

Classifications

There are many organisms in the world. Some organisms share characteristics, while others do not. That is why scientists have classified organisms into various groups. Each group shares similar characteristics. Ancient organisms that relate to modern-day organisms have been grouped similarly. This helps scientists to understand exactly how organisms have evolved over the centuries.

Biologists study both living and dead organisms in order to determine where the organisms should be classified. Based on the characteristics of the organism the biologist will decide which groups of classification the organism fits into. However, not all biologists agree with where an organism is classified. So, ultimately it is up to the biologist, who may consult other biologists, to determine the placement of organisms within a specific classification.

The languages that are used to classify organisms are Latin and Greek. This is because, in ancient times, almost all scholars and scientists spoke both Latin and Greek. Organisms are classified in the seven main groups. Every organism in the world that scientists know about has been classified into all seven groups.

Groups of Classification

The seven groups of classification are:

- Kingdom
- Phylum (Divisions)
- Class
- Order
- Family
- Genus
- Species

The first level of classification is the Kingdom. This is the biggest unit of classification. The smallest, or most basic, level of classification is the species. You may know a species by a more common name such as a human, a fish, or an oak tree. Classification levels between Kingdom and species gets smaller in size, when moving from the top level down to the bottom.

Kingdom

It was previously stated that the Kingdom was the highest level of classification. Originally, it was believed that there were only two types of Kingdoms: Animalia and

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Plantae. However, in the 1960s it was discovered that there will were many microscopic organisms that simply did not fit the mold of these groups. So the classification system was redeveloped to incorporate additional Kingdoms.

Currently, there are five different classifications of Kingdom. The five classifications are: Animalia, Plantae, Fungi, Protista, and Monera.

The largest classification at this level is Animalia. Over one million species are classified within this Kingdom. Many of the organisms you recognize such as dogs, tigers, and sharks fit into this group. You probably already know that humans fit into this group as well.

There are thousands of species within the Kingdom Plantae. Some of the most common organisms to fit in this group include flowers, trees, grasses, and other plant life.

The next largest group, are the Fungi. If you have ever eaten mushrooms, then you've seen a part of the Kingdom Fungi. Another member of this group is mold. You may have seen mold on foods such as bread or oranges.

One of the smaller Kingdoms is known as Protista. This Kingdom is also small in terms of the size of the organisms. In fact, some organisms are so small. You cannot see them without a microscope! If you've ever seen algae on the top of a pond, then you've seen something from the Kingdom Protista. Algae are one of the few types of organisms in this group that can be detected by the human eye. Flagellates, sporozoans, and ciliates also fit into this group.

The Kingdom Monera is made up of **prokaryotes**. Prokaryotes are organisms, which are unicellular, comprised of one cell. If you've ever heard of bacteria, which you probably have, then you know of organisms which fit into this group.

Phylum

Within each Kingdom organisms with similar characteristics are grouped into Phylum. The word Phylum is specifically used for organisms grouped in Kingdom Animalia. The Kingdoms of Plantae, Fungi, and Protista use the word Divisions instead of Phylum. However, scientists disagree on what to call groups within Kingdom Monera.

There are several different Phyla within the animal Kingdom. Some Phyla which are the most well known include: Mollusca, Porifera, Cnidaria, Platyhelminth, Nematoda, Annelida, Arthropoda, Echinodermata, and Chordata. Each group shares basic characteristics. For instance, humans fit into Phyla Chordata. This is because humans have asymmetrical, bilateral bodies. This means when the body is split in half, each side mirrors the other. So, we have two ears, two arms, two eyes and if we were to fold our

bodies in half they would line up almost perfectly (asymmetrically). All animals in this group have asymmetrical, bilateral bodies. This is just one of the characteristics **chordates** share.

There are 10 main divisions of plants. Among the ten are: Bryophyta, Filicophyta, Sphenophyta, Cycadophyta, Ginkgophyta, Pinophyta, Gnetophyta, and Anthophyta. Similar to animals, plant division is based on shared characteristics. For instance, plants with flowers fit into the division Anthophyta. That is the characteristic, all plants within this division share.

There are five main divisions of Fungi. The divisions are classified mainly by how reproduction occurs. The divisions include: Deuteromycota, Basidiomycota, Ascomycota, and Mycophycophyta. Fungi within the division Ascomycota reproduce spores using small pods which are called asci. This is the characteristic organisms within this division share.

There are 18 main divisions within Kingdom Protista. These include: Acrasiomycota, Chrysophyta, Euglenophyta, Rhizopoda, Actinopoda, Chromista, Foraminifera, Rhodophyta, Apicomplexa, Ciliophora, Myxomycota, Zoomastigophora, Bacillariophyta, Dinoflagellata, Oomycota, Chlorophyta, Diplomonada, and Phaeophyta. Similar to plants, some organisms use chlorophyll and are green in color. One division, known as the green algae, is Chlorophyta which is based on the word chlorophyll. However, most organisms are divided based on how they move. Scientists refer to this as their locomotion.

Kingdom Monera is divided into three main phyla: Archaeobacteria, Cyanobacteria, and Eubacteria. Organisms with any each group are classified based on where they're located, how they reproduce, and their function. For example, if you've ever had a bacterial infection, then the bacterium in your body was a part of phyla Eubacteria. This is because bacteria within this group are free living and/or the cause of disease.

Class, Order, and Family

Within the each classification organisms become more and more alike. While there are more organisms within a class than an order organisms that share the same order are more alike. The same is true with order and family. While there are more organisms within an order than a family, the organisms within a family are more alike. Essentially, the classification system aims to put organisms into smaller boxes of classification, until a single type, or species, is within the smallest box it can fit.

Humans are within the class known as Mammalia. You may have heard of humans being called mammals. All mammals, share the following characteristics:

- Reproduction occurs within the mother
- Babies drink milk produced by the mother

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- Strong jaws and various types of teeth (canines, incisors, etc.)
- Endothermic (warm-blooded)
- Body covered with hair
- Sweat Glands

Humans fit into the order Primata. If you've ever been to the zoo, you may have heard the word primate. When humans think of primates, they typically think of apes, monkeys, and gorillas. There are approximately 350 different kinds of primates. This is sometimes why scientists compare humans with apes.

All organisms, which fit into the order Primata share the following characteristics:

- Five fingers
- Fingernails
- A specific dental pattern
- A primitive body plan

Humans are in the family known as Hominidae. Chimpanzees also fit into this family in a sub-category. While there are no clear characteristics for this family it is believed that organisms within this group have some form of basic culture, share DNA with the majority of the human genome, and have the ability to communicate through some form of language. The language may be written, spoken, or through gestures.

Genus & Species

Genus and species are usually written together. The genus is the first word, and begins with a capital letter. The species is the second word, and is written all in lowercase. Humans are known as *Homo sapiens*. The English translation for this Latin phrase means wise man.

Homo sapiens have highly developed brains, are **bipeds** (this means they walk upright on two legs as opposed to 4), are primarily social creatures, are able to manipulate objects thanks to having opposing thumbs, and require food, liquid, and sleep to survive.

How to Remember Classifications

It is easy to remember the classifications if you use the acronym KPCOFGS to remember Kingdom, Phylum, Class, Order, Family, Genus, and species. Just use the first letter in each to create an acronym.

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Scientists and school teachers have found a way for everyone to remember the classifications, by taking the first letter of each classification and making a phrase.

The phrase that is used is:

Kings Play Chess On Fine Glass Stools

By classifying organisms scientists are able to better understand organisms and how they work. By understanding how organisms work when problems, such as diseases, occur scientists can focus on finding a way to fix the problem.

Through classification, scientists are able to improve conditions for all kinds of organisms. It also allows them to study how humanity began.

Name _____



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Classifications Worksheet

Matching

- | | |
|------------------------------|----------------------------------------|
| 1. _____ <i>Homo sapiens</i> | A. Phylum with bilateral bodies |
| 2. _____ prokaryotes | B. Walks upright |
| 3. _____ Kingdom | C. Unicellular |
| 4. _____ bipeds | D. Wise man |
| 5. _____ chordates | E. The highest level of classification |

Match for Humans

- | | |
|-------------------|--------------|
| 6. _____ Kingdom | A. sapiens |
| 7. _____ Phylum | B. Hominidae |
| 8. _____ Class | C. Primata |
| 9. _____ Order | D. Homo |
| 10. _____ Family | E. Animalia |
| 11. _____ Genus | F. Chordata |
| 12. _____ species | G. Mammalia |

Fill in the Blank

13. The phrase he used to remember the classifications is _____
_____.

14. Mushrooms are in Kingdom _____.

15. There are _____ divisions of Plantae.

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16. If you've ever had a bacterial infection you've experienced bacterium in Phyla

_____.

17. The order of classification from smallest to biggest is _____, _____,

_____, _____, _____, _____, and _____.

18. The five Kingdoms are _____, _____, _____, _____,

and _____.