

Westbourne Academy Curriculum Planning Document

Subject: Science Year: 7



Timescale	Autumn Term			
Prior Learning (from KS2/3)	Year 3-6 – Make observations, draw bar charts, present data and draw simple conclusions	Year 4 – The Digestive System Year 5 – Importance of exercise & a balanced diet	Year 5 – Planets, day & night	Year 4 – Solids, liquids & gases
Unit Title	1. Scientific Skills	2. Cells & Organisation	3. Space Physics	4. Particles
Key knowledge (5-10 points)	1. State the laboratory safety rules. 2. Identify commonly used laboratory equipment. 3. Light a Bunsen burner safely and use it to heat water. 4. State the three types of scientific variable and identify them in experiments. 5. Draw and label bar charts and line graphs. 6. Describe what a graph shows you. 7. Evaluate a set of scientific results. 8. Apply skills 4-7 by carrying out a scientific investigation.	1. Set up and use a microscope. 2. Compare the structures of typical plant and animal cells. 3. Create a cheek cell and onion cell slide and identify the structures using a microscope. 4. Understand how unicellular organisms carry out basic cell functions. 5. Understand how multicellular organisms are set up. 6. Understand the process of diffusion within cells.	1. Define and calculate gravity. 2. Explain the difference between mass and weight. 3. Explain how the movement of the Earth causes days, nights and seasons. 4. Describe the phases of the Moon. 5. Name the planets in our Solar System. 6. Define the term galaxy.	1. Identify substances as solids, liquids or gases. 2. Use the particle theory to describe solids, liquids and gases. 3. Describe changes of state. 4. Define the term diffusion and investigate factors that affect its rate. 5. Define the term Brownian motion and use it to describe particle movement. 6. Define the term gas pressure. 7. Calculate the density of some substances. 8. Investigate factors that affect the rate of evaporation.
Key terminology	<i>laboratory, safety, Bunsen burner, thermometer, independent, dependent, control, analysis, conclusion, evaluation</i>	<i>eye piece lens, objective lens, nucleus, cell wall, cell membrane, cytoplasm, chloroplast, vacuole, organism, organelle, diffusion</i>	<i>gravity, weight, Newton, planet, crescent, phases, galaxies</i>	<i>arrangement, evaporation, condensation, melting, freezing, kinetic, diffusion, pressure, collisions, density</i>
Assessment (methods to assess)	• Write up of scientific investigation • Term 1 Assessment	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 1 Assessment	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 1 Assessment	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 1 Assessment
Links to other units in KS3/4.	• KS3 & KS4 (all units)	• Year 9 Cell Biology 1, Organisation 1, Infection & Response • Year 10 Cell Biology 2, Organisation 2	• Year 8 Forces in Action • Year 10 Forces • Y11 Triple Science Space	• Year 8 Atoms & the periodic table • Year 9 Atomic structure and the periodic table 1 and 2, Particle model of matter 1 • Year 10 Particle Model of Matter 2
Timescale	Spring Term			

Prior Learning (from KS2/3)		Year 4 – Solids, liquids & gases	Year 4 – Sound & the ear Year 5 – Properties of light waves	Year 4 & 5 – Building electrical circuits
Unit Title	1. Nutrition, digestion and health	2. Materials from the Earth	3. Light & Sound	4. Electricity and Magnetism
Key knowledge (5-10 points)	1. State the 7 parts of a balanced diet. 2. Identify different people's energy needs. 3. State the causes and issues of obesity and starvation. 4. List some deficiency diseases and their symptoms. 5. State the parts and describe the functions of the digestive system. 6. Recall and explain the role of digestive enzymes. 7. Name some recreational drugs and their effects. 8. Outline the issues in society caused by addiction and substance misuse.	1. Identify the different layers in Earth's structure 2. Recognise igneous, sedimentary and metamorphic rocks 3. Describe the rock cycle 4. Describe how fossils are formed 5. Describe how fossil fuels are formed	1. Name the parts of longitudinal and transverse waves. 2. Describe the properties of sound and light waves. 3. Calculate the speed of sound in different materials. 4. Name and locate the parts of the ear and the eye. 5. Describe the differences between ultrasound and infrasound. 6. Investigate reflection and refraction. 7. Describe how humans see different colours. 8. Investigate the use of photovoltaic cells.	1. Identify circuit symbols and build simple circuits. 2. Use models to explain how current flows around a circuit. 3. Measure current and voltage within a circuit. 4. Calculate resistance using the resistance equation. 5. Investigate the factors that affect the resistance in a wire. 6. State Ohms Law and explain how some components do not obey it. 7. Compare series and parallel circuits. 8. Describe the effects of attraction and repulsion in relation to magnetic poles 9. Describe the magnetic field of a bar magnet 10. Describe Earth's magnetic field and explain its impact 11. Describe how to make an electromagnet and investigate factors that affect their strength 12. List some uses of electromagnets and describe the advantages of using electromagnets in comparison to permanent magnets
Key terminology	<i>nutrient, balanced diet, kilojoules, obesity, starvation, deficiency disease, digestion, painkiller, stimulant, depressant</i>	<i>Crust, mantle, core, igneous, sedimentary, metamorphic, fossil, crude oil</i>	<i>Light: transverse, luminous, translucent, opaque, transparent, reflection, incidence, refraction, spectrum, Sound: longitudinal, vibrations, amplitude, frequency, pitch, wavelength, cochlea, auditory, ultrasound, infrasound</i>	<i>circuit, insulator, conductor, battery, current, voltage, resistance, component, series, parallel, Field, attraction, repulsion, poles, compass, electromagnet</i>
Assessment (methods to assess)	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 2 Assessment	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 2 Assessment	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 2 Assessment	• Year 6 Prior knowledge test • End of unit assessment /20 • Term 2 Assessment

Links to other units in KS3/4.	- Year 9 Organisation 1 - Year 10 Organisation 2	- Year 8 Earth and atmosphere - Year 9 Particle Model of Matter 1 - Year 11 Organic chemistry	Year 10/11 Waves	- Year 9/10 Electricity 1 and 2 - Year 11 Magnetism & Electromagnetism
Timescale	Summer Term			
Prior Learning (from KS2/3)	Year 5 – Life cycles		Year 5 – Forces (air resistance, friction)	
Unit Title	1. Reproduction	2. Acids & Alkalis	3. Forces	
Key knowledge (5-10 points)	- Name and locate the parts of the human reproductive system. - Explain what gametes are and the process of fertilisation. - Identify the structures involved in plant fertilisation. - Define the term gestation and explain how a human baby develops over 9 months. - State the key changes in males and females during puberty. - Explain how hormones control the menstrual cycle.	- Identify the risks associated with using acids and alkalis. - Use indicators to determine whether a substance is an acid or an alkali. - Know the pH scale and use it to identify whether a substance is an acid, alkali or neutral. - Understand what a neutralisation reaction is and give some examples in everyday use. - Investigate neutralisation using indigestion remedies.	- Name some forces and state whether they are contact or non-contact. - Describe the differences between balanced and unbalanced forces. - Investigate friction forces. - Investigate air resistance and describe how objects can be designed to reduce air resistance. - Investigate how density affects whether a substance will sink or float. - Calculate pressure using the pressure equation.	
Key terminology	<i>uterus, ovary, fertilisation, scrotum, testes, gamete, foetus, placenta, menstruation, ovulation</i>	<i>acid, alkali, neutralisation, indicator, harmful, irritant, corrosive, salt, ions, reactivity</i>	<i>friction, resistance, upthrust, Newton, balanced, resultant, density, pressure, distance, aerodynamic</i>	
Assessment (methods to assess)	- Year 6 Prior knowledge test - End of unit assessment /20 - Term 3 Assessment	- Year 6 Prior knowledge test - End of unit assessment /20 - Term 3 Assessment	- Year 6 Prior knowledge test - End of unit assessment /20 - Term 3 Assessment	

Links to other units in KS3/4.	• Year 8 Genetics • Year 10 Homeostasis & Response • Year 11 Inheritance, Variation & Evolution	• Year 9/10 Chemical changes 1 and 2	• Year 8 Forces in action • Year 10 Forces	
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