

# CHARACTERISTICS OF LIFE (MRS.GREN)

- **Movement** – Some organisms have obvious movement from muscular contraction (e.g. swim, fly, run). Some move by beating of cilia or flagella, or oozing like an amoeba. Others like corals and oysters do not move from place to place.
- **Respiration** – The process of respiration in body cells involves conversion of sugar and oxygen to ENERGY, carbon dioxide and water.
- **Sensitivity** - response to a stimulus (e.g. light or chemicals such as food)
- **Growth** – increase in cellular mass and/or increase in number of cells
- **Reproduction** – formation of another organism. Since viruses cannot reproduce on their own without being inside a host cell, they are not regarded as living organisms.
- **Excretion** – removal of body wastes such as carbon dioxide and urine
- **Nutrition** – ingestion or absorption of nutrients



## INTRODUCTION TO CLASSIFICATION

- **Taxonomy** – \_\_\_\_\_
- **Structural Characteristics** – the features of an organism relating to structure (e.g. number of appendages, \_\_\_\_\_)
- **Characteristics that are not used in classification** – As organisms to be identified are often dead and not usually in their normal habitat, certain characteristics are not useful in identification (e.g. body temperature, \_\_\_\_\_)
- **Reasons for Classification** –
  - To provide a scientific name that can be communicated by scientists from different countries
  - To show relationships between groups
  - To identify organisms accurately (e.g. poisonous organisms, \_\_\_\_\_)

## IMPORTANT TERMS

- **Unicellular** – \_\_\_\_\_
- **Multicellular** – \_\_\_\_\_
- **Autotrophic** – able to obtain energy from a source that is from the physical environment, by using light energy ( \_\_\_\_\_ ) or chemical energy ( \_\_\_\_\_ )
- **Heterotrophic** – \_\_\_\_\_
- **Prokaryotic** – simple cell types that do not contain organelles in membranes; usually smaller than eukaryotic cells (e.g. bacteria)
- **Eukaryotic** – complex cell types that \_\_\_\_\_

## BRIEF OVERVIEW OF THE 5 KINGDOMS

<b>KINGDOM</b>	<b>MAIN CHARACTERISTICS</b>	<b>EXAMPLES</b>
<b><i>Monera</i></b>	<ul style="list-style-type: none"> <li>• Unicellular</li> <li>• Prokaryotic</li> <li>• Cell wall usually</li> <li>• Some autotrophic, some heterotrophic</li> </ul>	<ul style="list-style-type: none"> <li>• Bacteria</li> <li>• Cyano-bacteria (blue-green algae)</li> </ul>
<b><i>Protista</i></b>	<ul style="list-style-type: none"> <li>• Unicellular or multicellular</li> <li>• Eukaryotic</li> <li>• Some autotrophic, some heterotrophic</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Paramecium</i></li> <li>• <i>Amoeba</i></li> <li>• Algae</li> <li>• Slime moulds</li> </ul>
<b><i>Fungi</i></b>	<ul style="list-style-type: none"> <li>• Unicellular or multicellular</li> <li>• Eukaryotic</li> <li>• Heterotrophic</li> <li>• Cell wall</li> <li>• No chloroplasts</li> </ul>	
<b><i>Plantae</i></b>	<ul style="list-style-type: none"> <li>• Multicellular</li> <li>• Eukaryotic</li> <li>• Autotrophic</li> <li>• Cell wall</li> <li>• Chloroplasts</li> </ul>	
<b><i>Animalia</i></b>	<ul style="list-style-type: none"> <li>• Multicellular</li> <li>• Eukaryotic</li> <li>• Heterotrophic</li> <li>• No cell walls nor chloroplasts</li> </ul>	

# HIERARCHICAL CLASSIFICATION OF ORGANISMS

- **Classification within a Kingdom** – Kingdom, Phylum (or Division), Class, Order, Family, Genus, Species
- **Mnemonic** - King Paul Cries Out For Good Soup
- **Species** - a group of organisms with similar \_\_\_\_\_ that can reproduce naturally to produce \_\_\_\_\_

<b>RANK OF TAXONOMY</b>	<b>HUMAN</b>	<b>CRAY-FISH</b>	<b>BOTTLE-BRUSH</b>	<b>PARAMECIUM</b>
<b>KINGDOM</b>	Animalia	Animalia	Plantae	Protista
<b>PHYLUM or DIVISION</b>	Chordata	Arthropoda	Tracheophyta	Protozoa
<b>CLASS</b>	Mammalia	Crustacea	Angiospermae	Ciliata
<b>ORDER</b>	Primates	Decapoda	Myrtales	Holotricha
<b>FAMILY</b>	Hominidae	Palinuridae	Myrtaceae	Parameciidae
<b>GENUS</b>	<i>Homo</i>	<i>Jasus</i>	<i>Callistemon</i>	<i>Paramecium</i>
<b>SPECIES</b>	<i>Homo Sapiens</i>	<i>Jasus ialandei</i>	<i>Callistemon linearis</i>	<i>Paramecium caudatum</i>

## MAKING A DICHOTOMOUS KEY

Example: Here is an example of key to show how to key out organisms, such as a kangaroo, a cow, a bee and a spider.



- 1a. Internal skeleton.....go to 2  
 1b. No internal skeleton..... go to 3
- 2a. Pouch present.....kangaroo  
 2b. Pouch absent ..... \_\_\_\_\_
- 3a. Six legs..... \_\_\_\_\_  
 3b. Not six legs..... \_\_\_\_\_