Science-Biology Learning Journey

"If I have seen further it is by standing on the shoulders of Giants."
– Isaac Newton

A level

OR

Apprenticeships
www.futureme.ac.uk

University
www.ucas.com

Year 11

- Biological Molecules
- Organisms exchange substances with their environment
- Cells
- Genetic information, variation & relationships between organisms
- Energy transfers in & between organisms
- Organisms respond to changes in their internal & external environments
- Genetics, populations, evolution & ecosystems
- The control of gene expression

Year 10

- B7: Ecology — HQT: Red vs Grey Squirrels
- B6: Inheritance, variation & evolution — HQT: Dark History of Eugenics
- B3: Infection & response — HQT: Semmelweis
- B4: Bioenergetics — HQT: Animals that Photosynthesise
- B5: Homeostasis & response — HQT: Male contraceptive pills
- B2: Organisation — HQT: Heart attacks in sport
- B1: Cell Biology — HQT: STEM Cells
- Inheritance, chromosomes, DNA & genes — HQT: History of forensic analysis

Year 9

- Nutrition & Digestion — HQT: Eating Insects could end World Hunger
- Health & disease — HQT: Teen Vaping
- Reproduction — HQT: Conjoined Twins

Year 8

- The skeletal & muscular systems — HQT: Iron Man and Exoskeletons
- Ecosystems — HQT: Toxins in food chains

Year 7

Your St Aidan's Science journey starts here!!

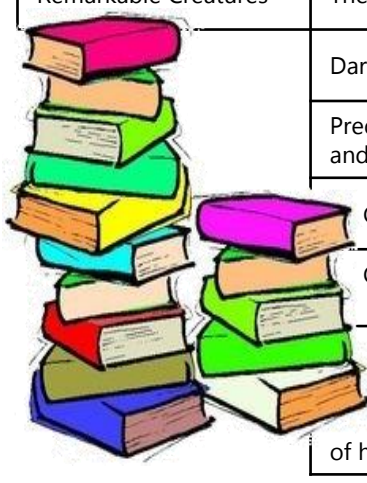
HQT= High Quality Text

GCSE Biology Required Practicals	
1	Microscopy (B1)
2	Bacterial Growth (Triple) (B1)
3	Osmosis (B1)
4	Food Tests (B2)
5	Enzymes (B2)
6	Photosynthesis (B4)
7	Reaction Times (B5)
8	Seedling Growth (Triple) (B5)
9	Populations (B7)
10	Decay (Triple) (B7)

Enquiry Processes		
	W.S	**Skill**
A	The development of scientific thinking and attitudes	• How theories and models develop over time • Appreciating the limitations of science and/or ethical issues • Evaluating implications on evidence • Evaluating risks • Recognising the importance of peer review
B	Experimental skills & strategies	• Develop hypotheses • Plan experiments • Make observations or explore phenomena • Use a range of apparatus • Suggest improvements
C	Analysis & evaluation	• Apply the cycle of collecting, presenting and analysing data • Communicate rationale, methods, findings and conclusions
D	Vocabulary, units, symbols & nomenclature	• Develop use of scientific vocabulary • Recognise importance of scientific quantities and understanding how they are determined • Use mathematical notation correctly

Read like a Biologist

The Brain	I contain multitudes
The origin of species	The immortal life of Henrietta Lacks
Remarkable Creatures	The Gene: an Intimate history
	Dark Lady of DNA
	Predators: The whole Tooth and Claw Story
	Gene Machine
	Cuckoo: Cheating by Nature
	Life on Earth
	Sapiens: A brief history of humankind



Biology Careers

Pharmacologist	Doctor or nurse
Research Scientist	Paramedic
Nutritionist	Forensic Scientist
Ecologist	Zoologist
Marine biologist	Vet
Biochemist	Engineer
Physiotherapist	Farmer

Curriculum Links

	Maths		MFL
ENG	English		IT
	P.E/ Sport		RE
	Geography		Careers
	Art		PHSE/ Citizenship
	DT/ Engineering		Chemistry
	Music		Physics
	History		Enterprise

Threshold Concepts in Biology

Structure and function of organisms

Organisms are organised on a cellular basis and require organised systems in order to function efficiently

Materials, interactions & energy

Organisms require a supply of energy and materials for which they often depend on, or compete with other organisms

Diversity of organisms

The diversity of organisms, living and extinct is a result of evolution; where genetic information is passed down from