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|  | **Paper 2 Key terms**  In this booklet you will find **key terms** that you have used in science this year; these will be useful to learn for your second Year 11 Mock.  You need to try and learn and **remember** all the key terms, with their definitions. One way of doing this is to make each one into a **revision card**, with the term on one side and its definition on the other – look at this example:    Write the key term on one side  Write what it means on the back    🗸 Use this table to record how many revision cards you have made, then   practise using them – ask a friend to test you!   |  |  |  | | --- | --- | --- | | **Physics**  **Topic** | **I have made revision cards** | **I have practised using the revision cards at least 10 times** | | **P5 Forces Part 1** |  |  | | **P5 Forces Part 2** |  |  | | **P6 Waves Part 1** |  |  | | **P6 Waves Part 2** |  |  | | **P7 Electromagnetism** |  |  |   **☺ Good luck – from Fulford School Science Department ☺** |  |

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| **Physics** | **Topic P5 Forces – Part 1** |

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| **Resultant force** | **Single force** that can replace all the forces acting on an object and have the same effect. |  |
| **Speed** | Speed is a measure of how fast an object travels: how far it goes in a given time.  **Speed(m/s) = distance (m)/ time (s)** |  |
| **Velocity** | The velocity of an object is its speed in a given direction.  Velocity is a **vector** quantity. |
| **Acceleration** | Rate of change of velocity  (in metres per second per second, m/s2).  **Acceleration = change in velocity/ time** |
| **Newton’s First Law** | If the resultant force acting on an object is **zero** and:  • the **object is stationary**; the object remains **stationary**  • the **object is moving**; the object continues to move at the  **same speed** and in the **same direction**. |  |

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| **Five key ideas** | **Scalar quantities** have magnitude only e.g. time, mass and speed. | **Vector quantities** have magnitude and direction e.g., force, displacement and velocity. |
| **Contact forces:** the objects are physically touching **e.g friction.**  **Non-contact forces:** the objects are physically separated e.g., **the magnetic force.** | . |  |

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| **Physics** | **Topic P5 Forces – Part 2** |

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| **Newton’s Second Law** | The **acceleration** of an object is **proportiona**l to the **resultant force**  acting on the object, and **inversely proportional** to the mass of the  object.  **Force (N) = mass (kg) x acceleration (m/s2)** |  |
| **Newton’s Third Law** | Whenever **two objects interact**, the forces they exert on each other  are **equal and opposite**. |  |
| **Thinking Distance** | This is the **distance** that you travel while **reacting** to a stimulus until you get your foot onto the brake pedal. Thinking distance depends on **drugs, alcohol, tiredness and distractions.** |  |
| **Braking Distance** | This is the **distance** you travel from pressing the brake pedal until you come to a **stop**. Braking distance depends on **condition of tyres/ brakes/ road and the speed and mass of the vehicle**. |
| **Stopping Distance** | Stopping distance = Thinking distance + Braking distance |

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| Five key ideas | When a spring is stretched, the spring may return to its **original shape.** In this case the deformation of the spring is said to be **elastic.** | | The extension of a spring is directly proportional to the force acting on it provided that the **limit of**  **proportionality is not exceeded**  **Force (N) = spring constant(N/m) x extension(m)** | |
| If the spring is stretched too far then the spring will never return to its **original length**. The deformation is said to be **inelastic.** | Weight is the force acting on an object due to gravity (in newtons, N).  **Weight (N) = Mass (kg) x Gravitational field strength (N/kg)**  ***W = m g*** | | Limit of proportionality: When extension is no longer proportional to force | |
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| **Physics** | **Topic P6 Part 1 – Waves** |

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| **Amplitude** | The amplitude of a wave is the maximum displacement of a point  on a wave away from its undisturbed position. |  |
| **Wavelength, λ** | The distance from one point to the **identical** point on the next wave. Measured in metres. |
| **Frequency, f** | The number of waves passing a point in one second, this is measured in Hertz (Hz). |  |
| **Longitudinal waves** | Longitudinal waves are where the direction of vibration is parallel to that of the wave.  An example is a sound wave. |  |
| **Transverse waves** | The particles within the wave move perpendicular (at 90o) to the direction the wave is travelling. Examples are water waves and  electromagnetic wave. | http://3.bp.blogspot.com/-A8k5RlekXcM/TZMZTQ0vKvI/AAAAAAAAACg/xTDe-R_JvZg/s1600/Transverse+Wave.jpg |

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| Five key ideas | **Wave speed (m/s) = frequency (Hz) x wavelength (m)**  **V= f ʎ** | **T = 1/f**  **Time period (s) =(Hz)** |
| Sound travels at 330m/s in air.  Light travels **faster** than sound. | A wave is **vibrations** that transport **energy** from place to place **without** transporting **matter**. | A ripple tank is used to measure the speed of ripples on a water  surface. |

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| **Physics** | **Topic P6 Waves - Part 2** |

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| **Gamma Rays and X – rays.** | These are **ionising radiations** that can cause **mutations** of genes which could result in cancer.  They are used in medical imaging and treatment. |  |
| **Ultra - violet waves** | A type of **electromagnetic wave** that can be used for energy efficient lamps and sun tanning. They  can cause sunburn, ageing of the skin and **skin cancer.** |  |
| **Visible light** | The part of the electromagnetic spectrum that we can see with our **eyes**. It is used in **fibre optic communication.** |  |
| **Infra – red radiation** | A type of **electromagnetic wave** continually emitted and absorbed by all objects, that can be used in **electrical heaters**. |  |
| **Microwave**  **and Radio waves** | Microwave is a type of **electromagnetic wave** that can be used for **cooking** or **satellite communication.**  Radio waves are used for television and radio. |  |

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| Five key ideas | Black surfaces **absorb** infrared waves **better** than white or shiny surfaces. Black surfaces emitinfrared radiation **quicke**r than light coloured surfaces. | **The Leslie cube** is used to investigate how the **amount of infrared radiation**  radiated by a surface  depends on the **surface**. |
| All electromagnetic waves travel at the same velocity in a **vacuum**:  300 000 000m/s. | **Ionising Radiation**  Radiation that has enough energy to knock electrons off atoms. | The Electromagnetic spectrum |

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| **Physics** | **Topic P7 - Magnets and Electromagnetism** |

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| **Permanent magnet** | It produces its own **magnetic field**.  It can **attract and repel** other magnets and magnetic materials. |  |
| **Induced Magnets** | A material that **becomes magnetic** when placed in a magnetic field. Induced magnets can **only attract**. |
| **Poles** | The places where the magnetic forces are the strongest. |  |
| **Electromagnet** | A **solenoid** with an **iron core** is an electromagnet.  (A solenoid is a coil of wire used to produce a magnetic field). |  |
| **The motor effect (HT)** | A current-carrying wire in a magnetic field experiences a **force.** |  |

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| **Five key ideas** | This is the magnetic field around a **bar magnet** | This is the **magnetic field** around a **solenoid**. |
| A **magnetic field** is an area around a magnetic where **magnetic materials** will experience a force.  Remember the **4 magnetic materials:**  Steel, Iron, Nickel, Cobalt | When a current flows through a **conducting wire** a magnetic field is produced around the wire.  The strength of the magnetic field depends on the **current through the wire** and the **distance from the wire**. | The strength of an electromagnet can be increased by:   1. Increasing **the current** 2. Increasing the **number of turns** 3. Adding an **iron core** |