

# BIOLOGY

# YEAR 10

## AUTUMN 1

### Cell Biology

Eukaryotes, prokaryotes, animal and plant cells, diffusion, osmosis, active transport.

#### Prior Learning

Students have studied animal and plant cells and structure during year 7 and photosynthesis during year 8. Students have studied breathing and types of respiration during year 8, including lung conditions.

## AUTUMN 2

### Organisation

Digestion system and process, cells, tissues, organs.

#### Prior Learning

Students have studied nerve cells as specialised cells and an overview of the nervous system in year 7 and studied reproduction with a brief overview of the menstrual cycle and IVF.

## SPRING 1

### Infection and response

Infectious diseases –pathways and spread of disease, bacterial diseases.

#### Prior Learning

Students will have discussed and explored ideas around keeping healthy/microbes in KS2 science, but regretfully this is no longer built on within the KS3 curriculum. However, this means that a lot of this content is brand new and exciting for Y10!

## SPRING 2

### Infection and response continued

Viral, fungal and protist (e.g. Malaria) diseases, human defence mechanisms, vaccinations, antibodies, plant diseases and defences.

#### Prior Learning

Students have considered defence mechanisms in the respiratory and digestive system in Y8.

## SUMMER 1

### Bioenergetics

Aerobic and anaerobic respiration, plant structure and photosynthesis.

#### Prior Learning

Students have been introduced to respiration as a biochemical process in Y8 as well as plant and leaf structure to support photosynthesis in Y 8 and Y9.

## SUMMER 2

### Ecology

Ecosystems, communities, biotechnology, sustainability.

#### Prior Learning

Students have studied basic plants in year 7 and interdependence including carbon cycle, food chains in Y 8.

## CAREERS LINKS

Agricultural engineer, aquatic botanist, floriculturist, food scientist, physiotherapist, respiratory therapist, cellular biologist, nurse, pharmacist, biomedical scientist, research scientist, laboratory technician, teacher, doctor, immunology research, horticulture, veterinary sciences, doctor, dentist, nurse, microbiology, public health.

## CHARACTER LINKS

Traits of curiosity, reasoning, and critical thinking (intellectual virtues) are fostered through scientific thought and evaluation of processes. Confidence, teamwork and resilience are needed (performance virtues) when conducting scientific experiments and hypothesising.

## KEY ASSESSMENT DATES

Half termly assessments in Oct, Dec, Feb, April, May and July.