KESTEVEN AND SLEAFORD HIGH SCHOOL

Biology Scheme of Learning

Year 11 – Term 3/Unit B15

Intent – Rationale

.Students following the triple suite learn about the history of genetics from Mendel to Watson and Crick. They consider the initial theories of evolution and then focus on Darwin's work to look at the evidence for evolution and why people were reluctant to accept it at first. Students learn about the work of Wallace and speciation. All students Learn about the fossil record and how it provides evidence for evolution. They consider the extinction of species and the causes of this. Students learn about a modern example of evolution by considering antibiotic resistance in bacteria. Classification as it was initially set out by Linnaeus is understood and further developed by the introduction of the three domain system and evolutionary trees.

Sequencing – what prior learning does this topic build upon?	Sequencing – what subsequent learning does this topic feed into?
GCSE Biology Topic B6 Preventing and Treating Disease, B13 Reproduction, B14 Variation and Evolution.	• GCSE Biology Topic B16 Adaptations, Interdependence and Competition, B18 Biodiversity and Ecosystems. • A Level Unit 3 Organisms exchange substances with their environment, Unit 4 Genetic information, variation and relationships between organisms, Unit 5 Energy transfer in and between organisms, Unit 6 Organisms respond to changes, Unit 7 Genetics, populations, evolution and ecosystems, Unit 8 The control of gene expression.
What are the links with other subjects in the curriculum?	**What are the links to SMSC, British Values and Careers?**
• Base the content here on what you already know but there will be time in future to liaise further as part of our collaborative work	• B15 L1 GB4eg • B15 L2 SMSC SO, British Values BV4, BV5
What are the opportunities for developing literacy skills and developing learner confidence and enjoyment in reading?	**What are the opportunities for developing mathematical skills?**
FROM THE LIBRARY *Darwin*-576 *Darwin For Beginners-576* *Evolution-576* *Origin Of Species-576* *Life-576* *Origin Of Species and the Voyage of the Beagle-576*	•

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Intent – Concepts

What knowledge will students gain and what skills will they develop as a consequence of this topic?

Know

- Describe the development of our understanding of genetics including the work of Mendel. Describe the theory of evolution. Describe Wallace's ideas and how they influenced Darwin. describe the evidence for the origins of life on Earth. Define what extinction is. Describe how environmental change can cause extinction. Describe the principles of the Linnaean classification system. describe the impact of developments in biology on classification systems.

Apply

- Compare the outcomes of genetic crosses in the first and second generation. Recognise why Lamarck's theory is incorrect in the vast majority of cases. The importance of isolation in speciation. Describe what we can learn from fossils. Analyse factors to decide which is the most likely to have caused extinction. Analyse evidence for large scale extinction events to identify the most likely cause. Apply the binomial naming system. Analyse evolutionary trees.

Extend

- Explain why the importance of Mendel's discovery was not recognised until after his death. Explain why Darwin's theory was gradually accepted. Describe the steps that give rise to a new species. Describe how fossils are formed. Describe how organisms can become extinct. Explain how a single catastrophic event can cause extinction on a massive scale. Explain how new technologies have changed classification. Explain the three domain system.

What subject specific language will be used and developed in this topic?

Word	Definition
archaea	one of the three domains, containing primitive forms of bacteria that can live in many of the extreme environments of the world
Classification	the organisation of living organisms into groups according to their similarities.
domain	the highest level of classification. There are three domains – Archaea, Bacteria and Eukaryota
evolutionary trees	models used to explain the evolutionary links between groups of organisms
Extinction	the permanent loss of all members of a species from an area or from the world
speciation	the process by which two species evolve from a single original species by natural selection

What opportunities are available for assessing the progress of students?

- B15 L5 Horses exam question – fossils.
- B15 L5 long answer question, causes of extinction
- B15 L7 and 8 classification questions
- B15 test

species	the smallest group of clearly identified organisms in Linnaeus's classification system, often described as a group of organisms that can breed together and produce fertile offspring	

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Intent – Concepts

Lesson title	Learning challenge	Higher level challenge	Suggested activities and resources
B15 L1 History of Genetics (Triple only)	Can I describe the development of our understanding of genetics including the work of Mendel?	Can I explain why the importance of Mendel's discovery was not recognised until after his death?	
B15 L2 Theories of Evolution (Triple only)	Can I describe the theory of evolution?	Can I explain why Darwin's theory was gradually accepted?	
B15 L3 Evolution and Speciation (Triple only)	Can I describe Wallace's ideas and how they influenced Darwin?	Can I describe the steps that give rise to a new species?	
B15 L4 Fossils	Can I describe the evidence for the origins of life on Earth?	Can I describe how fossils are formed?	
B15 L5 Fossils and Extinction	Can I define what extinction is?	Can I describe how organisms can become extinct?	
B15 L6 More about extinction	Can I describe how environmental change can cause extinction?	Can I explain how a single catastrophic event can cause extinction on a massive scale?	
B15 L7 Classification	I can describe the principles of the Linnaean classification system?	Can I explain how new technologies have changed classification?	
B15 L8 New Systems of classification	Can I describe the impact of developments in biology on	Can I explain the three domain system?	

	classification systems?		
B15 test	Summative assessment		