

NEXT



Haberdashers' Abraham Darby Year 10 **Biology** Learning Journey



← This way to Year 11



Exam Preparation

Build a portfolio of revision material, to help remember Powerful Knowledge and commit key information to long term memory. You will be tested on all the content learned over the course of the year ready to build on in Year 11.



Exam Preparation

Plant Structure

Describe photosynthesis and explain the limiting factors. Investigate the rate of photosynthesis and calculate the rate of reaction. Explain the inverse square law. Explain the function and structure of xylem and phloem. Describe the structure and function of the leaf including the stomata and investigate the process of transpiration. Explain how plants are adapted for extreme environments. **Explain how plant hormones control and coordinate plant growth and development and their commercial uses.**



Plant Structure (6/8)

Summer Term 2

Health and Disease

Define health and describe non-communicable and communicable diseases including examples. Describe named pathogens including spread, symptoms and treatment. **Describe the life cycle of a virus. Describe how plants defend against pests and pathogens.** Describe the physical barriers and chemical defences of the human body against pathogens, including the immune system response. **Discuss advantages and disadvantages of immunisation and the production of monoclonal antibodies.** Describe process of developing new medicines. **Investigate the effects of antiseptics, antibiotics or plant extracts on microbial cultures.**

Health and Disease (7/10)

Summer Term 1

Natural Selection

Explain Darwin's Theory of Evolution by Natural Selection. **Describe work of Wallace and Darwin.** Describe the evidence for evolution including; fossils, tool use and **the pentadactyl limb.** Describe the classification into 5 kingdoms and then later 3 domains. Explain selective breeding and it's impacts. **Describe the process of tissue culture and the purpose.** Describe the main stages of genetic engineering and compare with selective breeding. **Explain advantages and disadvantages of GM organisms and solutions to human population growth.**



Natural Selection (6/8)

Spring Term 2

Genetics

Explain the role of meiotic cell division. **Explain advantages and disadvantages of sexual and asexual reproduction.** Describe the structure and of DNA. Explain how DNA can be extracted from fruit. **Describe the stages of protein synthesis, including transcription and translation.** Explain how phenotype varies due to inheritance of alleles through the use of genetic diagrams. **Describe work of Mendel and examples of inheritance.** Describe causes of variation. Discuss the outcomes of the HGP.

Exam Preparation

Revise the Core and Powerful Knowledge and commit key information to long term memory. You will be tested on all content covered so far this year.

Genetics (9/12)

Spring Term 1

Cells and Control

Understand the process of mitosis as part of the cell cycle. Describe the growth in organisms, including cell division and differentiation in animal and plants (including elongation in plants). Interpret percentile charts to monitor growth. Describe the function of embryonic and stem cells in animals and the potential benefits and risks. Describe the structure and function of the human nervous system including the reflex arc. **Explain the structures and functions of the brain, including imaging and limitations in treating damage. Explain the structure and function of the eye and describe defects including cataracts and how to correct.**

Cells and Control (9/12)

Autumn Term 2

Key Concepts in Biology

Describe the structure of animal and plant cells and explain how specialised cells are adapted for their function. Compare advantages and disadvantages of light and electron microscopes. Describe how to prepare a sample and use a light microscope. Explain the mechanism of enzyme action and the effects of conditions on enzyme action, including a core practical. **Describe the use of food tests to identify sugars, starch, proteins and fat. Explain how the energy contained in food can be measured through calorimetry.** Explain how substances are transported into and out of cells, including by diffusion, osmosis (including investigation) and active transport.

Key Concepts in Biology (8/10)

Autumn Term 1

NOW

Y10

Students will enter Y10 having worked through a comprehensive KS3 Science curriculum comprising elements of: Cells, Reproduction, Moving and Breathing, Ecology, Food and Digestion, Microorganisms, Genetics and Inheritance, Plants and Photosynthesis and Evolution. Key Concepts, Working and thinking scientifically underpins everything that we do. **(Triple Biology in Italics)**



THEN

Start here