West Kirby Grammar School

Curriculum Map – Year 8 - Physics (2023-24)

Topic name	Term	Skills developed	Link to NC subject content	Prior learning	Next link in curriculum
Heating & Cooling	Spring	• Collect data • Present data • Analyse patterns • Draw conclusions Construct explanations	• heating and thermal equilibrium: temperature difference between 2 objects leading to energy transfer from the hotter to the cooler one, through contact (conduction) or radiation; such transfers tending to reduce the temperature difference; use of insulators • energy as a quantity that can be quantified and calculated; the total energy has the same value before and after a change • comparing the starting with the final conditions of a system and describing increases and decreases in the amounts of energy associated with movements, **temperatures**, changes in positions in a field, in elastic distortions and in chemical compositions • using physical processes and mechanisms, rather than energy, to explain the intermediate steps that bring about such changes	**Links from KS2:** **Properties and changes of materials** compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets **Links from Year 7:** **Topic 1 Energy** 1. thermal energy is stored in hot objects. 2. The hotter the object, the more thermal energy it stores. 3. Burning fuels releases energy in the form of heat. 4. Energy resources needed to heat our homes and water or for cooking.	Y9 – Autumn: *Energy* Links to GCSE Topic 1 Energy Year 10: Energy Internal Energy Energy resources Heating and Infrared
The Universe	Summer	• understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together	• gravity force, weight = mass x gravitational field strength (g), on Earth g=10 N/kg, different on other planets and stars; gravity forces between Earth and Moon, and between Earth and sun (qualitative only) • our sun as a star, other stars in our galaxy, other galaxies • the seasons and the Earth's tilt, day length at different times of year, in different hemispheres • the light year as a unit of astronomical distance	**Links from KS2:** **P5.1 EARTH and SPACE** 1. describe the movement of the Earth, and other planets, relative to the Sun in the solar system	**Links to GCSE** Y10 Forces and motion Y11 Spring - Space physics

		with the importance of publishing results and peer review • understand and use SI units • use simple equations and carry out appropriate calculations		2. describe the movement of the Moon relative to the Earth 3. describe the Sun, Earth and Moon as approximately spherical bodies 4. use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	
Waves	Autumn	• understand and use SI units • use simple equations and carry out appropriate calculations • Draw conclusions • Construct explanations	• How we describe sound in Physics and how sound travels as a longitudinal wave. • How to measure the speed of sound. • How we can compare sounds. • How our ears work and how to look after them. • What is ultrasound and what is it used for? • Sound insulation. • Light and how fast it travels. • Reflection and refraction of light.	**Links from KS2:** **LIGHT P3.1** 1. recognise that they need light in order to see things and that dark is the absence of light 3. recognise that light from the sun can be dangerous and that there are ways to protect their eyes **P4.1 SOUND**	Y9 Waves 1. Transverse and longitudinal waves 2. Mechanical waves 3. Seismic waves 4. Superposition of waves and interference. **Links to KS4:** Year 10:

			• Colour, colour filters and how we see things in different colours. • How our eyes work and what we can do to correct defects of vision such a long- and short sightedness.	1. identify how sounds are made, associating some of them with something vibrating 4. find patterns between the volume of a sound and the strength of the vibrations that produced it 5. recognise that sounds get fainter as the distance from the sound source increases.	Electromagnetic Spectrum Year 11: Refraction of light and lenses