

	Content	Concepts	Connections	Competencies
Autumn	<p><b>Cells</b></p> <ul style="list-style-type: none"> <li>• Identify and describe the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplast.</li> <li>• Identify similarities and differences between plant and animal cells</li> <li>• Recall the characteristics of living organisms (MRS GREN)</li> <li>• Explain that some organisms are unicellular and some multicellular</li> <li>• Describe some examples of unicellular organisms and their structural features and adaptations to perform functions of MRS GREN</li> <li>• Explain the role of specialised cells in multicellular organisms.</li> <li>• Recall definition of and give examples of tissues, organs of organ system.</li> <li>• Classify bacteria and fungi as microorganisms and that microorganisms share the characteristics of other living things.</li> <li>• Recall the 5 kingdoms and their key characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>• That cells are the fundamental unit of living organisms.</li> <li>• What is a living organism</li> <li>• Some organisms are single celled.</li> <li>• The role of diffusion in the movement of material in and between cells.</li> <li>• The hierarchical organisation of multicellular organism from cells to tissues to organs to systems to organisms.</li> <li>• The hierarchical nature of classification of living things into Kingdoms according to similarities and differences (Cell structures)</li> </ul>	<p>Physics – use of lenses to magnify objects</p> <ul style="list-style-type: none"> <li>• Technology enables us to extend our knowledge of living organisms</li> </ul> <p>Maths – time keeping, rules, magnifying and graphing skills.</p> <p>English – peer assessment, rules. Artistic</p> <p>PE risk taking, decision making, rules, peer assessment, communication.</p>	<ul style="list-style-type: none"> <li>• Set up and use a light microscope.</li> <li>• Preparation of slides for use with the light microscope.</li> <li>• Draw cells from a light microscope.</li> <li>• Draw and label structural features of plant, animal cell and unicellular organisms.</li> <li>• Label a diagram of organs and organ systems.</li> </ul>

Spring	<p><b>Reproduction</b></p> <ul style="list-style-type: none"> <li>• Describe and label the structure and function of the male and female human reproductive systems.</li> <li>• Explain how the egg and sperm are specialised cells.</li> <li>• Describe how fertilisation occurs.</li> <li>• Explain how the fertilised embryo grows by cell division to form a blastula and then a foetus and how the foetus develops until birth.</li> <li>• Describe the role of the placenta in the exchange of materials between mother and foetus and the effect of maternal lifestyle on the foetus</li> <li>• Describe the changes that occur in puberty and explain the differences between girls and boys.</li> <li>• Describe the menstrual cycle.</li> <li>• Explain how reproduction varies in the different vertebrate groups and analyse relationships between number of offspring, reproduction rate and survival rates</li> </ul>	<ul style="list-style-type: none"> <li>• All living things reproduce and grow.</li> <li>• The role of diffusion in the movement of material between foetus and mother</li> <li>• Growth in animals occurs by cell division</li> <li>• Life cycles of organisms</li> <li>• Sexual reproduction in humans and other organisms</li> <li>• Growth and development in humans</li> <li>• The role of diffusion in the movement of material between foetus and mother</li> <li>•</li> </ul>	<p>Maths – graphing skills, equations, decimal places, line and bar graphs.</p> <p>~PSHE – social skills, sex education.</p> <p>Biology KS3 Topic 1 Cells:</p> <ul style="list-style-type: none"> <li>• specialised cells, tissues and organ systems</li> <li>• movement of substances by diffusion</li> </ul>	<ul style="list-style-type: none"> <li>• Label diagrams of the male and female human reproductive organs</li> <li>• Annotate diagrams of sperm and egg cells to describe specialised features</li> <li>• Identify which substances are exchanged between mother and foetus via the placenta</li> <li>• Use data to analyse relationships between number of offspring, reproduction rate and survival rates</li> </ul>
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<p>summer</p>	<ul style="list-style-type: none"> <li>• <b>ECOLOGY</b></li> <li>• Recognise different habitats and predict what organisms would live there.</li> <li>• Define ecological words such as ecosystem, producer, herbivore, carnivore, prey, and predator.</li> <li>• Identify the producers and consumers in a food chain.</li> <li>• Be able to draw a food chain with the arrows in the correct direction</li> <li>• Recall how food chains are all linked into a food web.</li> <li>• Analyses the feeding relationships shown in a food web.</li> <li>• Show understanding of the interactions between species by explaining how changes in one part of a food chain may affect another.</li> <li>• Be able to draw and label a flower.</li> <li>• Describe the differences between an insect and wind pollinated plant.</li> <li>• Recall different types of seed and different methods of seed dispersal.</li> <li>• Explain the reasons for seed dispersal with regard to competition.</li> <li>• Recall the factors that affect microbial growth.</li> <li>• Investigate the factors that affect microbial growth.</li> <li>• Outline the events that occur during the carbon cycle.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand that the arrows in a food chain show the energy flow NOT who eats who.</li> <li>• What is a food web? Why is it a better model of the ecosystem than a food chain?</li> <li>• The effect that one organism has on the food web, especially when it is removed – other species declining, prospering or maintaining balance.</li> <li>• The concept of competition between species for resources.</li> <li>• That pollination, fertilisation and seed dispersal are different processes within the plant.</li> <li>• Explain how a small amount of toxin at the bottom of the food chain can have catastrophic effects at the top of the food chain.</li> <li>• What is conservation?</li> <li>• Concept that Energy flows through food chains and is lost (as heat) but that matter (elements must be cycled)</li> </ul>	<p>German – key terminology,</p> <p>Maths- calculations or means. And energy flow.</p> <p>Geography – environmental impacts.</p>	<ul style="list-style-type: none"> <li>• Draw a food web and chain.</li> <li>• Show what happens when one species is removed or added to the food web.</li> <li>• Draw and label structural of an insect pollinated flower.</li> <li>• Plan an investigation into the dispersal of seeds “Design a seed that travels the furthest”.</li> <li>• Grow a seed into a plant.</li> <li>• Plan investigations identifying variables to vary and control and writing clear methods and risk assessments</li> <li>• Collect, and analyse data appropriate to the task.</li> <li>• Evaluate data in terms of limitations and improvements related to reliability, accuracy and validity.</li> </ul>
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