Connecting Creatures

QuickTime™ and a
decompressor
are needed to see this picture.

Student Investigations and Research that Enrich the Vernal Pool Experience

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<u>Yearlong Guidebook Project</u>

- ➤ **Research**

- ➤ **Design**

- ➤ **Make Connections and Comparisons**

QuickTime™ and a
decompressor
are needed to see this picture.

Vernal pool is a central focus

Profile Page Research Process

How is the organism classified?

What are its distinguishing physical characteristics?

What is its habitat, range, and distribution?

What are its ecological relationships (including food sources)?

What other information do you find relevant and interesting?

QuickTime™ and a
decompressor
are needed to see this picture.

Cytoplasm

Cell Membrane

Flagella

Contractile vacuole

Eyespot

Nucleus

Chloroplast

DNA
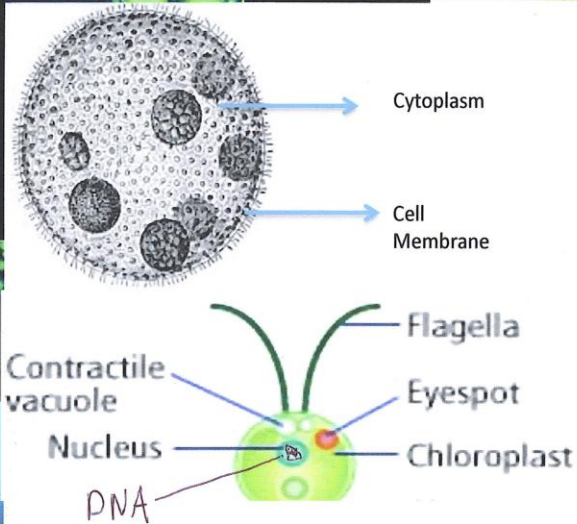
Volvox *aureus*

By Nick Popov

Characteristics-

The Volvox is a multicellular organism about 350-500 micrometers in diameter. The Volvox is a round, greenish, translucent bubble with cell membrane, cytoplasm, nucleus, chloroplasts, daughter cells, and flagella. They move by wiggling their flagella and propelling the Volvox through water.

Range and Distribution-

The Volvox live in fresh water areas such as ponds, ditches and lagoons.

Observed-

I observed this organism on 1/13/12 in science class through a compound light microscope.

Ecological Relationships-

The Volvox is autotrophic. The organelle that helps it produce food is the chloroplast. These organelles help turn the suns energy into food through photosynthesis.

Other info-

One adaptation that the Volvox has is that the eyespots on one side of the Volvox are more developed, this helps the Volvox find sunlight. One interesting fact is that the Volvox reproduces through it's daughter cells which grow inside it until the cell membrane splits open and releases the daughter cells.

Sources-
"Volvox". Microbus. 1/18/12.
http://www.microscope-microscope.org

Egmond, Wim van. "Volvox". December 2003. Microscape. 1/18/12. http://www.microscopy-uk.org-uk

Valerie Reiling

Amoeba

Amoeba proteus

Characteristics

The amoeba is a unicellular protist ranging in size from 500-1,000 um. The amoeba (above) is slightly gray and looks like it is filled with tiny grains. This irregular shaped protist has a cell membrane, a cytoplasm, a nucleus, and pseudopods. The pseudopods help this protist move in a gliding motion.

Range & Distribution	Observed	Ecological Relationships
The Amoeba can be found in freshwater, saltwater, soil, and moist bodies.	This protist was observed on 1/12/12 in the science classroom.	This protist is a heterotroph, which means it eats other organisms. The Amoeba gets its food by using its pseudopods. It eats other small microorganisms such as bacteria, diatoms, and other aquatic plants.
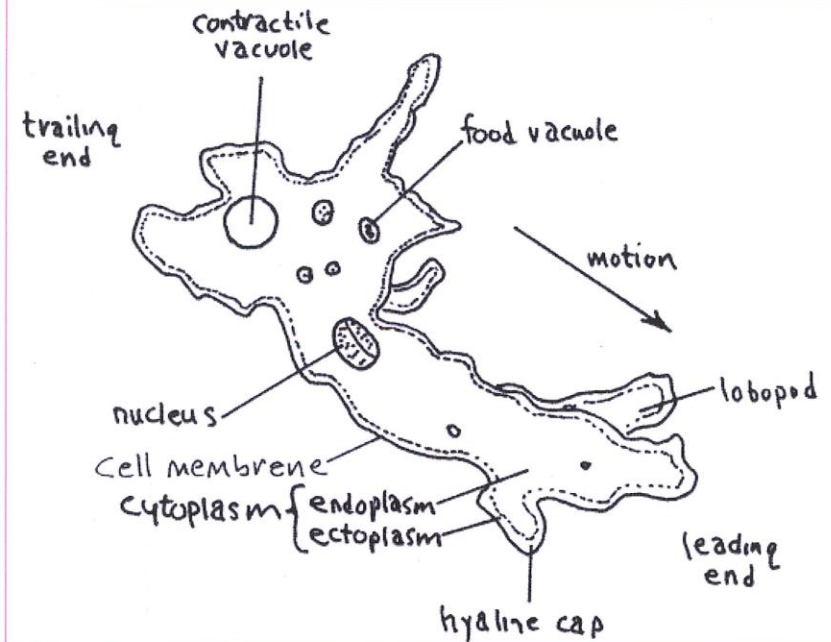
This is a picture of an Amoeba

As you can see the protist has been labeled

Fun Facts

- The Amoeba can change its shape and from pseudopods
- The Amoeba is transparent unless it eats something
- Amoeba comes from the Greek word amoibe which means to change
- They are not hard and have the substance of jelly
- Food they consume live for some time inside them
- To reproduce the Amoeba divides itself in two

Citations

"Amoeba Proteus." *Microscope - Information, Suppliers, Activities and Resources.* Microbus, 2003. Web. 17 Jan. 2012. <http://www.microscope-microscope.org/applications/pond-critters/protozoans/sarcodina/amoeba-proteus.htm>.

Patry, Jules, and Megan Robb. "Amoeba Proteus." *MicrobeWiki.* Media Wiki, 22 July 2011. Web. 18 Jan. 2012. <http://microbewiki.kenyon.edu/index.php/Amoeba_proteus>.
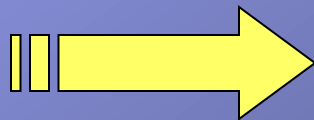
"Amoeba Proteus." *Microscope - Information, Suppliers, Activities and Resources.* Microbus, 2003. Web. 17 Jan. 2012. <http://www.microscope-microscope.org/applications/pond-critters/protozoans/sarcodina/amoeba-proteus.htm>.
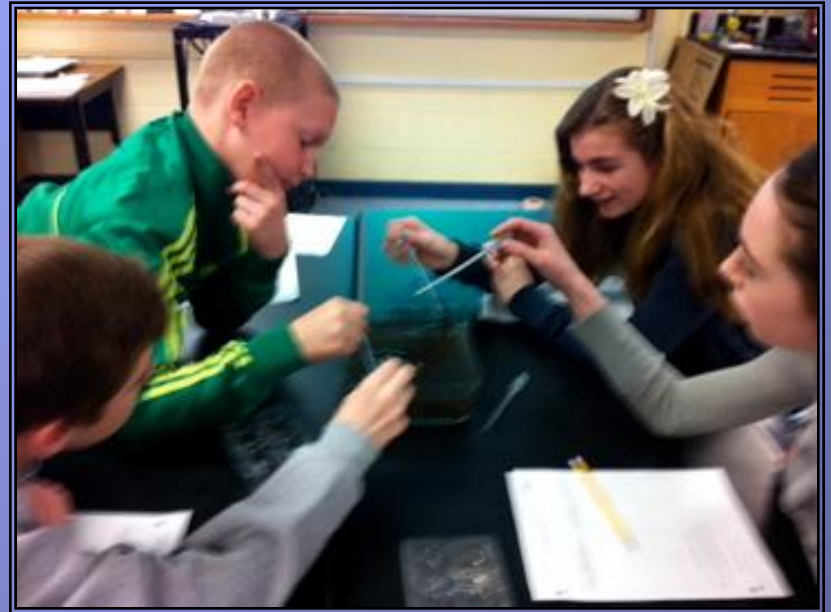
Vernal Pool Investigations

How do water levels vary at our vernal pool?

How might variations affect plants and animals in and around the pool?

Inventory of small aquatic anima

CMS Vernal Pool/ Harvard Forest School Yard Ecology
Who's in the Pool?
Estimating Population Size

Name: _____ Date: __4-5-12__ Section: _____

Part 1: Sample Inventory

Type of Species (specific name or description)	Total Number in Group Sample						Class Average
• black bug lots of legs <2? at a rice grain	1	5	1	0	0	0	1.17
Amphipod (greyish back some black, swims sides)	14	1	10	7	0	0	5.3̄
Small fan bug (1cm) roundy ostracod?	1	4	0	0	0	0	.83̄
Small leech/aquatic worms	1	2	0	0	0	0	.6
Small flying bug (walks on water)	1	15	10	3	3	0	5.3̄
6 legs, antena, swims, black	1	1	1	0	0	0	.5
TOTAL FOR ALL SPECIES							13.83

Part 2: Total Population Estimation

Step 1- Find the volume of water in the pool (in liters)

current diameter = ___14.82___ m   (find answer on data sheet)

therefore current radius (r)=___7.4___ m (calculate half of diameter)

NOW CALCULATE

Area in the pool = ___7.41___ x 3.14 = ___172.41___ m²

r²   π

(radius squared)   (pi)

current depth = ___48___ cm (find answer on data sheet) = ___.48___ m (convert)

NOW CALCULATE

Volume = ___172.41___ x ___.48___ = ___82.75___ m³

area (m²)   depth (m)

We need to divide the volume by 2 because the sides of the pool slope to the center

Volume ÷ 2 = ___41.37___ m³

Every cubic meter= 1000 liters   so multiply the adjusted volume by 1000

Adjusted volume x 1000 = ___41,378.4___ liters   ⟵━━ Here's your answer!

Step 2- Find out how much total "food" is in the pool

Multiply the average number of species collected by your class by the number of liters of water in the vernal pool

NOW CALCULATE

___13.83___ x ___41,378.4___ = ___572,263.27___

Average # of species   adjusted volume in liters   estimated population

Next Steps for Guidebook

Kermit the Frog
Says **Someday we'll find it, that rainbow connection.**

Vernal Pool Reflection

Here is my summary paragraph about vernal pools. I will explain the key characteristics of a vernal pool. I will describe the vernal pool at my school. Here is my introductory paragraph about vernal pools. I will explain the key characteristics of a vernal pool. I will describe the vernal pool at my school. Here is my introductory paragraph about vernal pools. I will explain the key characteristics of a vernal pool. I will describe the vernal pool at my school. Here is my introductory paragraph about vernal pools. I will explain the key characteristics of a vernal pool. I will describe the vernal pool at my school.

➢ **Profile pages**

➢ **food webs**

➢ **Introduction page**

➢ **Graphing**

➢ **Summary page**