| | Year 10 Biology | | | | | |
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| | Autumn Term 1 | Autumn Term 2 | Spring Term 1 | Spring Term 2 | Summer Term 1 | Summer Term 2 |
| **BIG Q** Content *(max 5)*<br><br>Please log into Seneca to support your child to understand this learning | ***What are living things made of?***<br>Compare the structure of Eukaryotic and Prokaryotic cells.<br>Use a microscope to view onion cells and make scientific drawings.<br>Calculate the magnification of cells when given the image size and real size.<br>Convert between units (e.g. convert millimetres into micrometres).<br>Relate adaptations of cells to their function. | ***How are substances transported in organisms?***<br>Describe the role of cell division.<br>Evaluate the use of stem cells.<br>Describe how substances can be transported by diffusion, osmosis or active transport.<br>Investigate osmosis in plant tissue.<br>Recall how organisms are organised in terms of cells, tissues, organs and organ systems. | ***How is our food digested and transported around the body?***<br>Describe how large molecules of food are broken down into smaller molecules of food by enzymes.<br>Investigate the effect of temperature and pH on enzymes.<br>Describe how the products of digestion are transported around the body by the circulatory system.<br>Describe the structure of the heart and relate the structure of blood vessels to their function.<br>Describe possible treatments for coronary heart disease. | ***How can lifestyle affect our health?***<br>State that cancer is caused by uncontrolled cell division and that some risk factors can increase the risk of cancer.<br>***How are substances transported in a plant?***<br>Recall the structure of a plant.<br>Describe the structure of a leaf and relate each tissue to their role in photosynthesis.<br>Describe how water, mineral ions and sugar are transported around the plant.<br>Describe how to investigate factors affecting transpiration rate using a potometer. | ***What causes disease and how can we defend ourselves?***<br>Identify diseases caused by pathogens.<br>Describe defence mechanisms.<br>Explain how immunity can be achieved from infection or by vaccination.<br>Describe the origins of medicinal drugs and how they are developed.<br>Explain antibiotic resistance and how this can be prevented. | ***How are photosynthesis and respiration fundamental to survival?***<br>Recall the word and symbol equations for photosynthesis and respiration.<br>Investigate the factors affecting the rate of photosynthesis.<br>Explain oxygen debt and how this is repaid.<br>Explain why breathing rate and heart rate increase during exercise.<br>Define metabolism and link the chemical reactions involved to digestion, photosynthesis and respiration. |
| Vocabulary *(max 10)*<br><br>Please use your child's knowledge notes to help them to learn these words | Cell<br>Cell membrane<br>Cell wall<br>Nucleus<br>Mitochondria<br>Ribosomes<br>Magnification<br>Resolution<br>Eukaryotes<br>Prokaryotes | Mitosis<br>Diffusion<br>Osmosis<br>Active Transport<br>Exchange surface<br>Tissue<br>Organ<br>Organ system<br>Digestive system<br>Digestion | Enzymes<br>Temperature<br>Active site<br>Denature<br>Amylase<br>Alveoli<br>Heart<br>Arteries<br>Veins<br>Capillaries | Cancer<br>Malignant tumour<br>Leaves<br>Stomata<br>Xylem<br>Lignin<br>Phloem<br>Transpiration<br>Transpiration stream<br>Translocation | Pathogens<br>Virus<br>Bacteria<br>Fungus<br>Protist<br>Communicable<br>Disease<br>Immunity<br>Vaccination<br>Antibiotic<br>Antibiotic resistance | Products<br>Reactants<br>Respiration<br>Lactic acid<br>Exercise<br>Fermentation<br>Limiting factors<br>Photosynthesis<br>Chlorophyll<br>Metabolism |
| Catholic Link | Creation: cell structure, specialised cells | Creation & dignity: cell transport, digestive system | Creation & dignity: digestion, circulatory system | Creation & the environment: plant structure & processes | Common good: treatments / vaccinations for all | Creation & the environment: respiration, photosynthesis |
| Careers Link | Cell biologist, histologist | Biotechnologist, food scientist | Cardiologist, biomedical scientist | Biochemistry, oncologist | Pharmacologist, nurse prescriber, plant pathologist | Botanist, agricultural scientist |

Ways to enrich the Y10 Biology curriculum at home:

- Sprinkle salt on the surface of different vegetables, then wait 15-20 minutes. Summarise what you observe. Why has this happened?
- As a family, go out to a local park. View plants in shady areas and light and bright areas. What are the differences between the plants?
- Make DIY model lungs. Cut a hole at the bottom of a plastic bottle; place a balloon over this end; squeeze the bottle and observe the balloon.