**WJEC GCSE SCIENCE SUITE**

**PRACTICAL WORK - GLOSSARY OF TERMS – STUDENT VERSION**

| Term | Definition |
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| **Independent variable** | The variable (factor) you choose to change in an investigation. |
| **Dependent variable** | The variable (factor) which you measure every time you change the value of the independent variable. |
| **Controlled variable** | A variable (factor) which may affect the results of the investigation and therefore should be kept constant. |
| **Range** | The highest and lowest values of the independent variable. These should not be too big or too small. |
| **Valid conclusion** | A conclusion (what you found out) supported by the results of data from a well-designed investigation and based on good scientific knowledge. |
| **Validity of experimental design** | How good the method is to answer the question being asked. The method should include fair testing and controlled variables. |
| **Resolution** | This is the smallest change in the quantity being measured by a measuring instrument that can be observed. For example ± 1 mm on a 1 metre ruler. |
| **Anomaly** | A value in a set of results which is seen to be much bigger or smaller than the rest of the values in the set. |
| **True value** | This is the value that would be obtained in ideal conditions. |
| **Uncertainty** | The range within which the true value can be expected, e.g. “the temperature is 20 °C ± 2 °C". There is a formula to calculate this which you will be given in an exam. |
| **Measurement error** | The difference between a measured value and the true value. |

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| **Systematic error** | A systematic error is normally caused by the apparatus used and causes readings to differ from the true value by the same amount each time. The effect of systematic errors cannot be reduced by increased repeats. |
| **Random error** | This occurs when results vary unpredictably from one measurement to the next. These are normally due to errors by the person taking the measurements. The effect of random errors can be reduced by taking more measurements and calculating a mean. |
| **Accuracy** | A measurement result is considered accurate if it is judged to be close to the true value. |
| **Precision** | A set of precise measurements show very little spread about the mean value. |
| **Repeatability** | The precision obtained when repeat readings are obtained by a single learner/ group. |
| **Repeatable** | A measurement is repeatable, if a single learner/ group using the same method and equipment, obtains the same or similar results when they carry out the investigation again. |
| **Reproducibility** | The precision obtained when repeat readings are obtained by a different learners/ groups. |
| **Reproducible** | A measurement is reproducible, if different learners/ groups obtain the same or similar results. This could include using different equipment/ methods. |
| **Hazard** | A chemical or piece of apparatus that could cause harm. It is expected that in risk assessments the nature of the hazard is also specified. For example 'Hydrogen peroxide is an irritant'. |
| **Risk** | A step in the method involving a hazard that might result in danger. For example 'Hydrogen peroxide could get onto the skin when pouring it into the measuring cylinder or the beaker'. |
| **Control measures** | Something that can be done to reduce or prevent a risk while still allowing you to carry out the experiment. For example 'Wash hands immediately if any hydrogen peroxide gets onto them'. |