BTEC Applied Science Biology Introductory Work:

Biology is the study of life and living things. That is a lot to try to study! To make this more manageable we have to organise things a bit to help us consider how things work. We call this the hierarchy of life. The basic principle is that all things are composed of smaller things (e.g. a human is made of different organ systems that each have a particular function, most of which are needed for survival).

Task 1 – Research the hierarchy of life and produce an illustrated explanation of this hierarchy.

Task 2 – The most basic living thing is a cell but cells are made up of sub-cellular structures called organelles. You will have studied some of the organelles at GCSE but not all of them. As all living things are made up of cells we can't study life without understanding how cells work. Doctors would not be able to understand how the human body works if they only understood what a few of the organs did. Under the same principle, it's important to understand all of the organelles required to make a fully functioning cell in order to understand how a cell works.

- ❖ Produce large, hand drawn & labelled diagrams of the following types of cell:
  - A bacterium
  - A plant cell
  - An animal cell

Your diagrams need to be neat, accurate and have the structures drawn & labelled that are listed below:

	Bacterium	**Plant cell**	**Animal cell**
Organelles	Cell Wall	Cell Wall	Centrioles
	Cell Membrane	Cell Membrane	Cell Membrane
	Cytoplasm	Cytoplasm	Cytoplasm
	Ribosomes	Ribosomes	Ribosomes
	Nucleoid DNA	Nucleus	Nucleus
	Plasmid	Rough Endoplasmic reticulum	Rough Endoplasmic reticulum
	Flagella	Smooth Endoplasmic reticulum	Smooth Endoplasmic reticulum
	Pili	Mitochondria	Mitochondria
	Mesosome	Golgi Body	Golgi Body
	Slime capsule	Vesicles	Vesicles
		Lysosome	Lysosome
		Vacuole	

- ❖ Create a table to describe the structure and functions of each of the organelles

You will notice that there are lots of organelles found in both animals and plants. This similarity is because plants and animals evolved from a common ancestor (a protist). You can find out about this varied group of organisms by using the resources offered by Dr Sally Warring of the Earlham institute, Click Here. You only need to describe the structure and function of each organelle once if it is found in more than one type of cell (Note: The structure of a bacterial cell wall is different to that of a plant).