# Science Year 8 Curriculum overview

The below is intended to provide parents and pupils with a simple overview of Year 8 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. It 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.

| Learning Focus | Assessments |
|---|---|
| **Unit 1:** Scientific investigations | |
| Learning enquiries: 1) How do you plan an investigation? 2) What are variables? 3) How do you display data appropriately? 4) How do you draw graphs? 5) How do you draw conclusions from data? 6) How do you evaluate investigations and suggest improvements?<br><br>Key skills:<br>**Displaying data:** Drawing a results table and appropriate graph | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 2:** Food and digestion | |
| Learning enquiries: 1) What nutrients are needed for a balanced diet? 2) How do you carry out food tests 3) What organs are in the digestive system? 4) What are enzymes? 5) What factors affect enzyme activity?<br><br>Key skills:<br>**Analysing results:** Using results to draw conclusions | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 3:** Separation techniques | |
| Learning enquiries: 1) What are mixtures? 2) How can we use filtration and crystallisation? 3) What is Distillation? 4) How does chromatography work?<br><br>Key skills:<br>**Method writing:** Use scientific knowledge to write a method that can be followed | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 4:** Light | |
| Learning enquiries: **1).**How do you draw diagrams to show how light travels? **2).**What are transparent, translucent and opaque? **3).**What happens when light is reflected from regular and irregular surfaces? **4)** What is refraction? **5)** What is coloured light?<br><br>Key skills:<br>**Maths skill:** Using a protractor to measure angles refraction investigation | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 5:** Disease | |
| Learning enquiries: 1) What causes disease? 2) How can you grow bacteria? 3) How does the body defend itself? 4) What is the immune system 4) How do vaccinations work?<br><br>Key skills:<br>**Scientific methods:** Working aseptically to grow bacteria | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |

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| **Unit 6:** Periodic table | |
|---|---|
| Learning enquiries: 1) What is the periodic table? 2) What are metals & non-metals like? 3) What are Group 1 elements like? 4) What are group 7 elements like? 5) What is group 0?<br><br>Key skills:<br>**Analysis & Conclusion:** Displacement reactions of group 7 analyse results and write conclusions | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 7:** Electricity | |
| Learning enquiries: 1) What is static electricity? 2) What are electrical components? 3) What are series and parallel circuits? 4) What is current? 5) What is potential difference? 6) What is resistance? 7) What is electrical power? 8) How are electricity bills calculated?<br><br>Key skills:<br>**Graph skills:** The Effect of Length on Resistance | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 8:** Inheritance and variation | |
| Learning enquiries: 1) What are DNA, genes & chromosomes? 2) What are the different types of variation? (Investigating variation in the class) 3) What is natural selection 4) What causes extinction?<br><br>Key skills:<br>**Literacy in science** – Explaining natural selection using key words and sequencing ideas | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 9:** Metals and materials | |
| Learning enquiries: 1). What are the properties of metals? 2). How do metals react with acids? 3). How do metals react with oxygen? 4). How do metals react with water 5). What are displacement reactions? 6). What is the reactivity series? 7). How can metals be extracted? 8) What are ceramics, polymers and composites?<br><br>Key skills:<br>**Conclusions from investigations** – investigating displacement reactions and the reactivity series | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 10:** Motion | |
| Learning enquiries:<br>1). How do you calculate speed? 2) What are distance time graphs? 3).How do you calculate pressure? 4). How do fluids exert pressure?<br><br>Key skills:<br>**Maths skills:** Calculating speed, rearranging equations and converting units | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 11:** Bioenergetics | |
| Learning enquiries: 1).What cells and tissues are 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? | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve |

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| | |
|---|---|
| Key skills:<br>**Method writing** – Effect of light on the rate of photosynthesis method writing and identification of variables | **Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 12:** Heating and cooling | |
| Learning enquiries: 1) What is the difference between heat and temperature? 2) How is heat transferred by conduction? 3) How is heat transferred by convection? 4) How is heat transferred by radiation 4) How can we reduce transfer of heat? 5) What happens what substances are heated? 6) What happens when substances are cooled?<br><br>Key skills:<br>**Displaying data and writing conclusions** – investigating the best insulation | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |
| **Unit 13:** Magnets | |
| Learning enquiries: 1). What are permanent and induced magnets? 2) What is a magnetic field? 3) What are electromagnets?<br><br>Key skills:<br>**Investigative skills:** Planning and carrying out an investigation | **Interim Assessment:** Pupils will receive feedback on their skills assessment with how to improve<br><br>**Final Assessment:** Knowledge test to assess key component knowledge from the unit |