

# Science Year 7 Curriculum overview

The below is intended to provide parents and pupils with a simple overview of Year 7 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: Introduction to science</b>	
<p><u>Learning enquiries:</u> 1) What are risks and hazards? 2) How do you draw scientific diagrams? 3) How do you use a Bunsen burner? 4) What are variables? 5) How do you write a scientific method? 6) How do you write a conclusion?</p> <p><u>Key skills:</u> <b>Method writing</b> – Writing a scientific method and risk assessment</p>	<p><b>Interim Assessment:</b> Baseline test to assess prior knowledge and understanding of key scientific concepts covered at primary school</p> <p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 2: Ecosystems 1- Interdependence</b>	
<p><u>Learning enquiries:</u> 1) What are ecosystems? 2) What are food chains and webs? 3) What do organisms compete for? 4) What is bioaccumulation? 5) Why are insects important? 6) How can we sample populations?</p> <p><u>Key skills:</u> <b>Fieldwork &amp; calculations</b> - Investigating a named variable on distribution of an organism and performing calculations to estimate total population</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: Matter 1 - Particles</b>	
<p><u>Learning enquiries:</u> 1). What is a particle? 2). How are particles arranged in solids, liquids and gases? 3). How do the particles move in solids, liquids and gases? 4). What are the properties of solids, liquids and gases? 5). How does the arrangement of particles explain the properties? 6). What is diffusion? 7). What is density?</p> <p><u>Key skills:</u> <b>Extended writing:</b> Use of models to explain observations – properties of solids, liquids and gases</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: Energy 1 – stores and transfers</b>	
<p><u>Learning enquiries:</u> 1) What are stores &amp; transfers? 2) What is conservation of energy? 3) What are non-renewable energy resources? 4) What are renewable energy resources?</p> <p><u>Key Skills:</u> <b>Graph drawing:</b> Investigating bounce height of balls dropped from different heights</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: Organisms 1 - Cells</b>	
<p><u>Learning enquiries:</u> 1). What are microscopes? 2). How do you use a microscope? 3). How do you prepare slides? 4). What are animal cells like? 5). What are plant cells like? 6). What are the functions of the organelles? 7). What are specialised cells? 8) What are single celled organisms? 9). What is diffusion?</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 Assessment objectives / skills:</u>  <b>Scientific drawing</b> - Use a microscope to observe an onion cell and produce a good biological drawing, calculating magnification</p>	<p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<p><b>Unit 6: Matter 2 - Elements and compounds</b></p>	
<p><u>Learning enquiries:</u> 1). What are atoms? 2). What are atoms made of? 3). What are elements and compounds? 4). What are mixtures? 5). What are chemical formulae? 6). What is Mr? 7). What are polymers</p> <p><u>Key skills:</u>  <b>Calculations</b> – relative formula mass</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 7: Forces 1 - speed</b></p>	
<p><u>Learning enquiries:</u> 1) What are contact and non-contact forces? 2) How can we measure forces? 3) What is a resultant force? 4) What happens if forces are not balanced? 5) How do you calculate speed? 6) What is relative motion?</p> <p><u>Key skills:</u>  <b>Variables and conclusion</b> – investigating speed</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: Genes 1- Human reproduction</b></p>	
<p><u>Learning enquiries:</u> 1). What happens during puberty? 2). What are the male and female reproductive system like? 4). What is the menstrual cycle? 5). What happens during fertilisation and implantation? 6). How does a foetus develop?</p> <p><u>Key skills:</u>  <b>Literacy in science</b> – Fertilisation and implantation. Literacy focus, key vocabulary used.</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: Reactions 1 - Chemical reactions</b></p>	
<p><u>Learning enquiries:</u> 1). What is a chemical reaction? 2). How do you write word equations? 3). What are complete and incomplete combustion? 4). Which fuel releases the most energy?</p> <p><u>Key skills:</u>  <b>Conclusions</b> – energy in fuels investigation</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: Waves 1 - Sound</b></p>	
<p><u>Learning enquiries:</u>  1). What are waves? 2) What causes sound? 3). What are frequency and amplitude? 4). How does sound travel? 5) How do we hear? 6) What are echoes?</p> <p><u>Key skills:</u>  <b>Calculations and evaluating a method:</b> Determining the speed of sound</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: Organisms 2 - Organisation</b></p>	
<p><u>Learning enquiries:</u> 1) What are cells, tissues and organ systems? 2) How does the skeleton help us function? 3) What types of joints</p>	<p><b>Interim Assessment:</b> Pupils will receive feedback on their skills assessment with how to improve</p>

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<p>are there? 4) How do muscles help us move? 5) What diseases can affect the skeleton and muscles?</p> <p><u>Key skills:</u> <b>Analysing results</b> – investigating muscles and force</p>	<p><b>Final Assessment:</b> Knowledge test to assess key component knowledge from the unit</p>
<b>Unit 12: Reactions 2 - Acids and alkalis</b>	
<p><u>Learning enquiries:</u> 1). What are acids and alkalis? 2). What are indicators? 3). What is the pH scale? 4). What is neutralisation? 5). How can you make salts?</p> <p><u>Key skills:</u> <b>Risk assessment</b> – for making a salt using copper oxide and sulfuric acid.</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 13: Electromagnets 1 - circuits</b>	
<p><u>Learning enquiries:</u> 1) What are electrical components? 2) What are series and parallel circuits? 3) What is current? 4) What is potential difference</p> <p><u>Key skills:</u> <b>Literacy:</b> comparing series and parallel circuits</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 14: Genes 2 - variation</b>	
<p><u>Learning enquiries:</u> 1) What is a species? 2) What is variation? 3) What causes variation? 4) How are organisms adapted to survive?</p> <p><u>Key skills:</u> <b>Graph skills:</b> investigating variation in the class</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>