

### Activity 3: Six Kingdoms Brochure

**Objective:** You will demonstrate your knowledge of the six kingdoms of organisms by gathering information (from your class notes, the internet, and the biology textbook) and creating a brochure on the six kingdoms in which scientists classify organisms.

**Your brochure will be organized as follows:**

1. **Making the Brochure**- the brochure is made of one piece of paper. Fold the paper into thirds.
2. **Cover**- your cover should have a picture and an appropriate title. Your name should be written in the bottom right corner of the cover.
3. **Inside the Brochure**- inside your brochure, you should have one section for each of six kingdoms. Use the front and back of the paper. Since there will only be five open sections left in the brochure, you should place both the Eubacteria Kingdom and Archaeobacteria Kingdom in the same section.

**You must include the following information for each of the six kingdoms:**

- Are the organisms unicellular (one cell) or multicellular (many cells) or both?
- Do they have a nucleus in their cells?
- Do they make their own food or get it from other organisms?
- Other important characteristics
- A picture or a diagram of sample organisms (one or a few)



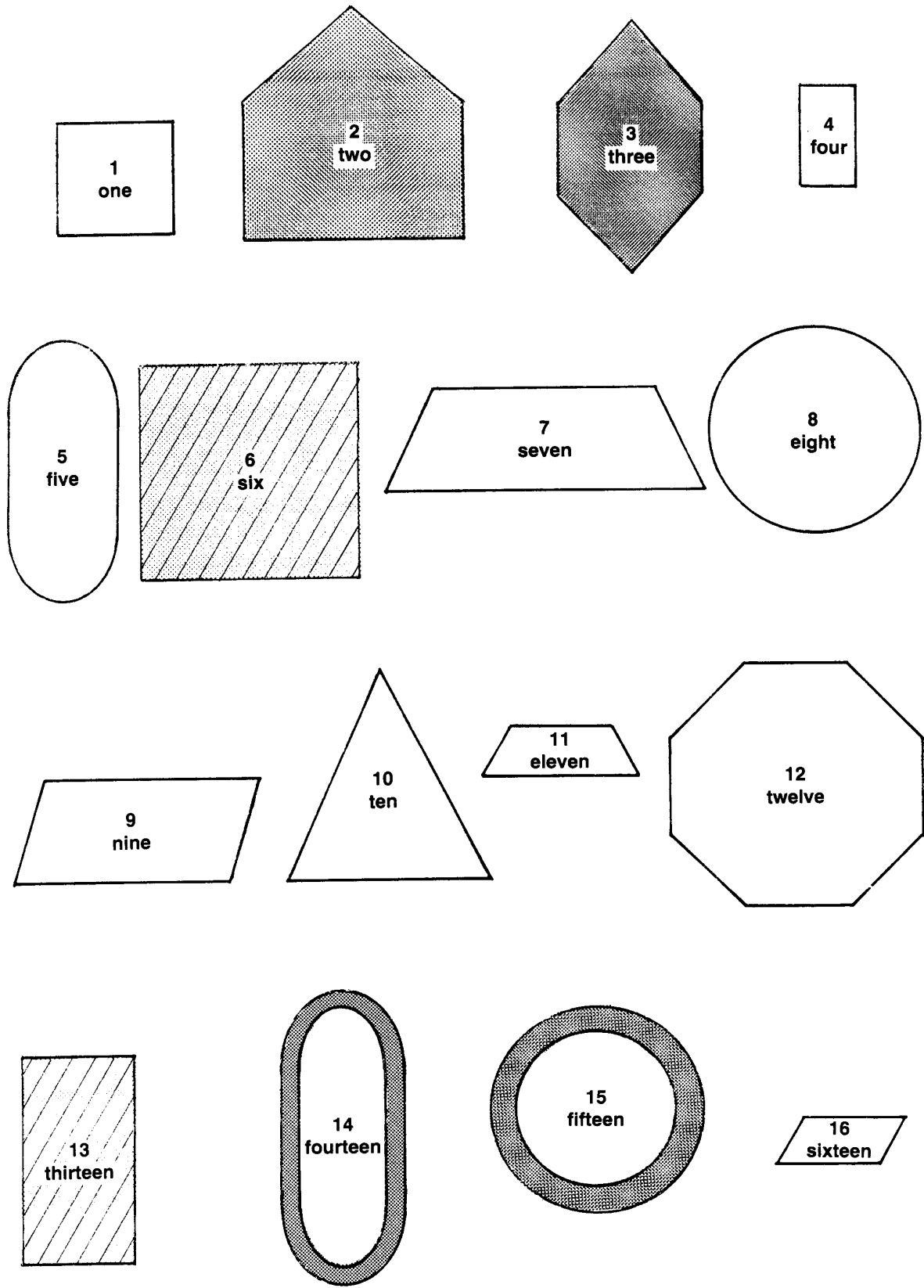


FIGURE 2. Paper objects

## 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.

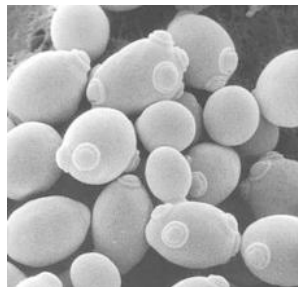
Examples:



Mushrooms



Molds



Yeast

## 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!)

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



Flowers



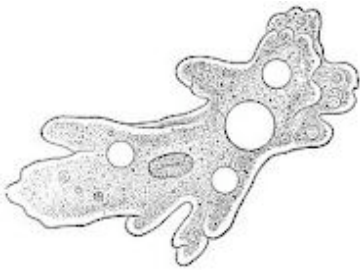
Trees

## Kingdom Protista

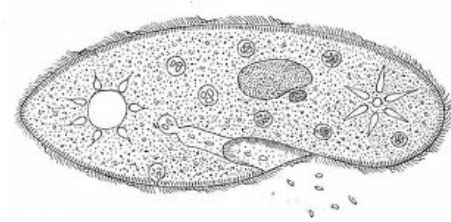
Protists are organisms that are classified into the kingdom Protista. The protists form a group of organisms that really do not fit into any other kingdom. Although there is a lot of variety within the protists, they do share some common characteristics.

All protists live in moist environments. All protists are eukaryotes, so their **cells have a nucleus**. Most protists are **unicellular**. Most protists can move. Some are **autotrophs**, or producers, making their own food by photosynthesis; others are **heterotrophs** (consumers) and must ingest (eat) other living things. Amoebae, algae, paramecium, diatoms and other organisms belong to the protista.

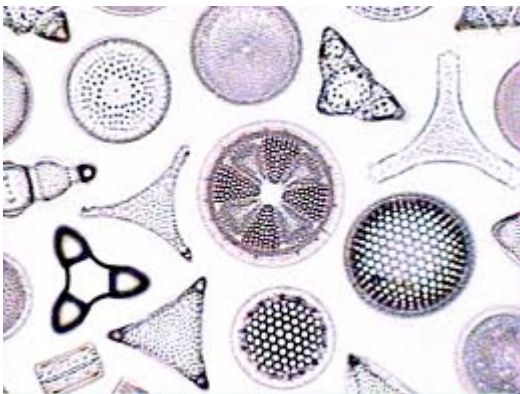
Examples:



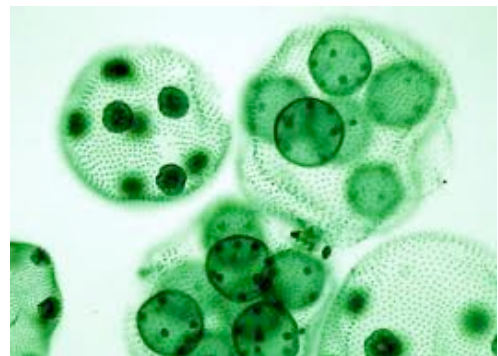
Amoeba



Paramecium



Diatoms



Algae

## 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 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

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. 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.



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.

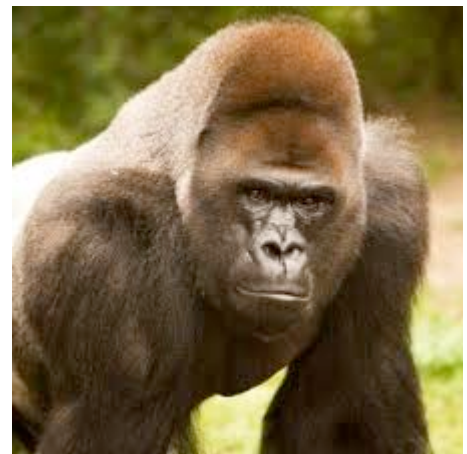
Examples:



Insects



Sharks



Gorilla