Purple - PSHE content

Yellow – key words

KS 3 Science Curriculum Year 7 2026-2027

Curriculum Intent

The science curriculum will provide all pupils, regardless of starting point with the foundation of knowledge needed to allow them to critically analyse and engage with science, technology and nature in the modern world.

Curriculum Implementation

Year	Start When	No. of Lessons	Topic	Learning Objectives	Assessment for learning	Key Practicals
7	Learning Cycle 1	12	Working Scientifically	• What practical skills did I learn at Primary School? • Explain reasons for having science lessons in a lab • Identify hazards and plan ways to control risks during and/or after practical work • How do you set up and use a Bunsen burner safely • How do you convert between units of volume • How do you produce scientific diagrams • Identify hazards and plan ways to control risks • Describe the conventions for drawing a table • Describe the scientific method • Describe the conventions for writing a scientific lab report • How do you write a hypothesis and prediction to test • How to obtain data and write a conclusion	•Cold calling •Core questions as the plenary of every lesson. •10 low stakes multiple choice Questions on key content half way through topic. •20 low stakes multiple choice questions at	Trust wide - Tea light Investigation

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					the end of the topic. Plus 20 marks of exam pro questions	
7	Learning Cycle 1	10	Particle Model	• Use the particle model to explain why different materials have different properties. • State the factors that determine the properties of a substance. • Describe the properties of substances that are in different states. • To be able to describe the properties of the 3 states of matter • To be able to explain how to classify materials based on their properties • To use observations to classify substances as one of the 3 states of matter • Describe density in terms of particles, mass and volume • State why substances have different densities • Describe why some substances float and some sink • Recall the density equation • Explain changes of state involving solids and liquids • Interpret data about melting points • Determine the melting point of stearic acid using cooling data • Explain changes of state involving solids and liquids. • Interpret data about melting points • Determine the melting point of stearic acid using cooling data • Use particle model to describe and explain what happens when a substance changes state. • Explain how evaporation occurs. • Explain how sublimation occurs • Use particle model to explain changes of state involving liquid and gases. • Interpret data about boiling points. • Interpret data to predict the state of matter based on substance boiling point.		

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				• Identify and name the key parts of a Bunsen Burner and the key pieces of equipment needed to use a Bunsen burner. • Be able to light and use a Bunsen burner safely. • Explain how to light and use a Bunsen burner safely. • Use the particle model to explain gas pressure. • Describe the factors that affect gas pressure.		
7	Learning Cycle 1	13	Energy	• Identify energy values for food and fuels in J and kJ. ● Compare the energy in food and fuels with the energy needed for different activities. ● Investigate the amount of energy stored in different types of food. • Investigate the amount of energy stored in different types of fuel. • Identify independent, dependent and control variables in the experiment. • Know the 5 main energy stores and give examples. • Describe how energy can be transferred from one store to another • Define work done • Calculate work done including conversions • Measure the work done by a force experimentally. • • Describe the action of frictional forces on objects and the associated heating effect. • Identify and calculate useful energy and wasted energy from input and output energies. • Explain what efficiency means in terms of wasted and useful energy. • Calculate % efficiency using useful output and total input energies using the equation. • Identify and calculate useful energy and wasted energy from input and output energies. • Explain what efficiency means in terms of wasted and useful energy. • Calculate % efficiency using useful output and total input energies using the equation.	•Cold calling •Core questions as the plenary of every lesson. •10 low stakes multiple choice Questions on key content half way through topic. •20 low stakes multiple choice questions at the end of the topic. Plus 20 marks of exam pro questions	

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				• Identify and calculate useful energy and wasted energy from input and output energies. • Explain what efficiency means in terms of wasted and useful energy. • Calculate % efficiency using useful output and total input energies using the equation. • Identify and calculate useful energy and wasted energy from input and output energies. • Explain what efficiency means in terms of wasted and useful energy. • State how heat and temperature are measured • Describe the difference between heat and temperature • Describe how heat is transferred from one object to another • Explain what is meant by thermal equilibrium • Investigate how heat is transferred from an object to another. • State what conduction is. • Describe how conduction happens. • Describe how solids are better conductors than liquids. • State what conduction is. • Describe how conduction happens. • Describe how solids are better conductors than liquids. • State what conduction is. • Describe how conduction happens. • Describe how solids are better conductors than liquids.		
7	Learning Cycle 1	11	Cells and Systems	• State the meaning of the term “cell”. • Identify the subcellular structures of animal cells (cell organelles) • Describe the function of cell organelles.	•10 low stakes multiple choice	

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				• identify the sub-cellular organelles of plant cells. • Describe the function of each cell organelle. • Differentiate between a plant and an animal cell. • Recall the structure of plant and animal cells. • Prepare slides of human cheek cells and onion epidermis. • View prepared slides under a microscope and draw diagrams to show visible structures • Be able to calculate magnification of a microscope • Be able to use an equation to calculate the level of magnification • To state the differences between the two different types of microscopes. • To be able to describe how specialised cells can be adapted for their job • Give examples of specialised cells • Explain how the structure of different specialised cells helps their function • Name some examples of a specialised plant cell • Describe the function of specialised plant cells • Explain how the structure of a specialised plant cell can help it carry out its function • Describe similarities and differences between a bacteria, plant and animal cell. • Recall the structure and function of a plant cell and animal cell. • Calculate surface area to volume ratio for different sized cubes • Describe the process of diffusion. • State the factors which affect diffusion. • Identify where diffusion occurs. • Identify the main parts of the skeleton • Explain the function of the skeletal system • Design a skeleton. • Give examples of different muscle types.	Questions on key content half way through topic. •20 low stakes multiple choice questions at the end of the topic. Plus 20 marks of exam pro questions	

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				• Describe the function of some of the major human muscles. • Explain how antagonistic muscle pairs work together to control movement. • Identify the different structures of a joint. • Compare different joints within the human skeleton. • Describe the roles of tendons, ligaments, and cartilage.		
Learning Cycle 1 Trust Wide Assessment						
7	Learning Cycle 2	11	Reproduction	• Describe the stages of the human life cycle and the role of reproduction. • Explain the process and importance of human reproduction • Describe the role of DNA in the human life cycle • List changes that occur in females and males at puberty • State the difference between adolescence and puberty. • Describe why these changes during puberty are necessary • Identify where the female and male gametes are produced. • Identify the structures of the male and female reproductive systems. • Describe how the oviducts are adapted • Identify male gametes as sperm cells and describe their specialisation • Identify female gametes as egg cells and describe their specialisation • To describe how fertilisation occurs when a sperm and egg join to form an embryo. • State what the menstrual cycle is. • Describe the main stages in the menstrual cycle as a timed sequence of events. • Describe how the hormones change within a menstrual cycle • Describe what happens during gestation. • Describe what happens during birth. • Describe the growth of a foetus • Identify substances that pass through the placenta • Identify the key factors that contribute to a healthy pregnancy	•10 low stakes multiple choice Questions on key content half way through topic. •20 low stakes multiple choice questions at the end of the topic. Plus 20 marks of exam pro questions	

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				• Explain how lifestyle choices can affect the development of the foetus, including the risks of smoking and alcohol consumption during pregnancy. • Explain the process of IVF • Describe hormonal contraception methods • Identify barrier methods of contraception • Name the parts of a flower • describe the function of the male and female reproductive structures in a flower • Explain and describe the stages of pollination • Describe the process of germination in seeds • Identify factors affecting germination such as water, temperature, and light • Plan and conduct a simple investigation into seed germination • Identify seed dispersal methods used by plants • Explain how seeds are adapted for different dispersal methods • Explain the ecological significance of seed dispersal in reducing competition		
7	Learning Cycle 2	10	The Periodic Table	• Identify the different types of atom so I can explain the layout of the Periodic Table. • Identify the physical properties of a substance • Investigate the properties of elements and compounds • Use evidence to identify whether a substance is an element or a compound • Describe the differences between an element, compound, molecule and mixture • Make models of some examples of compounds and molecules • Be able to name compounds based on the elements in them. • Be able to identify the symbol for an element • Be able to identify elements in a compound • Elements and compounds have different properties • Describe some properties of metals and explain how these relate to their uses	•10 low stakes multiple choice Questions on key content half way through topic. •20 low stakes multiple choice	

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				• Describe some properties of non-metals and explain how these relate to their uses • Label the groups and periods • Describe how elements are arranged in the periodic table • Use the periodic table to predict the properties of elements and their compounds. • Define properties of the periodic table • Describe how the periodic table has changed over time • Describe some of the physical and chemical properties of Group 1 metals • Describe the trends in physical and chemical properties of Group 1 metals • Recall the appearance of chlorine, bromine and iodine at room temperature. • Describe the chemical test for chlorine gas. • Describe the trend in reactivity and uses of the group 7 elements. • Recall where the noble gases are found in the periodic table and their common name • Describe the chemical properties of group 0 • Plot the physical properties of group 0 onto a bar chart •	questions at the end of the topic. Plus 20 marks of exam pro questions	
7	Learning Cycle 2	9	Forces	• identify the forces acting on a range of examples. • how to name forces so I can explain how forces interact. • explain why objects change shape. • understand how the force applied affects the extension of an elastic band • friction and drag are and how they affect the motion of objects. • give real-life examples of friction and drag, like how friction helps us walk and drag slows down airplanes. • how resultant forces affect motion so I can explain why objects change speed • calculate how fast different objects travel • calculate the speed of an object from a graph	Core questions as the plenary of every lesson. •10 low stakes multiple choice Questions on key	

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				• compare the motion of one object with that of another	content half way through topic. •20 low stakes multiple choice questions at the end of the topic. •Exam style questions for homework.	
Learning Cycle 2 Trust Wide Assessment						
7	Learning Cycle 3	14	Waves	• What is a transverse wave? • Explain how mechanical waves transfer energy • What type of wave is a water wave? • Describe the motion of particles of a longitudinal wave • What type of wave is a sound wave? • Explain why sound becomes quieter the further you are from the source • Use amplitude, frequency and wavelength to describe sounds • Investigate how the length of an object affects the sound it makes • Compare how sound travels in solids, liquids and gases. • Compare the speed of sound in solids, liquids and gases. • Identify which materials sound travels best in. • Apply the formula for calculating the speed of sound • Compare the speed of sound in solids, liquids and gases.	Core questions as the plenary of every lesson. •10 low stakes multiple choice Questions on key content half way	

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				• Identify which materials sound travels best in. • Apply the formula for calculating the speed of sound • State what an echo is. • Identify organisms that use echolocation. • Describe uses of sonar and ultrasound. • Describe what happens when light hits a translucent object • Describe what happens when light hits an opaque object • Be able to draw a diagram to show a light ray • Describe what happens when light hits a translucent object • Describe what happens when light hits an opaque object • Be able to draw a diagram to show a light ray • State the 7 colours that make up visible light • State the Primary colours of light • State the secondary colours of light • Define Refraction • Present data appropriately • Evaluate an investigation • Analyse scientific text and diagrams • To know the structure of the eye • To explain how we see colour • To know the difference between rod and cone cells. •	through topic. •20 low stakes multiple choice questions at the end of the topic. •Exam style questions for homework.	
7	Learning Cycle 3	11	Ecosystems and Adaptations	• Classify organisms given appropriate information. • Explain the basis of the Linnaeus classification system • Define ecosystems as the living organisms in a place and their non-living surroundings. • Define a habitat as the place where an organism lives.	Core questions as the plenary of every lesson. •10 low stakes	

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				• Describe common ecosystems such as woodland and ponds and identify habitats within them. • Explain the difference and give examples of biotic and abiotic factors. • Describe how biotic and abiotic factors can influence where different organisms can live • Define producers in food chains • Describe how energy flows through food chains • Interpret food webs • Describe ways in which animals and plants are interdependent • Define predators and prey. • List common features of predators and prey. • Describe predator and prey relationships and how they interact with each other. • Describe the role of plants as producers. • Describe the importance of insect pollination to food Security • Recall things that animals and plants compete for • Describe how competition affects animals and plants • To describe how the water cycle works. • To describe the different stages of the water cycle, e.g. precipitation, evaporation and condensation • To record the stages of the water cycle using a labelled diagram. • To describe what the decay cycle is and the different stages of decay. • Explain how chemicals can accumulate in food chains	multiple choice Questions on key content half way through topic. •20 low stakes multiple choice questions at the end of the topic. •Exam style questions for homework.	
Learning Cycle 3 Trust Wide Assessment						