

NAME(s): \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

## A MEALWORM'S ECOSYSTEM



### Learner Outcomes:

- Monitor a local environment, and assess the impacts of environmental factors on the growth, health and reproduction of organisms in that environment.

### Key terms:

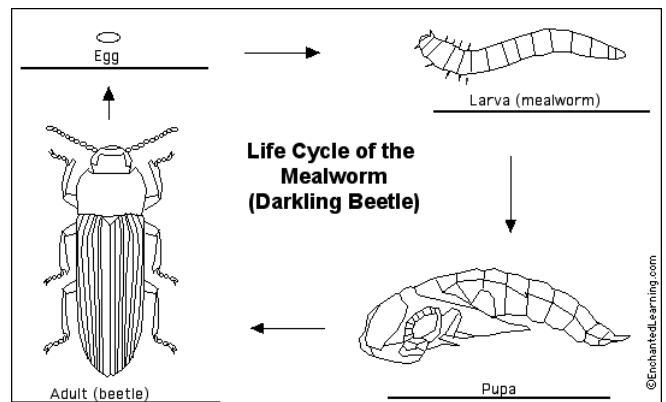
Habitat

Biotic

Abiotic

**Background Information:** Mealworms are actually not worms! They are grubs!

What's a grub? A grub is the larval stage of some types of insects. Mealworms are the larval stage in the Darkling Beetle's life cycle. They are usually found living in what they eat, which is generally stored grains such as wheat or barley. You might say that their home is also their food!



**Investigation Question:** Which habitat conditions do mealworms prefer - light or dark, sunlight or shade, warm or cold, wet or dry?

**Hypothesis:** Form a hypothesis about the kind of habitat conditions mealworms prefer. Explain why.

This investigation / activity has been adapted from:  
Bullard J, Krupa G, Krupa M, et al. *Science Focus 7*. Toronto, ON: McGraw-Hill Ryerson.

**Materials:** *\*\* Mealworms are living organisms. Please handle them with care and concern for their well-being \*\**

Mealworms  
White and  
black paper

Water bottle  
Paper towel  
Petri Dishes

Scissors  
Ice Cube  
Zip-lock bag

**Procedure:** *\*\* Make sure you've completed your hypothesis before you begin the procedure\*\**

### **Test #1: Habitat Color**

1. Place your Petri dish on top of one sheet of black paper and one sheet of white paper so that half of the dish is on the white paper and the other half is on the black paper.
2. Place five mealworms in the middle of the Petri dish and observe for three minutes. Record how many mealworms are found on each side in your observation chart.

### **Test #2: Response to Light**

1. Cut a piece of black paper so that it will sit on top of the Petri dish while covering exactly half of the dish. Place the half-covered Petri dish under the lamp and turn it on.
2. Place five mealworms in the middle of the dish. Observe for three minutes and record your results in your observation chart.

### **Test #3: Wet vs. Dry Habitat**

1. Wet a paper towel and place it on one side of the Petri dish. *Don't wet the towel too much or water will run over to the other side of the Petri dish.*
2. Place five mealworms in the center of the dish. Observe for three minutes and record your results in your observation chart.

### **Test #4: Warm vs. Cold**

1. Place an ice cube into a zip-lock bag and set it on one side of the Petri dish.
2. Place five mealworms in the center of the dish. Observe for three minutes and record your results in your observation chart.

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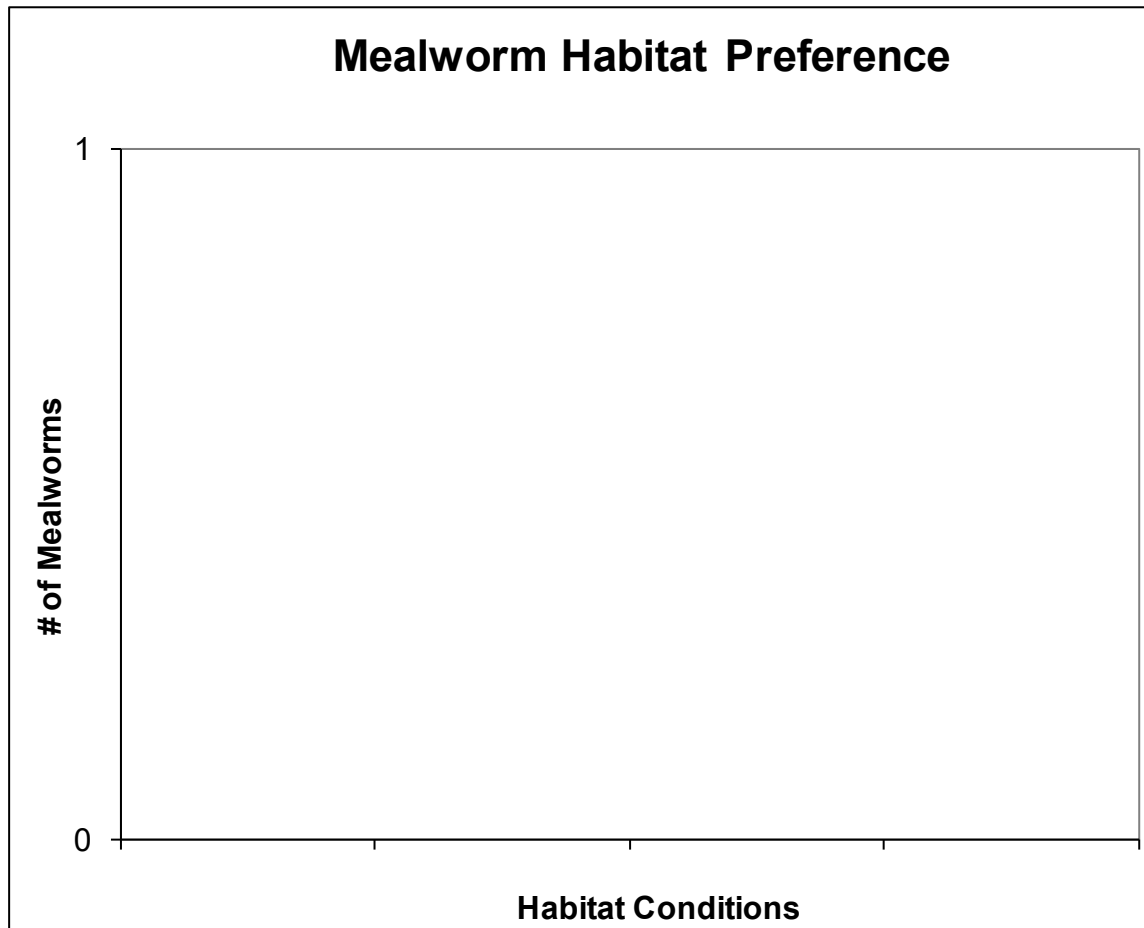
**Observations:**

**Table Title:**

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	Test #1 Surface Color		Test #2 Light Conditions		Test #3 Moisture Level		Test #4 Temperature	
	Black	White	Sun	Shade	Wet	Dry	Warm	Cold
<b># of Mealworms</b>								

**Analysis:** Construct a **bar graph** to represent your results.



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1. What variable(s) did you manipulate in this investigation? *please be specific*

Part 1-

Part 2 -

Part 3-

Part 4 -

2. What was the responding variable in this investigation?

3. What were some of the controlled variables in this investigation?

**Conclusion:** Based on your observations, which habitat conditions do mealworms prefer? (support your answer by discussing what happened in the lab)

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**Extension:**

In an environment where the ecosystem changes seasonally (such as in Alberta), organisms must adapt to these changes. Select one organism in a changing environment and research how it changes to adapt to its changing environment.

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