



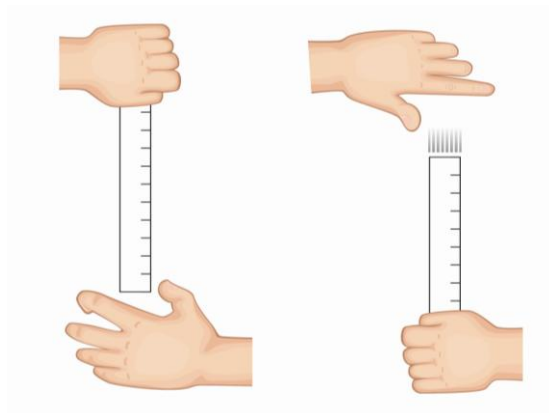
Llywodraeth Cymru  
Welsh Government

## How fast can you react?

Think fast! When someone unexpectedly throws a ball at you, you need a little time before you can move to catch it (or duck). That's because when your eyes see an incoming signal such as a ball, your brain needs to first process what's happening. It takes a fraction of a second for you to recognise that signal and respond. During that time your brain receives information from your senses, identifies a possible source, and allows you to take action. That fraction of a second is called your reaction time. Most sports need fast reactions. For a sprinter, going off on the 'b' of the 'bang' could make a difference between winning and losing a race. By reacting quickly to the sound of a fast approaching car when crossing a road means that you could get out of its way in time to prevent an accident.

### Estimating your reaction speed without a stop watch

The picture shows one way of doing this. Start putting some information together about how you think this method works from the information provided.



$$\text{Distance} = \frac{1}{2} (\text{acceleration} \times \text{time}^2)$$

### **Things to think about and complete during this activity**

- What are the steps that you need to perform to carry out this test successfully?
- Is there anything users need to be careful about to ensure the results as an accurate estimate?
- How will you know you have been successful?
- How will you get reaction times from readings on the ruler?
- Can you make a simple converting table/graph to enable other users to estimate reaction times quickly and easily?

Write a report of how you carried out the test. Show how you calculated your reaction times. Show some tests you carried out with people in your class.