Trout in the Classroom
Lesson/Presentation Plan
Prepared by Bill F. Date 4/27/20

Eco-Cruises
Floating Classroom
Trout in the Classroom

Audience/Grade: Elementary (4th…..)
Title/Topic: Closer look at life in a vernal pool.

Overview (2 or 3 sentence description**):**
By collecting a water sample from a vernal pool (or large puddle) and using household implements with a parent's help, students will be able to observe living organisms, adapted to life in a temporary habitat. How does these creatures survive when the water goes away? How are they part of a constant foodweb or ecological system?

Skills/Understandings/Learning Objective(s): basic *examples like below, and specific curriculum standards, if possible…*

- Use of live samples encourages students to follow instructions and a written procedure (see attached worksheet).
- Construct an argument (model) for how biosphere/biological adaptations (life cycle, for instance) are impacted by physical conditions (loss of water)
- Begin to explore water cycle/drainage/movement through landscape.

Relevance to Students: This plan has been developed as part of the 2020 Virtual Trout in the Classroom program. Our hope is that students' recollection of classroom trout and experiments (like the daphnia feeding test) will inspire them to think about how the health of vernal pond relates to stream health. Natural interconnections are everywhere.

Timeframe: *15-30 minutes*
Group Size: Single, or with parent…
Preferred Location(s): Stream, woods or backyard… flexible

Materials/Preparation:

- Jar for sample collection, lid
- Coffee filter, or paper towel
- Pipette for isolating organisms. A straw or emptied pen tube will work!
- Cell phone w/camera





Motivator/Warm-Up:
Have a parent or older brother/sister join you for a hike to find a vernal pool. Nearly any puddle or small pond will do. Look around the pond. Are plants growing above and below the water surface, or not? Do you see animal tracks? How does the water look? How does it smell?

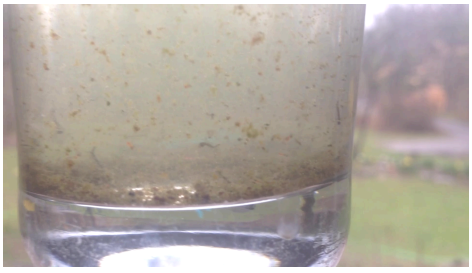
Procedure:



1. Approach the pool carefully, so as not to stir up mud or leaves. Gently put your open sample jar beneath the water surface, but try not to bury it in mud. Fill the jar. You may add one or two decomposing leaves, if you wish.
2. Observe the water sample (cap the jar). What color is it? As it settles, if you look closely, can you see anything moving? How big are they? How do they move? Can you tell if there are different types of organisms by the way they move, or the size and shape of their bodies?



3. (Returning home…) Set up a coffee filter or paper towel over a second jar or container. (If you have a sieve to put the filter in, that can be helpful, like in the picture.) Pour the pool sample slowly through the filter.
4. When water has drained through the filter, you should have bits of material, and organisms caught on the filter. Use fresh water to gently rinse those creatures into a clean container (you can rinse out the sample jar and use that.)



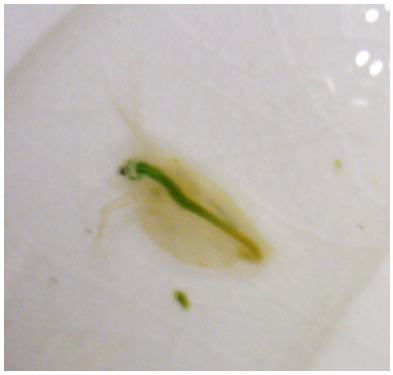
5. Now, you should have a clearer sample to look at. You may repeat steps 3 and 4 of you wish.
6. Use a straw or emptied pen tub as a probe to go into your sample and try to catch an individual organism. *This may take a few tries and some practice. That's OK!*
    a. Put your finger or thumb over the top of the straw as you lower it into the sample.
    b. Position the bottom of the straw just over a creature.
    c. Release your thumb from the top of the straw. Water will rush into the bottom as air comes out the top, sucking in your target creature.

d. BEFORE MOVING the STRAW: replace your thumb on the top of the straw. Air pressure will not hold water in the straw as you lift it out of the sample.
e. Place the bottom of the straw over your jar lid, or a white bowl or plate, and gently release your thumb from the top. A few drops of water, and your creature, will come out.

7. Using your camera, try to get up close pictures of your creature. You can magnify them after you've taken them to get a closer look. You can also try to set up a stand to steady your camera using books or other materials.



Wrap Up:
Take pictures of what you find. How many different creatures did you observe? Are there a lot? How many do you think might be in that entire pool?



Many of these creates are actually insects. Using your knowledge of insects, can you figure out what happens to them when the pool dries up? Do they survive? How do they get into the pool in the first place?

Did you find any daphnia, or creatures that seem similar… hopping through the water? What do you remember about how daphnia can survive when the water dries up?

Assessment Criteria/Rubric:

	Needs work	OK	Good
Engagement/Participation			
Students showed understanding of key concepts…			
Creative projects …			

Other Considerations: (Physical abilities req'd, weather, etc.)