

EXAMINER TIPS for IGCSE Physics 0625

How to use these tips

These tips highlight some common mistakes made by students. They are collected under various subheadings to help you when you revise a particular topic. Many of the tips relate to the June 2008 papers.

General Advice:

- Read the questions carefully and fully.
- Look for details that indicate how to answer or the depth of answer required. For example the question 'Describe, in terms of the movement and energies of the water molecules, how evaporation takes place' is allocated 2 marks on a paper. This shows that you must make two valid points and you must refer to movement and energy of the molecules. So wording such as 'some molecules have more energy than others and these leave the surface' will gain both marks.
- Make sure you are confident with your calculator – particularly using powers of 10.
- Always show your working in calculations so that you can gain marks for your method even if you make a mistake with the final answer.
- Always include units where appropriate.
- Avoid vague descriptions – try to write clearly and concisely using the correct Physics terms.
- Use a sharp pencil for graph work, taking care to plot each point with a small, neat cross and to draw a thin best fit line.
- At the end of a calculation ask yourself 'is this answer sensible?'
- Make sure you answer the question set. You will gain no marks for merely repeating the facts given in the question.

Papers 2 and 3 Tips:

These are the papers that test your knowledge and understanding of Physics theory and the ability to apply your knowledge to situations described on the paper. The following includes some tips on how to read the questions and advice on particular items in the syllabus that often seem to be poorly understood or applied. (This does not mean that other parts of the syllabus require any less revision of course!).

Reading the questions:

- It is very easy when presented with a diagram question to look at the diagram and then try to answer the question. You must read and understand the introductory sentences above the diagram first before trying to answer the question. There may be a part of the question near the end which requires you to use a piece of information that is included in the introductory sentences in your answer.
- Be careful how you answer your questions. An explanation of some Physics (even if correct) that does not answer the question set does not score marks.
- If there are three marks available for a calculation, two of the three marks are for showing your working.
- If a question states 'accurately mark' or 'accurately draw', the examiners expect points (e.g. a centre of gravity) to be carefully positioned and lines to be drawn with care using a

ruler. In the case of ray diagrams it is expected that rays drawn should pass at least within 1 mm of the relevant point (e.g. principal focus).

- When reading the questions, decide which area of Physics you are being asked about. Do not just look at a few words as you may then misunderstand the question. For example a question that mentions heat radiation is not about radioactivity (just because the word 'radiation' is seen). If you are asked for a convection current diagram do not draw a circuit just because the word 'current' is in the question!

Answering the questions:

- You must understand the turning effect of a force and that it is called the moment of the force.
- You must be clear about the names given to types of energy and use them appropriately.
- You should know that a substance melts and freezes at the same temperature and also understand the ice and steam points as used in the calibration of thermometers.
- You should know the circuit symbols required for use in describing electrical circuits. The symbol for a fuse is often not known and the symbols for a thermistor and a variable resistor are commonly confused with each other.
- You must know how to connect a voltmeter in parallel with the component across which you are measuring the potential difference.
- You must have a clear understanding of electromagnetic induction. For example, you must know that when a magnet is moved in or out of a solenoid that is part of a circuit, a current will be induced. It is the movement of the magnet in the solenoid that causes the current as its magnetic field lines cut the coil.
- You must understand and be able to explain the concept of terminal velocity.
- You must understand the difference between mass and weight.
- You must be confident in drawing diagrams showing wavefronts as well as those showing rays.
- You must understand basic radioactivity. You should know about the characteristics of the three types of emission (alpha, beta and gamma), half-life and safety precautions. The difference between nuclear fission and nuclear fusion must also be understood.

Papers 5 and 6 Tips:

You will take one of these papers that test practical Physics. There are some particular points that are relevant to answering the questions here.

- When plotting a graph it is important to choose the scales so that the plots occupy more than half of the graph grid. Careless, rushed graph plotting can lose several marks. You should always use a sharp pencil and plot small, neat, accurately placed crosses. Then draw a neat thin best-fit line.
- You should understand that if y is proportional to x then the graph will be a straight line through the origin.
- Diagrams should be drawn with care using a sharp pencil.
- It is important to be able to set up a circuit from a diagram, draw a circuit diagram of a circuit already set up and also to draw a circuit diagram from a written description.
- You need to know that to read the current through a component (e.g. a lamp or a resistor) and the voltage across it, the ammeter is placed in series with the component but the voltmeter must be connected in parallel with the component.

- Column headings in tables of readings must be headed with the quantity and unit as in these examples: I/A , or t/s , or y/m . Graph axes are labelled in the same way.
- Final answers should be given to 2 or 3 significant figures.
- When carrying out practical work there are usually measurements that are in some way difficult to take in spite of taking great care. You should comment about these difficulties when asked about precautions taken to improve accuracy.
- You should understand that the control of variables is an important aspect of practical work. You should be able to comment on the control of variables in a particular experiment.
- You should understand the significance of wording such as 'within the limits of experimental accuracy'.
- If you are asked to justify a statement that you have made it must be justified by reference to the readings. A theoretical justification in a practical test will not gain marks.