

## Kingdom Classification Worksheet

Assign each mystery organism to a kingdom based on the description. Complete the chart below.



**Organism Names:** shelf fungus, paramecium, apple tree, kelp, mushroom, E. coli, slime mold, Venus flytrap, decomposer bacteria (*Pseudomonas*), cow, algae, hawk

**Kingdom Names:** Eubacteria, Archaeobacteria, Plantae, Protista, Animalia, Fungi

	Description	Kingdom	Organism Name
1	I am a <b>multicellular</b> , <b>photosynthetic</b> , marine, organism with <b>motile</b> sperm cells. I grow very fast and live my adult life attached to rocks being pounded by waves.		
2	I am a single-celled, <b>prokaryotic</b> organism that lives in the large intestines of mammals like humans. I reproduce <b>asexually</b> by binary fission and can reproduce this way very fast		
3	I am a <b>multicellular autotroph</b> that lives on land. I grow flowers with eggs and <b>pollen</b> inside them, and produce seeds inside of fruits		
4	I am a motile unicell that lives in pondwater. My body is covered with cilia and I can swim very fast. I eat bacteria by <b>endocytosis</b> .		
5	I am both <b>unicellular</b> and <b>multicellular</b> depending on how old I am. When I am getting ready to reproduce, my cells join together to make a slippery, slithering mass that is bright orange. When mature, I dry out and release millions of <b>spores</b> . I eat by digesting dead leaves and absorbing the nutrients.		
6	I am multicellular, and my body is shaped like a thread. I live in water and turn it bright green when my population explodes. I reproduce using motile sperm.		
7	I am a multicellular <b>heterotroph</b> that eats by ingesting grass. My species have males and females, and we cannot reproduce asexually.		
8	I am enormous but mostly invisible because my body is hidden under soil. When sexually mature I make spores in <b>fruiting bodies</b> that rise above the soil and release millions of spores. I eat by digesting dead plant material in the soil as I grow through it.		

9	I grow inside living trees and slowly digest their wood, making it rot. I got inside the tree back when I was a spore that landed on a wound made by a weedeater. My body is a whitish, thready mass called a <b>mycelium</b> . I eventually kill my host tree.		
10	I am a fast-moving predator. My body has <b>organs</b> and <b>tissues</b> . I have excellent eyesight and my favorite food is ducks. I can fly		
11	I cause dead animals to really stink when I slowly digest their tissues. I am a single-celled organism with no <b>nucleus</b> in my cell.		
12	I am <b>photosynthetic</b> and multicellular. I make my own <b>glucose</b> food from sunlight, but get my fertilizer from insects I can catch in my folding leaves.		

## The Kingdom Fungi

The Kingdom Fungi includes some of the most important organisms, both in terms of their ecological and economic roles. By decomposing dead material, they continue the cycle of nutrients through ecosystems. In addition, most plants could not grow without the fungi, or mycorrhizae, that live in their roots and supply essential nutrients. Other fungi provide numerous drugs (such as penicillin and other antibiotics), foods like mushrooms, truffles and morels, and the bubbles in bread (yeast), champagne, and beer.

Fungi are eukaryotes, which means their **cells have a nucleus**. Their cells also have a **cell wall made of chitin**. Fungi include both **unicellular** (yeasts) **and multicellular** (molds, mushrooms etc.) organisms that are generally visible to the naked eye. Fungi don't move on their own, nor do they make their own food. Fungi are **heterotrophs** or consumers, which means they get their nutrients from other living things. Fungi use **external digestion** – they secrete (let out) digestive enzymes that dissolve their food, and then they absorb the nutrients they need from the environment. The body of a fungus is made up of tiny hair like structures called mycorrhizae.

Examples:



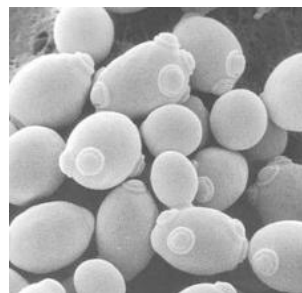
Mushrooms



Molds



Shelf fungus(bracket)



Yeasts

## Kingdom Plantae

Plantae includes all land plants: mosses, ferns, grass, trees, flowering plants, and so on—an amazing range of diverse forms. Plants don't move.

They are **autotrophs**, or producers, which means they make their own food through **photosynthesis**. Plants are **multicellular**, meaning that they consist of many cells. They are eukaryotes, so all of their **cells have a nucleus**. Plants cells also have a **cell wall made of cellulose**.

The most striking, and important, feature of plants is their green color, the result of a pigment called **chlorophyll**. Plants use chlorophyll to capture light energy, which fuels the manufacture of food—sugar, starch, and other carbohydrates. Without these food sources, most life on earth would be impossible. There would still be mushrooms and algae, but there would be no fruits, vegetables, grains, or any animals (which ultimately rely on plants for their food too!)

Some plants have structures, called xylem and phloem, to help move water and nutrients throughout their bodies. These are called vascular plants. Most vascular plants are much more complex than plants that do not have these structures. These plants are non-vascular. Mosses and liverworts are considered non-vascular plants.

Plants that produce flowers are called Angiosperms. Flowers can be either male or female OR may contain both male and female parts on the same flower. Plants that produce cones are called Conifers.

Conifers include pine trees, cedar trees and hemlock trees.

Another important contribution of plants is their shaping of the environment. Plants give us oxygen to breathe and provide food and habitat for many species of animals! Without plants, we couldn't survive!

Examples:



Mosses



Ferns



angiosperms



gymnosperms



## Kingdom Protista

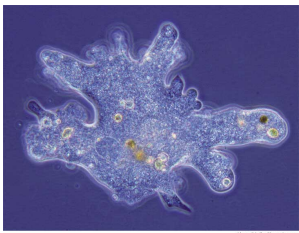
Protists are organisms that are classified into the kingdom Protista. The protists form a group of organisms that really do not fit into any other kingdom. Although there is a lot of variety within the protists, they do share some common characteristics.

All protists live in moist environments. All protists are eukaryotes, so their **cells have a nucleus**. Most protists are **unicellular**, but some can be **multicellular** like Kelp and Seaweed. Several types of Protists form colonies and divide the labor of the cells among the colony.

Most protists can move. Plant-like protists are **autotrophs**, or producers, making their own food by photosynthesis. Animal-like protists are **heterotrophs** (consumers) and must ingest (eat) other living things. Fungi-like protists include several phyla that have features of both protists and fungi. They obtain energy by decomposing organic material, so they are also heterotrophic.

Amoebae, algae, paramecium, diatoms and other organisms belong to the protista.

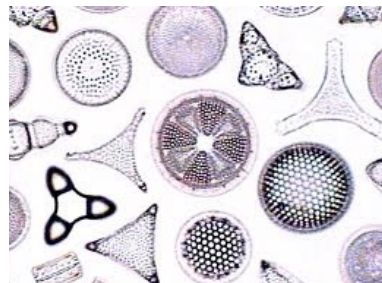
Examples:



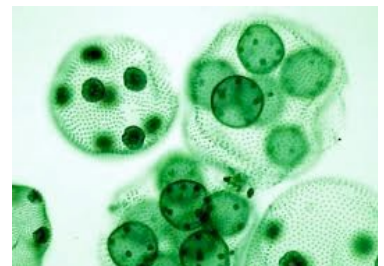
Amoeba



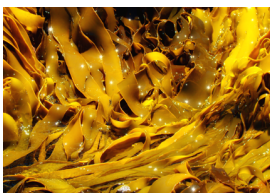
Paramecium



Diatoms



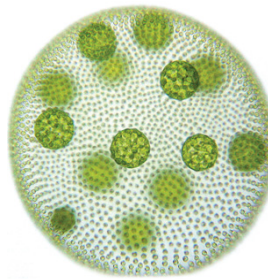
Algae



Kelp



seaweed



volvox



slime molds

## Kingdom Archaeobacteria

Kingdom Archaeobacteria consist of prokaryotic organisms. These organisms are all **unicellular** and their cells **do not have a nucleus** or complex organelles. The prefix *Archae* means ancient. The organisms in this kingdom are believed to be similar to the first types of living organisms found on the Earth.

Archaeobacteria have a uniquely structured cell wall, cell membrane and ribosomal RNA. This group of bacterial lack a protein-carbohydrate component in their cell walls called peptidoglycan.

The archaeobacteria are found in **extreme environments**, so they are often referred to as extremophiles. For example, some archaeobacteria live in hot springs at extremely high temperatures. Others are found in the arctic, where it's very cold. Some live in very salty or acidic environments.

The archaeobacteria include both **autotrophs and heterotrophs**.

Autotrophs are able to create their own food, similar to plants.

Heterotrophs cannot create their own food, and so must rely on other organisms as their food source.

Archaeobacteria are anaerobic, meaning they cannot tolerate oxygen, and live in many habitats.

Examples:



Thermophiles  
(live in hot springs)



Halophiles  
(live in salty  
environments,  
like the dead sea)



Methanogens  
(live in high  
Methane  
environments)

## Kingdom Eubacteria

Kingdom Eubacteria consists of **unicellular** life forms. The prefix *Eu* means true. Eubacteria are all prokaryotes. These cells are far simpler and more basic than the cells of other life forms. These cells have **no nucleus**, and are also missing many of the organelles, or parts, commonly found in other cells.

Eubacteria are classified into two groups, **autotrophs and heterotrophs**. Autotrophs are able to create their own food, similar to plants. Heterotrophs cannot create their own food, and so must rely on other organisms as their food source

Eubacteria are considered by many scientists to be the oldest life forms on Earth, and the ancestors of all the other types of life that have since evolved. Eubacteria are extremely important - they help us digest food, break down waste, and make products like yogurt and cheese. Some eubacteria are pathogens, organisms that cause sickness, such as streptococcus and salmonella. Eubacteria are also decomposers which means they can help breakdown decaying matter in ecosystems.



Streptococcus  
(the bacteria that causes strep throat)



Salmonella

## Kingdom Animalia

**Humans are a part of the kingdom Animalia.** All members of the kingdom Animalia are eukaryotes. Their cells **contain a nucleus** and complex organelles. Like many other life forms, animals are **multicellular**. These cells come together, forming tissues, organs, and organ systems that help sustain the life of the animal. From elephants to snails, animals come in many shapes and sizes, and can be found all over the world.

Animals cannot make their own food. They are **heterotrophs**, or consumers, and must rely on other living things, such as plants, fungi, and other animals to sustain them. Without other food sources, animals could not survive.

There are more species of animals than in all the other kingdoms. From worms, to blue whales, to bald eagles, animals have evolved to fit a wide variety of habitats.

Animals all have a body plan. Their body plan eventually becomes fixed as they develop, although some undergo a process of metamorphosis (caterpillar to butterfly) later on in their life. Most animals are **motile**, meaning they can move around independently.

Animals can be divided into two large groups: **Invertebrates** – animals that do not have a backbone and **Vertebrates** – animals that do have a backbone. Vertebrates belong to the phylum Chordata and share several distinct characteristics sometime during their lifetime.

These characteristics are a notochord, gill slits and an endoskeleton. A **notochord** is a firm, flexible rod that provides support and stability.

**Gill slits** are openings used in respiration that lead to the outside of an animal's body. An **endoskeleton** is an internal skeleton composed of bones, cartilage or both.

Examples:

