

Scheme of Learning: Inheritance & Evolution

Topic Sequence:

1	2	3	4	5	6	7	8	9
Acids & Alkalis	Motion & Pressure	Photosynthesis & Respiration	Metals & Materials	Waves	Inheritance & Evolution	Earth & Atmosphere	Space	Ecosystems & Interdependence

Topic Overview:

The national curriculum requirements for this topic are to cover the following:

- heredity as the process by which genetic information is transmitted from one generation to the next
- a simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model
- differences between species
- the variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation
- the variation between species and between individuals of the same species meaning some organisms compete more successfully, which can drive natural selection
- changes in the environment which may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction
- the importance of maintaining biodiversity and the use of gene banks to preserve hereditary material

Lesson Sequence:

In the Cells and Organisation and the Reproduction topics in Year 7, pupils learned that DNA is stored in the nucleus of cells and is passed on from parents to offspring at fertilisation. This topic builds upon this knowledge by first looking more closely at the structure and discovery of DNA before introducing the broader idea of evolution through the process of natural selection. We then finish the topic by exploring the causes of extinction. In this way, we move from the microscopic world through to large-scale, macroscopic concepts that affect whole species.

Sequence of Lessons:

1	DNA Structure
2	DNA Discovery
3	Extracting DNA
4	Genetic Vs Environmental Variation
5	Continuous Vs Categorical Variation
6	Species & Classification
7	Natural Selection
8	Extinction
9	Assessment

Resources:

1	DNA origami template , (make sure you have enough scissors)
2	Worksheets in shared area
3	Salt, Washing up liquid, Ethanol – ice cold, Kiwis, Knives, Pestle & mortars, White tiles, Pineapple juice, Water bath at 37°C.
4	Chromosome cards
5	Worksheets in shared area
6	Shark key and pictures.
7	Worksheets in shared area
8	Worksheets in shared area
9	Endangered species factsheets
10	Worksheets in shared area

Supportive Reading:

Comprehension activity	Endangered species fact sheets
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Assessment:

Knowledge:	20 question multiple choice knowledge test
Application of Knowledge:	Extended written answer explaining elephant evolution.