TOPIC: Effects of abiotic/biotic factors

DO NOW: Look at your Lab Safety Guidelines. Why is it important to follow the rules during a lab?

EXT: Vinegar Eel

DUE DATE: Monday 10/27

DW: Lab Time

⭐ Test Tuesday October 28th

EXIT: Fill in your level of understanding AND Explain how pollutants can affect organisms.
DO NOW
Q: Why is it important to follow the rules during a lab?
A: Various answers
Let’s Chat

Weekly Organizers
- Exit Activities
- DW Grades

Late work
UNIT OBJECTIVES

6-✓[]--DESCRIBE how humans impact (+/-) biodiversity

7-✓[]--IDENTIFY how biodiversity is increased / decreased

Add on to each QUESTION every night as REVIEW!
Vocabulary

- demography
- demographic transition
- zero population growth -- ZPG
- age structure

These should be done by test day!
Say What? Worms in my ViNeGaR?! We are going to start a lab.
Safety First

You must wear your safety goggles -you look CoOl...I promise

Even the Queen does it....
Objective

• EXAMINE how organisms have behavioral responses to stimuli (abiotic factors in form of pollutants).

• DEMONSTRATE understanding of the scientific method

• HYPOTHESIZE the effects of "environmentally safe" household cleaners on living organisms.
- *Turbatrix aceti*, or vinegar eels, are free-living Nematodes. This means that they are roundworms not eels. Vinegar eels are soil Nematodes that are great organisms for laboratory study. Their bodies are transparent allowing digestion and movement to easily be seen under a microscope.

-Vinegar eels, just like all living organisms will respond to a stimulus in their environment. Pollution is one stimulus that is changing the environment quickly and to an extent that we may not understand. Your job is to test the effects of possible abiotic pollutants on vinegar eels, making a conclusion on how they will start to affect other living organisms within the ecosystem.
Per Team @ Lab Station
___1 spot plate
___10 ml distilled water
___1 compound microscope
___1 pipet

Material on Front Cart
___#1 *Turbatrix aceti*(vinegar eels) culture
___#2 Pollutant A: Green Works All Purpose cleaner
___#3 Pollutant B: Homemade All Purpose cleaner
___#4 Distilled Water
Gather Materials & put them in your SPOT PLATE:

- E-Vinegar Eel Suspension
- W-Distilled Water
- A- Pollutant A
- B- Pollutant B
1. **PREPARE a CONTROL**
   - place 1 drop of distilled water in spot #1 on your well plate,
   - followed by 2 drops of vinegar eel suspension.

2. **OBSERVE** the normal movement of this organism under the dissecting microscope.
   - pay attention to the vigor of the wriggling and the organism’s progress as it moves forward.

3. **IDENTIFY PROBLEM/ HYPOTHESIS/ VARIABLES/ CONTROLS**
3- **TEST Pollutant A:**
- place 1 drop of distilled water in spot #2 on the spot plate
- add one drop of pollutant A
- add 2 drops of eel suspension

4- OBSERVE/RECORD the time it takes for the eels to lose their ability to swim in one direction (FORMING A COIL)

5- RECORD your observations / time on your data table.
   - If you do NOT see a change after 3 minutes, record a NEGATIVE result for this pollutant.
6- **TEST Pollutant B:**
   - place 1 drop of distilled water in spot #3 on the spot plate
   - add one drop of pollutant B
   - add 2 drops of eel suspension

7- OBSERVE/RECORD the time it takes for the eels to lose their ability to swim in one direction (FORMING A COIL)

8- RECORD your observations / time on your data table.
   - If you do NOT see a change after 3 minutes, record a NEGATIVE result for this pollutant.
LAB: IDENTIFY PROBLEM/ HYPOTHESIS/VARIABLES/CONTROLS:

PROBLEM/QUESTION:
Does the ____ (change to IV) affect the ____ (change to DV)?

HYPOTHESIS:
If the ____ (IV) is ____ (change to IV), then the ____ (DV) will ____ (predicted change).

IV-INDEPENDENT VARIABLE: ________________________________________________

DV-DEPENDENT VARIABLE: ________________________________________________

CONSTANTS: (list form)

EXPERIMENTAL GROUP: ________________________________________________

CONTROL GROUP: ________________________________________________
Data Table

<table>
<thead>
<tr>
<th>TYPE OF POLLUTANT</th>
<th>OBSERVATIONS</th>
<th>TIME(seconds) until eel coils</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Don’t forget to draw a picture of your eel!
Conclusion

USE COMPLETE SENTENCES
✓RESTATE the hypothesis telling how the data DID or DID NOT support your hypothesis.
When the_____ (IV) was _____then the _____ (DV) _____.

✓EXPLAIN what happened in your experiment and did you meet your hypothesis or not?
✓-Rank the solutions according to toxicity (least toxic to most toxic)
✓-Include a 1 sentence statement for this ranking.

✓PROVIDE alternate explanation for the results and sources of error (why you might have not met your hypothesis).

✓PROPOSE possible future applications and adaptations on the BACK SIDE of this PAPER.
✓-How does this experiment relate to objectives in Ecology unit?
(use at least 5 vocab terms in 3-5 bulleted statements. Be sure to Underline the vocab terms)
**FILL-IN:** level of understanding of today’s objective

😊 ☺ ☹

**EXIT:** Explain how pollutants can affect organisms.