

### LIVING ORGANIZMS

All living organisms carry out seven life processes:-

Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition ( They all form the word **MRS.GREN**)

Any living organism is made of **cells**

All cells are made of **tissues**

All tissues are made of **organs**

All organs are made of **organ systems**

### DEFENITIONS

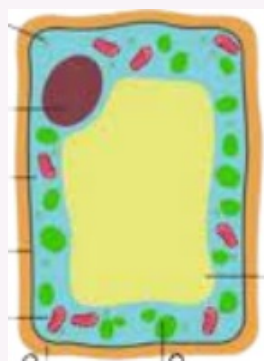
|                |                                                                                                                                                                                          |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Life processes | A process that something does to stay alive. The life process that happens in all living things are (movement, reproduction, sensitivity, growth, respiration, excretion, and nutrition) |
| Movement       | Going from one place to another, all organisms move or part of the                                                                                                                       |
| Respiration    | A process in which substances release energy for an organism to use. All organisms respire. There are, however, different forms of respiration                                           |
| Sensitivity    | the ability to detect things in the surrounding. All organisms can sense certain changes in their surroundings                                                                           |
| Growth         | Increases in size. All organisms grow                                                                                                                                                    |
| Reproduction   | A process in which organisms make more organisms like them. All organisms reproduce                                                                                                      |
| Excretion      | Getting rid of waste. All organisms excrete                                                                                                                                              |
| Nutrition      | is the substances that help organisms respire and grow. All organisms need nutrition                                                                                                     |

### FUNCTIONS OF CELLS

|               |                                                                                          |
|---------------|------------------------------------------------------------------------------------------|
| Animal cells  | It has a nucleus, cytoplasm, cell membrane, mitochondria, and ribosomes                  |
| plant cell    | contains a cell wall, chloroplast, and large vacuole + cell membrane, nucleus, cytoplasm |
| Nucleus       | Control the cell and gens                                                                |
| Cytoplasm     | Where the chemical reactions happen                                                      |
| cell membrane | controls what goes in and out of the cell and gives the cell its shape                   |
| Mitochondria  | Helps in respiration                                                                     |
| Ribosomes     | Makes energy                                                                             |
| Vacuole       | Contains cell sap                                                                        |
| cell wall     | made of cellulose that supports the cell                                                 |
| Chloroplast   | Absorbs sunlight for the photosynthesis process                                          |

### DIFFUSION

### PLANT CELLS



It consists of **nucleus, cell membrane, cytoplasm, cell wall, vacuole, chloroplasts**

Gas exchange at the alveoli — oxygen from the air to the blood, carbon dioxide from the blood to the air.

Gas exchange for photosynthesis — carbon dioxide from the air to leaf, oxygen from leaf to air.

Gas exchange for respiration — oxygen from the blood to tissue cells, carbon dioxide in the opposite direction.

**A high Diffusion Rate** leads to a short distance, large surface area, and big concentration difference.

High temperatures **increase** diffusion; large molecules **slow** diffusion.

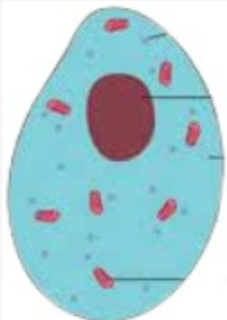
#### SURFACE AREA: VOLUME RATIO (SA: V)

**Surface area of a cuboid**= length x height / length x width / height x width

**Volume of a cuboid** = length x width x height

**SA : V RATIO** = surface area / volume

#### ANIMAL CELLS



It consists of a **nucleus, cell membrane, cytoplasm, mitochondria, ribosomes**



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