

Science – PHYSICS – Performance Descriptors

Progress Points	Physics
Year 9 45 44 43 42	<ul style="list-style-type: none">• Describe the motion of objects in relation to each other.• Explain the concept of relative motion.• Apply the concept of relative motion to various situations.• Analyse situations to identify various forces acting.• Explore situations in which objects are held in equilibrium and the nature of the forces.• Describe the characteristics of a star• Relate our sun to other stars• Explain concept of galaxies and our position within these• Describe variation in length of day, apparent position of sun and seasonal variation.• Compare these with changes in the other hemisphere.• Explain these changes with reference to the motion of the Earth.• Describe the movement of waves in water• Explore the reflection of waves• Compare the adding and cancelling of waves (superposition)• Describe how light behaves when passing through matter• Explain absorption of light.• Explain diffuse scattering and specular reflection.• Describe how light behaves when passing through matter• Explain absorption of light• Explain diffuse scattering and specular reflection

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Year 8 38 37 36 (35)	<ul style="list-style-type: none">• Explain the economic, environmental and social impact of electricity generation. Consider the advantages and disadvantages of electricity production.• Explain and to analyse the electrical, magnetic and gravitational effects on Earth and other planets.• Calculate the current, resistance and potential difference of electrical circuits using key equations. Be able to re-arrange three term equations.• Describe the causes and effects of varying pressure on and by solids. Describe the variation of pressure in liquids with depth. Describe how atmospheric pressure varies with height; state some implications of variations in pressure.• Describe the differences between a magnet and an electromagnet. Describe different applications of magnets and electromagnets• Describe the differences between permanent and temporary magnets. Describe some of the Earth's magnetic fields.• Describe what is meant by voltage, current and resistance. Describe the relationship between all three. Describe and investigate different types of batteries.• Describe different domestic uses of series and parallel circuits. Explain the advantages and disadvantages of series and parallel circuits.• Describe the field around a charged object; describe some applications of static electricity. Describe the variation and effects of gravity on Earth and in space.• Describe how friction between objects may cause electrostatic charge through the transfer of electrons.• Identify and define the term magnetic field• Describe the attraction of unlike poles and repulsion of like poles.

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Year 7 35 34 33 (32)	<ul style="list-style-type: none"> • Know that forces can lead to changes in shape. Investigate the change of shape of a spring. Describe and explain the features of Hooke’s Law. • Explain how to find the speed of an object. Explain the concept of speed. Explain the law of moments. Recognise that sound energy is transferred by waves and describe how sound waves are made in different situations • Explain how different parts of the ear are adapted to enable us to hear. Describe what is meant by the term ultrasound. Describe how to measure the speed of sound. • Recognise that energy transferred by a range of different processes. Interpret and draw energy transfer diagrams for a range of different situations. Describe different energy types. (Gravitational potential, chemical, elastic potential and electrical) • Explain that friction is a force that slows objects down or stops them from moving. Explain that friction is a contact force. Describe examples in which friction is useful and when it is unwanted. • Describe what is meant by mass, explain how gravity forces affect weight. Explain why weight varies from planet to planet. Explain the term ‘weightless’. • Define the term energy and think about the reasons why energy is useful. • Describe the term friction. Identify examples in which friction is useful and when it is unwanted. • Explain how the size and direction of forces determines their effect. Provide specific examples • List different types of forces and represent forces in a force diagram. Identify some situations where forces are balanced

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Year 6 32 31 30 (29)	<ul style="list-style-type: none"> • Able to describe the problems that occur when circuits are broken and different components do not work. • Able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Able to explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • Able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. • Able to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • Able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • Recognise that some materials are good at reflecting sound and others at absorbing it • Explain the effects of forces in different situations. Describe how to measure forces. • Describe the shape and relative sizes of the earth, sun, moon and planets in the solar system. • Explain why the earth has day and night. Describe why different places on Earth have different seasons. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Able to construct a simple circuit and record observations. Name basic parts of the circuit, including cells, wires, bulbs, switches and buzzers. • Able to use recognised symbols when representing a simple circuit in a diagram. • Identify whether or not a lamp will light in a simple series circuit. • Able to identify differences between different circuits.
Year 5 29 28 27 (26)	<ul style="list-style-type: none"> • Explain why the moon appears to change shape. Explain key features of the phases of the moon. • Describe how long the moon takes to orbit the earth and the evidence that supports this. Identify the meaning of the word orbit. • Describe the effects of forces such as gravity, air resistance, upthrust and friction. Give specific examples of each force in action.

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Year 4 25 24 23 (22)	<ul style="list-style-type: none">• Identify and recognise objects that make a sound. Think about how sound moves to our ears.• Recognise and identify the order of the planets within the Solar System• Identify the effects of forces such as gravity, air resistance, upthrust and friction• Identify how machines work by using gears, pulleys and levers Identify the forces involved in floating and sinking.• Identify common appliances than run on electricity.
Year 3 21 20 19 (18)	<ul style="list-style-type: none">• Recognise and identify the key features of seasons. Describe the differences between day and night.• Identify simple forces acting on different situations.• Identify the key features of the Earth.