

Dates	Half-term 1	Half-term 2	Half-term 3	Half-term 4	Half-term 5 + 6
<b>Topic</b>	Cell Biology	Infection and Response	Organisation	Bioenergetics	Homeostasis + revise and test
<b>Topic overview</b> <b>Students will learn...</b>	<p>In this section students will learn that cells are the basic unit of all forms of life. They will explore how structural differences between types of cells enables them to perform specific functions within the organism.</p> <p>Students will learn about how substances move into and out of cells in different living organisms. These processes will include diffusion, osmosis and active transport.</p> <p>Students will learn how to apply these cell transport processes to unfamiliar contexts and be able to interpret data linked to scientific investigations.</p>	<p>In this section, students will explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens. Students will then explore what happens once the pathogen is inside the body our immune system is triggered which is usually strong enough to destroy the pathogen and prevent disease. This section will continue to explore what happens once the pathogen is inside the body and how our immune system is triggered through white blood cells and antibodies. Students will also learn about vaccines and how this can lead to herd immunity.</p>	<p>In this section students will learn about the human digestive system which provides the body with nutrients and the respiratory system that provides it with oxygen and removes carbon dioxide.</p> <p>Students will also learn how the plant's transport system is dependent on environmental conditions to ensure that leaf cells are provided with the water and carbon dioxide that they need for photosynthesis (linked to Year 8).</p>	<p>The next section will explore how plants harness the Sun's energy in photosynthesis in order to make food. This process releases oxygen which has built up over millions of years in the Earth's atmosphere to enable respiration for all living organisms.</p> <p>Students will then look into how both animals and plants use this oxygen to oxidise food in a process called aerobic respiration which transfers the energy that the organism needs to perform its functions.</p>	<p>This section will explore how cells require a constant temperature and pH as well as a constant supply of dissolved food and water. We will explore the structure and function of the nervous system and the hormonal system and how they bring about changes.</p> <p>Students will explore the homeostasis topic by looking at hormones involved in puberty, the menstrual cycle and the components of the endocrine system.</p> <p>Triple students will continue to explore homeostasis and how water is controlled in the body including kidney failure and treatment.</p>

**Subject: Biology**

**Year: 10**

**Ability: All**

**Separate Science**

