



The curriculum for this stage of students' education has been designed to build upon their prior knowledge from key stage 3 Science. This course provides a worthwhile background for students who intend to go on to study Biology beyond GCSE. The course enables students to acquire a body of scientific knowledge and develop an understanding of the ideas and applications of Biology e.g. how diseases are spread and treated, the functioning of our digestive system and the importance of a balance diet. This is set in the context of knowing and understanding a body of scientific facts. Students acquire an understanding and experience of the methods used in science and of the application of experimental techniques in everyday life.

HALF TERM 1: Infection and Response

STUDENTS MUST KNOW:

- How Communicable (infectious) diseases are caused and spread.
- Examples of diseases caused by the 4 types of pathogen: viruses, bacteria, fungi & protists.
- How human defence mechanisms work
- How we become immune to diseases
- Required practical investigating effects of antiseptics / antibiotics upon bacterial growth

HOW THIS WILL BE ASSESSED: Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 2: Infection and Response

STUDENTS MUST KNOW:

- How vaccinations work and what they contain
- The discovery of antibiotics and what they do
- How we use painkillers.
- How new drugs are developed and tested for use
- How we produce and use monoclonal antibodies
- The causes and effects of plant diseases upon plants and how they defend themselves.

HOW THIS WILL BE ASSESSED: Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 1: Bioenergetics

STUDENTS MUST KNOW:

- The principles of cellular organisation: cells, tissues, organs, organ systems, organism, the human digestive system works.
- Required practical on how to test for food constituents
- How enzymes work Required practical upon the effects of pH upon enzyme activity
- The function of the heart Blood and blood vessels
- The causes and effects of coronary heart disease
- A range of lifestyle disease causes and effects
- The effects of lifestyle upon health
- How cancer is caused and treated
- How plant tissues and organs are arranged and function

HOW THIS WILL BE ASSESSED: Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 4: Bioenergetics

STUDENTS MUST KNOW:

- Photosynthesis & limiting factors
- The rate of photosynthesis
- Respiration & metabolism
- Aerobic & Anaerobic respiration
- Exercise and respiration

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 5: Ecology

STUDENTS MUST KNOW:

- How organisms are adapted for survival
- How ecological communities are organised
- How abiotic and biotic factors affect organisms
- How ecosystems are organised
- How materials are recycled in ecosystems

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

HALF TERM 6: Ecology

STUDENTS MUST KNOW:

- What biodiversity is and factors that affect it
- The causes & effects of global warming
- How biodiversity is maintained
- Required practical surveying organism distribution in a habitat

HOW THIS WILL BE ASSESSED:

Assessments will be completed at the end of each topic and one main assessment will occur during each term to assess progress.

Embedding this knowledge can be supported at home by using the AQA website, BBC Bitesize and GCSEPOD in conjunction with suitable revision guides.