

How many different kinds of plants and animals can you name? Twenty? Thirty? . . . Fifty? It may be hard to believe, but we share this planet with millions of different kinds of organisms. So far, about 1 1/2 million different kinds of organisms have been identified. In addition, about 6000 more are being discovered each year. Some scientists believe the number to be more than 10,000,000.

How do we keep track of so many different kinds of organisms? Biologists classify living things into groups. Members of the same group are alike in certain important ways. The science of classifying living things is called taxonomy (tak-SAHN-uh-mee). *identifying & naming*

Carolus Linnaeus (lun-NAY-us) developed a classification system in 1735. Linnaeus is credited as the founder of modern taxonomy. He grouped organisms according to what they looked like. Organisms that looked alike were grouped together. Today, we consider other things too, like cell organization, chemical make-up, ancestors, and the way an organism develops before it is born.

**CLASSIFICATION GROUPS** Today, living things are classified into seven major classification groups. Organisms that are classified in the same group, are alike in some ways. The more alike organisms are, the more groups they share.

The largest classification group is the **kingdom**. A kingdom contains the largest number of different organisms. Members of a kingdom share only a few traits or characteristics. In fact, members of the same kingdom may not look alike at all. Take the flea and the elephant, for example. Do they look alike? Of course not! Yet, they belong to the same kingdom.

Each kingdom is then divided into smaller and smaller groups. They are the **phylum** (FY-lum), the **class**, the **order**, the **family**, the **genus**, (JEE-nus), and the **species** (SPEE-sheez). As a group becomes smaller, the members become more similar.

K → P → C → O → F → G → S

## CLASSIFICATION GROUPS

Think of the classification system as an upside-down pyramid. The kingdom is the largest part. It has the most room so, it can hold the greatest number of organisms—all plants, or all animals, or all protists.

As you move down the pyramid, each room gets smaller. It can hold fewer and fewer members: however, the members have more traits in common. They begin to be more alike.

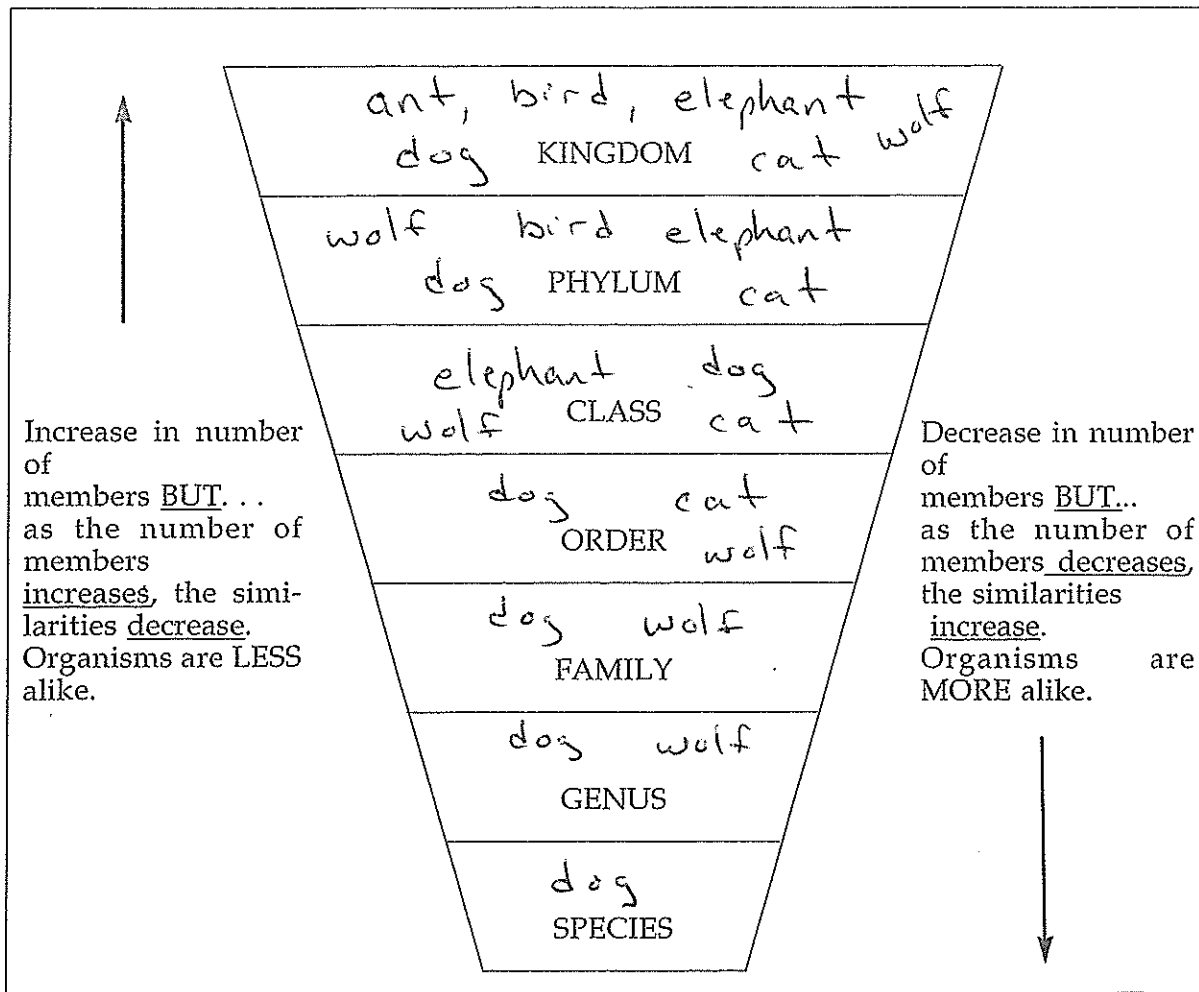
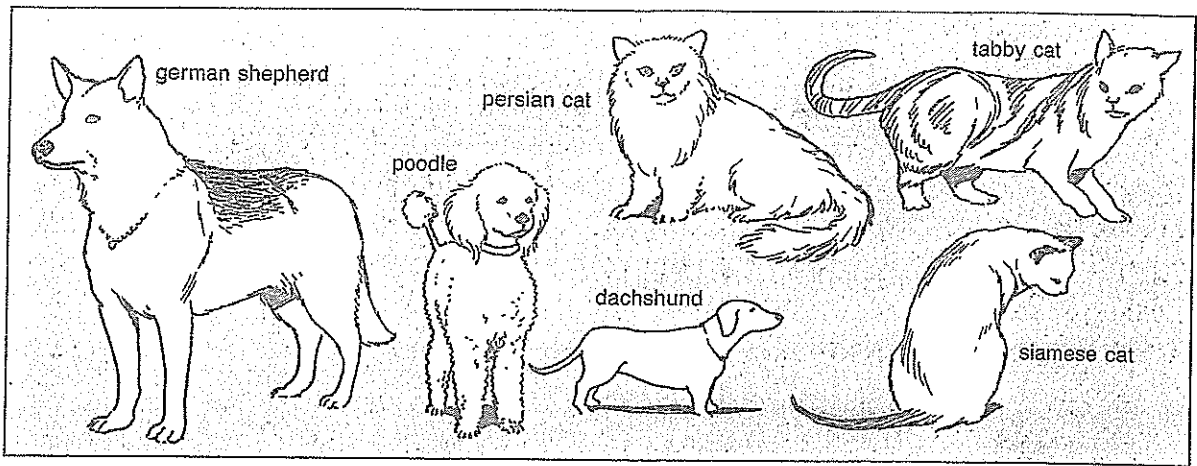


Figure A

The species has the smallest space in the classification pyramid. It is only large enough for one kind of organism—only humans, or only elm trees, or only robins.

Members of a particular species are very similar. Organisms in the same species look alike and can reproduce among themselves. . . . Are there any differences? Certainly! But they are mostly individual differences—like the differences between two people, or two elm trees, or two robins.

Species - can reproduce & their offspring are fertile.



**Figure B**

Some organisms, like dogs and cats, are classified into an even smaller group—the breed. But, regardless of the breed, all dogs belong to one species. All cats belong to another species.

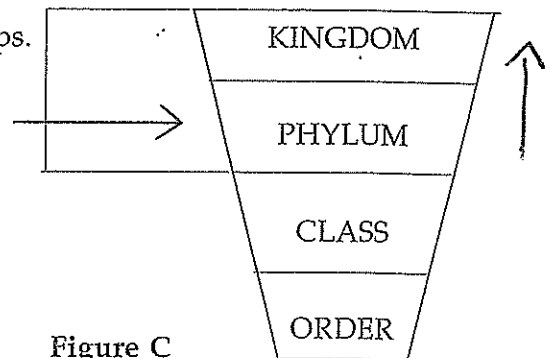
**TRACING SIMILARITIES**

A member of a particular classification group has traits that are the same as . . .

- all members of its own group , as well as
- all members of the broader classification groups.

For example: A member of a particular phylum has traits that are similar to . . .

- all members of that phylum, as well as
- all members of its kingdom.



**Figure C**

Use Figures A and C to help you answer the following questions.

CLASSIFICATION GROUP	SHARES SOME CHARACTERISTICS WITH THESE GROUPS
1. a. a member of a <u>class</u>	<u>class phylum Kingdom</u>
b. a member of an <u>order</u>	<u>order class phylum Kingdom</u>
c. a member of a <u>species</u>	<u>all</u> <u>species - genus - family - order - class -</u> <u>phylum - Kingdom</u>

2. Which are more similar . . .

a. members of an order or members of a family? family

b. members of an order or members of a phylum? order

3. Which has more members . . .

a. a phylum or a family? phylum

b. a genus or a family? family

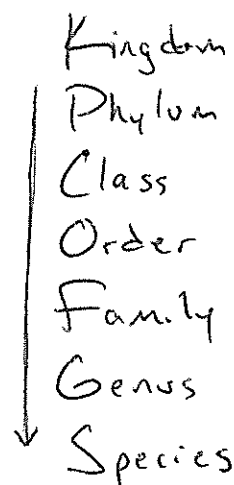
4. Which group has fewer members...

a. a family or genus? genus

b. an order or a phylum? order

5. a. Which group has the most members? Kingdom

b. Which group has the fewest members? species



Study the table showing the classification of four organisms. Answer the question in the spaces provided.

Table 1 Classification of Organisms

	Dandelion	Dog	Wolf	Human
Kingdom	Plantae	Animalia	Animalia	Animalia
Phylum	Tracheophyta	Chordata	Chordata	Chordata
Class	Angiospermae	Mammalia	Mammalia	Mammalia
Order	Asterales	Carnivora	Carnivora	Primates
Family	Compositae	Canidae	Canidae	Hominidae
Genus	<i>Taraxacum</i>	<i>Canis</i>	<i>Canis</i>	<i>Homo</i>
Species	<i>officinale</i>	<i>familiaris</i>	<i>lupus</i>	<i>sapiens</i>

6. How many groups do wolves and humans share? 3

7. How many groups do wolves and dogs share? 6

8. a. Which two organisms are the most similar? Dog & Wolf

b. How do you know? most groups in common

9. a. Which organism is least like the other three? Dandelion

b. How do you know? least # of groups in common

10. In what kingdom is the dandelion classified? plant

Carolus Linnaeus developed a system of classification. He also developed a system for naming organisms that is still used today. His system is called binomial nomenclature (by-NOH-mee-nhl NOH-nuhn-klay-chus). In this system, each kind of organism is given a two-part scientific name. The first part is the name of the genus in which the organism is classified. The second part is the name of the species. For example, the scientific name for a dog is *canis familiaris*. (See Table 1). When a scientific name is written, the genus name is italicized or underlined.

→ wrong!

Answer the following questions about scientific names. You may need to study Table 1 to answer some of the questions.

1. What are the two parts of a scientific name? Genus & species
2. a. What is the system for naming organisms that is used today called? binomial nomenclature  
b. Who developed this system? Carolus Linnaeus
3. a. What is the scientific name for humans? Homo sapien  
b. What is the scientific name for wolves? Canis lupus  
c. What is the scientific name for dandelions? Taraxacum officinale
4. Why do scientists use scientific names? Organization & Identification
5. What is wrong with the way this scientific name is written? canis Familiaris?  
Canis familiaris

scientific / binomial  
names / nomenclature  
(2 name naming system)

greek or latin

At one time all organisms were classified in either the plant or animal kingdom. Today most scientists accept the ~~five~~<sup>six</sup> kingdom classification system.

Here is a description of the five kingdoms.

- Single cellular* → **Moneran (muh-NER-un) Kingdom**  
 Single-celled organisms. Unlike members of the other four kingdoms, monerans do not have a nucleus. Bacteria are examples of monerans.

*archeobacteria*  
*eubacteria*

*- no nucleus*
- Protist Kingdom**  
 Contains many different kinds of organisms. Most protists are single-celled. Some are simple, many-celled organisms. Some are like plants. Others are like animals. Algae are one example of protists.
- Multicellular* → **Fungi Kingdom**  
 Do you like mushrooms? Mushrooms are one kind of fungi. Most fungi are made up of many cells. Some have only one cell. Fungi absorb food from their environment.

*nucleus*
- Plant Kingdom**  
 Plants have many cells. Plant cells have a cell wall and contain chlorophyll. Plants use chlorophyll to make their own food.

*have*
- Animal Kingdom**  
 You are probably most familiar with members of the animal kingdom. Animals are made up of many cells. They take in food from the outside.

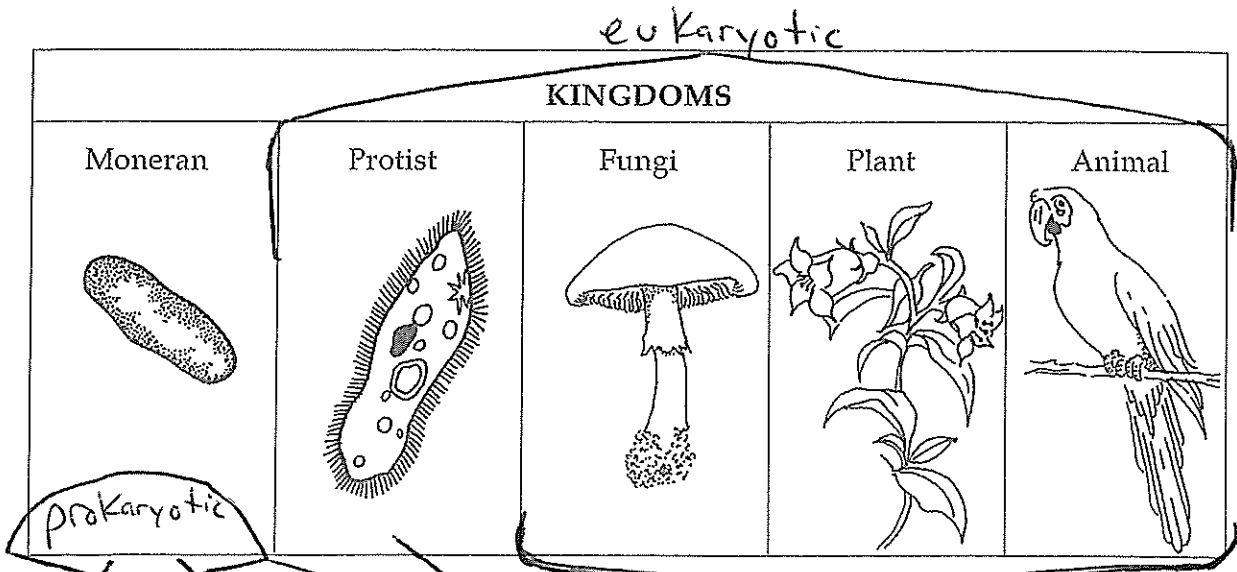


Figure D

*prokaryotic*

*Archeobacteria*  
 - extreme  
 - ancient

*eubacteria*  
 - common

*single cellular*

*Multicellular*

## FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some words may be used more than once.

single-celled  
nucleus  
~~five~~ six

bacteria  
chlorophyll  
absorb

many  
fungi  
outside

1. Most scientists accept the six kingdom classification system.
2. Plants have many cells.
3. Fungi absorb food from their environment.
4. bacteria are examples of monerans.
5. Animals take in food from the outside.
6. Mushrooms are one kind of fungi.
7. Most protists are single-celled.
8. Plants use chlorophyll to make their own food.
9. Animals have many cells.
10. Monerans do not have a nucleus.

## MATCHING

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

Column A	Column B
<u>D</u> 1. Monerans	a) one example of protists
<u>E</u> 2. mushroom	b) all have many cells and take in food from the outside
<u>B</u> 3. animals	c) all have many cells and make their own food
<u>A</u> 4. algae	d) all are single-celled
<u>C</u> 5. plants	e) one kind of fungi