**Glossary of Terms**

**WJEC GCSE SCIENCE - GLOSSARY OF TERMS**

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| **Term** | **Definition** |
| **Accuracy**  | A measurement result is considered accurate if it is judged to be close to the true value.  |
| **Anomaly** | Value in a set of results which is judged not to be part of the inherent variation.  |
| **Controlled variable**  | A variable which may affect the outcome of the investigation and therefore should be kept constant.  |
| **Control measures** | Something that can be done to reduce or prevent a risk while allowing you to carry out the experiment. |
| **Dependent variable** | The variable for which the values change when the independent variable is changed and are measured by the investigator.  |
| **Hazard** | A chemical or piece of apparatus that could cause harm. |
| **Independent variable** | The variable for which the values are selected and changed by the investigator.  |
| **Measurement error** | The difference between a measured value and the true value.  |
| **Precision**  | This shows the closeness of agreement between measured values. It gives no indication of how close results are to the true value.  |
| **Random error** | These occur due to results varying in an unpredictable way from one measurement to the next. The effect of random errors can be reduced by taking more measurements and calculating a mean.  |
| **Range**  | The maximum and minimum values of the independent or dependent variables. This should not be too big or too small. |
| **Repeatability**  | The precision obtained when repeat readings are obtained by a single student/ group. |
| **Repeatable**  | A measurement is repeatable, if repetition by a single student/ group using same method and equipment, obtains the same or similar results.  |
| **Reproducibility**  | The precision obtained when repeat readings are obtained by a different students/ groups. |
| **Reproducible**  | A measurement is reproducible, if repetition by a different students/ groups obtains the same or similar results. This could include using different equipment/ methods. This is a harder test of the quality of data |
| **Resolution**  | This is the smallest change in the quantity being measured (input) by a measuring instrument that can be observed. For example ± 1mm on a 1 metre ruler. |
| **Risk** | An action involving a hazard that might result in danger. |
| **Systematic error**  | These cause readings to differ from the true value by a consistent amount each time a measurement is made. Systematic errors can include the influence of the environment, the methods of observation or the instruments used. The effect of systematic errors cannot be reduced by increased repeats.  |
| **True value**  | This is the value that would be obtained in an ideal measurement.  |
| **Uncertainty**  | The interval within which the true value can be expected to lie, with a given level of confidence or probability, eg “the temperature is 20 °C ± 2 °C, at a level of confidence of 95 %.  |
| **Valid conclusion**  | A conclusion supported by valid data, obtained from an appropriate experimental design and based on sound reasoning.  |
| **Validity of experimental design** | Suitability of the investigative procedure to answer the question being asked. Strategies to ensure validity include fair tests and controls that aim to isolate the effect of the independent variable on the dependent variables. |