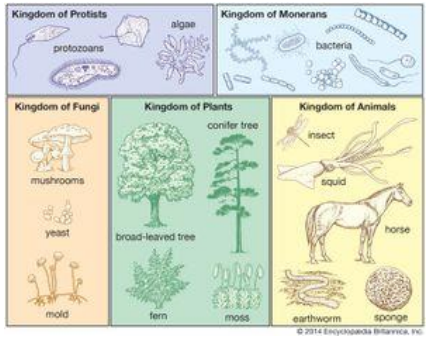
ASc13 – Exploring Biology

Skills

- Problem solving: practical laboratory work to find out the differences between plant and animal cells and why it may happen, using identification keys to name living organisms.
- Managing information: using different sources to find out additional information about living organisms, check relevance and accuracy of findings, organising results to present to others.

Types of living organisms

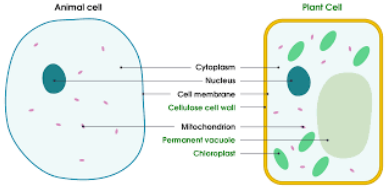
- Types of living organisms e.g. fish, plants, animals, fungus, bacterium, humans.



- Life processes e.g. ability to convert food into energy, growth, excretion, reproduction, breathe, sensitivity and can move.
- Function of and differences between plant and animal cells e.g. nucleus, cytoplasm, cell membrane, mitochondria, vacuole, chloroplast and cell wall.

Differences in humans

- Variations in humans, e.g. height, skin colour, ear lobes, feet size, hair colour, left and right handed.

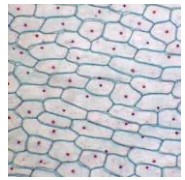


- Role of genes in inheritance e.g. chromosomes, allele, dominant recessive, mutations.
- Investigations to show variations, e.g. eye colour, tongue rolling, hand-span width, thick/thin hair.

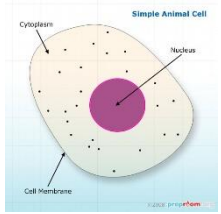
Scientific experiments

- Selection and use of simple laboratory apparatus – slides, slide cover, microscope, pipette, test tube.
- Safety, to include: using safety equipment, e.g. goggles, spectacles, protective clothing behaving safely.

- Preparing and viewing slides, using simple stains of cells from plants and animals, e.g. cells of cheeks, leaf, stem, seeds, pollen and onions.



- Looking at prepared cells that show greater variations, e.g. nerves, kidney tissue, liver tissue, skin, antennae of insects, membranes of insect wings.
- Finding out about the role of the nucleus in terms of containing genetic material and controlling cell functions.



- Laboratory housekeeping e.g. personal protective equipment, cleaning equipment after use, appropriate storage.

Basic keys for identification

- Different types of keys for identification, e.g. yes/no questions, flow charts with text and/or illustrations, branching.
- Using keys to identify living organisms by their characteristics, e.g. leaf shape, leaf patterns, flower shape, colour, number of legs, body divisions, wings or no wings.