

Protists – Amoeba Anatomy

Amoeba

The amoeba is a protozoan that belongs to the Kingdom Protista. The name amoeba comes from the Greek word "amoibe", which means change. Amoeba is also spelled ameba. Protists are microscopic unicellular organisms that don't fit into the other kingdoms. Some protists are considered plant-like while others are considered animal-like. The animal-like protists are known as protozoans. The amoeba is considered an animal-like protist because it moves and consumes its food. Protists are classified by how they move, some have cilia or flagella, but the amoeba has an unusual way of creeping along by stretching its cytoplasm into fingerlike extensions called pseudopodia. The word "pseudopodia" means "false foot". *Label* the pseudopodia. When looking at amoeba under a microscope, an observer will note that no amoebas look the same as any other, the cell membrane is very flexible and allows for the amoeba to change shape. *Color and label* the cell membrane red. Amoebas live in ponds or puddles, and can even live inside people.

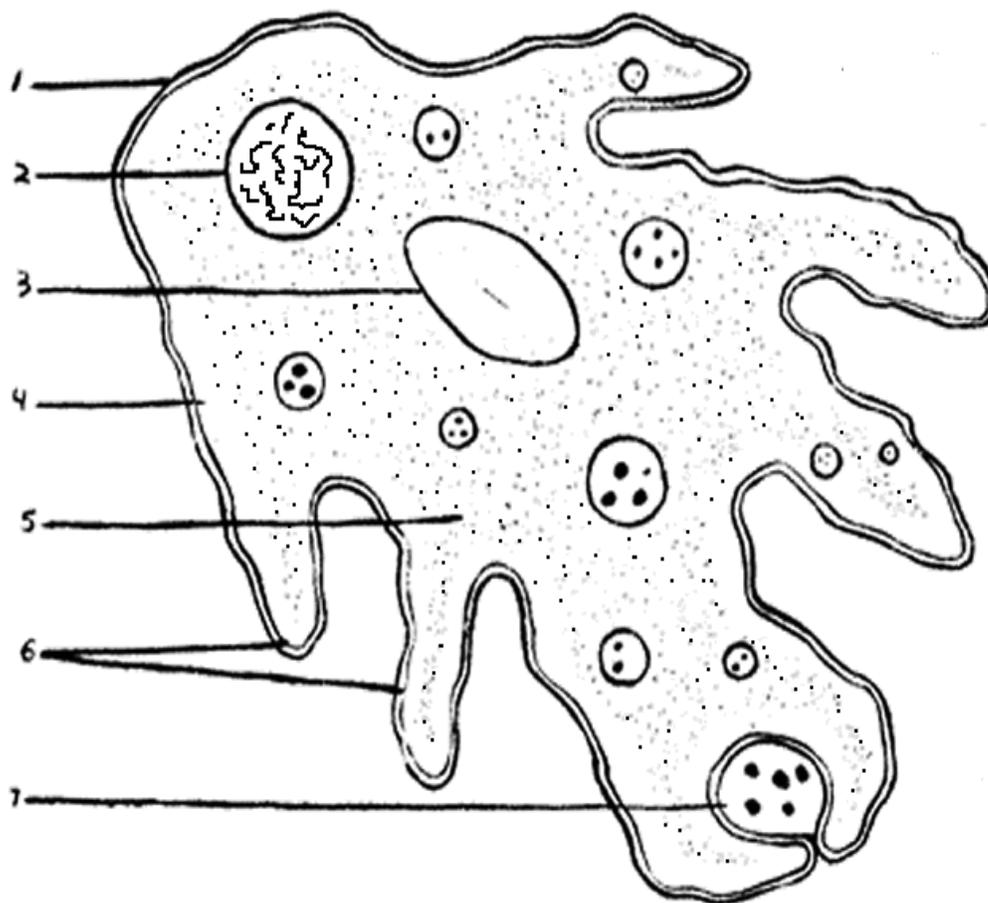
There are two types of cytoplasm in the amoeba, the darker cytoplasm toward the interior of the protozoan is called endoplasm, and the clearer cytoplasm that is found near the cell membrane is called ectoplasm. *Color and label* the ectoplasm light blue and the endoplasm pink. By pushing the endoplasm toward the cell membrane, the amoeba causes its body to extend and creep along. The amoeba also uses this method to consume its food. The pseudopodia extend out and wrap around a food particle in a process called phagocytosis. The food is then engulfed into the amoeba and digested by the enzymes contained in the amoeba's lysosomes. As the food is digested it exists in a structure called a food vacuole. *Color and label* the food vacuole green.

Also visible in the amoeba is the nucleus, which contains the amoeba's DNA. *Color and label* the nucleus purple. In order to reproduce the amoeba goes through mitotic division, where the nucleus duplicates its genetic material and the cytoplasm splits into two new daughter cells, each identical to the original parent. This method of reproduction is called binary fission. Another structure easily seen in the amoeba is the contractile vacuole. This organelle pumps out excess water so that the amoeba does not burst or lyse. *Color and label* the contractile vacuole yellow.

During unfavorable conditions, the amoeba can create a cyst, this hard walled body can exist for a long period of time until conditions become favorable again. *Label and color* the cyst dark blue. At this point it opens up and the amoeba emerges. Often cysts are created during cold or dry periods where the amoeba could not survive in its normal condition. Amoebas can cause disease. A common disease caused by the amoeba is called Amebic Dysentery. A person becomes infected by drinking contaminated water. The amoeba then upsets the person's digestive system and causes cramps and diarrhea. A person is most likely to be infected in countries where the water is not filtered or purified.

Questions:

1. How does an amoeba move?
2. What structure contains the amoeba's DNA?
3. How does an amoeba reproduce?
4. During unfavorable conditions, an amoeba forms a _____.
5. Fingerlike extensions of the amoeba's cytoplasm are called _____.
6. What disease is caused by the amoeba?
7. To what Kingdom does the amoeba belong?
8. How are protists classified?



CELL MEMBRANE 1

VACUOLE 3

PSEUDOPODIA 6

ENDOPLASM 5

ECTOPLASM 4

FOOD VACUOLE 7

NUCLEUS 2