It's So Simple: Kingdom Monera (Bacteria)

Scientists put all living things into five kingdoms: Monera, Protista, Fungi, Plantae, and Animalia. (We'll look at Monera, Protista, and Fungi). Let's look at Monerans.

**Cell Structure**

Moneran cells to not have a nucleus (brain). They are called prokaryotes, which means "before a nucleus." They also don't have any organelles ("little organs") to help with life processes. They do have cell membranes and some of the also have cell walls. Some kinds of Monerans have chlorophyll, as well (this makes them producers).

**In your own words, describe the structure of a Moneran (bacteria) cell.**

1. Flagellum (one) (flagella two or more)
2. Pilus
3. Nucleoid
4. Cell Membrane
5. Ribosomes
6. Cell Wall
7. Capsule
Number of Cells

Monerans are the simplest kinds of organisms. They have only one cell (single-celled organism).

*Explain what kind of cell a bacteria cell is. Include how many cells make up one organism.*

Kinds of Movement

Some kinds of Monerans are able to move on their own. They use simple structures that look like whips. These are called *flagella*. Others cannot move.

*Explain ways Monerans move. Do all Monerans move?*

Nutrition

Some Monerans are producers. Others are consumers.

*Define producer. Define consumer. Explain how bacteria that are producers get their food. Explain how bacteria that are consumers get their food.*
It’s Still Pretty Simple: Kingdom Protista (Protozoan)

Cell Structure

Protozoans do have a nucleus and it’s surrounded by a nuclear membrane. They are called eukaryotes, which means “true nucleus.” They also have cell organelles that help the nucleus perform all the life processes.

*In your own words, describe the structure of a protist cell.*

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__________________________________________________________________

Number of Cells

Most Protozoans are single-celled organisms. A few are made up of two or more cells.

*How many cells make up one organism?*

__________________________________________________________________

Kinds of Movement

Some Protozoans *do not* move at all, but many of them are able to move. Some protists use pseudopods, or false feet. The cell in this type of protists is able to change its shape. It is able to extend some of the cytoplasm to make a fake foot or two. The feet are able to push or pull the cell along.

Other protists move using tiny, hair-like structures called cilia. The cilia are found on the outside of the cell. They are able to move very quickly back and forth, moving the protists along through water or another liquid.
Finally, some protists move using *flagella*. These are simple, whip-like structures that propel the protist through its environment.

*Explain ways protists move.*

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**Nutrition**

Some protists are producers and have chloroplasts and chlorophyll. Others are consumers.

*Explain how protists that are producers get their food. Explain how protists that are consumers get their food.*

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**Passport to Pond World Information Sheet**

**Pond Creature – Amoeba**

- Color – Clear.
- Shape – Irregular (always changing).
- Size – .03 inches.
- Moves Using – Pseudopods (false feet).
- Lives – Fresh water at the bottom of pond or puddle.
- Eats – Algae, bacteria, other protozoans, dead plant or animal matter.
- Eats It – Zooplankton, other protozoans.
**Pond Creature – Euglena**

- Color - Green.
- Shape - Oval.
- Size - .002 inches.
- Moves Using - Flagellum (flagella plural).
- Lives - Marine and fresh water.
- Eats - Makes own food; can also eat green algae.
- Eats It - Water Fleas, fish, and other aquatic animals.

**Pond Creature – Paramecium**

- Color - Pale.
- Shape - Oval.
- Size - .003 to .01 inches.
- Moves Using - Cilia.
- Lives - Fresh water.
- Eats - Algae, bacteria, other protozoans, dead plant or animal matter.
- Eats It - Didinium, amoeba, Euglena, rotifers, copepods, and other small animals that live in water.

**Pond Creature – Stentor**

- Color - Depends on what it eats.
- Shape - Horn.
- Size - .08.
- Moves Using - Cilia.
- Lives - Fresh water.
- Eats - Rotifers, water fleas, algae, bacteria.
- Eats It - Amoeba.
Using the information about the four protists, draw an example of each organism. When your illustrations are completed compare them to actual pictures of each organism.
Still using the information above, complete the passport.

My pond creature is called a(n):

My pond creature looks like this:
Discover for Yourself
How to Make a Model of a Paramecium

Materials

- Construction paper (white, green, and a third color)
- Green construction paper
- Colored Paper
- Glue
- Paper hole punch
- Scissors

Safety Concerns: Scissors. Use scissors in the correct and safe way.

Details about my pond creature:

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What does my creature do to move?

Where does my creature live?

The Freshwater Restaurant

This is what my pond creature eats:

This is what eats my pond creature:
Procedure

1. Set a shoe on white construction paper and a smaller shoe on a sheet of green construction paper.

2. Draw around the sole of each shoe.

3. Cut the sole shape from each piece of paper.

4. Cover the edge of the underside of the small green paper sole with glue.

5. Glue the green paper sole to the top of the larger white paper sole so that the green sole is about in the middle.

6. With the scissors, cut slits in the large sole up to the small sole to make a fringe around the entire edge of the white paper.

7. Get the paper punch. Using the colored paper, punch out a number of holes.

8. Place a spot of glue about as large as a quarter in the center of the green sole.

9. Cover the spot of glue with colored circles cut with a paper-hole punch.

10. On the bottom side of the model, cover the area beneath the body, and then press the paramecium against a sheet of colored paper. You don’t want the cilia glued down.

How to Make a Model of an Amoeba

Materials

- White construction paper
- Three different colors of construction paper
- Colored Paper
- Glue
- Scissors
Safety Concerns: Scissors. Use scissors in the correct and safe way.

Procedure

1. Draw an outline of an amoeba on white construction paper. Use this diagram as an example.

2. Carefully cut out the amoeba pattern.

3. Make a nucleus using one of the sheets of colored paper. Glue it onto your amoeba pattern.

4. Using the other sheet of colored paper, cut out four or five small circles. These are the food vacuoles. Glue them throughout the amoeba.

5. Label the food vacuoles, nucleus, and pseudopods on your amoeba.

6. Get third sheet of colored paper (different color). Glue the completed amoeba on that paper.
How to Make a Model of an Amoeba

Materials

- White construction paper
- Three different colors of construction paper
- Glue
- Scissors

Safety Concerns: Scissors. Use scissors in the correct and safe way.

Procedure

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5. Label the food vacuoles, nucleus, and pseudopods on your amoeba.

6. Get third sheet of colored paper (different color). Glue the completed amoeba on that paper.

How to Make a Model of a Euglena

Materials

- White construction paper
- Three different colors of construction paper
- String
- Glue
- Scissors

Safety Concerns: Scissors. Use scissors in the correct and safe way.

Procedure

1. Draw an outline of an amoeba on white construction paper. Use this diagram as an example.
2. Carefully cut out the Euglena pattern.

3. Make a nucleus using one of the sheets of colored paper. Glue it onto your Euglena pattern.

4. Get a green sheet of colored paper. Cut out four or five chloroplasts. Use the diagram for the shape. Glue them throughout the Euglena.

5. Get a piece of string about 18” long. Tape it to the Euglena as shown in the diagram.

6. Label the chloroplasts and nucleus on your Euglena.

7. Get third sheet of colored paper (different color). Glue the completed Euglena on that paper.
Master for the Paramecium
Master for the Paramecium Cilia
Master for the Amoeba
Master for the Euglena