Curriculum Map

Subject: Combined Science Biology **Year Group: 11**

	Autumn 1/Autumn 2	Autumn 2	Autumn 2/Spring 1	Spring 2	Summer
Content	**1 Review of Year 10 topics** **2 Human Nervous System** Principles of homeostasis Structure and Function of the Nervous System Reflex Actions	**1 Hormonal Control** Principles off hormonal control Glucose control and diabetes Hormones and the menstrual cycle **2 Reproduction** Types of reproduction Cell division in sexual reproduction DNA and inheritance Genetic disorders Sex determination Screening for genetic disorders	**1 Variation and Evolution** Variation Evolution by natural selection Selective breeding Genetic engineering and new technologies **2 Genetics and** Evolution Evidence for evolution Fossils and extinction Antibiotic resistant bacteria classification	**1 Adaptation, Interdependence and Competition** Communities and their importance Distribution and abundance Competition in animals and plants Adaptation 2 Biodiversity and ecosystems Biodiversity Human population explosion and its effect on the earth's resources Land, water and air pollution Deforestation and peat destruction Global warming Maintaining biodiversity	**Review and Revise**
Skills	Use appropriate apparatus to record time. -Selecting appropriate apparatus and techniques to measure the process of reaction time.	Apply scientific knowledge and understanding to explain how hormones control glucose levels in the blood, Explain the problems diabetes can cause,	Consider ethical issues relating to biology topics and medical treatments. -Extract and interpret information from charts, graphs and tables - Understand how scientific methods and	**Analysing and interpreting tables of data and graphs to explain the effects of human activity and human population**	

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	-Safe and ethical use of humans to measure physiological function of reaction time and responses to a chosen factor. -Translate information between numerical and graphical forms. -Use appropriate apparatus to record length and time. - Plan experiments to make observations to explore the phenomena of plant responses. Present observations as tables, graphs or drawings.	and understand the treatments available. Be able to use and interpret and use punnet squares.	theories develop over time	**explosion on the earth's resources**	
Key questions	What is homeostasis and why is it important? Why do we need a nervous system? How does the nervous system work? What are reflexes and how do they work?	What is the endocrine system and how does it work? What are hormones? How is our blood glucose level controlled? How is diabetes treated? How do hormones control changes in our bodies at puberty? How do hormones control the menstrual cycle? How do different artificial ways of controlling fertility work? How do infertility treatments work?	What makes us different to the rest of our family? How does natural selection work and how does evolution happen? What is selective breeding and what are the benefits and risks? What is genetic engineering and what are the benefits and problems associated with it in agriculture and medicine? What is the evidence for the origins of life on earth?	What are stable communities? How are organisms adapted to the conditions they live in? What are some of the factors that affect communities? How can we measure the distribution of living things in their natural habitats? Why do animals compete and why	

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		What is the difference between asexual and sexual reproduction? How does meiosis work? What is the role of DNA in inheritance? How does inheritance work? How do we screen for genetic disorders?	What can we learn from fossils? How do species become extinct? How does antibiotic resistance develop? What are the basic principles of classification and the system developed by Linnaeus? What are the new systems of classification?	do plants compete? What makes an animal a successful competitor? What do organisms need to survive? What is biodiversity? How has the human population explosion affected the earth's resources? How have human activities polluted the land, sea and air? What is acid rain and what effects does it have? What is deforestation and what effects does it have on biodiversity.	
Assessment	Formative 'low stakes' assessments to take place more frequently throughout the term. This could be in the form of a range methods: • Quiz • Homework task • Microsoft Forms short tests • In class short tests • Questions and answer sessions				

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	• Spelling tests • Group work tasks • Peer assessments • Literacy and numeracy activities End of term summative assessments				
Literacy/ Numeracy/ SMSC/ Character	**Literacy** -Appropriate use of tier three vocabulary. -Develop extended answers through practice of 6 mark questions. -Plan experiments or devise procedures to make observations -Development of comprehension skills through research using a variety of sources. **Numeracy** -Calculating means -Translating numerical data into graphical forms **SMSC** -Safe and ethical use of humans and living organisms in scientific investigations -Discussion of ethical issues surrounding kidney transplants -Discussion of ethical issues surrounding fertility treatments and IVF **Character** -Tolerance: Showing tolerance towards others views considering fertility treatments -Confidence: Building confidence in practical skills with the completion of two/three required practicals. -Resilience & Initiative -Resolving difficulties in practical techniques		**Literacy** Consider ethical issues relating to biology topics and medical treatments. **Numaracy** Extract and interpret information from charts, graphs and tables **SMSC** Evaluating the use of genetic engineering and discussion of the ethical issues surrounding its use - Discussion surrounding which species conservation efforts should focus on - Evaluating the use of selective breeding and discussion of the ethical issues surrounding its use -Discussion surrounding scientific theories and religious beliefs Understand how scientific methods and theories develop over time **Character** -Tolerance: Showing tolerance towards others views considering genetic engineering and selective breeding -Integrity -Demonstrating sensitivity when considering the effect of genetic disorders.		