

**Grade Level 5-8**

**Duration:** three 45 minute sessions, additional time if field trip to vernal pool is included

**Objective:** students will (1) identify forms of microscopic life from a vernal pool and (2) describe how various aquatic organisms are interrelated.

**Key Terms:** Microorganism, vernal pool, habitat, predator, prey, food web

**Method:** Students will examine, draw and identify microorganisms from a vernal pool.

**Materials:** Vernal pool water sample; hand lens; magnifier; nets (of fine mesh); microscopes; slides; cover slips; eyedroppers; writing materials; and art supplies (paints, poster paper, mural paper; tape).

**Background:** When Anton Van Leeuwenhoek and Robert Hooke-the inventors of the first microscope-looked into the micro-world of streams and pond water they were surprised to find life forms. As time went by and more researchers gazed into the world, it became clear that there were thousands of tiny organisms that made their homes in water. Research has shown that without these microscopic life forms the entire aquatic ecosystem could not function. Microscopic organisms are vital in the food supplies of fish, aquatic birds, reptiles, amphibians and mammals (including humans). The major purpose of this activity is to provide students with ways of becoming familiar with various microscopic life forms and their role in larger-scale habitats and ecosystems.

**Procedure:**

1. Collect a sample of vernal pool water. Be sure to capture some bottom materials with soil and detritus, and aquatic plant matter. About a gallon should be sufficient.
2. Invite the students to remove about a tablespoonful of the water from the container. Remember to tell them to get the water from within the container and not just that at the surface. Have them examine the water with a hand lens and a microscope. Tell them to make sketches of the living things they find. They should note how the organisms move and how they interact. Do some seem to be predators? Which other of the life forms do they predators seem to prey upon?
3. After they have sketched several organisms, encourage the students to choose life forms to portray in a painting. The students should strive for detail and accuracy in portraying the organisms. Next have the students identify the organism they painted. Ask your students to write a short paragraph about the organisms.
4. Class discussion: What natural and unnatural events in the vernal pool could be a major disaster to all the inhabitants?

**Evaluation:**

1. Draw a simple illustration of one or more of the following organisms: Daphnia, Euglena, Hydra, Spirogyra, rotifer, water mite. Label your drawing and add information about the characteristics of the organisms and its habitat.
2. Identify each of the organisms listed above, plus sulfur bacteria as a producer (P), consumer (C), or decomposer (D).
3. Use at least of three of the organisms listed above, plus others and construct an aquatic food web that might be found in a vernal pool.

**State standards alignment**

(<http://www.dnr.state.oh.us/dnnapps/education/correlations/searchresults.asp?intpage=2&action=P&REVIOUS&hidID=##>)

Activity Guide	Activity Title	Grade Level Band	Grade Level	Content Standard	Benchmark	Organizer	Grade Level Indicator	Details
WILD-Aquatic	Micro Odyssey	6-8	7	Life Sciences (L)	B	Evolutionary Theory	8	<a href="#">Click here</a>
WILD-Aquatic	Micro Odyssey	6-8	6	Life Sciences (L)	C	Diversity and Interdependence of Life	8	<a href="#">Click here</a>
WILD-Aquatic	Micro Odyssey	6-8	7	Life Sciences (L)	C	Diversity and Interdependence of Life	2	<a href="#">Click here</a>
WILD-Aquatic	Micro Odyssey	6-8	7	Scientific Inquiry (SI)	A	Doing Scientific Inquiry	4	<a href="#">Click here</a>
WILD-Aquatic	Micro Odyssey	6-8	8	Scientific Inquiry (SI)	A	Doing Scientific Inquiry	1	<a href="#">Click here</a>
WILD-Aquatic	Micro Odyssey	6-8	6	Scientific Inquiry (SI)	A	Doing Scientific Inquiry	2	<a href="#">Click here</a>
Activity Guide	Activity Title	Grade Level Band	Grade Level	Content Standard	Benchmark	Organizer	Grade Level Indicator	Details
WILD-Aquatic	Micro Odyssey	6-8	6	Scientific Ways of Knowing (SWOK)	A	Ethical Practices	2	<a href="#">Click here</a>
WILD-Aquatic	Micro Odyssey	6-8	8	Scientific Ways of Knowing (SWOK)	A	Nature of Science	1	<a href="#">Click here</a>