

Curriculum Plan

Department/subject: Science Year 7

Our Vision: **We take opportunities and aspire to excellence**

Our Intent:

- All students will experience a curriculum richness, breadth and depth
- The curriculum equips every student with the knowledge and skills for the future in our local area and beyond
- The curriculum builds on prior knowledge and creates a ‘web of knowledge’
- Gaps in knowledge and skills are identified and addressed quickly

Year	Autumn 1	Autumn 2
Knowledge to be taught	<p><u>Unit 1 – Physics – Energy</u></p> <ul style="list-style-type: none"> ● Introducing energy stores and changes between them ● Comparing the different energy stores found in foods and exploring energy transfers in a practical environment ● Understanding how energy transfers from one store to another using conservation of energy and energy pathways ● Recognizing the energies associated with the different states of matter and looking at how this changes along with state during heating ● Linking temperature to thermal energy and recognizing the factors that affect temperature change of an object ● Understanding the process of conduction and what is needed for it to occur ● Understanding how convection currents transfer heat energy throughout a fluid ● Understanding the importance of radiation as a method of heat transfer and recognizing the differences between radiation and the other two forms of energy transfer ● Feedback/Recall lesson ● Understanding the use of insulation to prevent unwanted heat transfers 	<p><u>Unit 2 – Biology – Cells</u></p> <p>Multicellular organisms are composed of cells which are organised into tissues, organs and systems to carry out life processes.</p> <p>There are many types of cell. Each has a different structure or feature so it can do a specific job.</p> <p>Use a light microscope to observe and draw cells.</p> <p>Both plant and animal cells have a cell membrane, nucleus, cytoplasm and mitochondria.</p> <p>Plant cells also have a cell wall, chloroplasts and usually a permanent vacuole.</p> <p>Explain why multi-cellular organisms need organ systems to keep their cells alive.</p> <p>Suggest what kind of tissue or organism a cell is part of, based on its features.</p> <p>Explain how to use a microscope to identify and compare different types of cells.</p> <p>Explain how uni-cellular organisms are adapted to carry out functions that in multicellular organisms are done by different types of cell.</p> <p>Explain why multi-cellular organisms need organ systems to keep their cells alive.</p> <p>Suggest what kind of tissue or organism a cell is part of, based on its features.</p>

	<ul style="list-style-type: none"> ● Planning and executing an investigation to test the effectiveness of different forms of insulation ● Understanding of the power of an appliance and how this power relates to energy transfers and fuel costs ● Looking at the equation for work done and how this relates to the transfer of energy ● Identifying key elements of simple machines that make jobs easier. Practically look at the different machines in action and relate this to the work done equation ● Research based tasks looking into the different types of energy resources and fuels available to us on Earth, and looking at the suitability of each type in different locations. ● Using this research to recognize important changes that need to occur to ensure energy sustainability. 	<p>Explain how to use a microscope to identify and compare different types of cells.</p> <p>Explain how uni-cellular organisms are adapted to carry out functions that in multicellular organisms are done by different types of cell.</p>
<p>Keywords</p>	<ul style="list-style-type: none"> ● chemical store ● conduction ● convection ● dissipated ● elastic store ● gravitational potential store ● kinetic store ● law of conservation of energy ● thermal store ● watt 	<ul style="list-style-type: none"> ● Cell ● Uni-cellular ● Multi-cellular ● Nucleus ● Cell Membrane ● Cytoplasm ● Vacuole ● Chloroplast ● Cell Wall ● Mitochondria
<p>Links to prior knowledge</p>	<p>Fairly new concept to Year 7 learners, however energy may have been discussed prior in KS2 topics such as “Properties and changes in materials” and “Electricity”.</p>	<p>Students should have learnt about plants and animals in KS2 alongside what it means for something to be alive.</p>

<p>How knowledge is assessed</p>	<ul style="list-style-type: none"> • A baseline test at the beginning of the year will assess knowledge across the KS2 curriculum. • An end of unit test will cover the main ideas in the topic. This will be marked by the teacher and a feedback lesson will go over the assessment in detail. • Green pens are used for self and peer assessment to build up students' understanding of their own misconceptions and ideas. • Homework tasks via Show My Homework. 	<ul style="list-style-type: none"> • An end of unit test will cover the main ideas in the topic. This will be marked by the teacher and a feedback lesson will go over the assessment in detail. • Green pens are used for self and peer assessment to build up students' understanding of their own misconceptions and ideas. • Homework tasks via Show My Homework.
<p>How gaps will be addressed</p>	<ul style="list-style-type: none"> • Gaps in knowledge will be identified by any of the strategies above. • Formally marked work will require a response from the student and subsequent work in lessons will link back to the areas of need. • End of unit test feedback to require one lesson dedicated to addressing gaps in knowledge and exam skills 	<ul style="list-style-type: none"> • Gaps in knowledge will be identified by any of the strategies above. • Formally marked work will require a response from the student and subsequent work in lessons will link back to the areas of need. • End of unit test feedback to require one lesson dedicated to addressing gaps in knowledge and exam skills
<p>Cultural capital lessons</p>	<p>Moral: Use of renewable energy.</p>	<p>Physical: Practical techniques, health and safety, development of fine motor and dexterity skills.</p>