



Topic name	Term	Skills developed	Link to NC subject content and beyond	Prior learning	Next link in curriculum
7.1 Energy	Autumn	Compare the amounts of energy transferred by different activities. Compare the energy usage and cost of running different home devices. Explain the advantages and disadvantages of different energy resources. Represent the energy transfers from a renewable or non-renewable resource to an electrical device in the home. Describe how the energy of an object depends on its speed, temperature, height or whether it is stretched or compressed. Show how energy is transferred between energy stores in a range of real-life examples. Calculate the useful energy and the amount dissipated, given values of input and output energy. Explain how energy is dissipated in a range of situations	We can describe how jobs get done using an energy model where energy is transferred from one store at the start to another at the end. When energy is transferred, the total is conserved, but some energy is dissipated, reducing the useful energy. We pay for our domestic electricity usage based on the amount of energy transferred. Electricity is generated by a combination of resources which each have advantages and disadvantages. Calculate the cost of home energy usage, using the formula: cost = power (kW) x time (hours) x price (per kWh). Includes lessons on - • Energy stores • Conservation of energy • Efficiency • Energy and power • Energy in the home • Energy resources	Links from prior topics: Building on pupils' prior KS2 knowledge of energy	Links to future topics: Energy is one of the fundamental ideas in Physics. It is referenced in most other Physics topics and links to the future topic of energy that is studied in combined science and separate science Physics GCSE.
7.2 Forces	Spring	Explain whether an object in an unfamiliar situation is in equilibrium. Describe factors which affect the size of frictional and drag forces.	When the resultant force on an object is zero, it is in equilibrium and does not move, or remains at constant speed in a straight line. Forces can change the speed, direction, or shape and size of an object. Includes lessons on - • What forces do • The different kinds of force • Measuring forces • Using force arrows • Balanced and unbalanced forces • Friction • Reducing friction: practical and analysis	Building on pupils' prior KS2 knowledge of forces, including simple machines, where they explored resistance forces such as air and water resistance and friction, this unit deepens their understanding by introducing forces as interactions between objects, including contact and non-contact	This prepares pupils for the next unit, Moving by force, where they will apply their knowledge of forces to quantify motion through speed, velocity, and acceleration, enhancing their grasp of the principles governing movement.



				forces, using diagrams and measurements.	
7.3 Our solar system	Summer	Describe our Sun as a star, one amongst other stars in our galaxy and other galaxies in the universe. Explain why we have seasons and link this to the Earth's tilt. Describe how day length varies at different times of year and in different hemispheres and that the light year as a unit of astronomical distance.	This unit explores gravity as the force between masses, including weight calculation using gravitational field strength. It covers the relationship between Earth, the Moon, and the Sun, the concept of light years, and seasonal changes due to Earth's tilt. Includes lessons on - • The spinning Earth • Our solar system • Gravity • Stars, galaxies and the universe • Heating by the Sun • Earth's tilt • Seasons on Earth • Changing ideas about Earth	This unit builds on pupils' prior learning at KS2 about the Earth, Sun and Moon, where they explored the movement and interactions of these celestial bodies. It expands their understanding by examining the solar system, including the concept of gravity as a force between masses and the role of gravity in maintaining orbital paths.	This prepares pupils for the unit on hidden forces where we look at the effects of gravity on orbits, the formation of celestial bodies, and evidence supporting theories about the universe's expansion.