

## Science Year 9 Curriculum overview

The below is intended to provide parents and pupils with a simple overview of Year 9 Science. Should you have any additional questions please do not hesitate to contact Mrs Middleton. We strongly encourage parents to look through their child's books and talk with them about their studies. In addition to the knowledge quizzes at the end of each year students will sit 4 larger assessments throughout the year after completing a biology, chemistry and physics unit.

<b>Learning Focus</b>	<b>Assessments</b>
<b>Unit 1: Organisms 5 - Disease</b>	
<p><u>Learning enquiries:</u> 1). What causes disease? 2) How can you grow bacteria? 3) How can we prevent the spread of disease? 4) How does the body defend itself? 5) What is the immune system? 6) How were vaccinations developed? 7) How do vaccinations work?</p> <p><u>Key skills:</u> <b>Practical skills</b> - working aseptically to grow bacteria</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 2: Matter 5 – Periodic table</b>	
<p><u>Learning enquiries:</u> 1). What is the periodic table and how was it developed? 2) How are electrons arranged in atoms? 3) How do Group 1 elements react? 4) What are group 7 elements like? 5) What are the noble gases?</p> <p><u>Key skills:</u> <b>Analysis and conclusions</b> – reactions of group 7</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 3: Forces 3 - Forces in action</b>	
<p><u>Learning enquiries:</u> 1). What are turning forces? 2). How do levers reduce force? 3). What are distance-time graphs? 4) What is acceleration? 5) What are velocity-time graphs?</p> <p><u>Key skills:</u> <b>Interpreting graphs</b> - interpreting velocity time graphs and calculating gradient</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 4: Organisms 6 – Healthy Lifestyles</b>	
<p><u>Learning enquiries:</u> 1). What is health? 2). What is a balanced diet? 3). How can we determine the amount of energy in foods? 4) What are drugs? 5). How does alcohol affect the body? 6). What effects does smoking have on the body?</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 5: Reactions 4 – further reactions</b>	
<p><u>Learning enquiries:</u> 1) How can we test for gases? 2) What are flame tests? 3) What is thermal decomposition? 4) What happens to mass in chemical reactions?</p> <p><u>Key skills:</u> <b>Method writing:</b> gas tests</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 6: Electromagnets 3 - magnets</b>	
<p><u>Learning enquiries:</u> 1). What are permanent and induced magnets? 2) What is a magnetic field? 3) What are electromagnets? 4) How can electromagnets be used?</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p>

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<p><u>Key skills:</u> <b>Method writing</b> – Investigating electromagnets</p>	<p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 7: Ecosystems 3 - Bioenergetics</b></p>	
<p><u>Learning enquiries:</u> 1). What cells and tissues are found in plants? 2) What is photosynthesis? 3) What factors affect photosynthesis? 4) What is aerobic respiration? 5) What is anaerobic respiration? 6) What is the effect of exercise on the body?</p> <p><u>Key skills:</u> <b>Graph skills and conclusions</b> – factors affecting photosynthesis</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 8: Earth 2 - Resources</b></p>	
<p><u>Learning enquiries:</u> 1). How are metals extracted? 2) What are ceramics? 3) What are composite materials? 4) How can materials be recycled? 5) What is the Earth's atmosphere like? 6) What is the carbon cycle? 7) What is global warming?</p> <p><u>Key skills:</u> <b>Risk assessment</b> – stress testing composite materials</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 9: Forces 4 - Universe</b></p>	
<p><u>Learning enquiries:</u> 1). What is in the Solar System? 2) What characteristics does something have to have to be classified as a planet? 3) What is an orbit? 4) What is gravity? 5) What are stars? 6) What are satellites? 7) How did the universe begin? 8) Is there other life out there?</p> <p><u>Key skills:</u> <b>Numeracy</b> – calculating mass and weight</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 10: Genes 4 - Inheritance</b></p>	
<p><u>Learning enquiries:</u> 1) What are DNA, genes and chromosomes? 2) How was the structure of DNA discovered? 3) How are characteristics inherited? 4) What is selective breeding? 5) What is cloning? 6) What is genetic modification?</p> <p><u>Key skills:</u> <b>Literacy communicating scientific ideas</b> – comparing selective breeding, cloning and genetic modification</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 11: Reactions 5 – Chemical energy</b></p>	
<p><u>Learning enquiries:</u> 1). What are exothermic and endothermic reactions? 2) What are energy profile diagrams? 3) What are catalysts?</p> <p><u>Key skills:</u> <b>Conclusion and evaluation</b> – exothermic and endothermic reactions</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 12: Waves 3 – Uses and applications</b></p>	



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Learning enquiries: 1) How do microphones and loudspeakers work? 2) What is ultrasound? 3) What is the electromagnetic spectrum? 4) What is ionising radiation?

Key skills:

**Communicating scientific ideas** – evaluating risks of x-rays

**Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve

**Final Assessment:** Knowledge test to assess key component knowledge from the unit