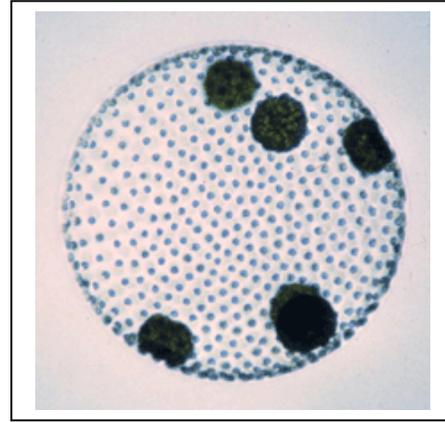


Volvox



Belonging to the **Kingdom Protista**, volvox are one-celled (**unicellular**) algae that live together in a colony. Volvox are among the most abundant creatures on Earth, growing wildly in lakes, puddles, and even aquariums. Just barely visible as a pale green dot to the human eye, under a microscope volvox look like hollow green spheres.

The colony is a hollow ball with 500 to 50,000 individual cells. Cells that are separated from the colony look just like any other single-celled protist. Each individual cell has an **eyespot** which senses light. *Color the eyespot red.* The cells with the most sensitive eyespots line up toward the front of the sphere and the rest of the cells point their flagella toward the back. The **nuclei** (plural nucleus) of individual cells coordinate their flagella so that the volvox sphere moves in one direction. *Color the nucleus purple.* Each of the cells in volvox has 2 **flagella** (spinning, whip-like propellers that help move the colony). *Color the flagella black.* Flagella are beat by individual cells together with other cells. This allows the whole volvox to move through the water in an orderly manner. Once the volvox reaches a light source, it uses its **chloroplasts** to carry out photosynthesis to produce food for the cell. *Color the chloroplasts green.* Volvox are **autotrophic**.

Individual volvox cells also have a **contractile vacuole** to help regulate the amount of water within the cell. *Color the contractile vacuole orange.* Water is absorbed through the **cell membrane**. *Color the cell membrane light blue.* The interior of each individual cell is filled with **cytoplasm**. *Color the cytoplasm yellow.* Cytoplasm also connects individual volvox cells to create the colony sphere.

Volvox never stop swimming; they can respond to a change in light by turning quickly. The cells with the eyespots nearest the light shut off their flagella and the active cells propel the volvox toward the light. Volvox are able to coordinate their movements without a brain or any nerve cells to connect them. In fact, the individual members of a volvox colony are so dependent on one another that if one member of the colony dies, every other cell dies off too. Researchers believe that volvox were the first step in the evolution from unicellular organisms to multicellular organisms.

Some of the cells in a volvox colony are specialized for reproduction. These specialized cells form **daughter colonies** which are small, dark green balls inside the volvox colony. *Color the daughter colonies dark green.* When the daughter colonies mature, the parent ball bursts open and releases the daughter colonies.

Answer the following question.

1. Volvox cells have eyespots that sense light. How do the eyespots help volvox survive?
2. To which kingdom do volvox belong?