

Curriculum Intent:

During KS3 pupils will develop an appreciation for the fundamentals of how the world works. Students will develop their scientific thinking and curiosity through theory and investigation. Their factual knowledge will cover a wide range of scientific topics, allowing them insight into the three main subject areas: Biology, Chemistry and Physics, focussing on key ideas. In Biology this ranges from understanding of cells and microscopic level of life through to large scale understanding of life processes in ecology. Chemistry focuses on the study of the atom and the importance of how atoms interact through to the macroscopic effects on the atmosphere and key resources. In Physics, students study key ideas around Energy, Forces and waves to explain the underlying processes of the Universe. Students will develop and apply basic mathematical skills to a range of scientific contexts. Pupils will be introduced to a variety of new terms and will learn to effectively use these to better communicate scientific ideas. Overall this curriculum will give students the knowledge, skills and character to excel and spark their curiosity to learn more. Students will also be exposed to careers and learn about the types of careers that would use the knowledge they will learn about in each of their topics.

'Why This, Why Now?'

In our planning, we have asked ourselves 'why this, why now?' Here we provide some examples of the curriculum choices we have made, and why the units have been placed in the order we have chosen:

- Year 7 starts with 7CP Particles, in which we introduce the concept of diffusion. We have placed this unit here as an understanding of particle behaviour is fundamental to all three sciences, and that movement in and out of cells requires an understanding of diffusion, which is taught in the next topic, 7BC Cells, Tissues and Organs. The idea is developed later in 9 PM Matter and will be revisited in a range of topics at Key Stage 4, including Organisation
- In 7PE Energy, we introduce the idea that energy is transferred between stores. This concept is applied in 8PE Electricity and Magnetism and developed further in Key Stage 4 in Energy, where energy is also quantified, using energy formulae. Energy is also linked to Forces via work done, which is introduced in 9PF Forces in Action, as well as Forces and Motion in Key Stage 4.
- 'Forces affect motion' is a fundamental idea in physics and is explored at length in Year 11 when Newton's laws of motion are introduced formally for the first time. The fundamentals to this concept are first introduced in 7PF Forces, built upon in 9PF Forces in Action, before simple Newtonian mechanics are explored in depth in Forces and Motion in Year 11

Curriculum Intent Science



We aim to stoke your curiosity and better your understanding about the world around you.

You will have the opportunity to:

- **Gain investigative skills**, allowing you to question and inquire.
- **Expand your scientific knowledge** about the world you live in.
- Improve and develop existing numeracy, literacy and problem solving skills



Medium Term Planning Document: Science Year 7

The Medium Term Planning document below is designed to show the journey that every student takes through our curriculum. Some elements of the curriculum may be taught over several lessons, others in a single lesson.

Science				
Topic	Content	Key Words	Formative Assessments?	Link(s) to an example lesson
7CP - Particles	Particle model	Solid	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Under KS3 science Year 7 click 'Unit 1 – Particles'
	Diffusion	Liquid		
	Changes of state	Gas		
	Gas pressure	Condensation		
	Pure and impure substances	Evaporation		
	Separation techniques	Freezing		
	Solubility	Melting Sublimation Insoluble Solute Solvent Solution Filtration Distillation Paper Chromatography		
7BC – Cell biology	Animal and plant cells	Organelle	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Under KS3 science Year 7 click 'Unit 2 – Cells, Tissues and Organs'
	Microscopes	Cell Membrane Cell wall		
	Magnification	Nucleus Ribosomes Mitochondria Cytoplasm Chloroplasts Vacuole		

Medium Term Planning Document: Science Year 7

Science	Year 7 – Half Term 2			
Topic	Content	Key Words	Formative Assessments?	Link(s) to an example lesson
7BC – Cell biology	Diffusion	Diffusion	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Under KS3 science Year 7 click 'Unit 2 – Cells, Tissues and Organs'
	Specialised cells	Concentration		
	Organisation of cells, tissues, organs	Tissue Organ		
	Organ systems	Organ System		
7PE - Energy	Energy stores and transfers	Joules Kinetic Store	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Click 'KS3 Science' Click 'Unit 3 – Energy'
	Efficiency	Gravitational Potential Store		
	Heat transfer	Elastic Potential Store Chemical Energy Store Magnetic Store Electrostatic Store Efficiency Convection Conduction Infra-red radiation		

Medium Term Planning Document: Science Year 7

Science	Half Term 3			
Topic	Content	Key Words	Formative Assessments?	Link(s) to an example lesson
7PE - Energy	Power and energy	Work-done	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Click 'KS3 Science' Click 'Unit 3 – Energy'
	Energy in the home	Power		
	Energy in food	Watt (W)		
	Energy resources	Renewable Non-renewable Fossil fuels		
7BR – Reproduction and variation	Reproductive systems	Ovary	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Click 'KS3 Science' Click 'Unit 4 - Reproduction and Variation'
	Fertilisation	Oviduct		
	Gestation	Uterus		
	Puberty and the menstrual cycle	Cervix		
	Plant reproduction	Scrotum		
		Gamete		
		Sperm		
		Ovum/Ova		
		Fertilisation		
		Hormone		
	Placenta			
	Foetus			
	Stigma			
	Anther			
	Pollen			
	Variation			

Science	Year 7 – Half Term 4			
Topic	Content	Key Words	Formative Assessments?	Link(s) to an example lesson
7CC – Chemical reactions	Chemical reactions	Atom	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fact recall (including skills questions) quizzes every week set as a home learning task	https://continuityoak.org.uk/lessons Click 'KS3 Science' Click 'Unit 5 - Chemical Reactions'
	Oxidation	Element		
	Acids and alkalis	Compound		
	pH scale	Reactants		
	Metals and acids	Products		
	Neutralisation	Acids Alkali		

Medium Term Planning Document: Science Year 7

	Titration	Neutralisation Indicator Salt Base		
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Science				
Topic	Content		Formative Assessments?	Link(s) to an example lesson
7PF - Forces	Types of force	Force	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fluency Quizzes 1 lesson per week checking recall and skills knowledge	https://continuityoak.org.uk/lessons Click 'KS3 Science' Click 'Unit 6 - Forces and Motion'
	Resultant forces	Newton		
	Gravity and weight	Resultant force Upthrust		
	Pressure	Friction		
	Friction	Air resistance		
	Speed	Weight Thrust		
	Distance-time graphs	Pressure Speed		

Science				
Year 7 – Half Term 6				
Topic	Content	Key Words	Formative Assessments?	Link(s) to an example lesson
8BE – Ecological relationships	Food webs	Producer	Bell work- retrieval quizzes KPI formative assessment checks throughout the topic Fluency Quizzes 1 lesson per week checking recall and skills knowledge	https://continuityoak.org.uk/lessons Click 'KS3 Science' Click 'Unit 7 – Ecological Relationships and Classification' (in the Year 7 section)
	Decay	Consumer		
	Impacts on food webs	Herbivore Carnivore		
	Sampling populations	Omnivore		
	Classification	Variation		
	Adaptation	Natural Selection		
	Evolution	Extinct		
	Biodiversity	Biodiversity Mutation Gene Pesticide Bioaccumulation Habitat		

Medium Term Planning Document: Science Year 7

Summative Assessment:

Pupils will complete two Synoptic papers (Paper 1 within the 2nd half term, and Paper 2 within the 4th half term). Pupils will also complete three End-of-Year assessments – broken down by each Science. These assessments will inform Rank Order and will therefore inform group moves once this data is published to students and parents.

Extra Support	SEND Adaptations
<p>We primarily address the needs of our students by continually improving our teaching and ensuring high quality lessons. To ensure all students, regardless of SEND needs or ability can access the content, we also embed the following measures in our lessons --></p>	<ul style="list-style-type: none"> • Instructions kept short and clear • Use of a 'slow practical' approach • Use of visual practical sheets • Planning lessons with a common predictable structure (Do now, I, We You, etc) • Use clear timings for task completion where appropriate • Using scaffolds for calculations (VESRAU) • Lots of key term repetition to aid with retention • Model answers/scaffolding for written work • Coloured resources for students with visual stress