Isopod Behavior Lab

Terrestrial isopods are land-dwelling crustaceans, commonly known as pillbugs or sowbugs. They are related to lobsters, crabs, and shrimp, all breathing through gills, even though the terrestrial isopods live on land. Although pillbugs and sowbugs look similar, they are actually two different species. Pillbugs will roll into a ball, when threatened. Whereas, sowbugs will just attempt to flee when threatened.

Taxis involves animals turning either away or toward a stimulus in their environment. If the stimulus is something the animal needs to survive, the animal will move towards the stimulus. If the stimulus is something that would harm the animal, it will move away from the stimulus.

In this lab you will use the steps in the scientific method to observe and record the isopod’s response to moisture.

Isopod Observations

Working with a partner, collect 10 isopods and place them in a container on your desk. Use the magnifying glass to examine the isopod’s anatomy and behavior. Record your observations below:

1. What type of species do you have, pillbugs or sowbugs? ________________________________
2. How many legs do they have? _______________________________________________________
3. How do they seem to sense their environment? _________________________________________
   ________________________________________________________________________________
4. Where are their gills located? _______________________________________________________  
   ________________________________________________________________________________
5. How do they respond to each other? _________________________________________________  
   ________________________________________________________________________________
6. What other things do you observe? __________________________________________________ 
   ________________________________________________________________________________
   ________________________________________________________________________________
   ________________________________________________________________________________

Form a Hypothesis

In this lab, you will investigate whether isopods prefer a moist or dry environment. Based on your earlier observations, develop a hypothesis on which environment the isopods prefer.

If _____________________________________________________________________________________  
______________________________________________________________________________________
Then ___________________________________________________________________________________  
______________________________________________________________________________________
Test your Hypothesis with an Experiment
For this experiment, you will set up a choice chamber with a wet and dry environment. You will place the isopods in the center of the choice chamber and count and record the number of isopods in each side of the chamber every 3 minutes for a total of 15 minutes.

Materials
- Choice Chamber
- Paper Towels
- Water
- 10 Isopods
- Stop Watch

Experimental Set Up
1. In the front of the classroom, one choice chamber will be set up without the paper towels. The teacher will count and record the number of Isopods in each chamber every 3 minutes for 15 minutes.
2. Place the choice chamber on top of a paper towel. Use a pencil to trace the shape of each side onto the paper towel. Cut out two circles, from what you traced, and make sure they fit flat into the choice chambers.
3. Moisten one of the paper circles and place it into one of the chambers. Place the dry paper circle into the other chamber.
4. Place 10 isopods into the center of the choice chamber.
5. Count and record the number of isopods in each chamber every 3 minutes for 15 minutes.

Gather Data

<table>
<thead>
<tr>
<th>Time (Minutes)</th>
<th>Number of Isopods in Wet Chamber</th>
<th>Number of Isopods in Dry Chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
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<td>9</td>
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<td>12</td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analyze Data
Place your data in a graph, in order to show and analyze the data more clearly. In order to draw your graph, you must first decide what your independent and dependent variables were. Recall the dependent variable always goes on the Y axis.

Independent Variable: _____________________________________________
Dependent Variable: _____________________________________________

You will also need to compare the data, from your experimental set up, to the data from the control set up and include it in your graph.

To show all of this data on your graph, you will need to use different color pencils and create a legend for your graph.

Before making your graph, you will also need to decide which type of graph to use. Recall that a line graph is used when data is collected over time; a bar graph is used when data is measured only once, and a circle graph is used to show percentages. Decide on the best type of graph to use and draw it below.

Lastly, recall that all graphs need to have a descriptive title and each axis needs to be labeled with a title and the unit of measurement used.
**Draw a Conclusion**
After analyzing your data, draw a conclusion as to whether your hypothesis was supported or not. Make sure to use proper sentences and repeat your hypothesis in your conclusion.

Conclusion: ____________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

**Other Questions**
List some other questions that you could investigate with these isopods
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

**Animal Behavior**
Most animal behaviors can be classified as either innate or learned behavior. Innate behaviors are those which the animals are born knowing as they are programmed into the animal’s genes. Some of these behaviors are automatic and occur quickly, without any thought at all. Other innate behaviors are instinctual and can often take months to carry out. Learned behaviors require prior experience or are taught to the animal either by the animal, itself, or by another animal, such as a parent.

As mentioned earlier, the isopod behavior to move toward or away from a stimulus is known as taxis. How do you think taxis behavior would be classified, as innate or learned behavior?

______________________________________________________________________

Explain your reasoning: __________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________
______________________________________________________________________

______________________________________________________________________