

## Year 9 Physics Revision checklist

Use this to help guide your revision. Remember to make your revision active. Make notes, produce prompt cards, get others to test you etc.

There are also some independent study guides which can be found by going to <http://www.bws-school.org.uk/Curriculum-Exams/Science/Files/Y9Files/> on the School website.

Electricity Topic	☺	☹	☹
Define an insulator and a conductor is and name 2 -3 examples of each			
Describe how current changes in a series or parallel circuit, be able to use this knowledge to calculate the current in different parts of the circuits			
Describe how voltage changes in a series or parallel circuit; be able to use this knowledge to calculate the voltage in different parts of the circuits.			
Use the Ohm's law equation Voltage (v) = Current (A) x Resistance ( $\Omega$ ) to calculate voltage, current or resistance (re-arrange the equation).			
Apply Ohm's Law to explain how voltage/current/resistance changes in different circuits.			
Calculate how resistors combine in series and be able to use this knowledge to calculate the total resistance in a circuit.			
Describe how to set up a circuit to measure current, voltage or calculate resistance.			
Be able to draw a graph of voltage and current and use the graph (gradient) to calculate the resistance of a resistor. Make sure you know which axes each need to be plotted onto.			
Explain that energy is transferred in a circuit and explain which circuits transfer energy more quickly than others (assuming they each have the same number of cells/lamps)			
State that the amount of energy transferred will depend on the voltage and the current in a circuit			
Recall that there is a magnetic field around a current carrying wire.			
Use the right hand grip rule and Fleming's left hand rule to explain the catapult effect on a current carrying wire in a magnetic field.			

List the methods for increasing the force on a wire in a magnetic field and describe the effect of reversing the current or field direction.			
Explain how a dynamo works			
Explain the energy transfers in the generation of electricity			
Describe the steps within a power station used to generate electricity			
Describe how a generator converts kinetic energy into electrical energy			
Calculate the efficiency of a power station in terms of energy input and output			
<b>Forces and Motion Topic</b>	☺	☹	☹
Calculate speed from gradient of distance-time graphs			
State Newton's first law of motion: "An object continues at rest or in a straight line at steady speed unless acted on by a force."			
Recognise friction as a force opposing and vital for motion e.g. cars on low friction surface struggle to get moving.			
Qualitatively describe the flight of a free fall parachutist in terms of the varying forces involved			
Recall and use the equation for work done $W = Fxd$			
Recall and use the equation for mechanical power $P = W/t$			
State and explain simple energy transfers including basic efficiency calculations			
Define density and use the density equation mass / volume			
Define pressure as force per unit area and use the basic pressure equation			
Define the Pascal, Pa as $1N/m^2$			
Recognise that 1 atm is $10^5$ or 100 000 Pa			
Derive the equation for pressure in a fluid as Pressure = density x g x depth			

Use the equation $P = \rho g h$ to calculate pressure due to a liquid e.g. at the bottom of a swimming pool.			
Describe a hydraulic machine as a force multiplier and explain how it works			
Describe an experiment to find the centre of mass of a 2 dimensional shape			
Define moment of a force			
State that the net moment is zero for an object to be in rotational equilibrium			
Solve simple problems involving balanced and unbalanced moments			
Use the following prefixes as appropriate: <ul style="list-style-type: none"> <li>• nano = <math>10^{-9}</math></li> <li>• micro = <math>10^{-6}</math></li> <li>• milli = <math>10^{-3}</math></li> <li>• centi = <math>10^{-2}</math></li> <li>• kilo = <math>10^3</math></li> <li>• mega = <math>10^6</math></li> <li>• giga = <math>10^9</math></li> <li>• tera = <math>10^{12}</math></li> </ul>			
Use appropriate units in all calculations			
Convert between units as appropriate e.g. $5000 \text{ cm}^2 = 0.500 \text{ m}^2$			
Give answers to an appropriate precision e.g. if the data in the question is to 2 significant figures the answer should only be given to 2 or 3 significant figures.			
Present calculations in a clear and concise manner.  e.g. A force of 10N moves an object through a distance of 5 m in a time of 8s. Calculate:  a) The work done. b) The power.  Solution:  a) $W = Fxd$ $= 10 \times 5$ $= \underline{50 \text{ J}}$  b) $P = W/t$ $= 50/8$			

= 6.3 W or 6.3 J/s

--	--	--	--