

Introduction to Classification

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Grade 6 Science

What is **classification**?

- **Classification** is the grouping of things according to their unique characteristics by using a system
- **In other words: Put in groups; Use a system**
- **In science, we classify living things** in a certain way.

All living things share these seven traits:

1. Organize (Have one or more cells)
2. Metabolize (Need food and water)
3. Grow
4. Reproduce
5. Move internally or externally
6. Respond to a stimulus
7. Adapt to their environment

Classification helps us keep all living things organized!

- *Millions* of kinds of organisms live on our planet. Each kind of organism is a **species**
- About 1.5 million species have been identified, but there are an estimated 100 million species yet to be discovered!♪
- Only organisms in the same species can mate and produce fertile offspring.
- The science of classifying (or grouping) organisms is known as **taxonomy**

There are eight levels of classification:

- 1.Domain**
- 2.Kingdom**
- 3.Phylum**
- 4.Class**
- 5.Order**
- 6.Family**
- 7.Genus**
- 8.Species**

Here's a way to remember it:

Dear
King
Phillip,
Come
On,
For
Goodness
Sake!

There are three domains:

The first two domains--Archaea and Bacteria -- are one-celled **prokaryotes** that lack a membrane-bound nucleus.

Archaea live in harsh environments. They are sometimes called extremophiles

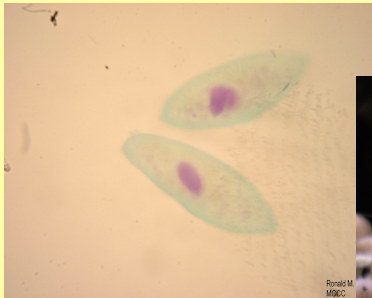
Eubacteria, some of which cause human diseases, are present in almost all habitats on earth.

The third domain is different:

Eukaryotes – These organisms have more than one cell. Their cells have a nucleus and other organelles.

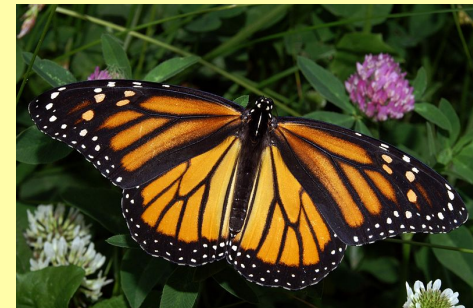
The Eukaryote Domain is divided into four Kingdoms:

1. **Protists** (ameoba, paramecium)
2. **Fungi** (mushrooms, mold, mildew)
3. **Plants** (grasses, trees, moss, tomato plants.....)
4. **Animals** (birds, reptiles, fish, mammals...)



Here's an example of how three different animals are classified:

Domain	Eukaryote	Eukaryote	Eukaryote
Kingdom	Animal	Animal	Animal
Phylum	Chordata	Chordata	Arthropod
Class	Reptile	Bird (Aves)	Insecta
Order	Iguania	Passeriformes	Lepidoptera
Family	Chameleoniae	Corvidae	Nymphalidae
Genus	Chameleo	Corvus	Danaus
Species	calyptratus	brachyrhynco	plexippus
Common name	Veiled Chameleon	American Crow	Monarch Butterfly



Here are three more:

Domain	Eukaryote	Eukaryote	Eukaryote
Kingdom	Animal	Animal	Animal
Phylum	Chordata	Crustacean	Arthropod
Class	Mammalia	Malacostraca	Insecta
Order	Primates	Decapoda	Matodea
Family	Hominidae	Nephropidae	Mantidae
Genus	Homo	Homarus	Mantis
Species	sapiens	americanus	regligiosa
Common name	Human Being	Lobster	Praying Mantis



Once a taxonomist has identified a new species, it is given a scientific name.

Why?

Think about how confusing it
could get...

squalo bianco grande

ホホシロザメ

grande tubarão branco

grand requin blanc

gran tiburón blanco

großer weißer Haifisch

백상어

большая белая акула

What is it?



Carcharodon carcharias

**The common name for this creature, in English, is
Great White Shark**

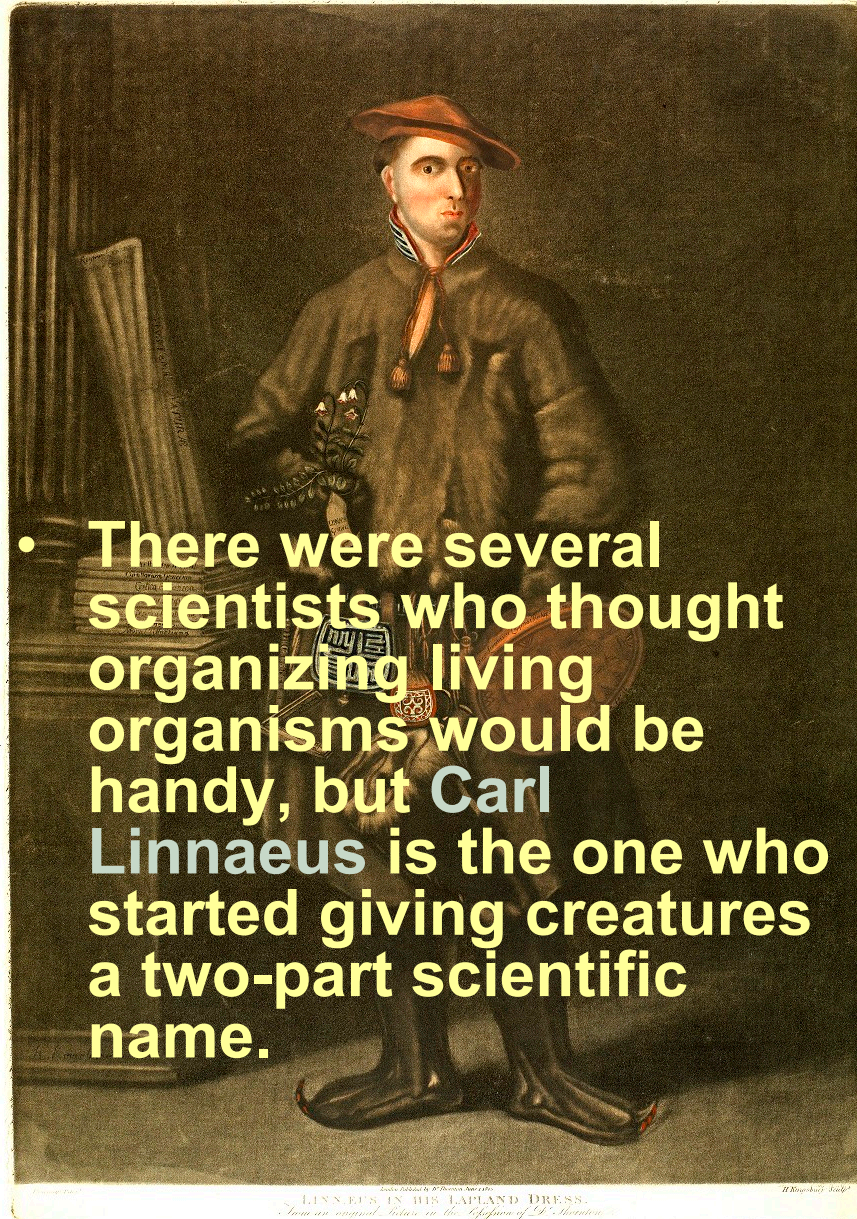
What is a scientific name?

- The last two parts of the organism's taxonomy: The genus and species
- Scientific names are usually in Latin.
- This two-part naming system is called **Binomial Nomenclature**
- Scientific names are always *italicized* or underlined: (Genus is capitalized; species name is lower-case).



Humans have a scientific name, too. We are
Homo sapiens

Who came up with this idea?



- There were several scientists who thought organizing living organisms would be handy, but **Carl Linnaeus** is the one who started giving creatures a two-part scientific name.

Source: National Portrait Gallery, London
LINNAEUS IN HIS LAPLAND DRESS.
From an original picture in the possession of L. C. Murton.

Homework

Use your handout to review today's lesson. Make sure you have answered all these questions on your worksheet:

1. What is classification?
2. What do all living things have in common?
3. What is the scientific term for classifying living organisms?
4. Describe binomial nomenclature.
5. Who developed the system we use for naming living organisms?
6. What language is a scientific name usually written in?
7. What are the eight classification groups?
8. Is a human more closely related to a bird or a butterfly?
9. What kingdom would a cat be in?
10. What class would a cat be in?