Our intent – Science

At Northampton School, we see it as our responsibility to ensure that all students are engaged with Science and continue to make excellent progress each year. We seek to develop confidence and accuracy in their use of scientific language and techniques to produce solutions to problems. The Science curriculum aims to impart the essential knowledge that students need to be educated citizens to have a better understanding of the world around them. Our belief is that the best lessons are those that build Science capital by relating learning to what matters to students the most and links to their interests, aspirations and daily lives. We aim to identify threshold concepts and anticipate misconceptions for students to make better progress and make better sense of the world around them. During Years 7 to 9 students follow the Key Stage 3 Oxford University Press "Activate" course.

Curriculum Implementation and Impact - Science

Science is a core subject requiring three/four lessons per week in Year 7 and 8 and 5 lessons in Year 9. We use Oxford University Press resources. This course is written to the new KS3 syllabus and should better prepare students for the rigour of the Science GCSE. KS3 is spiral, building on "big ideas" and introducing new concepts within these ideas.

Students have on-line access to the Activate Textbooks used in school along with many other electronic resources which are hosted on the Kerboodle platform accessible from home. Login details will be provided when students begin the course. The Activate textbook aims to develop key skills such as numeracy and literacy as well as developing pupil's ability to work scientifically. The 'fantastic facts' add to the interest and are a good stimulus for questions both at home and in school.

The course covers the four main areas of science – Biology, Chemistry, Physics and Earth Sciences. The course is split up into topics with either a task or an assessment upon completion.

There is a significant element of practical work using Bunsen burners and other potentially dangerous equipment which means that safe and sensible behaviour is always expected. Some practical sessions are extended as investigations.

Sequencing mapped to big ideas

Harlen's big ideas of Science

All material in the universe is made of very small particles	The total amount of energy in the universe is always the same but energy can be transformed when things change or are made to happen	Organisms are organised on a cellular basis
Objects can affect other objects at a distance	The composition of the Earth and its atmosphere and the processes occurring within them shape the Earth's surface and its climate	Organisms require a supply of energy and materials for which they are often dependent on or in competition with other organisms
Changing the movement of an object requires a net force to be acting on it	Our solar system is a very small part of one of millions of galaxies in the universe	Genetic information is passed down from one generation of organisms to another &
		The diversity of organisms, living and extinct, is the result of evolution

	Y7	Y8
Topic 1	Working scientifically	C1.4 acids and alkalis
Topic 2	B1.2 body systems	C2.2 Separation techniques
Topic 3	B1.1 Cells	P1.3 Light
Topic 4	C1.1 Particles	P2.3 motion and pressure
Topic 5	C1.2 elements, atoms and compounds	B1.3 reproduction
Topic 6	P1.3 Forces	B2.3 adaptations and inheritance
Topic 7	P1.2 sound	B2.2 Ecosystem processes
Topic 8	C1.2 reactions	C2.1 periodic table
Topic 9	Space	P2.2 Energy

Year 7

	Working Scientifically (12)				B1.1 Cells (15)		Personal Development Week (Body Systems)	B1.1 Cells (15)	Half-term	B1.1 Cells (15)		P1.1 Forces (10)			C1.1 Particles (15)		Christmas		C1.1 Particles (15)			C1.2 Atoms, Elements and Compounds (12)			
Assessment					Term 1 Test: working scientifically	Cells FA						Term 2 Test: Cells	Forces FA									Term 3 Test: particles	Elements and Compounds FA: compounds		
Opportunities to embed disciplinay knowledge					B1 1.2 making an onion slide: biological drawings, recording results, safety					B1 1.4 what is best lamp to make tax: tables, means, graphs, conclusion	Working Scientifically: Using a Bunsen burner and recording observations	P1 1.2 investigating elastic: predictions, tables and graphsNB you may want to do with a spring not elastic bad	P1.3 investigating friction: designing an investigation, variables, drawing tables, predictions		C1 1.1 introducing the particle model: models			C1 1.2 solids, liquids and gases: tables, analysing rsults, drawing conclusions	C1 1.3 cooling of stearic acid: predictions, line graphs, analysing results and drawing conclusions				Working scientifically: marshmallows
	17.02.25	24.02.25	03.03.25	10.03.25	17.03.25	24.03.25	31.03.25	07.4.25	14.04.25	21.04.25 Start Wednesday	28.04.25	05.05.25 Bank Holiday Monday	12.05.24	19.05.25	26.05.25	02.06.25	09.06.25	16.06.25	23.06.25 Traing Day Friday	30.06.25	07.07.25	14.07.25	21.07.2025 Finish on Tuesday		
	Half-term	P1.2 Sound (5)			B1.2 Body Systems recap (9)			Easter		B1.2 Body Systems recap (9)	Revision EOY Exam (7)		Exam to be sat in double this week	C1.3 Reactions (18)	Half-term	C1.3 Reactions (18)					P1.3 Space (6) (Trip to space centre tbc) Careers Lesson				
Assessment			Term 4 Test: elements and compounds			Body systems FA					Pinchpoints revision FA task		Term 5 Test: EOY exam					Term 6 Test: Reactions		Space FA					
Opportunities to embed disciplinay knowledge			British Science Week Activites Science Fair (Crest Awards)													C1 3.3 do all fuels release the same amount of energy: predictions, tables, evaluate	C1 3.4 decomposition reactions: record observations, draw conclusions	conservation of mass: record observations, tables, annalysing	Working scientifically: making a flare	P1 4.3 The Seasons: predictions, graphs, annalysing data				

Year 8

	C1.4 Acids & Alkalis (11) BIG IDEA: All material in the universe is made of very small particles					C2.2 Seperation techniques (14) BIG IDEA: All material in the universe is made of very small particles	Residential	C2.2 Seperation techniques (14) BIG IDEA: All material in the universe is made of very small particles	Half-term	C2.2 Seperation techniques (14) BIG IDEA: All material in the universe is made of very small particles		Working scientifically: antacids	P1.3 light (13): BIG IDEA: Objects can affect other objects at a distance.			P2.3 motion and pressure (9)	Christmas		P2.3 motion and pressure (9) BIG IDEA: Changing the movement of an object requires a net force to be acting on it			Working Scientifically: pendulum	B1.3 Reproduction (9) BIG IDEAS: organisms are organised on a cellular basis & genetic informatin is passed from one generation of omgaisms to another		
Assessment				Acids and alkalis FA: Making Salts		Term 1: acids and alkalis						Term 2: seperation techniques			Light FA			Term 3: light					Reproduction FA: menstrual cycle		
Opperunities to embed disciplinay knowledge		C1 4.1 aacids and alkals: safety and hazard symbols	C1 4.2 using universal indicator: safety, accuracy, precision and validity	C1 4.3 Measuring pH changes: line graphs and line of best fits		C2 2.1 seperating seawater writing methods and evaluation					C2 2.6 who stole the money? Predictions and evaluations		P1 3.2 investigating reflection: prediction, evaluating data	P1 3: modelling the eye and camera: models					P2 3.5 investigating pressure drawing tables, making predictions, recording results						
	17.02.25	24.02.05	03.03.25	10.03.25	17.03.25	24.03.25	31.03.25	07.04.25	14.04.25	21.04.25 (Start Wednesday)	28.04.25	05.05.25 (Bank Holiday Monday)	12.05.25	19.05.25	26.05.25	02.06.25	09.06.25	16.06.25	23.06.25 (Training day Friday)	30.06.25	07.07.25	14.07.25	7.25 (Finish on Friday)		
	Half-term	B1.3 Reproduction (9)	B2.3 Adaptations (8) BIG IDEAS: Genetic information is passed down from one generation of organisms to another & the diversity of organisms, living and extinct, is the result of evolution			B2.2 Ecosystems (18) BIG IDEA: Organisms require a supply of energy and materials for which they are often dependent on or in competition with other organisms		Easter		B2.2 Ecosystems (18)	Revision		Revision EOY Exam. Exam to be sat in double this week	B2.2 Ecosystems (18)	Half-term	Working Scientifically: huddling penguins.	C2.1 Periodic table (7) (BIG IDEA: All material in the universe is made of very small particles			P2.2 Energy (11) BIG IDEA: The total amount of energy in the universe is always the same but energy can be transformed when things change or are made to happen				
Assessment			Term 4: reproduction		Adaptations FA						Pinchpoints revision FA task		Term 5: EOY exam					Term 6: ecosystems	Periodic Table FA: metals and non-metals						
Opperunities to embed disciplinay knowledge			B2 3.2 predator prey relitionships: interpeting graphs	B2 3.4 investigating arm span: present observations and data tables and graphs.		B2 2.1 testing a leaf for starch hypothesis, prediction, risk assessment				B2 2.5 investigating the effect of exercise on breathing rates variables and method writing				B2 2.8 changes in populations graph drawing and conclusions				C2 1.3 how do group 1 metals react: predictions and recording observations	B2 1.5 displacement reactions risk assessments and draw conclusions		P2 2.3 investigating energy and tempertur drawing tables and errors		P2 2.7 power interpret data and draw conclusions	