



## 6<sup>th</sup> Form Transition Pack

QUALIFICATION	A Level Physics
Teacher Name(s)	S.Horne
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Exam board and link	AQA <a href="https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408">https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408</a>
Specification details	7407 / 7408
Recommended online learning	<ul style="list-style-type: none"><li>• <a href="http://www.senecalearning.com">www.senecalearning.com</a></li><li>• <a href="https://www.s-cool.co.uk/a-level/physics">https://www.s-cool.co.uk/a-level/physics</a></li><li>• <a href="https://spark.iop.org/supporting-school-and-college-students-learn-physics-during-covid-19?_ga=2.201247406.1068448734.1587480483-1512981662.1587480483">https://spark.iop.org/supporting-school-and-college-students-learn-physics-during-covid-19?_ga=2.201247406.1068448734.1587480483-1512981662.1587480483</a></li></ul> <p>SnapRevise – Over 100 short videos based on the topics you will cover in Physics. <a href="https://www.youtube.com/channel/UC8pOYw9kw8z9uOKgAZ7ki8w">https://www.youtube.com/channel/UC8pOYw9kw8z9uOKgAZ7ki8w</a></p> <p>You can follow this link to look at previous papers with their mark schemes for A-Level Physics <a href="https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408/assessment-resources">https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408/assessment-resources</a></p>
Recommended reading list	<p><a href="https://www.amazon.co.uk/Head-Start-level-Physics-Level/dp/1782942815">https://www.amazon.co.uk/Head-Start-level-Physics-Level/dp/1782942815</a></p> <p><a href="https://www.whsmith.co.uk/products/alevel-physics-for-aqa-year-1-and-as-student-book-with-online-edition/paperback/9781782943235.html?gclid=EA1aIQobChMI59q00-L56AIVyYjVCh0EKAw4EAQYBSABEglu2fD_BwE&amp;gclidsrc=aw.ds">https://www.whsmith.co.uk/products/alevel-physics-for-aqa-year-1-and-as-student-book-with-online-edition/paperback/9781782943235.html?gclid=EA1aIQobChMI59q00-L56AIVyYjVCh0EKAw4EAQYBSABEglu2fD_BwE&amp;gclidsrc=aw.ds</a></p>

### **Important**

If you wish to do A-level Physics, you need to start by making sure you can recall all of the GCSE content. Use your revision guides/booklets and make sure you are confident with the GCSE material before you move onto the A-level content.

We recommend you use Cornell Notes to prepare for your new course. Please see these videos to help you develop the technique:

<https://youtu.be/WtW9lyE04OQ>

Once you are confident with the content at GCSE, then you can use the suggested websites / books to complete the **Physics activity pack** and learn the subject specific vocabulary.



## **Subject Specific Vocabulary**

It would be a good time to go over all these key terms and make sure you have committed them to memory.

### Accuracy

A measurement result is considered accurate if it is judged to be close to the true value.

### Calibration

Marking a scale on a measuring instrument.

This involves establishing the relationship between indications of a measuring instrument and standard or reference quantity values, which must be applied.

For example, placing a thermometer in melting ice to see whether it reads 0 °C, in order to check if it has been calibrated correctly.

### Data

Information, either qualitative or quantitative, that has been collected.

### Errors

See also uncertainties.

#### *measurement error*

The difference between a measured value and the true value.

#### *anomalies*

These are values in a set of results which are judged not to be part of the variation caused by random uncertainty.

#### *random error*

These cause readings to be spread about the true value, due to results varying in an unpredictable way from one measurement to the next.

Random errors are present when any measurement is made, and cannot be corrected. The effect of random errors can be reduced by making more measurements and calculating a new mean.



### *systematic error*

These cause readings to differ from the true value by a consistent amount each time a measurement is made.

Sources of systematic error can include the environment, methods of observation or instruments used.

Systematic errors cannot be dealt with by simple repeats. If a systematic error is suspected, the data collection should be repeated using a different technique or a different set of equipment, and the results compared.

### *zero error*

Any indication that a measuring system gives a false reading when the true value of a measured quantity is zero, eg the needle on an ammeter failing to return to zero when no current flows.

A zero error may result in a systematic uncertainty.

## Evidence

Data which has been shown to be valid.

## Fair test

A fair test is one in which only the independent variable has been allowed to affect the dependent variable.

## Hypothesis

A proposal intended to explain certain facts or observations.

## Interval

The quantity between readings, eg a set of 11 readings equally spaced over a distance of 1 metre would give an interval of 10 centimetres.

## Precision

Precise measurements are ones in which there is very little spread about the mean value.

Precision depends only on the extent of random errors – it gives no indication of how close results are to the true value.

## Prediction

A prediction is a statement suggesting what will happen in the future, based on observation, experience or a hypothesis.



## Range

The maximum and minimum values of the independent or dependent variables; important in ensuring that any pattern is detected.

For example a range of distances may be quoted as either:

'From 10 cm to 50 cm'

or

'From 50 cm to 10 cm'

## Repeatable

A measurement is repeatable if the original experimenter repeats the investigation using same method and equipment and obtains the same results.

## Reproducible

A measurement is reproducible if the investigation is repeated by another person, or by using different equipment or techniques, and the same results are obtained.

## Resolution

This is the smallest change in the quantity being measured (input) of a measuring instrument that gives a perceptible change in the reading.

## Sketch graph

A line graph, not necessarily on a grid, that shows the general shape of the relationship between two variables. It will not have any points plotted and although the axes should be labelled they may not be scaled.

## 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  $20\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ , at a level of confidence of 95%.



## Validity

Suitability of the investigative procedure to answer the question being asked. For example, an investigation to find out if the rate of a chemical reaction depended upon the concentration of one of the reactants would not be a valid procedure if the temperature of the reactants was not controlled.

## Valid conclusion

A conclusion supported by valid data, obtained from an appropriate experimental design and based on sound reasoning.