**AP Biology College Board Lab 11**

**Purpose: to demonstrate various animal taxes and kinesis.**

Be extraordinarily gentle with your earthworm. Be sure to keep it moistened with the water from the front table and do not poke at it! You should put it on a moist paper towel on a clean dissecting pan

Unstimulated behavior

1. Obtain an earthworm for you and your partner(s).
2. Observe the worm for 5 minutes and record the worm’s normal behavior. Notice the muscle contractions that you see along the segments. Locate the posterior and anterior end of the worm (this will be important when you stimulate the worm!). \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Use the hand lens to examine the worm a little closer.
2. Feel the skin of the earthworm. Contrast the feeling of the skin on the dorsal and ventral sides. What accounts for the difference? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. See if you can observe the contractions of the dorsal blood vessel as the blood is pumped through the worm’s body.
2. Roll the worm over on to its ventral side. How does the worm respond to this? Place the worm on a petri dish and observe it from underneath. What do you see? Try tilting the glass different ways and record the worm’s response. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Make a detailed sketch of an earthworm and label its parts:
2. What do earthworms eat? What animals prey on earthworms? What is the earthworm’s natural habitat/niche?

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Stimulated Behavior: Student-Designed Experiment to Investigate Worm’s Response to Temperature, Light, Moisture, pH, or Another Variable

1. Select one of the variable factors listed above and develop a hypothesis concerning the worm’s response to the factor. Remember it must be TESTABLE and written as an *if…then* statement!

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1. Use the material available in the classroom to design a humane experiment to test your hypothesis. Remember that heat is generated by lamps.

* 1. State the objective of your experiment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. List the materials you will use: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. Outline the procedure in detail: Bullet Points or Numbered List
  2. What data you will collect and design a data chart for recording. Can you create a graphic representation of your data?

**Pillbug Behavior Example:**

1. **A student placed Pillbugs (rolly pollies) into a 2-chambered apparatus. In one chamber, she placed a piece of damp paper towel. In the other chamber, she placed a dry paper towel. Below is the data from her experiment:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time (Mins: secs)** | **0:0** | **0:30** | **1:0** | **1:30** | **2:0** | **2:30** | **3:0** | **3:30** | **4:0** | **4:30** | **5:0** | **5:30** | **6:0** | **6:30** | **7:0** | **7:30** | **8:0** | **8:30** | **9:0** |
| **# on wet side** | **5** | **9** | **10** | **10** | **10** | **10** | **10** | **10** | **10** | **9** | **7** | **7** | **7** | **8** | **10** | **9** | **9** | **10** | **10** |
| **# on dry side** | **5** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **2** | **3** | **3** | **2** | **0** | **1** | **1** | **0** | **0** |