Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# Decomposers in Soil

**Purpose**

Decomposition of materials is essential to provide a sufficient supply of nutrients in the soil. Most of the decomposing action is carried out by microorganisms in the soil. Two groups of soil microorganisms that carry out this necessary task are bacteria and fungi. All objects do not decompose at the same rate. The rate depends partially on the soil in which the objects are found and on the substance of which they are made. The purpose of this lab is to examine the effects of these factors on decomposition. [[1]](#endnote-1)

**Procedure**

 **Materials**

1. Sand
2. Soil rich in organic material
3. Gravel
4. Material samples:
	1. Dead plant material (leaves, grass)
	2. Dead animal material (household meat, dead insects)
	3. Processed foodstuff (dry cereal)
	4. Natural fibers (wool or cotton)
	5. Synthetic fibers (polyester or nylon cloth)
	6. Styrofoam cup fragments
	7. Clay flowerpots, 5 cm in diameter (12)
	8. Petri dishes and lids, 4 cm in diameter (6)
	9. Large tray, approx. 30x20x5cm

**Sequence of Steps**

1. Place a small amount of gravel in the base of each pot.
2. Fill six of the flowerpots with sand up to 2 cm from the top. Be sure to pack the sand in the pot.
3. Similarly, fill the remaining pots with the soil rich in organic material.
4. Place dead plant material on one pot filled with sand and on one filled with rich soil.
5. Cover each of these two pots with an upside down petri dish or lid. Press them tightly into the soil.
6. Repeat steps 4 and 5 using the other five material samples.
7. Place all twelve pots in the large tray. Add water to the tray to a depth of at least 3 cm. Maintain this depth throughout the observation period.
8. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Keep the tray and its contents in a darkened area at room temperature.
9. Observe the pots every 5 days for up to 8 weeks, until changes are obvious in most of the pots. Be sure to test the strength of the cloth fibers from time to time. Record your results.
10. **![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()**

 **Observations**

1. Describe your observations using complete sentences below.

2. Which materials decomposed most quickly?

3. Are there any materials that appear not to have decomposed?

4. How is the soil organic content related to the decomposed rate? Explain.

5. Based on this knowledge, what advice can you give the following groups of people?

 a. Production agriculturists needing to breakdown waste:

 b. People who have a tendency to litter.

 6. Define the following terms:

 a. producer

 b. consumer

7. “A vital part of an ecosystem is the stability of its producers and decomposers.” Explain the meaning of this statement.

1. (2008).Decomposers in Soil. *Prentice Hall, Inc.* [↑](#endnote-ref-1)