Resistant Spore Phase: This is a stage in the life cycle of many organisms. A related discovery was that spores of many microorganisms are found everywhere, but will only develop in favourable conditions.

Behaviour of Chromosomes: Observing chromosome during cell division (mitosis and meiosis) and during reproduction has shown that new cells contain information from old cells

Function of Genes: Each cell contains the blueprint needed for growth, development and behaviour in DNA. Research has also established the nature and roles of genes in the day-to-day control of cells and in the process of heredity. Experimental evidence through genetic engineering of the effects on cells of the deliberate transfer of genes between organisms also supports this.

Cells are the site of the necessary chemicals needed for life: The discovery of enzymes and their machinery, which are used in the chemical processes with a cell. This includes aerobic respiration and fermentation. The discovery of biochemical events with cells also proved this. Examples are the formation of proteins from amino acids

Cell Ultrastructure: the presence of discrete organelles and the biochemical events located in particular organelles shows that cells are designed to function independently. Scientists have shown that, because every cell contains organelles which are the locations of specific chemical reactions, they are the place where all these necessary processes of life take place.

2.1.3 - State that unicellular organisms carry out all the functions of life

These organisms are capable of carrying out all the necessary processes needed in living things.

- **Metabolism** - this includes the respiration and synthesis of ATP
- **Response** - to any change in the environment
- **Homeostasis** - the maintenance and regulation of internal cell conditions
- **Growth** - when the cell increases in size and volume