Biology Curriculum Intent

Department Philosophy: Our ultimate aim is to produce Biologists of the future who are going to influence the community around them in their later lives. They must be curious and know how their work is applicable to the wider world. Our students will enjoy challenge and will show thought and resilience when faced with biological questions. A good biologist has a clear understanding of the core concepts and is able to use this knowledge to apply it to a wide range of situations both practically and written. Our curriculum promotes resilience, independence and organisation. Our learners are scientifically literate and are able to articulate their knowledge and thinking in many different ways. We are keen to make outstanding scientists who are able to complete an experiment from beginning to end. They will be able to plan valid experiments and make adjustments where necessary. They will be skilled with a wide range of apparatus and will be able to select the correct apparatus for the relevant task. Results obtained will be recorded within scientific convention and will be analysed and evaluated in a wide range of ways using mathematical tools and reasoned written justifications. Our curriculum encourages and facilitates further studies or potential careers in the subject, whilst empowering students to have a greater appreciation and awareness of Biology related issues in the world around them.

By the end of Key Stage 4 our students will know:	By the end of Key Stage 5 our students will know:
1. The key concepts of Biology including cell structure, enzyme theory, molecule transport and food science 2. How cells specialise and work together as tissues and organs 3. What it means to be healthy and how pathogens are transmitted and combated by the immune system 4. The process of cell division and the key aspects of inheritance 5. The theory of natural selection and evolution and how this can be manipulated in biotechnology. 6. Plant structure and how this relates to functions such as photosynthesis. 7. How the body responds to its environment and maintains constant internal conditions 8. The main ideas of ecology to include energy transfers in ecosystems, biodiversity and nutrient cycles 9. How important molecules are exchanged and transported in the body to include the structure and function of the heart and the fundamental process of respiration. 10. How to plan, implement, analysis and evaluate biological experiments.	11. The structure and function of the cardiovascular system and that specific lifestyle factors can lead to cardiovascular disease. 12. The biology behind the causes, symptoms and treatments for cystic fibrosis. 13. The structure of different cells and their organelles and how cells divide. 14. That biodiversity can be measured, change over time and be used to make a more sustainable world. 15. Energy and is transferred through ecosystems and how imbalances can lead to global warming. 16. How Biology is applied in forensic science. 17. About microorganisms and how the human body is able to combat them via natural and medicinal means 18. The influence that Biology has on sport. 19. How organisms respond to stimuli and how scientists have discovered this information. 20. How to plan, implement, analysis and evaluate biological experiments.