

# MEET A MEALWORM



## **BENCHMARKS and TASKS**

**SC.F.1.1.3** The student describes how organisms change as they grow and mature.

**SC.F.2.1.1** The student knows that living things have offspring that resemble their parents.

- The student provides needed food, energy, and water to classroom animals or plants.
- The student observes that classroom organisms have life cycles that include being born, developing into adults, reproducing, and eventually dying.
- The student observes and records that organisms change in some ways and stay the same in some ways as they grow.
- The student recognizes that plants and animals produce offspring with similar characteristics but individual differences (e.g., kittens in a litter may be colored differently).
- The student measures to detect changes in growth of various organisms.

## **KEY QUESTION**

How do mealworms change as they grow?

## **BACKGROUND INFORMATION**

Mealworms are the larva stage of the meal beetle. The larva is brownish-yellow and has 13 segments and 6 legs. Mealworms develop through a complete metamorphosis. The stages are egg, larva, pupa, and adult. Eggs are white spheres too small to be seen even with a hand lens. Newly hatched larvae are almost threadlike, but grow, leaving their old skins behind. Pupae are the resting stage when internal cell changes are taking place. They do not move or eat as pupae. It takes 4 to 8 weeks for the larvae to mature into adult beetles.

Basic food for the mealworms can be uncooked bran, oatmeal, or Cream of Wheat. For moisture, place a slice of raw potato, apple or citrus rind in the container. Replace food as needed. (Potato slices will last a week or more; apple pieces should be replaced more frequently.)

Mealworms can be kept in plastic containers without a lid. They will chew through cardboard boxes. Keep the container out of direct sunlight.

## **MATERIALS**

### **Teacher**

prepared plastic container for mealworms  
class chart  
daily observation chart

### **Per student**

mealworm journal  
magnifier  
drawing paper

### **Per pair of students**

mealworm larvae (at least 2)  
oatmeal, bran or Cream of Wheat cereal  
potato or apple slice  
paper towel  
cup with their names on it  
string  
masking tape

## **TEACHING TIPS**

1. Mealworms can be purchased from a science supply house or from certain local pet stores. (They're very inexpensive - about \$1.50 per 100.)
2. You will need to locate or draw a picture of a mealworm egg to show the students, since they will not be able to see this stage. Mealworm eggs are tiny white spheres.
3. Mealworms are living creatures. Children should be taught that all living creatures must be treated with respect. Remind students to handle the mealworms carefully and not to do anything that might injure them.
4. Students will write and draw daily in their mealworm journals their observations of the mealworms including size, color, and shape. Journals can be made from folding half sheets of paper in half and stapling together or they can record in their spiral science journal if they have one.
5. Prepare cups with students' names on them to house their mealworms. Include food and moisture.
6. Prepare a *Daily Observation Chart* (chart paper or transparency) as shown in the **Extend/Apply**.
7. Teacher will need to demonstrate how to carefully measure the mealworm with string.

## **ENGAGE**

1. Display a closed container of mealworms. Ask students to guess what is inside.
2. Open the container and show the mealworms. Ask if anyone knows what kind of animals are in the container.

## **EXPLORE**

1. Distribute mealworms on a paper towel to each pair of students. They will need to watch them closely so that they do not crawl away. Teach them to gently move them with their fingertip if the mealworms get too close to the edge of the paper towel.
2. Give students magnifiers to help them observe the mealworms. Record observations on a class chart.
3. Give each student a mealworm journal. Ask students to draw their mealworms, name them, and record observations.
4. Students should be given time daily to observe the mealworms. Have them continue drawing the mealworms, noting changes in shape, size and color. Students should continue recording observations until the mealworms have completed metamorphosis into a beetle.
5. Have students cut a string once every 3 days to measure the length of their mealworm. Tape or glue the strings in their journals on the measuring days.
6. Have students share each day how many larvae, pupae, and beetles are in their container.
7. At the end of each daily observation, have students place their mealworms in the cup with their names on them.

## **EXPLAIN**

1. Have students report the number of mealworms, pupae, and beetles and record the class total on the *Daily Observation Chart*.
2. Through questioning, develop the concept that mealworms change as they grow. (Children may refer to their journals.)  
*How did the mealworm look when you first saw it?*  
*What changes did you notice as your mealworm developed?*  
*How many legs does your mealworm have?*

*What color is your mealworm?*

*Did its color change?*

*Did the size of the strings differ? How?*

*How much food did your mealworm eat?*

*Does your mealworm look the same now as when you first saw it?*

### **EXTEND/APPLY**

1. Make a chart of the stages of the mealworm's life by folding a piece of drawing paper into fourths. Label the parts with teacher direction.
2. Write a class poem about mealworms.

### **EXTENSIONS**

Students can make models of the stages of mealworms using clay. Encourage them to make careful observations first so their models will be accurate.

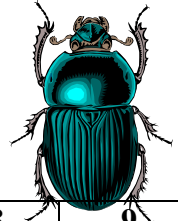
### **ASSESSMENT**

Have students write or tell two true statements from the *Daily Observation Chart*.



## DAILY OBSERVATION CHART

(Number of living organisms each day)



	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>Larvae</b>									
<b>Pupae</b>									
<b>Beetle</b>									
	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>Larvae</b>									
<b>Pupae</b>									
<b>Beetle</b>									
	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>
<b>Larvae</b>									
<b>Pupae</b>									
<b>Beetle</b>									
	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>
<b>Larvae</b>									
<b>Pupae</b>									
<b>Beetle</b>									