Science Department
Curriculum and Assessment Map

	Half Term 1	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Year 9	**Electrical circuits**	**Space**	**Magnetism**	**Energy Resources**	
Fundamental Knowledge	1. Name the three types of particles found in an atom and state their charges. 2. Define current and state its unit. 3. Identify and draw component symbols. 4. Draw electrical circuit diagrams using appropriate symbols. 5. Use models to explain the electrical circuits. 6. Describe a series circuit. 7. Measure current in a series circuit. 8. Describe a parallel circuit. 9. Measure current in a parallel circuit. 10. Describe how current vary in a series and parallel circuit.	1. Compare models of the Solar System. 2. Use the tilt of the Earth's axis to explain the changes in the seasons. 3. Explain how the rotation of the Earth causes day and night. 4. State what is meant by a magnetic field and describe the shape of the field of a bar magnet. 5. Describe the effect of the Earth's magnetic field on compass needles. 6. Key Practical Skill: Accurately plot the magnetic field of a bar magnet. 7. Give definitions for 'gravity', 'gravitational field strength', 'weight' and 'mass'	1. State the names of the poles of a magnet. 2. Recall the names of the magnetic materials. 3. Describe the interaction of magnetic poles (attraction and repulsion). 4. Describe how the shape of a magnetic field can be investigated. 5. Sketch the shape of a magnetic field around a bar magnet. 6. Explain in detail how a magnetism can be induced in some materials. 7. Describe how the strength of a magnetic field can be investigated. 8. Compare the Earth's magnetic field to that of a bar magnet.	1. Identify which fuels are renewable and which are non-renewable. 2. Outline the operation of a fossil fuel burning power station. 3. Outline the operation of a nuclear power station. 4. Explain why biofuels are considered carbon neutral. 5. State that wind turbines, wave generators, hydroelectric systems, and tidal systems are renewable energy resources. 6. State some simple advantages or disadvantages of renewable energy systems. 7. Describe the operation of a wind farm. 8. Describe the operation of a hydroelectric system. 9. Suggest the most appropriate energy resource to use in a range of scenarios. 10. Compare and contrast the operation of solar cells (photovoltaic cells) with solar heating panels. 11. Describe the operation of a solar power tower. 12. Describe the operation of a geothermal power plant. 13. List some environmental problems associated with burning fossil fuels.	

	11. Describe how potential difference vary in a series and parallel circuit. 12. State the unit of potential difference. 13. Define the term resistance. 14. Describe the relationship between resistance and current. 15. Calculate resistance using Resistance = Voltage ÷ Current	8. Use an equation to calculate weight. 9. Identify and describe factors which affect the strength of gravity. 10. Describe how gravity affects objects in space. 11. Describe stars, galaxies and constellations and compare the relative sizes and distances of objects in space.	9. Describe how an electromagnet works. 10. State the factors affecting the strength of an electromagnet. 11. List the uses of electromagnets. 12. Compare permanent magnets to electromagnets.	14. Describe the effects of acid rain and climate change. 15. Describe techniques to reduce the harmful products of burning fossil fuels. 16. Compare a wide range of energy resources in terms of advantages and disadvantages. 17. Use base load and start-up time data to explain why some power stations are in constant operation whereas others may be switched on and off. 18. Compare some of the advantages and disadvantages of various energy resources. 19. Discuss the construction of a power plant in the local area in simple terms by using information provided.
Learning Checkpoint Tasks	• Static electricity • Electrical current in circuits • Voltage and resistance	• Rotation and revolution of the Earth • Mass and weight • Star lifecycle	• Magnetic interaction • Magnetic fields • Electromagnets	• Power station's function • Non-renewable energy resources • Renewable energy resources 1 • Renewable energy resources 2 • Greenhouse effect and climate
Common Assessment Task	**Year 9: Common Assessment 1**	**Year 9: Common Assessment 2**		
Mock Exam (if applicable)				
Interleaved Knowledge	Key knowledge acquired previously: • Atomic structure • Conductors and insulators • Forces	Key knowledge acquired previously: • Magnetism from KS2 • Energy • The solar system from KS2		Key knowledge acquired previously: • Electricity • Pressure and moments • Energy resources