West Kirby Grammar School

Curriculum Map – Year 7 – Biology (2023-24)

Topic name	Term	Skills developed	Link to NC subject content	Prior learning	Next link in curriculum
Cells, Tissues and Organs	Autumn	• Ask questions and develop a line of enquiry based on observations of the real world alongside prior knowledge and experience. • Make predictions • Evaluate risks • Apply mathematical concepts and calculate results • Make and record observations • Use and derive simple equations and carry out appropriate calculations. • Use appropriate techniques, apparatus and materials during lab work paying attention to health and safety • Pay attention to objectivity and concern for accuracy, precision, repeatability and reproducibility • Present observations and data using appropriate methods, including tables and graphs. • Present reasoned explanations, including explaining data in relation to predictions and hypotheses.	**Structure and function of living organisms** **Cells and Organisation** • Cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope. • The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts. • The similarities and differences between plant and animal cells. • The hierarchical organisation of multicellular organisms: from cells to tissue to organs to systems to organisms. • The role of diffusion in the movement of materials in and between cells • The structural adaptations of some unicellular organisms. **Nutrition and digestion** • The tissues and organs of the human digestive system, including adaptations to function and how the digestive system digests food (enzymes simply as biological catalysts)	**Links from KS2:** **B3.1 PLANTS** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers **ANIMALS including HUMANS** **B4.2** Describe the simple functions of the basic parts of the digestive system in humans **B6.2** Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	**Y8 Respiration, breathing and movement** **Links to GCSE topic:** 4.1 Cell biology 4.1.3 Transport in cells 4.2.1 Principles of organisation 4.2.2 Animal tissues, organs and organ systems

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Human Reproduction	Spring	• Ask questions • Evaluate risks • Understand that scientific methods and theories develop as earlier explanations are modified to take account of the new evidence and ideas • Present observations and data using appropriate methods, including tables and graphs • Interpret observations and data including identifying patterns and using observations, measurements and data to draw conclusions. • Present reasoned explanations, including explaining data in relation to predictions and hypotheses. • Evaluate data, showing awareness of potential sources of random and systematic error. • Identify further questions arising from their results. • Ask questions and develop a line of enquiry based on observations of the real world alongside prior knowledge and experience. • Make predictions using scientific knowledge and understanding. • Use appropriate techniques, apparatus and materials during lab work paying attention to health and safety • Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.	**Structure and function of living organisms** **Reproduction** • Reproduction in humans (as an example of a mammal), including the function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta **Genetics and evolution** **Inheritance, chromosomes, DNA and genes** • Hereditary as the process by which genetic information is transmitted from one generation to the next • Differences between species • The variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation (Basic principles taught in Y7 – spirals to Y9 Inheritance and Variation)	**Links from KS2:** **LIVING THINGS and their HABITATS** **B5.1:** Describe the life process of reproduction in some plants and animal **B6.3 EVOLUTION and INHERITANCE** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	**Y9 Inheritance & Variation** **Links to GCSE topic:** 4.1.2 Cell division 4.5.3.1 Hormonal coordination in humans (taught in Y10) 4.6.1 Reproduction 4.6.2 Variation and evolution (taught in Y11)

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Plant Reproduction	Summer	• Ask questions • Evaluate risks • Understand that scientific methods and theories develop as earlier explanations are modified to take account of the new evidence and ideas • Present observations and data using appropriate methods, including tables and graphs • Interpret observations and data including identifying patterns and using observations, measurements and data to draw conclusions. • Present reasoned explanations, including explaining data in relation to predictions and hypotheses. • Evaluate data, showing awareness of potential sources of random and systematic error. • Identify further questions arising from their results. • Ask questions and develop a line of enquiry based on observations of the real world alongside prior knowledge and experience. • Make predictions using scientific knowledge and understanding. • Use appropriate techniques, apparatus and materials during lab work paying attention to health and safety • Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.	**Structure and function of living organisms** **Reproduction** • Reproductions in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms. **Interactions and interdependencies** **Relationships in an ecosystem** • The interdependence of organisms in an ecosystem (insect pollinated crops) • The importance of plant reproduction through insect pollination in human food security • How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.	**Links from KS2:** **B3.1 PLANTS** Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **LIVING THINGS and their HABITATS B5.1:** Describe the life process of reproduction in some plants and animal **B6.3 EVOLUTION and INHERITANCE** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Recognise that environments can change and that this can sometimes pose dangers to living things.	**Y8 Photosynthesis** **Links to GCSE topic:** 4.2.3 Plant tissues, organs and systems 4.5.4 Plant hormones (taught in Y10) 4.6.1 Reproduction 4.6.2 Variation and Evolution (taught in Y11) 4.7.1 Adaptations, interdependence and competition. (taught end Y10 / start Y11)