



# SCIENCE Y8 CURRICULUM AND ASSESSMENT MILESTONES DOCUMENT

## YEAR 8 CURRICULUM MILESTONES: SCIENCE

<b>Year 7 Review</b>	Lessons have been planned to address misconceptions and gaps in understanding from the end of year 7 summative assessments. Students revisit and teaches re-teach key concepts from Biology, chemistry and physics to review learning from last year.
<b>Topic 1: Chemical reactions</b>	Students build upon their knowledge from Year 7 on atoms and elements in the periodic table to start to observe chemical reactions. Students continue to develop their working scientifically skills of observation by carrying out practical's based on reactivity and displacement.
<b>Topic 2: Homeostasis</b>	Students explore the importance of the endocrine system and the link with this to diabetes. Students also learn about adolescence, reproductive systems and the menstrual cycle. They use this knowledge to explain how our lifestyle can affect pregnancy.
<b>Topic 3: Exploring science</b>	Students revisit learning about the universe from last year and expand on this knowledge by exploring the lifecycle of a star, the big bang theory is also introduced along with satellites.
<b>Topic 4: Acids and Bases</b>	Students learn about acids, bases and the pH scale. They use this knowledge to test the pH of household substances which gives them the opportunity to apply their knowledge into a practical and draw conclusions. Students are stretched and challenged by going over neutralisation and introducing the concept of titration.
<b>Topic 5: Inheritance</b>	Students explore DNA, inheritance and variation. They use this knowledge to explain how some variation is inherited, and some is due to the environment. Links are then made to evolution, fossils and extinction to explain the theory of evolution.
<b>Topic 6: Magnetism</b>	Students build upon prior knowledge based on magnetism, they investigate magnetism and further enhance their working scientifically skills. They further apply their knowledge on magnetism to explain electromagnetism and how an electric motor works.
<b>Topic 7: Reactions of metals</b>	Students explore the reaction between acids and metal carbonates, they apply their scientific knowledge to a practical based on making copper sulfate crystals over 2 lessons which involves planning, practical, analysis and conclusion. This gives them a chance to work on their scientific enquiry skills.
<b>Topic 8: Ecology</b>	Students learn about food chains, water and carbon cycle and apply this knowledge to explain what impact this has on global warming and deforestation. Students work on their analysis and conclusion skills by looking at case studies related to global warming and deforestation and make links with food chains and cycles.
<b>Topic 9: What's the matter?</b>	Students build on prior knowledge from last year to explain how the atom was discovered. They learn about density and specific latent heat capacity by engaging in practical skills.
<b>Topic 10: Separating compounds</b>	Students explore the use of electrolysis to help separate compounds and liquids. They will work on their practical skills to carry out an investigation on electrolysis of aqueous solutions.

<b>Science STEM week</b>	Students are given an opportunity to go above and beyond the national curriculum and engage in working scientifically to formulate a hypothesis, plan an investigation, carry out the investigation and analyse and conclude their findings by producing a presentation based on topic specific to year 8.
<b>Topic 11: Plants</b>	Students build on their knowledge from the photosynthesis topic in year 7 – we spend some time recapping and recalling this knowledge and apply this to the structure of the leaf, roots and how transpiration happens.
<b>Topic12: Energy resources</b>	Students are given an opportunity to go above and beyond the national curriculum and explore how gravitational potential energy and kinetic energy works. They apply this knowledge to equations and specific scenarios. They will also spend a lesson producing a presentation to present to a group of individuals based on generating electricity.
<b>Topic13: Energy changes</b>	Students explore how reactions can be reversible/ irreversible and use everyday examples to explain this concept. Students will build their working scientifically skills to engage in an investigation to measure energy changes taking place in a reaction.
<b>Topic 14: Plant reproduction</b>	Students explore how flowers pollinate and reproduce; they apply this understanding to explain the process of germination and seed disposal. Students will be exposed to subject specific terminology which will be revisited and recapped throughout the topic using TLAC techniques.
<b>Topic 15: EM Waves</b>	This topic gives students an opportunity to go above the national curriculum in physics and they build on their knowledge about light and sound waves. Students explore how waves play a role in the EM spectrum. They also learn about the different waves on the EM spectrum and how we use these waves in everyday life e.g. radio waves and microwaves for communication and heating food.
<b>Topic 16: The effect of forces</b>	Students again, go beyond the national curriculum and apply their knowledge about forces to work done and momentum in physics, we do this by using models and real-life examples.
<b>Topic 17: Beyond the national curriculum</b>	Students take part in a STEM project, which takes them beyond the national curriculum and gives them an opportunity to do a practical and work on their working scientifically skills as part of a team where they plan and present a project to a small group of individuals. This will also involve a STEM based school trip which some students will have the opportunity to go on which will help develop a passion and love for learning science.

## YEAR 8 ASSESSMENT MILESTONES: SCIENCE

<b>Year 7 Review</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 1: Chemical reactions</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 2: Homeostasis</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 1 and 2.
<b>Topic 3: Exploring science</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 4: Acids and Bases</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 3 and 4.

<b>Topic 5: Inheritance</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 6: Magnetism</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 5 and 6.
<b>Topic 7: Reactions of metals</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 8: Ecology</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 7 and 8.
<b>Topic 9: What's the matter?</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 10: Separating compounds</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 9 and 10.
<b>Topic 11: Plants</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic12: Energy resources</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 11 and 12.
<b>Topic13: Energy changes</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 14: Plant reproduction</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 13 and 14.
<b>Topic 15: EM Waves</b>	Students to complete in class formative assessment which assesses learning in the lesson using extensive TLAC techniques. Students also complete knowledge recall starter questions which acts as formative assessment to check for gaps in understanding from the previous lesson.
<b>Topic 16: The effect of forces</b>	Students to complete an end of term summative assessment which is made up of 3 sections including knowledge recall from last year and assessing students understanding of topics 15 and 16.
<b>Topic 17: Beyond the national curriculum</b>	Students to complete in class formative assessment which will assess learning in the lesson using extensive TLAC techniques. Students will also work on their working scientifically and presenting skills to analyse and present their ideas on their STEM project to others.  Some time is allocated for consolidation week to help students prepare for their upcoming end of year assessment based on topics studied throughout this academic year.