

Explore A Pond:

Go to <http://www.microscopy-uk.org.uk/index.html?http://www.microscopy-uk.org.uk/ponddip/index.html> and answer the questions on the worksheet.

Explore a Pond

1. Click on the amoeba. Answer the following questions:

a. Size ($1\ \mu\text{m}$ [micron] = one-millionths of an inch) - _____ μm .

b. Where are they found?

c. An amoeba moves using _____.

d. Look at the picture. Describe its shape.

e. Draw a picture of the amoeba.



2. Click on the paramecium. Answer the following questions:

a. Size ($1\ \mu\text{m}$ [micron] = one-millionths of an inch) - _____ μm .

b. Where are they found?

c. A paramecium moves using _____.
(click on the *Paramecium* link under the picture and find "Movement.")

d. Look at the picture. Describe its shape.

e. Draw a picture of the paramecium.



3. Click on the Euglena. Answer the following questions:

a. Size ($1\ \mu\text{m}$ [micron] = one-millionths of an inch) - _____ μm .

b. Where are they found?

c. A Euglena moves using _____.

d. Look at the picture. Describe its shape.

e. What color is the Euglena? _____.

f. Draw a picture of the Euglena.



4. Click on a microorganism of your choice. Answer the following questions:

- a. My organism is a(n) _____.
- b. Size (1 μm [micron] = one-millionths of an inch) - _____ μm .
- c. Where are they found?
- d. It moves using (if you can't find how it moves, say so)
- e. Look at the picture. Describe its shape (if it has color, include that information).
- f. Draw a picture of your microorganism.



After you have completed the Explore-a-Pond worksheet, it's time to complete your Passport to Pond World. Select **ONE** microorganism that interests you (**one of the purple words**) and use the websites below them to complete your Passport to Pond World.

Amoeba

[Enchanted Learning – Amoeba](http://www.enchantedlearning.com/subjects/protists/amoeba.shtml) (<http://www.enchantedlearning.com/subjects/protists/amoeba.shtml>)

[The Amoebae](http://www.bms.ed.ac.uk/research/others/smaciver/amoebae.htm) (<http://www.bms.ed.ac.uk/research/others/smaciver/amoebae.htm>)

Euglena

[The Euglena](http://www.fcps.edu/islandcreekes/ecology/euglena.htm) (<http://www.fcps.edu/islandcreekes/ecology/euglena.htm>)

[Euglena's Home Page](http://staff.jccc.net/pdecoll/protista/euglena.html) (<http://staff.jccc.net/pdecoll/protista/euglena.html>)

Paramecium

[Science 101 - The Paramecium](http://www.101science.com/paramecium.htm) (scroll to the bottom of the page to the table "Relationships in Nature") (<http://101science.com/paramecium.htm>)

[Biology Corner - the Paramecium](http://www.biologycorner.com/worksheets/paramecium_color.html) (http://www.biologycorner.com/worksheets/paramecium_color.html)

[The Paramecium](http://www.fcps.edu/islandcreekes/ecology/paramecium.htm) (<http://www.fcps.edu/islandcreekes/ecology/paramecium.htm>)

Stentor

[Microbus - Stentor](http://www.microscope-microscope.org/applications/pond-critters/protozoans/ciliphora/stentor.htm) (<http://www.microscope-microscope.org/applications/pond-critters/protozoans/ciliphora/stentor.htm>)

[The Stentor](http://www.environmentallevverage.com/Stentor.htm) (<http://www.environmentallevverage.com/Stentor.htm>)

[Stentor Being Eaten](http://protist.i.hosei.ac.jp/PDB/Images/Sarcodina/Heliozoa/Actinosphaerium/feeding_1.html) (http://protist.i.hosei.ac.jp/PDB/Images/Sarcodina/Heliozoa/Actinosphaerium/feeding_1.html)

"My Job": What role do microorganisms play in our environment? They play a very important role! You need to investigate what they do.

My Job

At the *Microbe Zoo* main page, click on the *Zoo Information Booth*. Then, click on *What is a Microbe*.

1. What is a microbe?

Go back to the main page. Click on *Dirtland* and then *Compost Pile*.

2. How is compost made?

3. Fungi live on _____ and _____ in the compost pile.

4. What things do fungi degrade (breakdown)?

a.

b.

5. In the picture, on what are the fungi growing?

Go back to *Dirtland* and click on *Home Sweet Home*.

6. What lives on a cutting board?

7. What lives on a couch?

8. What lives in hot water heaters?

- First, visit the Microbe Zoo (<http://commtechlab.msu.edu/sites/dlc-me/zoo/>) to learn about bacteria.
- Next, learn about fungi. Go to the Fun Facts About Fungi website (https://docs.google.com/document/d/1gu_qPbYcSB1gjZoKTTAVyl-sYAIp9BTsXAtvLWWNNpk/edit?pli=1). Read about the ways fungi can help us.
- What diseases are caused by microorganisms? Read the “Organisms that Bug You.”

Diseases caused by Microorganisms

Bacterial Foodborne Disease

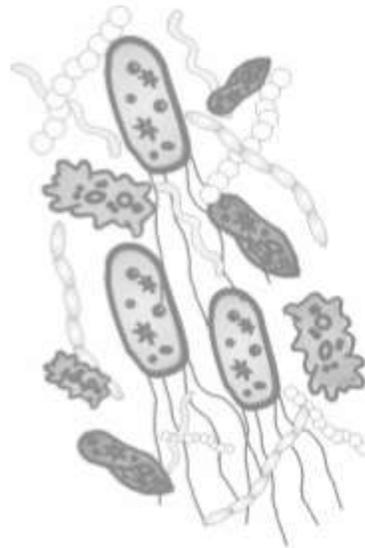
Botulism
Campylobacteriosis
Listeriosis
Perfringens food poisoning
Salmonellosis
Shigellosis
Staphylococcal food poisoning

Bacterial Disease

Boils
Gonorrhea
Meningitis
Pneumonia
Scarlet Fever
Strep Throat
Anthrax
Diphtheria
Plague
Tetanus
Typhoid Fever
Cholera
Syphilis

Protists

African Sleeping Sickness
Malaria



Utah Agriculture in the Classroom

Microorganisms in the Microcosm

- What about fungi? What diseases do they cause? Click here and find out! (http://en.wikipedia.org/wiki/Category:Fungal_diseases)

Webquest (<http://microbfoodandmove.blogspot.com/>)

PRODUCERS

A producer is a living thing that makes its own food from sunlight, air, and soil. This process is called photosynthesis. Click [HERE](http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/photosynthesis.htm) (<http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/photosynthesis.htm>) to read more about photosynthesis.

Euglena are common protozoa that produce their own food. They must have sunlight to survive. Click [HERE](http://www.buzzle.com/articles/euglena-facts.html) (<http://www.buzzle.com/articles/euglena-facts.html>) to read more about euglena.

CONSUMERS

A consumer is a living thing that cannot make its own food. Consumers get their energy by eating food. Many microbes eat by consuming. Animals (and humans) are also consumers; they cannot produce their own food.

Click [HERE](http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/producersconsumers.htm) (<http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/producersconsumers.htm>) to read a bit more about consumers (producers and decomposers).

DECOMPOSERS

A decomposer is a living thing that gets energy by breaking down dead plants and animals. Fungi and bacteria are the most common decomposers.

Click [HERE](http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/decomposers.htm) (<http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/decomposers.htm>) to read more about decomposers.

MOVEMENT

Flagellates use **flagella** (a long, whip-like tail) to move. The most common flagellate is a euglena. They need light to survive.

Click [HERE](http://www.microscopyu.com/moviegallery/pondscum/euglena/) (<http://www.microscopyu.com/moviegallery/pondscum/euglena/>) to watch a euglena move.

Pseudopodia use **pseudopods**—also called false feet (think of moving Jell-O) to move. The most common pseudopod is an amoeba.

Click [HERE](http://www.microscopyu.com/moviegallery/pondscum/amoeba/) (<http://www.microscopyu.com/moviegallery/pondscum/amoeba/>) to watch an amoeba move.

Ciliates use **cilia** (lots and lots of little hairs) to move. The most common ciliate is a paramecium.

Click [HERE](http://www.microscopyu.com/moviegallery/pondscum/paramecium/) (<http://www.microscopyu.com/moviegallery/pondscum/paramecium/>) to watch a paramecium move.

Microbe Food & Movement Webquest

Read through the information on the webquest and write information you learn in each box. You may also include picture sketches.

producers	consumers	decomposers

6. A lot of microorganisms help the ecosystem because they are decomposers. What does that mean?

7. Match the microorganism with the disease it causes:

<u>Protist</u>	Common Cold
Bacteria	<u>Tetnus</u>
Virus	Athlete's foot
Fungi	Malaria

8. Which type of microorganism acts as a parasite?

9. Which microorganism has an oral groove and a gullet?

10. What does the euglena use to help it be able to undergo photosynthesis?