

A simple overview of Validity, Accuracy and Reliability in Scientific Investigations

Valid or “Real”

The data collected must test the variables that you state that you are testing.

Example 1: If you were to sit a test on Biology, but the test given to you was asking about Physics! It would not be a valid test.

Example 2: Recording a high temperature on one occasion and stating that the environment is always hot. You could not make valid generalisations.

Accurate Data collection or “Sharp”

The equipment should have the appropriate scale marks.

Example 1: If the teacher did not use a marking key for each question.

Example 2: If you were to measure a volume of 2mL and you used a 100mL measuring cylinder, you would not get an accurate reading.

Reliable Data or “Consistent”

Many sets of data must be collected to see if the data is consistent, or “repeatable”. This reduces the effects of individual differences.

Example 1: You have many assessments spread out over the year and the average is calculated as a guide to your grade.

Example 2: At least three trials should be set up and the average calculated.