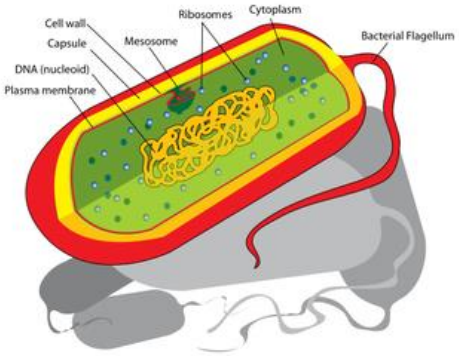
# Kingdom Monera

## Key words

- kingdom, (-s)
- phylum, phyla
- class, (-es)
- moneran, (-s)
- bacterium, bacteria
- cyanobacterium, cyanobacteria

This kingdom is made up of the simplest living organisms and includes bacteria and cyanobacteria. They are all single-celled organisms whose cells do not have a nucleus. They are also known as **prokaryotes.**

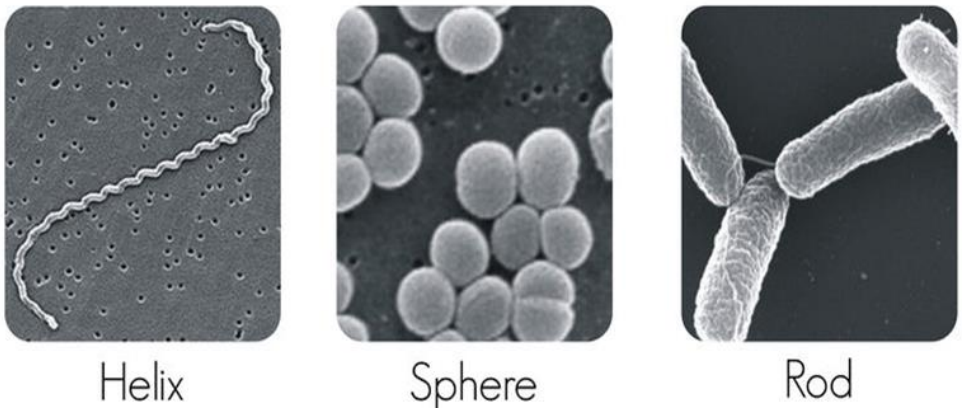
**Bacteria** form a very large and diverse group of microscopic, single-celled organisms. Therefore the size of a bacterium is extremely small, around that of a micrometer (1/1000 mm). They can live just about anywhere such as the sea, fresh water sources, the soil, the air and even in the digestive system of other animals including human beings.
Some are autotrophic, but the majority are heterotrophic and they feed off organic matter. They reproduce by binary fission, meaning a mother bacterium gives rise to two daughter bacteria.




Some bacteria can cause illness in humans and other living beings, such as tetanus. However, the vast majority are vital to all organisms sense they decompose organic material (and the subsequent recycling of nutrients).
Other bacteria are beneficial to us such as the intestinal flora, inside our digestive tract. And other bacteria are used in the production of certain foods such as yogurt or cheese.
In spite of their size, bacteria are the most resistant organisms on the planet.

**Cyanobacteria** are a group of autotrophic monerans. They make their own food utilizing the energy from sunlight. They have pigments which give them a very characteristic colour. They are found in aquatic environments and in wet soils. In some places they are very abundant, such as the Red sea, which takes its name due to the abundance of these organisms.

## 3 most common shapes of prokaryotes




## Points to remember:

•No nucleus
•May have circular loop of DNA
•No chromosomes
•No membrane bound organelles

## Extra Information:

•Smaller cells.
•Can be free-living or parasitic.
•Reproduce mainly by binary fission (splitting in half), but some can reproduce sexually.

Kingdom: Monera (Archaebacteria and Eubacteria)

By Cindy Grigg

When Linnaeus began classifying living things, he used only twokingdoms, plant and animal. With the technology of microscopes, newliving things were discovered. Differences could be seen inside theircells. Two kingdoms were not enough. Most scientists today use either afive-kingdom or six-kingdom classification system.Until recently, all bacteria were grouped together in one kingdom (fivekingdom system). This was because their cell structure was similar. Thefive-kingdom system is divided into animal, plant, fungi, protist, andmonera. The monera kingdom is made up of two groups called phyla.Both of these phyla are made up of one-celled organisms, which are allbacteria. None of them have a true nucleus. One-celled (unicellular)organisms whose DNA is not contained inside a nucleus are calledprokaryotes (PRO care ee oats). They are bacteria. Bacteria mostlyabsorb their food. Some have chlorophyll. These bacteria can be round, rod-shaped, or spiral shaped. The otherphylum is the cyanobacteria. They are often called blue-green bacteria.

They can make their own food usingchlorophyll and are mostly blue-green in color.More recently, a six-kingdom classification system has been used. The six divisions are animal, plant, fungi,protist, eubacteria, and archaebacteria. The last two divisions are used based on the type of cells the organism has,whether or not it can make its own food, and the number of cells in each organism. Because some bacteria arechemically different, the monera kingdom was separated into the two new kingdoms.A new discovery in 1983 led to the reclassification. Scientists took a water sample from a thermal vent deep in thePacific Ocean. Hot gases and molten rock poured out of the Earth's interior. They found archaebacteria (ahr keeback TIER ee uh) in the water samples where no life was thought to exist. The word archaebacteria means "ancientbacteria." Scientists think that modern-day archaebacteria were similar to Earth's early life forms, existing on Earthbillions of years before the dinosaurs lived.Some archaebacteria can make their own food (autotrophic). Some must get their food from other organisms(heterotrophic). Some live in boiling hot springs in Yellowstone National Park. Some can live in very acidicenvironments. Some may even live inside of you. Archaebacteria have also been found in the intestines of animals,in sewage, and in swampy mud. These bacteria are the cause of the foul smells that you may think of when youthink of these places. Some live in anaerobic environments, or places without oxygen. To them, oxygen is poison.These "extremophiles" who live in extremely hot, acidic, or anaerobic environments have been separated in theclassification system from the eubacteria. Their cell membrane and RNA are also chemically different from theeubacteria.Most bacteria is classified in the kingdom of eubacteria (YOU back tier ee uh). They are also one-celledprokaryotes. Some make their own food. They float on the surface of water and use the energy of the sun to makefood and oxygen. These bacteria, scientists believe, added oxygen to the Earth's atmosphere billions of years ago.Even today, they still contribute oxygen to our atmosphere. Most eubacteria do not live in extreme environments.The classification system that began with Carolus Linnaeus's two kingdoms will probably continue to change asnew discoveries are made.

Name Date

Kingdom: Monera (Archaebacteria and Eubacteria)

Questions

1.In the monera kingdom, all organisms are:

A.one-celled organisms

B.bacteria

C.both a and b

2.What are prokaryotes?

A.unicellular organisms who have a membrane-bound nucleus

B.multi-cellular organisms whose cells have membrane-bound nuclei

C.one-celled organisms whose cell lacks a membrane-bound nucleus

3.The main difference between archaebacteria and eubacteria is:

A.chemical difference in the cell membrane and RNA

B.Archaebacteria make their own food while eubacteria must find food.

C.Eubacteria make their own food while archaebacteria must find food.

4.Why do some scientists use a six-kingdom system instead of the five-kingdom system?

A.because they needed more categories to group things

B.because they needed another category for viruses

C.because of chemical differences in bacteria

5.Archaebacteria and eubacteria share these characteristics:

A.All members are prokaryotes.

B.All members are bacteria.

C.both a and b