



# Year 9 Science Prior Attainment Related Expectations

Topic	Time of Year	Lower Attainer Expectations	Middle Attainer Expectations	Higher Attainer Expectations
Biology	Mid-Year	<ul style="list-style-type: none"><li>State some factors which lead to variation in species</li><li>State how some organisms are adapted to their environment</li><li>State some differences between animal and plant cells</li><li>Identify differences between prokaryotic and eukaryotic cells</li><li>State the names of the three transport mechanisms in cells</li></ul>	<ul style="list-style-type: none"><li>Describe different causes of variation between species</li><li>Describe why species have particular features and why this helps them survive. Identify structures in plant and animal cells</li><li>Compare structure of eukaryotic and prokaryotic cells. Describe the transport mechanisms in cells</li></ul>	<ul style="list-style-type: none"><li>Describe the structure of DNA and explain how this causes variation in species</li><li>Explain how species have changed over time</li><li>Compare and contrast plant, animal and prokaryotic cells</li><li>Describe the transport mechanisms in cells and explain the factors which can affect the rate of transport.</li></ul>
Biology	End of Year	<ul style="list-style-type: none"><li>Identify organs of the digestive system with their function</li><li>Carry out a range of practical experiments to discover enzyme activity</li><li>Describe the links between circulatory and respiratory systems</li><li>Identify blood vessels, chambers of the heart and describe the consequences of blockages</li></ul>	<ul style="list-style-type: none"><li>Identify organs of the digestive system and describe their function</li><li>Carry out a range of practical experiments to investigate enzyme activity</li><li>Describe the links between circulatory and respiratory systems</li><li>Describe the structure of blood vessels, the chambers of the heart and consequences of blockages</li></ul>	<ul style="list-style-type: none"><li>Describe in detail and explain structure and function of organs of the digestive system</li><li>Make scientific predictions, plan, and carry out a range of practical experiments to investigate enzyme activity</li><li>Explain in detail the links between circulatory and respiratory systems. Explain the adaptations of blood vessels and relate to their function</li></ul>



Topic	Time of Year	Lower Attainer Expectations	Middle Attainer Expectations	Higher Attainer Expectations
Chemistry	Mid-Year	<ul style="list-style-type: none"><li>Describe the basic structure of an atom and describe using diagrams, the electron configuration for some elements</li><li>Describe the difference between elements, compounds, and mixtures</li><li>Write word equations for the reaction of group one metals and water</li><li>Describe the trend in reactivity down group one and group seven</li></ul>	<ul style="list-style-type: none"><li>Describe the basic structure of an atom and describe using diagrams, the electron configuration for the first 20 elements</li><li>Describe the difference between elements, compounds, and mixtures</li><li>Write word equations for the reaction of group one metals and water</li><li>Describe and explain the trend in reactivity down group one and group seven.</li></ul>	<ul style="list-style-type: none"><li>Explain how atoms become ions and draw dot-and-cross diagrams to illustrate the loss/gain of electrons.</li><li>Describe how ionic, covalent, and metallic bonds form</li><li>Explain the properties of ionic, giant-covalent, small-molecules and metallic substances</li><li>Describe the relationship between the strength of intermolecular forces and physical properties of materials</li></ul>
Chemistry	End of Year	<ul style="list-style-type: none"><li>Describe how atoms become ions and draw dot-and-cross diagrams to illustrate the loss/gain of electrons</li><li>Describe how ionic, covalent, and metallic bonds form</li><li>State properties of ionic, giant-covalent, small-molecules and metallic substances</li><li>Describe the relationship between intermolecular forces and physical properties of materials.</li></ul>	<ul style="list-style-type: none"><li>Describe how atoms become ions and draw dot-and-cross diagrams to illustrate the loss/gain of electrons</li><li>Describe how ionic, covalent, and metallic bonds form</li><li>State properties of ionic, giant-covalent, small-molecules and metallic substances</li><li>Describe the relationship between intermolecular forces and physical properties of materials</li></ul>	<ul style="list-style-type: none"><li>Explain how atoms become ions and draw dot-and-cross diagrams to illustrate the loss/gain of electrons</li><li>Describe how ionic, covalent, and metallic bonds form</li><li>Explain the properties of ionic, giant-covalent, small-molecules and metallic substances</li><li>Describe the relationship between the strength of intermolecular forces and physical properties of materials.</li></ul>



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<b>Physics</b>	Mid-Year	<ul style="list-style-type: none"><li>Identify light as a transverse wave</li><li>State what happens to light in reflection and refraction</li><li>State the colours which make up visible light</li><li>Name the energy stores in a system</li><li>State how stores of energy change in everyday situations</li><li>Perform simple calculations on using energy formulae.</li></ul>	<ul style="list-style-type: none"><li>Label features of a transverse wave</li><li>Describe what happens to light in reflection and refraction</li><li>Describe how we see different colours of light. Identify the energy stores in a system</li><li>Determine how stores of energy change in everyday situations.</li><li>Perform calculations on using energy formulae – rearranging when necessary.</li></ul>	<ul style="list-style-type: none"><li>Identify and give examples of transverse and longitudinal waves</li><li>Explain what happens to light in reflection and refraction</li><li>Explain why we see coloured objects</li><li>Describe the energy stores in each system</li><li>Explain how stores of energy change in a range of everyday situations.</li><li>Perform multistage calculations on using energy formulae.</li></ul>
<b>Physics</b>	End of Year	<ul style="list-style-type: none"><li>Describe changes of state</li><li>Follow a given plan and carry out an experiment to determine density</li><li>Identify longitudinal and transverse waves</li><li>Measure amplitude, wavelength, and speed of a wave</li><li>List the properties and uses of some electromagnetic waves</li><li>Construct basic electrical circuits and describe the concepts of current, potential difference and resistance.</li></ul>	<ul style="list-style-type: none"><li>Identify changes of state</li><li>Follow a given plan and carry out an experiment to determine density</li><li>Describe the features of longitudinal and transverse waves</li><li>Measure amplitude, wavelength, frequency, and speed of a wave</li><li>List the properties and uses of some electromagnetic waves</li><li>Construct basic electrical circuits and use the concepts of current, potential difference and resistance</li></ul>	<ul style="list-style-type: none"><li>Explain changes of state in terms of the motion of particles</li><li>Plan, carry out and evaluate an experiment to determine density</li><li>Measure and perform calculations on amplitude, wavelength, frequency, and speed of a wave</li><li>Evaluate the properties of some electromagnetic waves for uses</li><li>Construct basic electrical circuits and compare the concepts of current, potential difference and resistance.</li></ul>