SUBJECT: Science **YEAR:** 8

HEAD OF DEPARTMENT: Mr Griffiths

GROUPING POLICY: Mixed ability

COURSE CONTENT

Curriculum Intent

We follow a Key Stage Three curriculum lasting two years and four terms. The rationale behind this is that it allows us enough time to teach for mastery of the key topics that underpin further study in Science. The topics are organised such that the most fundamental ideas (particles, cells, energy, forces, etc) are taught first in Year 7, followed by the development of these ideas. We have organised the topics into a logical progression based on both educational research in Science education, and our experience of how students at Rednock learn best. By the time students reach Year 9, the topics are overlapping with some of the GCSE content, and this gives us a good starting point to begin the GCSE course at the very end of Year 9.

Our Key Stage Three course is bespoke to our students, and written by us, but has grown out of the AQA KS3 scheme of work. We have organised the learning around the big ideas of Science, and students then progress these ideas to GCSE and beyond. Our curriculum is structured in such a way that during KS3 we build up students' scientific skills, their knowledge of science, scientists and scientific careers in the wider world, their literacy and their numeracy skills related to Science.

What will my child learn?

In Key Stage 3 students follow an 'in-house' scheme of work built around the big ideas of Science. This breaks the curriculum down into 10 'big ideas', each of which is subdivided into smaller topics. Students will study the majority of the topics in Years 7 and 8. In Year 9 they will tackle a small number of the most difficult topics before beginning their GCSE course in Term 4.

Forces	Speed	Magnets and electromagnets	Contact forces	Pressure
	Gravity			
Electricity	Voltage and current			
Energy	Energy and fuels	Energy transfer and work	Heating and cooling	
Waves	Sound	Light		
Matter	Particle model and separating	Periodic table	Elements	
Reactions	Metals and non-metals	Chemical energy	Acids and alkalis	
Earth	Climate, resources and structure	Universe		
Organisms	Cells	Movement	Microorganisms and disease	Respiration
	Organisms	Breathing	Digestion	Photosynthesis
Ecosystems	Interdependence			
Genes	Variation	Plant reproduction	Human reproduction	Inheritance and evolution

In Year 8 we build on the topics studied in Year 7, within each big idea.

Term	Big Idea	Topics	What do students study?
1	Waves	Light	We build on our knowledge of waves from Year 7 by studying how light travels.
	Genes	Variation	We study how and why there are differences between organisms.
2	Ecosystems	Plant reproduction	How living things arise from other living things; life cycles; reproduction in flowering plants.
	Genes	Human reproduction	The structure of the reproductive system, fertilisation of an egg and the development of a baby during a pregnancy
	Earth	Universe	The major components of the universe; how seasons, days and years occur on Earth.
3	Reactions	Chemical energy	Writing word equations to describe chemical reactions; how energy changes in chemical reactions.
	Organisms	Breathing	The breathing system, its structure and adaptations; changes that occur during exercise.
	Forces	Gravity	Gravity as an example of a non-contact force. How gravity acts on Earth and in space.
4	Energy	Energy transfer and work	How energy is transferred from one store to another; how we can calculate the amount of energy transferred.
	Organisms	Microbiology and health	What is meant by micro-organisms; how micro-organisms lead to disease; other factors that impact on our health.
5	Forces	Magnets and electromagnets	Magnetism as another example of a non-contact force; how magnets and electromagnets behave and how they are useful.
	Genes	Inheritance and evolution	We will build on the work done on reproduction and variation to learn how genes are inherited, and how inheriting differences can lead to evolution.
6	Reactions	Acids and alkalis	We will develop our chemistry skills further by studying acids and alkalis and their reactions. We will learn to write symbol equations for reactions.
	Energy	Heating and cooling	What is meant by heat energy, how it can be transferred from place to place and the different ways in which heat transfer can be prevented.

In addition to the taught content, students will also be given the opportunity to develop their scientific investigation skills such as method writing, table drawing and graph construction, which will prepare them for GCSE Science in Years 10 and 11..

What will homework look like?

Your child will be set homework weekly. This may consist of a project or research task, learning key words or spellings, questions to practise the material covered in class or revision for a test.

What enrichment opportunities are available?

There will be enrichment opportunities during the year, e.g. activities during National Science Week.

ASSESSMENT

How will my child's work be assessed?

In line with school policy, students will receive detailed feedback on their work twice per term. One piece of feedback per term will be formative and focus on skills development, and the second piece will be a summative test on the content taught that term. In term 6 the termly test will be replaced by an end of year exam, for which students will be required larger amounts of content. All of the assessed pieces of work and feedback are stored in folders kept in school.

In addition, students will receive regular feedback from self-marking, peer assessment, verbal feedback and automated online assessment. All assessment data will be used along with behaviour and attitude to learning profiles to determine an appropriate set for Year 9.

ADDITIONAL INFORMATION

How can I support my child in this subject?

- Be positive about learning Science when speaking to your child, whatever your personal experience of Science was.
- Discuss what your child is learning in Science with them; get them to explain everyday phenomena to you.
- Draw their attention to and discuss scientific advances that are reported in the news.
- Your child should receive homework weekly – please insist that this is completed to a good standard. If you are able to, help your child to complete their homework. If they get stuck, encourage them to contact their teacher, who will be happy to help.
- Look through your child's Science book with them. Ask them to show you work that they are proud of.
- Encourage and help them to learn key words and facts.
- Encourage them to access the resources available to them on the school website.

How can I support my child with exams?

The Department publishes revision lists for all tests, which will be given to students via SatchelOne and also available via the school website. Encourage your child to look through these lists carefully. The list includes key words and facts which will be tested in a 'recall' section of their test. Help them to make revision cards containing these words and facts, and then go through the cards with them and test them on what they have learnt. The later sections of each test will require students to apply their knowledge; at this point, get them to look in their book at the kinds of problems and questions they have been doing in class and, if possible, to have another go at them.