

Mealworm Stimuli Lesson Plan

Grade Level: 2

Science concept: Mealworms, like other organisms, react to specific stimuli in their environment.

Relationship to California Science Content Standards: 2.2.c: “Students know many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.” This lesson will focus on the influence of environment on an organism.

Learning Objective: Students will complete Mealworm Behavior Investigation worksheets 1 and 2 and write a paragraph from the perspective of a mealworm.

Evaluation Ideas:

- 1.) **Formative:** Students will actively participate in recording their predictions and observations of mealworms being introduced to specific stimuli on Mealworm Behavior Investigation worksheets 1 and 2.
- 2.) **Summative:** Students will write a paragraph from the point of view of a mealworm and will accurately depict the mealworm’s point of view being introduced to external stimuli.

Conceptual Background: Mealworms that are introduced to stimuli can tell us several things. For one, in this activity it gives students an idea of what mealworms like to eat. Additionally, the response of the mealworms to external stimuli should point to the larger fact that organisms in general respond to stimuli. This can be food, a sound, a change in temperature, a smell, something that touches them, etc.

Lesson Implementation Plan:

Engage- Begin by reading the class the book [A Mealworm’s Life](#) by John Himmelman. After finishing the story, tell the students that today they are going to get to be mealworm detectives. They will get to figure out how mealworms react to certain situations. Tell the students that just like the mealworm in the book told a story, the mealworm in front of them has a story for them too. That is why they need to be hands-off observers and watch their mealworms very closely.

Explore- Place a Petri dish with one mealworm in front of each group (5 students). Allow the students a minute or two to observe how the mealworm acts without any external influences. Pass out the Mealworm Behavior Investigation worksheet 1 and instruct the

students to predict what will happen when a banana, apple, and bran flakes are each put into the same environment as the mealworm. The students will make this prediction by filling out the “What do you think will happen?” section of the worksheet. Then place the banana in the Petri dish with the mealworm. Students will observe what occurs for 3-4 minutes. Clear the banana from each Petri dish and place an apple. Students will observe what occurs for 3-4 minutes. Then clear the apple from each Petri dish and place bran flakes. Students will observe what occurs for 3-4 minutes. Collect the Petri dishes and return the mealworms to their case.

Explain- Instruct the students to fill in what they saw on the worksheet in the “What really happened?” section. Then ask questions of the class to spark discussion within their groups. These questions will include, “Why do you think the mealworm acted the way it did when each food item was introduced to its environment?” and “What does this make you wonder about mealworms?”

Elaborate- Next pass out the Mealworm Behavior Investigation worksheet 2. Have the students draw pictures on their worksheet of what they saw in each of the mealworm scenarios. This will allow them to utilize their creative skills as well as to make them think further about their observations.

Evaluate- Based upon the observations they made as well as information they gleaned from the story read at the beginning of the lesson, ask students to write a short paragraph from the point of view of a mealworm talking about what it was like to have the banana, apple, and bran flakes brought into its environment. Then encourage students to write a question of their own about mealworms on a slip of paper. These slips of paper will be collected and then some of them will be picked and read aloud at the beginning of the next mealworm activity.

Differentiation Plans:

Behavioral for Student A: For a student that has difficulty focusing for long periods of time, assign them the task of helping you distribute and collect materials.

Cognitive for Student B (low-level): Allow these students extra time to complete their worksheets and paragraph.

Cognitive for Student C (advanced): Encourage these students to use complex vocabulary and write in more detail than other students.

Affective for Student D: These students may choose to observe their mealworm from a greater distance if they desire so long as they can still see what the mealworm is doing.

Language Demands for Students

E (Beginning): Allow the student to draw pictures to show their answers on Mealworm Behavior worksheet 1, and when they write the paragraph about being a mealworm they may choose to write in their home language.

F (Intermediate): These students will be encouraged to write their responses in English, but if they need to write certain words in their home language then that will be acceptable.

G (Advanced): Although EL's at this level are increasingly proficient in English-language writing, they will not be expected to write in as great of detail or complexity as students whose first language is English.

List of Materials (Per Group)

- One mealworm
- One Petri dish
- One piece of banana
- One piece of apple
- One pinch of bran flakes
- One of each worksheet for each student

Directions or Special Instructions; Safety Concerns, Etc.

Students will need to be closely monitored and reminded that this is a hands-free activity, and that they need to determine their observations strictly through watching the mealworms.

Suggested Readings:

Himmelman, John (2001). *A Mealworm's Life*. Danbury: Children's Press (CT).

Salas, Laura Purdie (2009). *From Mealworm to Beetle: Following the Life Cycle*. Minneapolis:

Picture Window Books.