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|  | **Half term points** | | | | | |
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| **AUTUMN 1** | **AUTUMN 2** | **SPRING 1** | **SPRING 2** | **SUMMER 1** | **SUMMER 2** |
| **Energy and Energy Resources**  **Mini assessment:** LBQ | | **Particles at Work**  **Mini assessment**: Create a summary piece to show the composition, penetration power, ionisation power, uses and dangers of alpha, beta and gamma radiation and complete the LBQ. | | **Waves, electromagnetism, and space**  **Mini assessment:** Foundation tier: Produce an overview of the electromagnetic spectrum, their properties, uses and dangers. Separates and higher: Produce a timeline showing either the life of a star or the formation of our solar system. All: LBQ | |
| **Key skills and knowledge assessed:**   * Describe how friction forces affect movement. * Recall and use the equation for kinetic energy. * Use the elastic potential energy equation to work out elastic potential energy * Describe how the weight of an object is affected by gravitational field strength. * Recall the law of conservation of energy. * Describe how the extension of a spring depends on the force applied. * Use ideas about conservation of energy when explaining how simple machines work. * Describe the factors that affect the total work done. * Describe advantages and disadvantages of different energy resources. * Describe how energy is transferred in conduction, convection, and radiation. * Compare conduction in thermal conductors and thermal insulators. * Use the particle model of matter to explain energy transfers by conduction and convection. * Use the formula relating power, energy, and time | | **Key skills and knowledge assessed:**   * Explain how density depends on mass and volume. * Describe how current and voltage behave in series and parallel circuits. * Describe how voltage varies in a parallel circuit. * Plan an investigation into how the resistance of a wire changes with length or thickness. * Explain why the resistance of a filament lamp increases with increasing voltage. * Interpret a voltage–current graph for resistors of different values. Interpret a current-potential difference graph * Describe what happens to the resistance of a temperature-dependent resistor as its temperature increases and a light-dependent resistor as the light level increases Explain why an object floats. * Explain how a fuse works. * Describe and explain the properties and uses of alpha, beta and gamma radiation | | **Key skills and knowledge assessed:**   * Compare the relative sizes and distances of objects in space. * Use a model to explain why we see phases of the Moon. * Compare the geocentric and heliocentric models of the Solar System. * Use the terms frequency, amplitude, speed to describe waves. * Represent the path of light as straight lines with arrows on diagrams and describe how you can demonstrate that light travels in straight lines. * State the meaning of transverse wave and recall that light waves are transverse waves. * State the meaning of: refraction, angle of refraction, refracted ray, convex lens, converging lens Use a model incorporating the idea of vibrations to explain how sound travels through different materials. * Use a model incorporating the idea of vibrations to explain how sound travels through different materials. * Describe some uses of gamma radiation. * Describe some uses of microwaves. * Describe some uses of radio waves. * Describe some uses of ultraviolet radiation. * Describe some uses of X-rays. * Describes some uses of infrared. * Describe the difference between even reflection and scattering, and recall the law of reflection * Describe what refraction is * Describe some uses of lenses | |
| **Meaningful homeworks:**  What does the future of energy look like? Using the work you have done in school and your own research, present your solution to our energy crisis. Following this complete the GCSE Pod and exam style questions. | | **Meaningful homeworks:**  Research how nuclear power stations work and suggest how this might help with the current energy crisis, exploring the benefits and potential dangers of nuclear power. Following this complete the GCSE Pod and exam style questions. | | **Meaningful homeworks:**  All: Complete the GCSE Pod and application exam style question. Higher: Produce a model of a motor, label the parts, and explain how the motor effect works. | |