17.1 Notes

Classification

Classification Notes outline

A. Classification

Why?

Taxonomy

Aristotle

Linnaeus

B. Naming organisms

common name

scientific name

Rules:

1. 2 names =

genus, species

2. Latin

3. underline   ex.

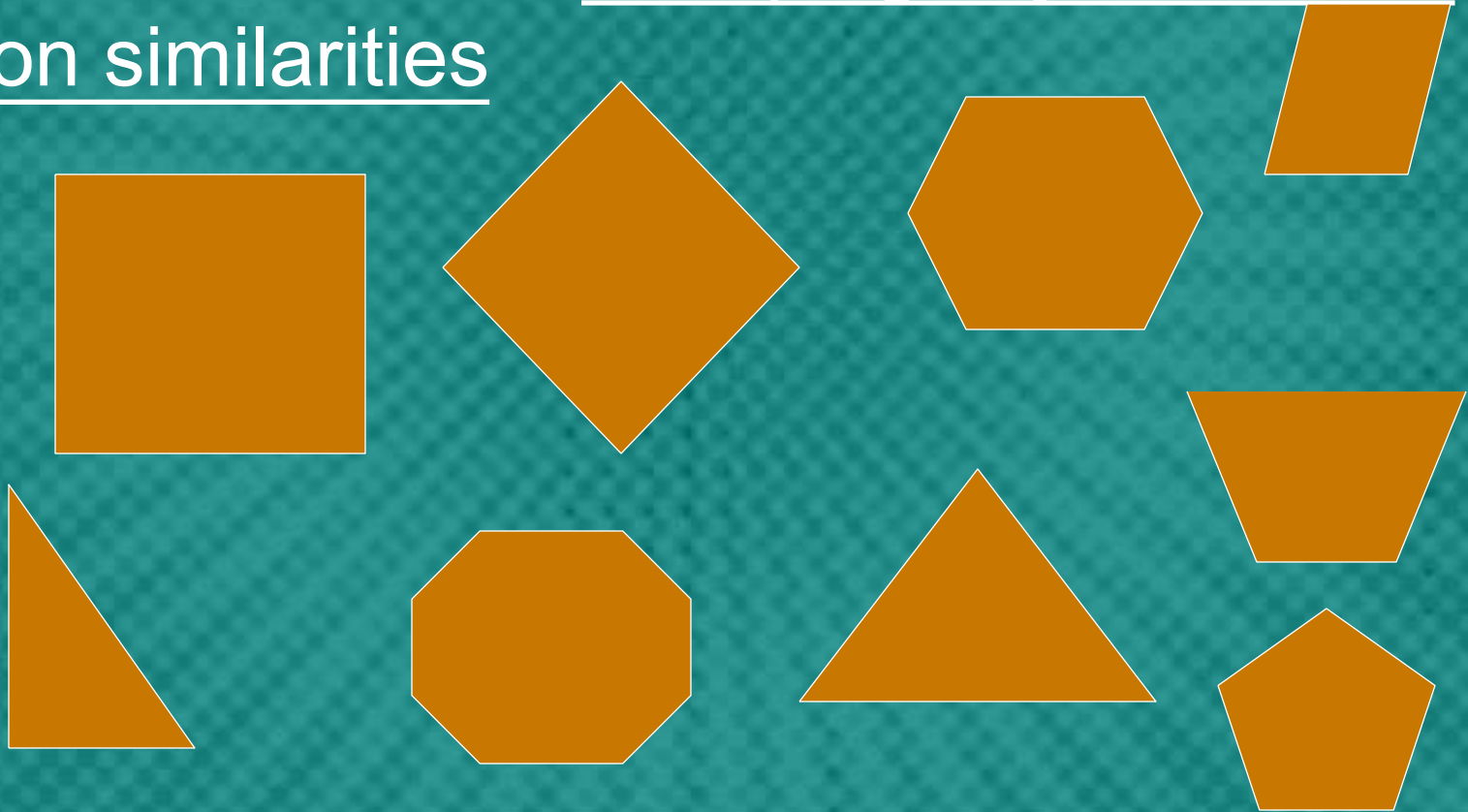C. Dichotomous key

D. Life classified by:

1. appearance

2. history

3. DNA

E.

Classification

- **Classification**--Grouping objects based on similarities

Why classify?

- To organize information and see relationships

Consider this:

- Are all "Grey Wolves" gray?
- Are all "Black Bears" black?
- Which is more venomous – a water moccasin or a cottonmouth?

- Grey wolves can be white, black and any shade of gray.
- Black bears can also be brown or gray
- A cottonmouth and a water moccasin are the same animal – the names vary by region.
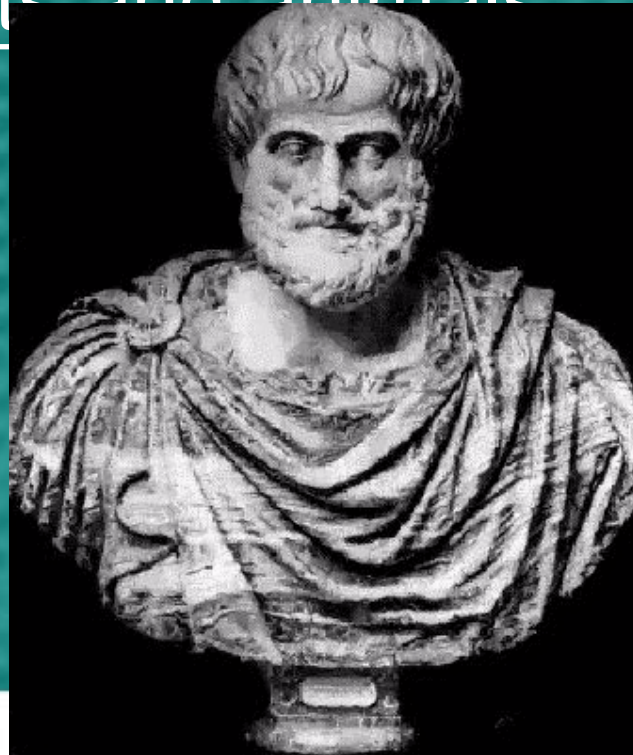
Classification

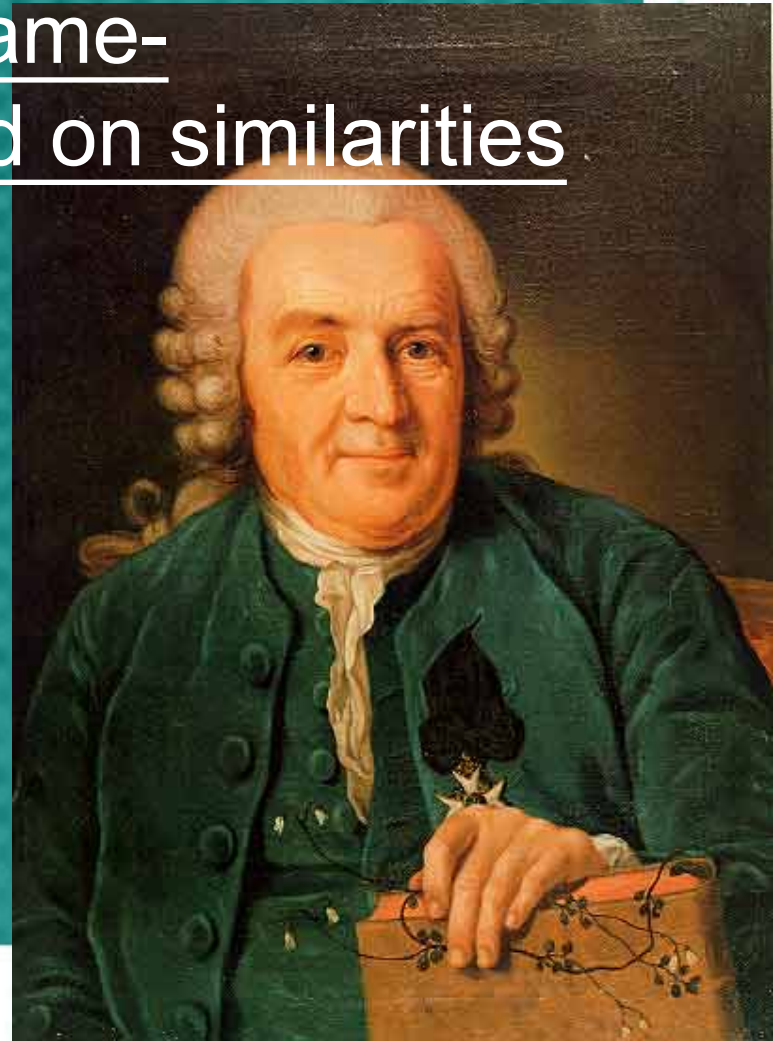- **Taxonomy**—branch of biology that names and classifies organisms

Classification

- **Aristotle**--Scientist who developed the first classification system with two groups: plants and animals.

Classification

- **Linnaeus**--Developed 2 name-classification system based on similarities between organisms

How are organisms named?

- **1. Common name**--Different for different languages

- **2. Scientific name** —universal because written language

Rules for writing scientific names

1. **2 names = Binomial nomenclature**
    - **Genus**--1st word, begins with capital letter
        - Group of similar species
    - **Species**--2nd word, begins with lower-case letter
        - Organisms that can reproduce with one another

2. Names are always written in Latin
3. Names are italicized or underlined
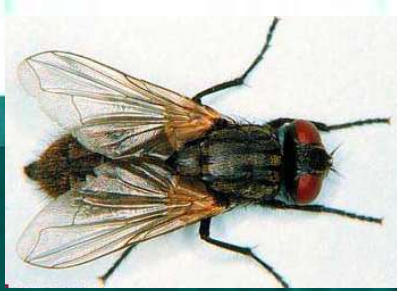
Binomial Nomenclature Examples

- *Homo sapiens* or <u>H. sapiens</u> = humans
- *Odocoileus virginianus* = white tailed deer
- *Felis domesticus* = cat
- *Canis familiaris* = dog

Modern Classification

- **Dichotomous key**--A tool used for naming and identifying organisms

Housefly   Ladybug   Grasshopper   Dragonfly

1. a. wings covered by an exoskeleton ………go to step 2

b. wings not covered by an exoskeleton ……….go to step 3

2. a. body has a round shape ……….ladybug

b. body has an elongated shape ……….grasshopper

3. a. wings point out from the side of the body ……….dragonfly

b. wings point to the posterior of the body ……….housefly

How are organisms classified?

- 1. appearance
- 2. evolutionary history
- 3. DNA sequence (most accurate)

Grouping of Organisms

- **Classification groups-** Each group includes all groups below it

  Ex. Humans
- Kingdom………………………………Animalia
- Phylum……………………………….Chordata
- Class…………………………………..Mammalia
- Order…………………………………Primate
- Family…………………………………Hominidea
- Genus…………………………………Homo
- Species…………………………………Sapiens

- More groups shared = more traits in common

Classification

Each group gets smaller and more specific – just think of the way you file things on your computer into folders and subfolders
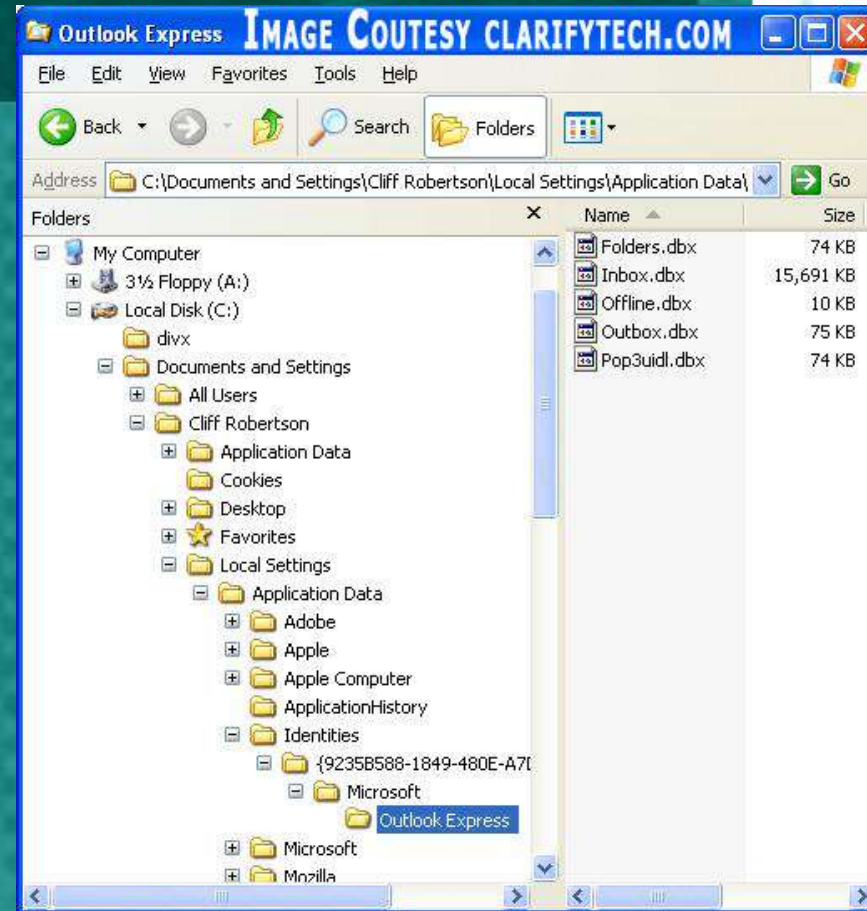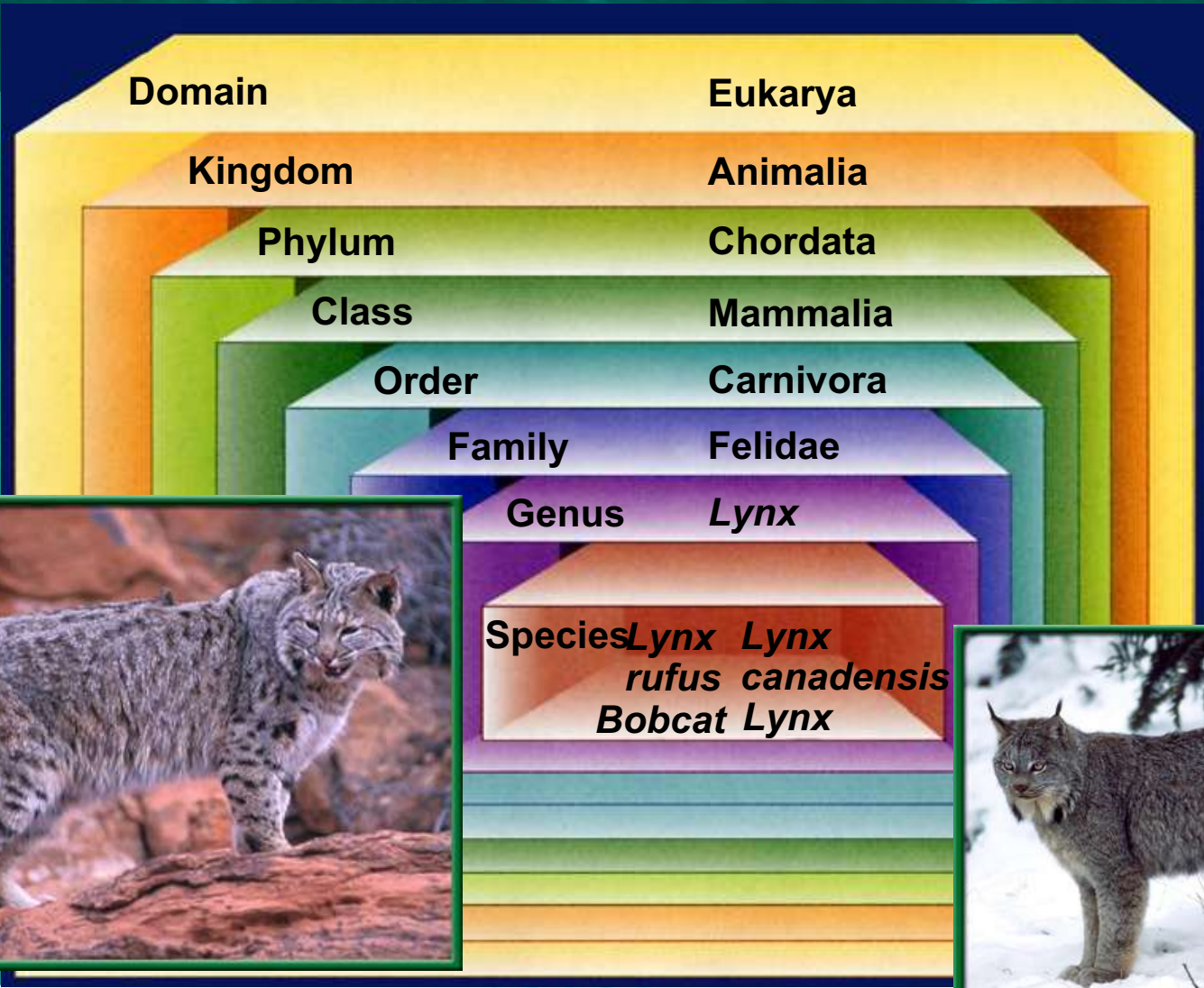
Classification Group Pneumonic Device

King

Phillip

Came

Over

When two organisms of different species interbreed, the offspring is called a hybrid.

Ex. Mule, liger

1. Fill in the blanks: Kingdom, _____, Class, Order, _____, Genus, _____

2. Which two groups are used for an organism's <u>scientific name</u>?

3. Which of the following pairs is MOST closely related?

   Acer rubrum & *Acer saccharum*
   Acer rubrum & *Chenopodium rubrum*

4. *The system we use for naming is called _____ nomenclature.*

5. *The science of classification is called _____*