

Science curriculum 2016 onwards

Years 7 through to 11 will now follow a five year AQA science curriculum based around 10 big ideas in science. The curriculum map below shows how the 10 big ideas are spread throughout the 5 years in topics. <http://www.aqa.org.uk/subjects/science/ks3/ks3-science-syllabus>

BIG IDEAS	Y7		Y8		Y9		Y10			Y11
FORCES	Speed	Gravity	Contact Forces	Pressure			P1 Forces			
ELECTROMAGNETISM	Voltage, current and resistance		Electromagnets	Magnetism			P4 Electricity			P5 Magnetism and electromagnetism
ENERGY	Cost and transfer		Work	Heating and Cooling	P2 Energy		C5 Energy changes			
WAVES	Sound and light		Wave effects	Wave Properties	P3 Waves					P8 Space Physics
MATTER	Particle model		Separating mixtures	Periodic table and elements	C1 Atomic structure & the periodic table	C2 Bonding	P7 Atomic structure	P6 Particle matter	C6 Rates of reaction	C7 Organic chemistry
REACTIONS	Metals and non metals	Acids and alkalis	Chemical energy	Types of reaction			C3 Quantitative Chemistry	C4 Chemical changes	C8 Chemical analysis	
EARTH	Structure	Universe	Climate	Energy resources			C10 Resources			C9 Chemistry of the atmosphere
ORGANISMS	Movement and cells		Breathing	Digestion	B1 Cells	B2 Organisation	B3 Infection and response	B5 Homeostasis		
ECOSYSTEM	Plant reproduction		Interdependence	Respiration and photosynthesis			B7 Ecology			
GENES	Variation	Human reproduction	Evolution	Inheritance			B4 Biogenetics			B6 Inheritance, variation and evolution

In years 7 and 8 students will learn a wide range of science skills as well as subject knowledge; both these will be mapped and assessed for each student using statement grids and recorded on Go4Schools. Our vision for KS3 students is that they become proficient in the skills needed to ensure they can act, think and work as scientists at KS4. Skills taught will allow students to :

- Analyse, consisting of presenting data, analysing patterns, drawing conclusions and discussing limitations.
- Communicate, consisting of constructing explanations, communicating ideas, critiquing claims and justifying opinions.
- Enquire, consisting of devising questions, testing hypotheses, planning to control variables and collecting data.
- Solve, consisting of estimating risks, examining consequences, interrogating sources and understanding how scientific ideas change over time.

Students will use Engage resources <http://www.engagingscience.eu/en/> to bring science alive using real world contexts and ensure that all students are able to achieve secure subject knowledge and most students beyond this.

Homework will be set termly using Nandos Hot Chilli menu sheets, this allows students to choose home work from each topic taught over a term at the level they want.



Ormiston
DENES
Academy

Take Away Homework



Year 7
Autumn
Term

Choose your homework from the menu below:

The Peri-ometer suggests the difficulty or challenge the homework may offer. You need to attempt **3-5 tasks**. Every term you should attempt **at least one 'HOT or EXTRA HOT'** task! Can you order all the courses by choosing one from each column?



Starter	Main	Sides	Dessert	Drink
Cells and Movement	Energy: Cost and Transfers	Particles	Reactions	Voltage and Resistance
Why is my arm like a mechanical crane? Produce a learning resource explaining how your arm works. Compare it to the mechanical workings of a crane.	How much does your house cost to run? What is the most expensive device in your home? Compare the running costs. How could you save your family money?	What's the matter? Write a report outlining the particle's structures and properties of each state of matter. How are you going to present this creatively?	How could we make a car that will never rust? Produce a TV programme (Actual programme or script and resources) on what you would need to use (and why) to make the car.	Should we get rid of ALL old style bulbs? Some people prefer the old-style filament bulbs. Could you convince them that new ones are better? Provide data (research) to support your work.
How do engineers use the way the arm works to develop prosthetic arms? (Bioengineering) Can you design a prosthetic arm based on your own arm? Annotate your diagram to explain what the parts of your design do and compare to the human arm.	Design an investigation that would allow you to compare the costs of running different makes of the same device. Use the investigation template to cover all of the sections of an investigation, eg: a hypothesis, method and risks.	What does a solid look like? Produce a model or booklet outlining the particle structure of a solid. Don't forget the labels!	Design an investigation that would allow you to recommend the best metals that are the slowest at rusting. Use the investigation template to cover all of the sections of an investigation, eg: a hypothesis, method and risks.	Compare LEDs, filament and non-filament bulbs. Can you suggest the best bulbs for different situations? Eg: in the kitchen, compared to your PS4.
How does your arm work? Design a web page or model to show how your arm works. How could you make this interactive?	Produce a questionnaire that will allow an average household to work out how much their house costs to run. The questionnaire (if completed) needs to provide data, eg: time used, cost per KWH	Research one type of matter (either solid, liquid or gas) and its properties How could you display this information creatively?	Which is the best material for a car metal or carbon fibre? If you don't want your car to rust, which materials would you use and why?	Imagine visiting a year 3 and 4 class to explain about voltage and resistance Can you produce any resources to help spark interest and inspire? What visual aids would you use?
Research two different types of arm or animal foreleg. How could you represent this creatively?	Energy transfer, anybody? Create an interactive PowerPoint/poster or model to explain how energy is transferred from the sun all the way to your TV.	Investigate different household substances that are solids, liquids and gases How could you represent this creatively?	Produce a revision poster for rusting. You must explain what rusting is and what conditions are needed for it to occur.	Write five Tweets that could summarise the topic. No more than 140 characters; use #s for key words and they must be informative

In year 9 students will start their GCSE course following the curriculum map below.

Year	Summer term	Term 1	Term 2	Christmas	Term 3	Term 4	Easter	Term 5	Term 6	Topics Taught
9 B	Open ended enquiry, starter lessons and baseline test	B1 Cells		B1, C1,P2As sesment	B2 Organisation		B1/2 , C1/2, P2/3 Assesment. Triple determination	B2 organisation	Science fair and transition tests Triple determination 1	B1-B2
9 C		C1 Atomic structure periodic table			C2 Bonding			C2 bonding		C1-C2
9 P		P2 Energy			P3 Waves			P3 waves		P1, P3
10 B	N/A	B4 Biogenetics	B3 Infection and response	Cumulative assessment B1-B4 C1-C4 P1,P3,P4 ,P6	B5 Homeostasis		Cumulative assessment B1-B5 C1-C6 P1,P3,P4 ,P5,P6	B7 Ecology & Field trip		B3, B4, B5. B7
10 C		C3 Quantitative chem	C4 Chemical changes		C5 Energy changes	C6 Rate of reaction		C8 Chemical analysis	C10 Resources	C3.C4,C5,C6C8, C10
10 P		P7 Atomic structure	P6 Particle matter		P1 Forces			P4 Electricity		P1,P6,P7,P4
11 B	N/A	B6 Inheritance, variation and evolution		Cumulative assessment B1-B7 C1-C10 P1- P7 PPE	Revision and catch up time for foundation groups			Revision	Exams	B6,
11C		C7 Organic chemistry	C9 Chemistry of the atmosphere		P8 Space Physics (triple only)					C7, C9
11 P		P5 magnetism and electro magnetism								P5

At the end of year 9, students will be placed into sets; sets 1 and 2 will be taught the separate science content. This will allow them to choose either double award (2 GCSE qualifications) or separate GCSE sciences (GCSE Biology, Chemistry and Physics) at the end of year 10. Sets 3 and 4 will sit double award science gaining two GCSE qualifications. <http://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464>

Assessments will be cumulative and will be sat as mock exams at the end of each term. There is no coursework for this course and exams are all sat at the end of year 11.

Home work will be set via SAM learning.