



Big Question: What is the variation like at St David's?

AoLE: Science and Technology	Subject: Science – Biology	Year: 9
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Big Question / Aim / Objective / Concept	Vision (Proposed outcome) / Purpose of curriculum	Prior knowledge / Learners previous knowledge
What is the variation like at St David's?	In this topic students will look into a range of ideas around DNA. They will look into the structure of DNA and how the theory around the structure developed. They will look into the basics of inheritance and how different characteristics are inherited. They will look into environmental factors of characteristics and look at how we can alter characteristics through selective breeding and genetic engineering. Finally, they will move onto looking at the theory of evolution and development of this.	Cells and that DNA is found in the nucleus. Ideas of ecosystems and adaptations species need for survival Concept of we get our 'looks' from our parents. Ideas of reproductions and that there is a joining of the sex cells.

What does progression look like in this Big Question?

Progression Indicator	Description of learning (What matters statements)	Student evidence of progression (Blooms) / Knowledge
Excelling	I can explain how reproduction; mutations and the environment can lead to variation and adaptations within organisms which can affect their chances of survival. I can explain how the impact of our actions contribute to the changes in the environment and biodiversity	Analyse the theory of evolution Analyse the human genome project
Advancing	I can describe the interdependence of organisms in ecosystems and explain how this affects their chances of survival. I can describe the impacts of science and technology, past and present, on society	Explain the theory of evolution Explain how the idea of DNA has developed
Securing	I can describe the levels of cellular organisation and how cells perform biological processes that ensure the development and survival of organisms. I can review my own opinions based on new scientific evidence	Describe the structure of DNA Describe the difference between selective breeding and genetic engineering Describe evolution
Beginning	I can describe how living things compete for specific resources and depend on each other for survival. I can select relevant scientific knowledge from a range of evidence sources to evaluate claims presented as scientific facts.	Recall the structure of DNA Recall what selective breeding is Recall what genetic engineering is

Authentic learning experiences (Local / National / International)	Skills (Literacy / Numeracy / DCF) / Cross Curricular links
Local – Look at local common characteristics. Link to local ideas of selective breeding and how this develops farming and pet industry. National – Compare local and national characteristics. International – Look at maps and follow the journey Darwin took on the HMS beagle. Look at international characteristics and compare different countries.	Literacy <ul style="list-style-type: none"> • Analysis of theories • Written assessment • Topic reading Numeracy <ul style="list-style-type: none"> • Probability • Percentages



	<ul style="list-style-type: none"> • Graph Analysis <p>DCF</p> <ul style="list-style-type: none"> • Research • Using Excel to record Data • Word and PowerPoint to prepare presentations
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Assessment (How will we know that students have learnt what we taught them?)	
<p>Formative assessment:</p> <ul style="list-style-type: none"> • Teacher circulating • Q&A discussions on various phenomenon and scientific understanding • Identify key terms to definitions/examples • Peer/self-assessment tasks • Group experimental work • Explanations of specific processes such as conduction, convection and radiation • Lesson tasks such as measuring angles precisely allows the use of whiteboards or tasks that feedback to the teacher to ensure pupils have learnt the desired process 	<p>Summative assessment:</p> <p>Written assessment mid-point Discuss the advantages and disadvantages of selective breeding?</p> <p>Summative Assessment End of topic End of topic test DNA and Genetics</p>

Evaluation (to be completed 2024)		
Strengths	Areas for Development	Pupil Voice