

## **Mealworm Recycling Lesson Plan**

**Grade:** 2

**Science Concept:** Mealworms niche in their environment is that they break down excess materials. We can learn a lot from mealworms because they are expert recyclers.

**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.” Mealworms play a helpful role in their environment.

**Learning Objective:** Students will complete the “What Can Be Recycled?” worksheet and the “What Could You Do With an Empty Jar” worksheet.

**Evaluation Ideas:**

- 1.) **Formative:** Students will work together to determine which items can be recycled and which items cannot.
- 2.) **Summative:** Students will write a creative paragraph that tells how they would use an empty jar in a creative way.

**Conceptual Background:** Although mealworms are small in size, they have a big impact on their environment. They are beneficial to their surroundings because they help to break down excess materials. Recycling excess materials is also a way that we as human beings can help to benefit the world around us.

**Lesson Implementation Plan:**

**Engage:** At the end of the previous Mealworm Stimuli lesson, students were encouraged to write their own questions about mealworms. Having already gone through the students’ questions, share a few of the questions that have to do with what mealworms eat and/or their role in the environment. Read these questions aloud, and ask the students if they know the answer to any of the questions. Explain to the class that although mealworms ate things like banana, apple, and bran flakes in the previous lesson, they also eat things in their environment such as decaying plant matter and dead insects. This helps to get this material out of the way and make the environment a better place. Tell the students that mealworms are expert recyclers. Ask the students if they recycle at home. Ask for a few examples of things they recycle. Extend a challenge to the class to become an expert recycler just like a mealworm.

**Explore:** Break the students into groups of 5. Then give each group a paper shopping bag that contains these items: An aluminum can, a glass bottle, an empty plastic yogurt container, a

page from a newspaper, a battery, a metal clothes hanger, a piece of aluminum foil, and a cell phone charger.

Designate one student in each group to be the recorder and give them a binder clipboard and a copy of the “What Can Be Recycled” worksheet. Have the groups work together for 15-20 to discuss and determine which items they think can be recycled and which items can’t be recycled. Students may wish to pile the items in “yes” and “no” piles. Once their answers have been determined, students will have the recorder mark “yes” or “no” for each item as agreed upon by the group. If the group can’t reach a decision on a certain item then they can mark “unsure” on the worksheet.

**Explain:** Make a list on the board of the items that were in the bag. Ask the class as a whole item by item whether they think the item can be recycled or not. Have them vote with a thumbs up/thumbs down. Finally reveal to the class that ALL of these items can be recycled! Ask the students if they have any questions about this.

**Elaborate:** Next explain that there are other ways of recycling. People can wear hand-me-down clothing, wasted food can be turned into compost, and people can take items they no longer need and turn them into something new that they can use. Although they are a different kind of recycling, they are all still useful ways to help the environment. Hold up an empty glass jar. Ask the class to think about some different ways that the jar could be used. Next pass out the “What Could You Do With an Empty Jar?” worksheet to each student. As they fill out the worksheet, encourage them to use their imagination and be creative.

**Evaluate:**

**A.) Formative:** Students will work together to determine which items can be recycled and which items cannot.

**B.) Summative:** Students will write a creative paragraph that tells how they would use an empty jar in a creative way.

**Differentiation Plans:**

**Behavioral for Student A:** To keep this kind of student focused, make them the group recorder in the “What Can Be Recycled?” exercise.

**Cognitive for Student B (low-level):** These students will be allowed extra time to work on their paragraph and will receive one-on-one help if needed.

**Cognitive for Student C (advanced):** These students will be encouraged to add more detail and complex vocabulary to their paragraph.

**Affective for Student D:** These students will still participate in the “What Can Be Recycled” activity, but won’t need to take a leadership role within the group. As long as they are actively listening to their group members their vocal output may be minimal.

### Language Demands for Students

**E (Beginning):** These students may choose to write their paragraph in their home language or draw a picture instead to answer the question.

**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):**

- A paper shopping bag for each group of 5 containing an aluminum can, a glass bottle, an empty plastic yogurt container, a page from a newspaper, a battery, a metal clothes hanger, a piece of aluminum foil, and a cell phone charger
- 1 “What Can Be Recycled” worksheet and binder clipboard per group
- 1 empty jar
- 1 “What Could You Do With an Empty Jar?” worksheet per student

### **Directions or special instructions; safety concerns, etc.**

Make sure students take special care in handling the metal hangers.

### **Suggested Reading/Resources:**

For more information on the empty jar exercise:

<http://www.epa.gov/epawaste/education/pdfs/jjposter.pdf>

Books:

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.