

## KS5 – Year 12 – Biology

Term	Topic Titles	Brief Overview
<b>1</b>	Cell structure	Students will study the ultrastructure of the cell and how these work together, to calculate the size of cells and organelles from slides or photomicrographs
	Biological molecules	Students will study of the importance of water as well as the bonding of biological molecules and the roles of each biological molecule
	Enzymes	Students will learn the mechanism of enzyme action and the factors that affect the rate of a reaction. To design and carry out practical investigations into these factors.
	Biological membranes	Students will learn the detailed structure of the membrane, and how this enables cell signalling between cells using hormones.
	Cell division	Students will build on the work in GCSE to understand the detail of how cell division works and how cells become specialised, to describe the potential uses of stem cells
<b>2</b>	Exchange surfaces	Students will learn to describe the properties of a good exchange surface, in plants, animals and fish
	Transport in animals	Students will discuss the need of a circulatory system, to describe the pressure changes during the cardiac cycle and explain how carbon dioxide and oxygen are transported.
	Communicable diseases	Students will learn the structure of pathogenic organisms, and how they are transmitted. To be able to describe the ways that the body defends itself against the entry of pathogens and the principles of vaccinations and antibiotics.
	Classification and evolution	Students will learn the need to classify organisms, to understand the relationship between classification and phylogeny and describe the mechanism of natural selection.
<b>3</b>	Transport in plants	Students will learn about the distribution of the vascular tissues in roots, and how plants take up water and mineral ions to the leaves. To describe how plants are adapted to the availability of water.
	Biodiversity	Students will investigate biodiversity, to describe factors that affect biodiversity and how we can maintain it.