner. One of you is the dropper and the other is the catcher.

- 1 Read through what you are going to do. Design and draw up a results chart in which you can record your results.
- 2 The dropper holds a metre ruler in their hand, like this:



The catcher rests their arm on the edge of the bench and keeps their hand absolutely still, just by the bottom of the ruler.

When you are ready to start, the dropper lets go of the ruler and the catcher catches it.

Record the mark on the ruler at which it was caught.

- 3 Keep doing this until you have 5 readings.
- 4 Now swap over and collect another 5 readings.
- 5 What do your results tell you about reaction times?

### Further investigation

- ◆ You can calculate the actual time take for the response using this equation:

$$\text{time of response in milliseconds} = \sqrt{\frac{2 \times d}{980}} \times 1000$$

- ◆ Try the investigation again with the catcher wearing a blindfold. The dropper calls out when they drop the ruler. Can the catcher catch it as quickly?
- ◆ Try the investigation again with the catcher wearing a blindfold, and holding their fingers loosely against the ruler so that they can feel when it is dropped. Can they catch it as quickly?