

# Exploring God's World with Sixth Grade Science

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## Lesson 2

### Introduction to the Kingdoms

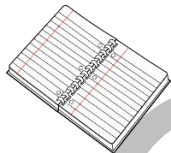
Living things are created in all shapes and sizes; they all have different abilities and different niches. Some living things are able to move around and need to find their food; some living things cannot move around, but they can make their own food. There are many living things that are so small they cannot be seen with the naked eye; some cause disease and some can make us well. With all this variety, it was necessary to figure out a way to organize all these lifeforms. Although not all scientists agree, there are five basic kingdoms (or categories) of living things.

- Plants
- Animals
- Bacteria (eubacteria, archaeobacteria)
- Protists
- Fungi

*(Please note: The Bacteria Kingdom can be counted as one, also called Monera, or split into two as explained above: eubacteria and archaeobacteria.)*

Click on the link below to watch the video on the differences of the five kingdoms. This video calls the Bacteria Kingdom “Monera.”

**Video:** *Five Kingdoms of Living Things:* [https://www.youtube.com/watch?v=nhlApasZQ\\_I](https://www.youtube.com/watch?v=nhlApasZQ_I)



In your science notebook, make a list of the five kingdoms. Include a description of each of the five kingdoms. Draw a picture or make a list—whichever works to help you remember the differences.

Since we will cover the plants and animals in more detail, take this time to look more closely at the fungi, bacteria, and protist kingdoms. Answer a quick question about each kingdom in your notebook. You can also use these resources to add to the descriptions in your science notebook.

**Fungi** – <https://www.ducksters.com/science/biology/fungi.php>

How do fungi reproduce?

**Bacteria (eubacteria and archaeobacteria)** – <https://www.ducksters.com/science/bacteria.php>

What kind of bacteria can make us sick?

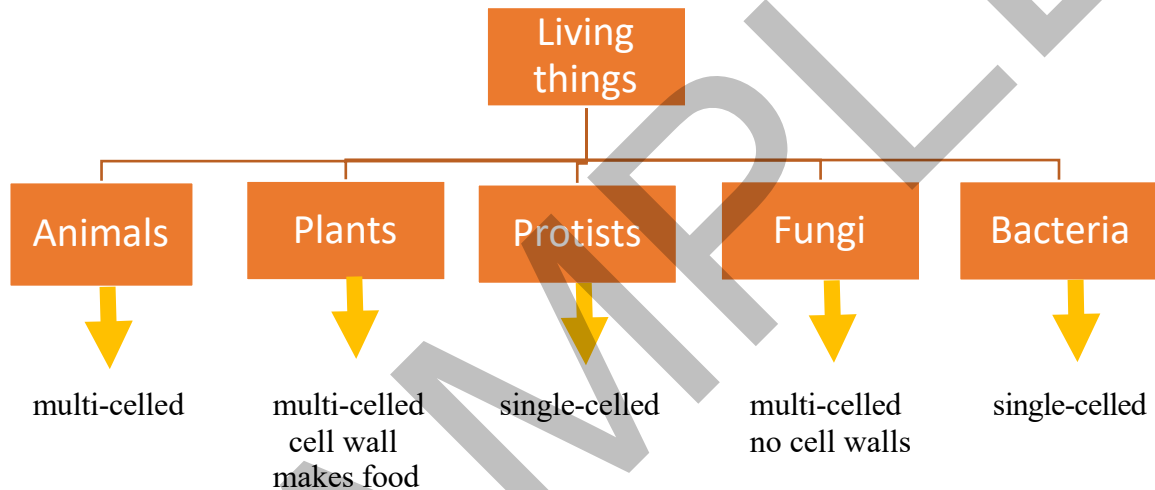
**Protist** – <https://www.ducksters.com/science/biology/protists.php>

Name two types of protists.

## Let's Talk About Plants

There are plants all around us. We all know that trees, grass, flowers, vegetables, and all the shrubs around your house are plants. You know the difference between a plant and an animal. But, what makes a plant a plant, instead of a fungi or a bacteria or a protist?

Sometimes these categories get a little blurry. So, let's take a minute to compare the different kingdoms *one more time*. We will pay special attention to the plant kingdom.



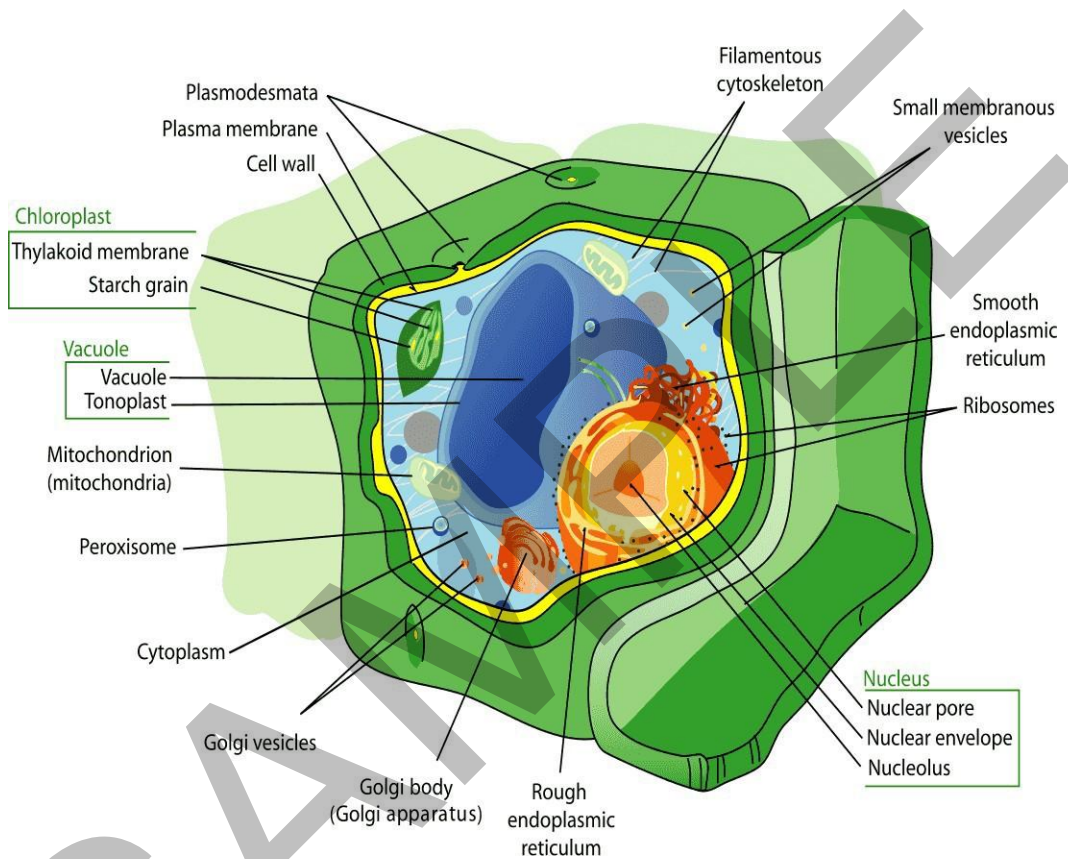
So, there are several differences between plants and other kingdoms. Plants can do certain things no other living things can do; they can make their own food using cellular organelles called chloroplasts. The process is known as photosynthesis, and we will learn more about that later in this course.

Keep this diagram in mind as you move on through the lesson. We will talk about how to differentiate the different categories of plants in the next section.

## Characteristics of Plants

### 1. Plants are multi-cellular organisms with very highly organized cells.

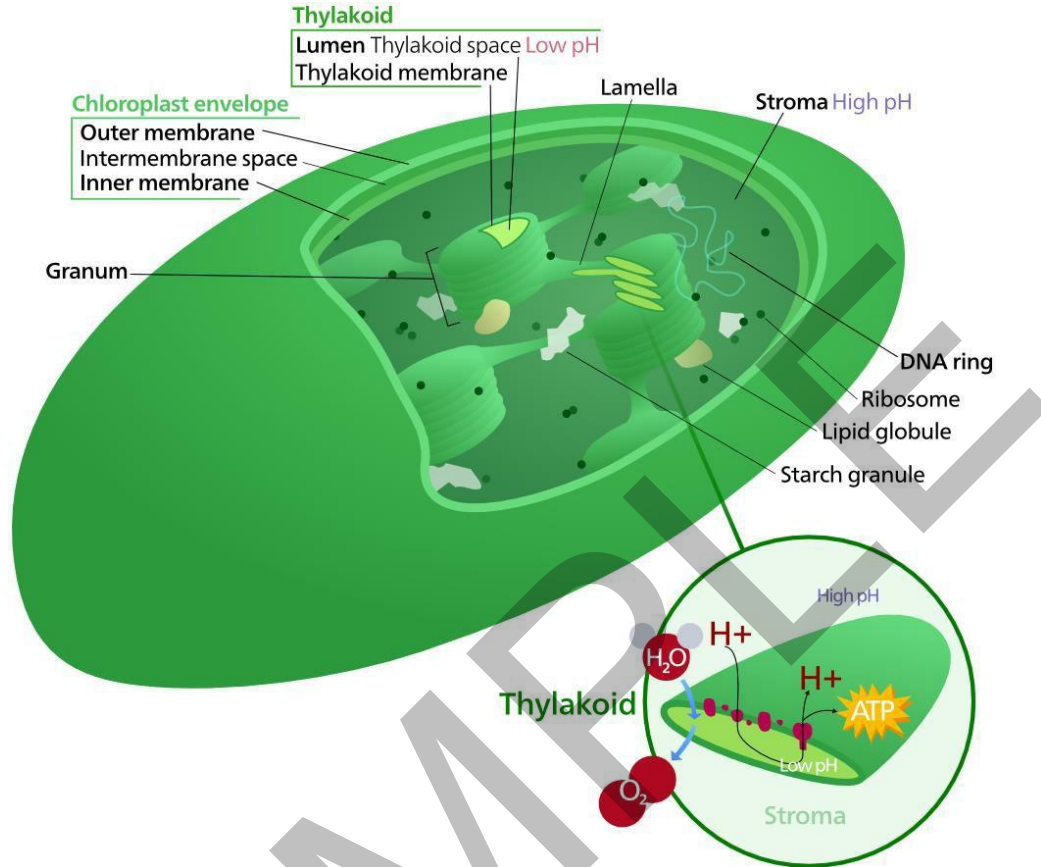
Notice the diagram below. The plant cell is very organized and has a membrane and a cell wall to protect its contents. Each one of these organelles inside the cell has a specific job that helps the plant to perform its daily functions like obtaining nutrients, growing, and disposing of waste.



### 2. Plants can make their own food.

Along with the stem, leaves, roots, and fruits, plants also have very specialized cellular parts that have a specific job! Inside each of the plant's cells is an organelle called a chloroplast. It contains a substance called chlorophyll that allows the plant cell to use sunlight which provides energy, and carbon dioxide to make food for the plant.

This is a diagram of a chloroplast:



### 3. There are different types of plants.

- Mosses and liverworts: You have probably seen a type of moss growing on a rock or near a tree. This type of plant is usually very small because it is less developed and does not have an advanced structure to carry water, nutrients, and wastes.
- Ferns: These plants have the beautiful, delicate leaves known as fronds. Do you know someone who has a fern on their front porch? You can also find these in many tropical areas; they need moisture to keep them healthy!
- Gymnosperms: These are cone-bearing plants. Do you ever see pine cones or trees that use cones to produce seeds? These are usually readily available around Christmas for decorations.
- Angiosperms: You have definitely seen these—they are the flowering plants. The world is full of variety and beauty because of these organisms.

## Extension Activities

Read about the classification of plants, their structure, and their differences. There are two eBooks called *Plant Structure and Classification*. You can read both or choose just one. Either one will help prepare you for the upcoming lessons on the life cycle of a plant and on the chemical processes of plants.

*eBooks: Plant Structure and Classification:*

<http://www.worldbookonline.com/wb/ebooks/mall/instd/catalog/urn:ISBN:9780716646303/detail.do>

Pick a plant and either make a drawing of it or find a picture of it. You may print one you find online or cut one out of a magazine. Now research your plant using World Book Online. Login to World Book Online using the instructions from the Lessons webpage, select the “Student” button, and type in your search term.

In your science notebook, try to answer these questions about your chosen plant:

1. Label your drawing or picture: root, stem, leaf, flower, seed. If one of those parts isn't pictured, add a drawing of it.
2. Where can we find your plant? Does it grow in a desert? Does it grow in a tropical rainforest?
3. What size does your plant grow to be? Is it tall like a tree or short like a moss?
4. In which category is your plant—liverwort/moss, fern, gymnosperm, or angiosperm?
5. Which part of your plant—leaf, stem, roots, or fruit—is valuable to humans or to our environment? For example, we eat parts of some plants; some plants are used for medicine; some plants are great for preventing erosion.