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Curriculum Implementation 2024-25

Secondary

LCA Strand	Science
Subject	**Biology**
Key Stage	**Key Stage 5 (Chapter 12-13)**

What are the key concepts taught?	• Chapter 12: Foundations in Biology: cells, biological molecules, enzymes, cell divisions. Exchange and Transport: exchange surfaces and breathing, transport in animals, transport in plants. Biodiversity, Evolution and Disease: classification and evolution, biodiversity, communicable diseases. • Chapter 13: Communication, Homeostasis and Energy: communication and homeostasis, excretion, neuronal communication, hormonal communication, plant and animal responses. Genetics and Ecosystems: cellular control, patterns of inheritance, manipulating genomes, cloning and biotechnology, ecosystems, populations and sustainability. • Across both years: Development of Practical Skills in Biology

What is the sequencing of units?	• Students are taught two topics in parallel by two teachers throughout the course. Foundations in Biology, is taught first in Chapter 12 to build upon GCSE knowledge, taking into account students arriving from both the combined and separate science GCSE courses. We build upon the Foundation content in Chapter 12. The easier topics are taught at the end of Chapter 12, with the rest of these topics covered between September and March in Chapter 13 as these build upon knowledge and understanding covered in the earlier modules in Chapter 12 and are of a higher level of complexity. Practical work is taught throughout the course. • Within topics the placing of topics in relation to others is carefully managed to ensure students can make links between topics easily. For example, photosynthesis and respiration are placed together to allow these 2 Biochemical pathways to be easily compared with links made. Within all topics, pre topic learning packs are issued for students to complete as independent study that reviews work covered in earlier topics that will be revisited and built upon in the new topic.

How do we encourage pupils to see the links between different units and concepts?	• At the start of each topic the whole specification is shown to students and broken down into lessons. Each lesson's objective refers back to the key concept. • Chapter 12 Foundations - Basic components of living things Lesson 1 Microscope, Lesson 2 Preparing slides, Lesson 3 IAM calculations using microscopic images • Every lesson starts with learning objectives for the topic and staff make explicit links to prior learning and future learning. GCSE content is reviewed at the start of lessons/topics where links exist. • By questioning the students on where they have come across this content or skills before. • By students completing a memory retrieval, Pre-topic learning task, issued at the start of each new topic. It is designed to allow students to identify their foundations of knowledge that the unit will build upon (both GCSE and earlier A Level units).

What are the planned opportunities for adaptive teaching, including for SEND, the more and able and disadvantaged pupils?	All lesson resources are made available to SEN students to allow them electronic versions to complete where required. Stretch and challenge and support worksheets are used in lessons and are available in the independent study folder on the shared area for completion by students depending on target grades. The well-resourced student shared area has a wealth of resources for students to use to develop their own independent study programme. This is monitored by staff by folder checks.

What are the planned opportunities for retrieval and reflection by pupils?	LC tests/quizzes/whiteboard activities. Peer/self-assessed to provide immediate feedback. Planned, targeted retrieval starters which return to previously learnt content at regular intervals, as well as cumulative assessment in both low stakes assessments and PP exams throughout the year. Starter questions and home learning tasks will revisit material. Research home learning tasks support preparation for lessons.

What are the opportunities for feed forward by the teacher post assessment outcomes?	Analysis of examiners reports to identify areas of concern, patterns in misunderstanding/misconceptions and additions/amendments made to SoW on an annual basis. Analysis of mock exams to identify areas of concern to focus on during revision lessons towards the end of Chapter 13 on a class by class basis. Teachers act on errors and misconceptions demonstrated in assessments and in class and adapt content of future lessons to review skills and knowledge as needed.

What are the planned opportunities for developing Reading?	Students reading aloud from textbooks. Literacy tasks in lessons/ homework research tasks: reading a passage followed by comprehension designed to develop readers ability to read confidently Reading lists relevant to KS3/4/5 are shared with pupils, as well as suggestions shared with school library for new book purchases.

What are the planned opportunities for developing literacy, numeracy, oracy and SMSC?	**Literacy** - Etymology of key terms discussed with students to improve understanding in relation to concepts and to aid memory retrieval. **Numeracy** - Spaced learning maths tasks are completed for each topic. Maths skills workbook is issued to Chapter 13 to consolidate all numeracy in preparation for terminal exams. **Oracy** – Card sorts are used to break processes into steps to allow students to discuss the logical sequence. **SMSC** - Chapter 12 Classification topic – understanding our origins and relations to other organisms. Chapter 12 Ecology – discussing the impact of human action of the biodiversity of Earth and the moral reasons for its maintenance. Chapter 12 Cell division – The use of and ethics surrounding stem cells. Chapter 13 Manipulating genomes and Cloning and biotechnology – The ethics of genetic manipulation and the role of biotechnology in society.