**Directions: Fill in the blanks in the worksheet**

**Introduction:** Soil microbes are decomposers, meaning they eat dead organic material and recycle the nutrients back into the soil. In this experiment, our objective is to observe decomposition by soil microbes.

**Materials:** What materials are used in this activity?

* 5 Gallon Plastic Container
* Soil
* Drill
* Spray Bottle
* Stirring Utensil
* Piece of paper or a paper towel
* Banana or orange peel

**Hypothesis:** What do you think will happen to the paper?

Most students will say disappear, but since a hypothesis is just a guess, any answer here is “correct”

**Procedure:** What was done to prepare the compost bin? (Explain to the students what you did to prepare the compost and why you did each thing.)

1. Drill holes along the bottom and the sides of the container. Holes should be spaced about 4-6 inches apart.

2. Place the bin in an area of the classroom where it will receive sunlight but not experience temperature extremes.

2. Place the bin on a plate or the lid where excess moisture draining out can be caught.

3. Add a layer of potting soil to the bottom of the bin. Add dry leaves, and a few red earthworms or pillbugs if these are available.

4. Add a piece of paper, paper towel, banana peel, or orange peel to the compost.

**Observations:**

1. What does the compost smell like?

Rich, earthy

2. What does the compost feel like?

Crumbly, wet, moist, warm

3. Draw a picture of the paper towel, fruit, and compost every week.

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| Week 1 | Week 2 |
|  |  |
| Week 3 | Week 4 |

**Conclusion:**

1. What happened to the paper and fruit? How did this happen? What does that say about the role of soil microbes in gardening?

Decomposed. By soil microbes. Soil microbes decompose organic matter.

2. Why did we mist the compost with water and place it in an area where it would receive heat?

It creates and environment suitable for microbes to live

3. Why was the soil stirred?

For even decomposition, to get oxygen to microbes so that they can live and work efficiently, and speed up the rate of decomposition.

4. How does composting relate to the nitrogen cycle? (decomposition stage)

Compost piles show the decomposition stage of the nitrogen cycle. The soil microbes convert nitrogen in the soil to a version plants can use or release it into the air, where a plant can absorb it above ground.

5. What are some limitations to our model of a compost bin?

It is relatively small, it is inside (most compost bins are outside), and others the students might come up with.