



# SNS College of Technology

## Department of Mechanical Engineering



## BIOLOGY FOR ENGINEERS

### Unit – I

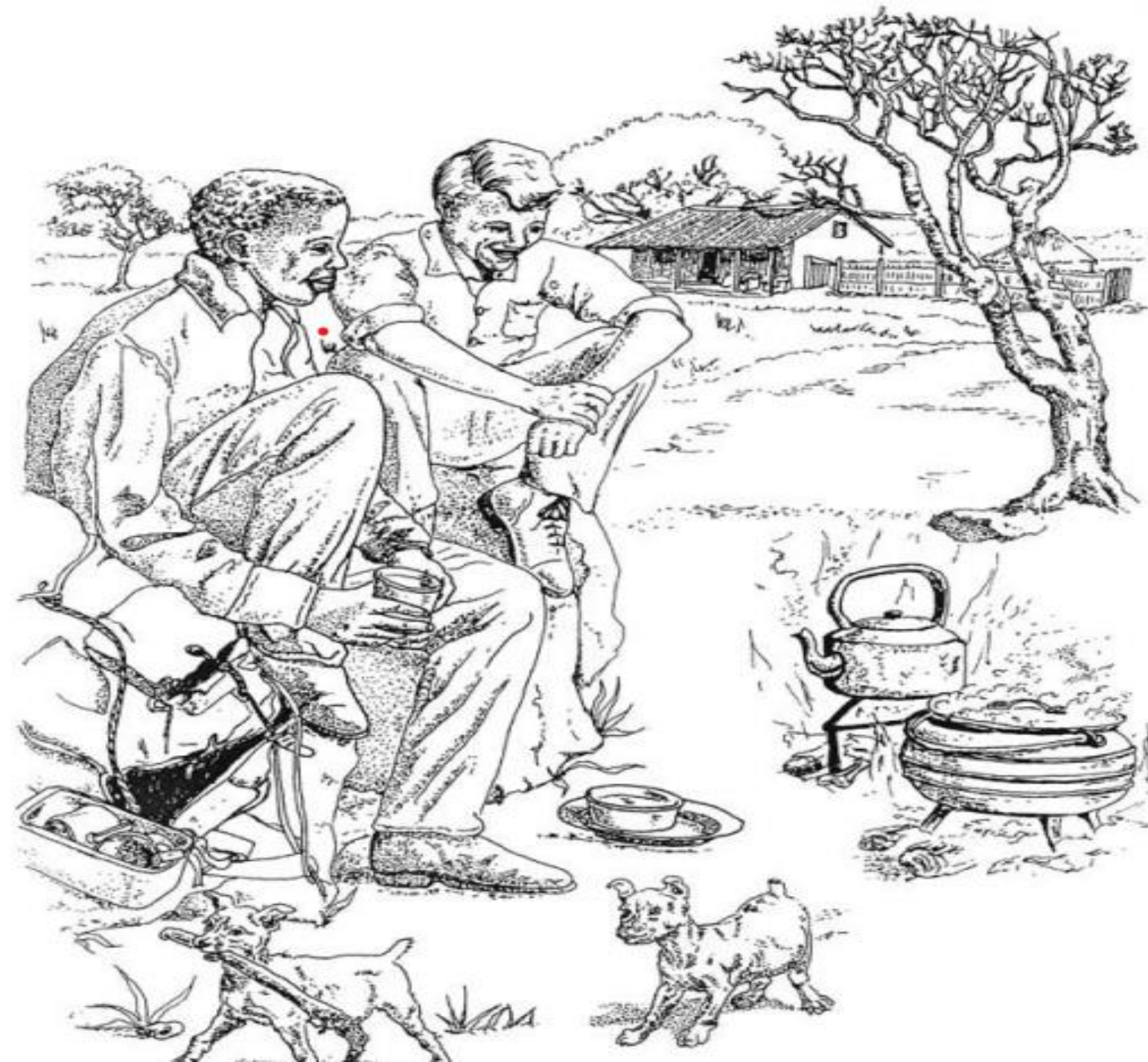
#### INTRODUCTION OF LIFE

**Topic :** Characteristics and classification of living organisms

**Mr.Gowtham M**  
**AP/Mech**



# Characteristics and classification of living organisms





# Characteristics and classification of living organisms



## **Nutrition**

Living things take in materials from their surroundings that they use for growth or to provide energy. Nutrition is the process by which organisms obtain energy and raw materials from nutrients such as proteins, carbohydrates and fats.

## **Respiration**

Respiration is the release of energy from food substances in all living cells. Living things break down food within their cells to release energy for carrying out the following processes.

## **Movement**

All living things move. It is very obvious that a leopard moves but what about the thorn tree it sits in? Plants too move in various different ways. The movement may be so slow that it is very difficult to see.





# Characteristics and classification of living organisms



## **Excretion**

All living things excrete. As a result of the many chemical reactions occurring in cells, they have to get rid of waste products which might poison the cells. Excretion is defined as the removal of toxic materials, the waste products of metabolism and substances in excess from the body of an organism.

## **Growth**

Growth is seen in all living things. It involves using food to produce new cells. The permanent increase in cell number and size is called growth.

## **Reproduction**

All living organisms have the ability to produce offspring.

## **Sensitivity**

All living things are able to sense and respond to stimuli around them such as light, temperature, water, gravity and chemical substances



# Hierarchical classification system

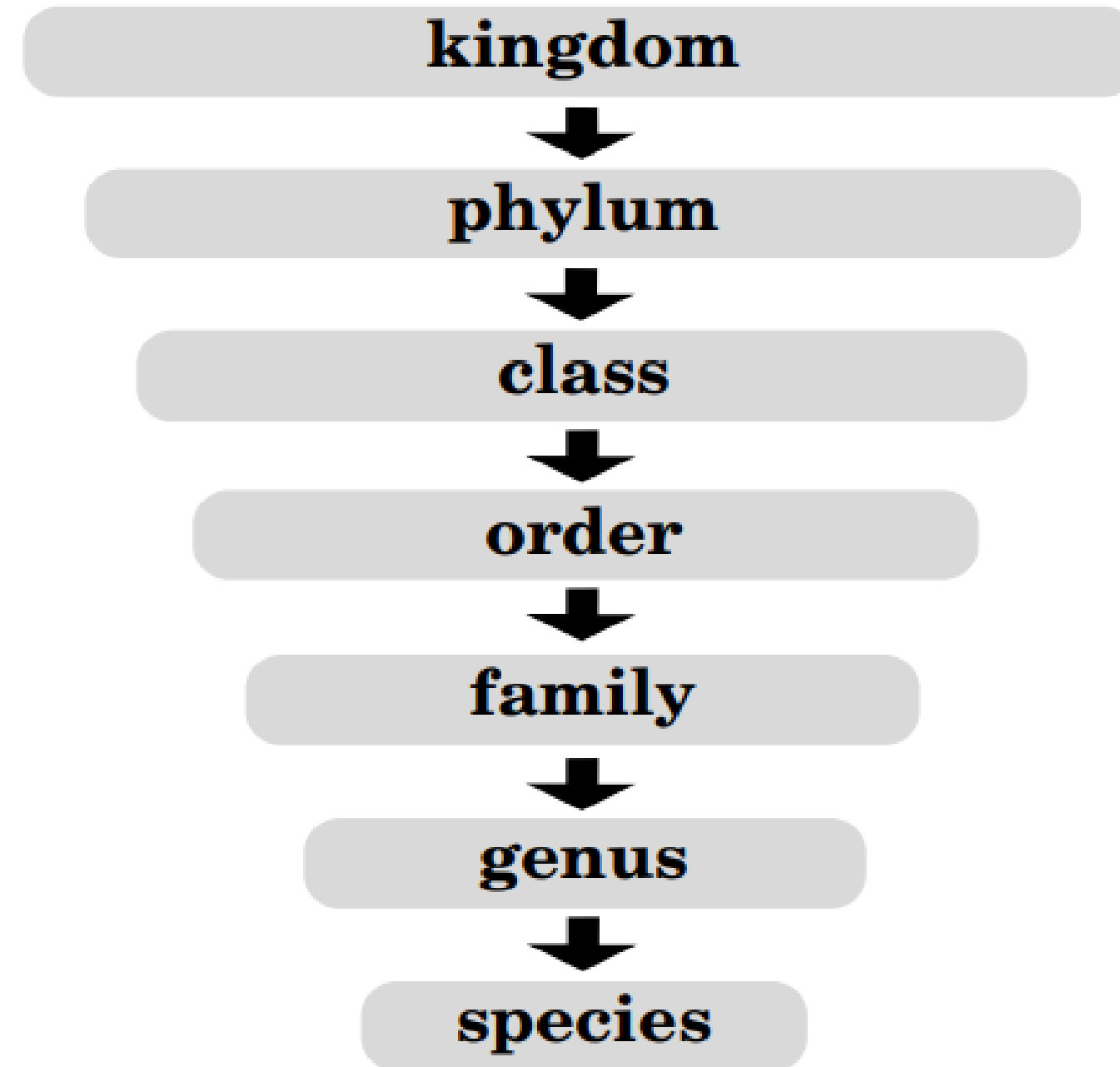


There are various sizes of groups into which living organisms are put. The largest group is the kingdom. There are five kingdoms: prokaryotes (which includes bacteria), protocista, fungi, plants and animals. Each kingdom is further divided into smaller groups called phyla, based on a few features that are shared by some organisms.

For example, the arthropod phylum contains all the animals without a backbone that also have jointed legs and a hard covering over their body, such as insects, crustaceans and spiders. A phylum is then subdivided into classes, orders, families, genera, and finally species.



# Hierarchical classification system





# Hierarchical classification system



<b>Kingdom</b>	<i>Animalia</i>	all animals, same as zebra
<b>Phylum</b>	<i>Chordata</i>	all animals with a backbone
<b>Class</b>	<i>Mammalian</i>	animals with a backbone, which have hair
<b>Order</b>	<i>Primate</i>	mammals with hands and feet
<b>Family</b>	<i>Hominidae</i>	apes, primitive humans and modern humans
<b>Genus</b>	<i>Homo</i>	primitive humans and modern humans only
<b>Species</b>	<i>sapiens</i>	modern humans only
<b>Scientific name</b>	<i>Homo sapiens</i>	



**THANK YOU**