

Cells

▼ Functions:

Cell membrane:

1. partially permeable membrane
2. controls substances entering and exiting the cell

Cytoplasm:

1. a jelly-like substance where most cell activities and chemical reactions occur.
2. It contains enzymes and organelles

Nucleus:

1. controls cell activities.
2. essential for cell division
3. repairs worn-out parts
4. contains genetic information

Cell wall:

1. a fully permeable membrane.
2. It gives the plant cell its fixed shape
3. protects the cell from injury

Mitochondria:

1. Aerobic respiration occurs here.
2. Food substances are oxidized to release energy

Chloroplast:

1. contains chlorophyll which absorbs sunlight for photosynthesis

Vacuole:

1. (Plant cell)
 - a. helps maintain water balance by taking in water to keep the plant cell firm
2. (Animal cell)

- a. contains water and food substances
- b. only exists temporarily

Animal Cell VS Plant Cell

In animal cell:

1. No presence of cell wall
2. No presence of chloroplast
3. There is presence of small and many vacuoles

In plant cell,

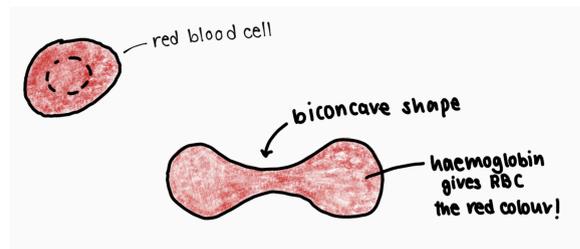
1. presence of cell wall sometimes chloroplasts and a large vacuole

Adaptations & Functions:

Red blood cell:

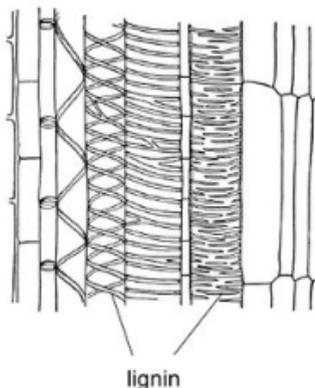
Adaptations:

- Biconcave shape increases **surface area to volume ratio** to take in and release oxygen at a faster rate.
- Red pigment haemoglobin



Function:

- transports oxygen from lungs to all parts of the body.



Xylem vessel:

Adaptations:

- walls are thickened with lignin to prevent collapse of vessels.
- also provides mechanical support for plants.

Function:

- transports water and mineral salts from surrounding

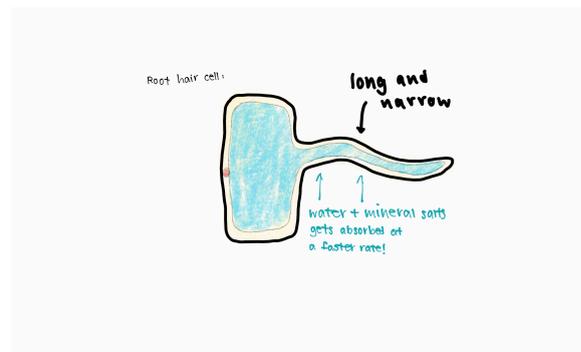
Root hair cell:

Adaptations:

- long narrow feature **increases surface area to volume ratio** to allow the cell to absorb water and mineral salts at a faster rate

Function:

- absorbs water and mineral salts from the surrounding



Definitions:

Cell: the smallest and basic unit of life.

Tissue: a group of cells with a similar structure and function together as a unit

Organ: a group of tissues which is typically self-contained and has a specific vital function

Organ system: a group of organs working together to perform bodily functions and make up an organism.