

BIOLOGY KS4 CURRICULUM

ROADMAP

1

Cell Biology

Students will learn about different types of cells, how their structures relate to their functions, how cells divide by mitosis, and how stem cells can be used in medicine.

Combined Triple

Bioenergetics

Students will learn how plants use sunlight in photosynthesis to produce food, and how organisms release energy through aerobic and anaerobic respiration to carry out life processes.

Combined Triple

2

Organisation

Students will learn how the human digestive, respiratory, and circulatory systems work together to transport essential substances, and how lifestyle choices affect health. They will also study how transport systems in plants support photosynthesis.

Combined Triple

3

Infection and response

Students will learn how pathogens cause disease, how the body defends itself, and how vaccinations and antibiotics help prevent and treat infections.

Combined Triple

4

Ecology

Students will learn how energy flows and materials are recycled in ecosystems, how organisms depend on and adapt to their environment, and how human activities impact biodiversity and sustainability.

Combined Triple

5

Homeostasis and response

Students will learn how the nervous and hormonal systems help the body maintain stable internal conditions, including temperature, water levels, and reproductive functions..

Combined Triple

6

7

Inheritance, Variation and Evolution

Students will learn how meiosis and mutations create variation, and how breeding, cloning, and genetic engineering develop new traits, with a focus on ethical issues.

Combined Triple

Required Practical Work

Students will complete essential experiments. These practical are important for developing practical skills, reinforcing theoretical knowledge, and preparing students for exam questions based on experimental methods and data analysis.