

**Goal** • Learn about precision and accuracy in science.

## Think About It

No measuring device can give an absolutely exact measure. So how do scientists describe how close an instrument comes to measuring the true result?

## Precision

Quantitative data from any measuring device are uncertain. You can describe this uncertainty in terms of precision and accuracy. The term **precision** describes both the exactness of a measuring device and the range of values in a set of measurements.

The precision of a measuring instrument is usually half the smallest division on its scale. For example, a ruler is graduated in centimetres, so it is precise to  $\pm 0.5$  cm. A precise measuring device will give nearly the same result every time it is used to measure the same object.

## Accuracy

How close a measurement or calculation comes to the true value is described as **accuracy**. To improve accuracy, scientific measurements are often repeated and combined mathematically.

1. How many times do you think you should measure something in science? Explain.

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2. List three examples of situations where precision and accuracy of measure would be very important.

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