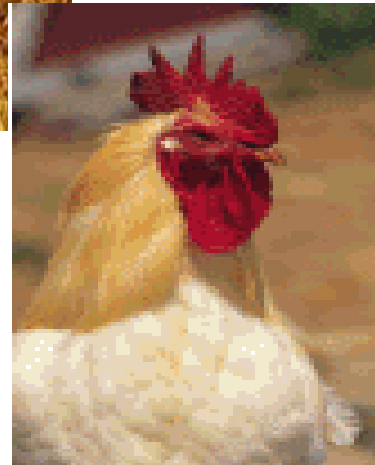
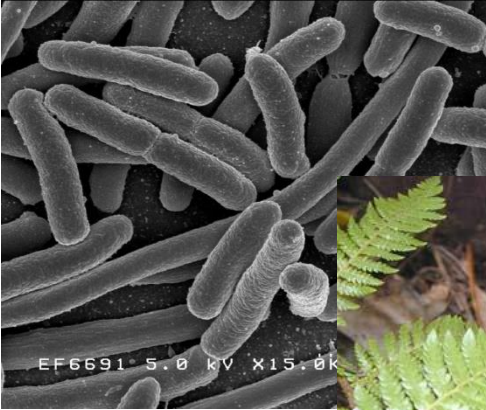


# UNIT 2: MICROBIOLOGY

## Diversity of Living Things



# Taxonomy

## Definition:

- Taxonomy is the science of classifying organisms (both living & extinct).

## Taxonomic System

- developed by Carl Linnaeus (1707-1778) in Latin
- based his classification on structural and physical features
- the more features organisms have in common, the closer their relationship

# Binomial Nomenclature (common worldwide language)

- The Scientific Name: **two terms:**
- first part of name – called the **genus**
- first letter is always capitalized
- this part can be written alone (e.x. *Acer* meaning all maple trees, *Ursus* = all bears)
- second part of name – called the **species**
- is not capitalized (lowercase)
- is never written alone (e.x. *Acer rubrum*, referring to a red maple, *Ursus americanus* = North American Black Bears)

note: both parts of the scientific name are italicized

# Species

SPECIES: a group of organisms with similar features that can interbreed and produce fertile offspring



**horse**

+



**donkey**

=



**mules**

# Binomial Nomenclature

## Examples

Genus	Species	Abbreviated
1. <i>Homo</i>	<i>sapiens</i>	→ <i>H. sapiens</i>
2. <i>Castor</i>	<i>canadensis</i>	→ <i>C. canadensis</i>
3. <i>Escherichia</i>	<i>coli</i>	→ <i>E. coli</i>

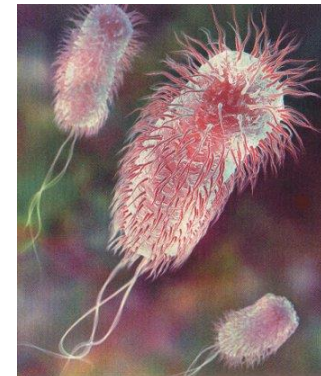
1



2



3



# 7 Levels of Classification

- Kingdom
- Phylum
- Class
- Order
- Family
- Genus
- Species

**Largest / General**



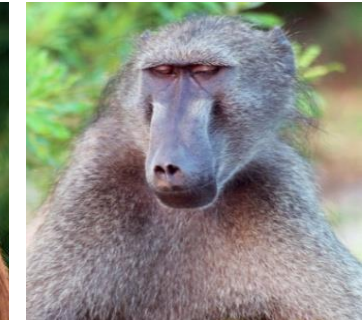
**Smallest / Specific**



# Taxonomic Classifications

	Man	Gorilla	Chimpanzee	Orangutan	Baboon
Kingdom	Animalia	Animalia	Animalia	Animalia	Animalia
Phylum	Chordata	Chordata	Chordata	Chordata	Chordata
Class	Mammalia	Mammalia	Mammalia	Mammalia	Mammalia
Order	Primates	Primates	Primates	Primates	Primates
Family	Hominidae	Hominidae	Hominidae	Hominidae	Hominidae
Subfamily	Homininae	Homininae	Homininae	Ponginae	Cercopithecidae
Genus	<i>Homo</i>	<i>Gorilla</i>	<i>Pan</i>	<i>Pongo</i>	<i>Papio</i>
Species	<i>sapiens</i>	<i>gorilla</i>	<i>troglodytes</i>	<i>pygmaeus</i>	<i>ursinus</i>

Gorillas & Chimps have 98% same DNA as us

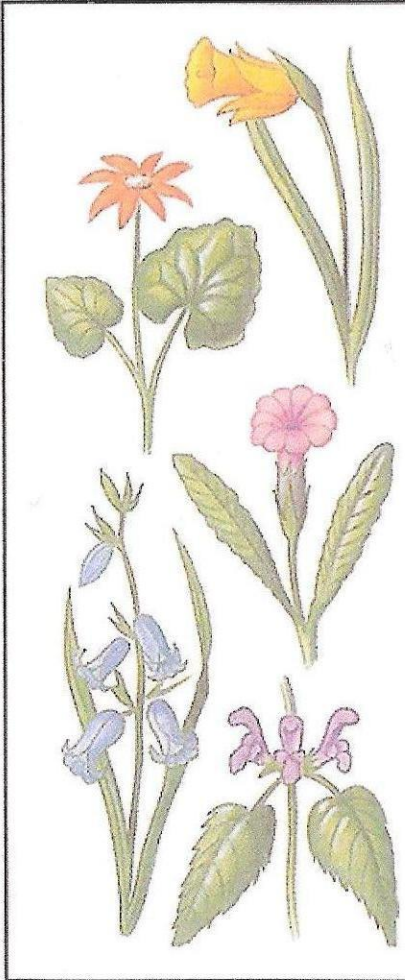


# [ Dichotomous Key ]

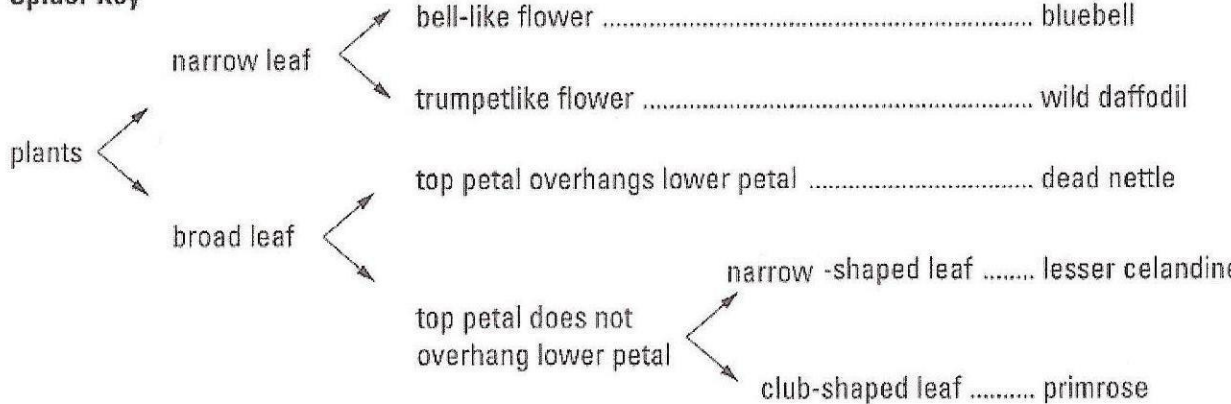
- two-part key used to identify living things
- a series of choices must be made
- each choice leads to a new branch of the key
- end result is the name of the organism being identified



# DICHOTOMOUS KEY



**Spider Key**

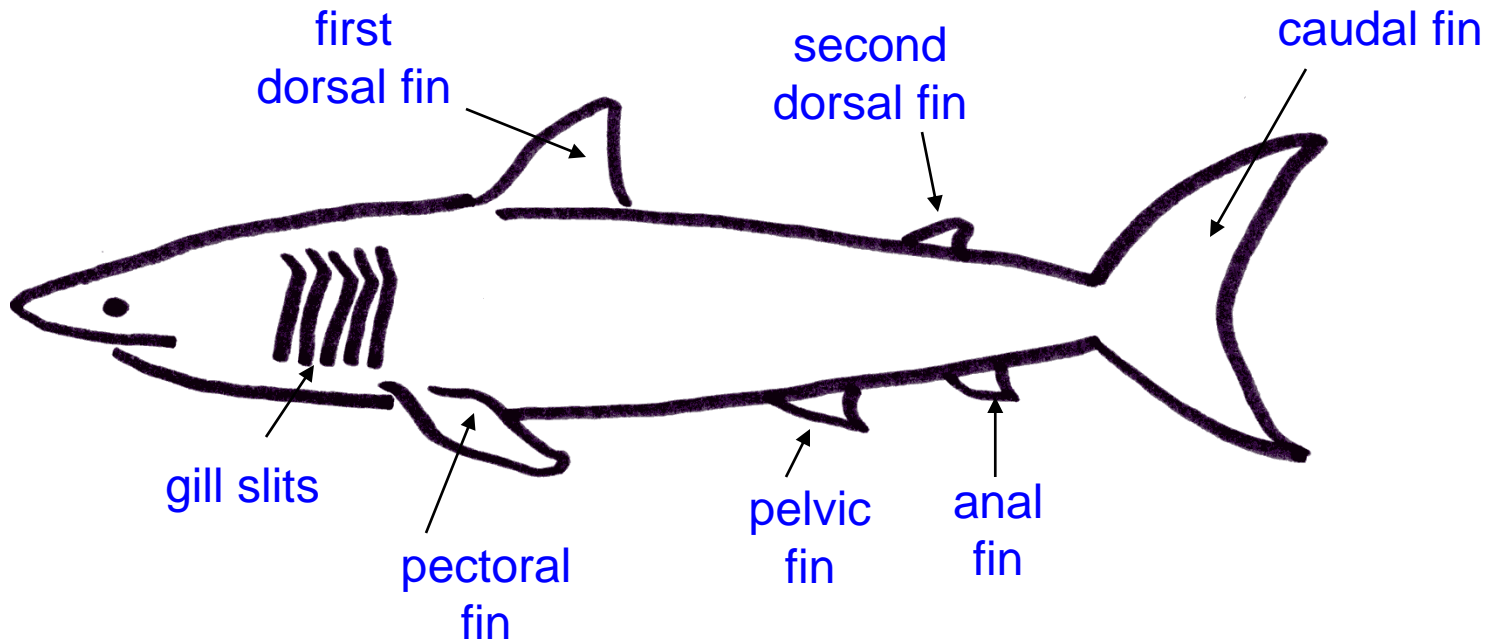


- 
- |   |  |
|---|--|
| <p>1. narrow leaf ..... go to 2<br/>         broad leaf ..... go to 3</p> <p>2. bell-like flower ..... bluebell<br/>         trumpetlike flower ..... wild daffodil</p> | <p>3. top petal overhangs lower petal ..... dead nettle<br/>         top petal does not overhang<br/>         lower petal ..... go to 4</p> <p>4. narrow shaped leaf ..... lesser celandine<br/>         club-shaped leaf ..... primrose</p> |
|---|--|

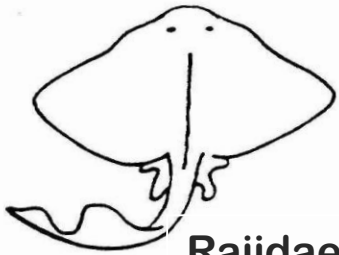
**Figure 3**  
 Sample dichotomous keys. The top key is sometimes called a spider key because of its shape.

# SHARK ANATOMY

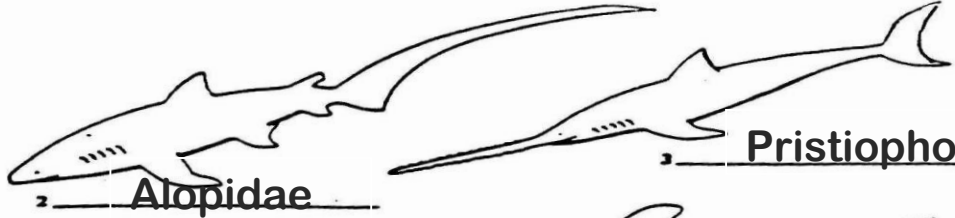
Dorsal side



Ventral side



1. **Rajidae**



2. **Alopidae**



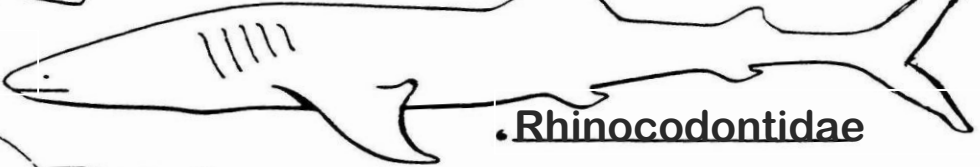
3. **Pristiophoridae**



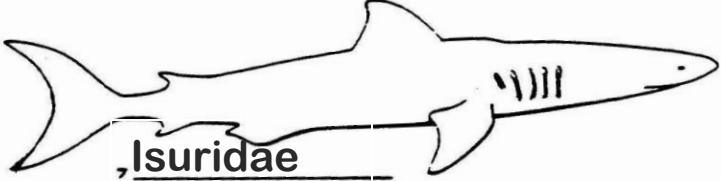
4. **Scyliorhinidae**



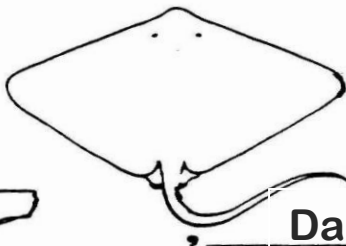
5. **Carcharinidae**



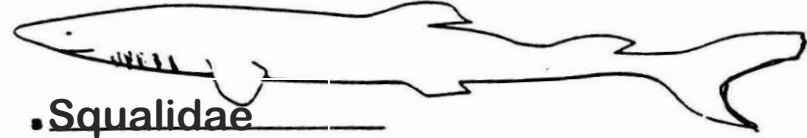
6. **Rhinocodontidae**



7. **Isuridae**



8. **Dasvatidae**



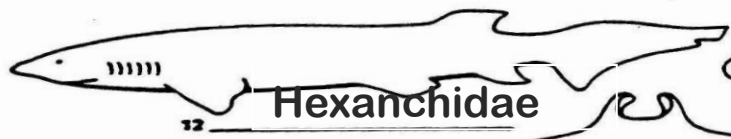
9. **Squalidae**



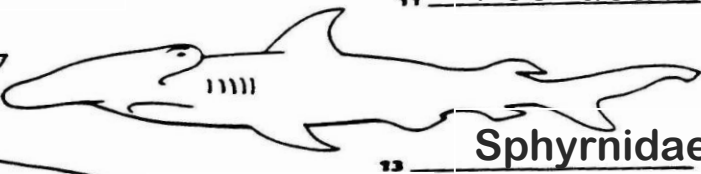
10. **Scanapanorhynchidae**



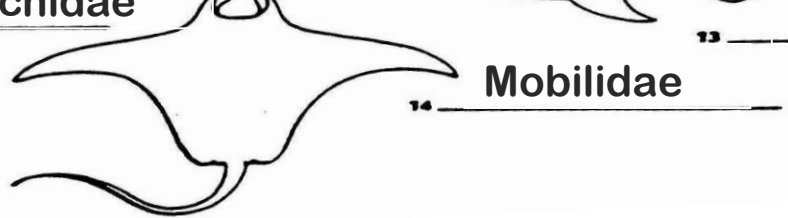
11. **Pseudotriakidae**



12. **Hexanchidae**



13. **Sphyrnidae**



14. **Mobilidae**