

# 1.1: Decomposers Unit Pretest

1. A loaf of bread was left alone for 2 weeks. Three different kinds of mold grew on it. Assuming the bread did not dry out, which of the following is a reasonable prediction of the mass of the bread and mold after the 2-week period?

**a) The mass is going to:**

- a. *increase*, because the mold has grown.
- b. *remain the same* because the mold converts bread into biomass.
- c. *decrease* as the growing mold converts bread into energy.
- d. *decrease* as the mold converts bread into biomass and gases.

**b) Explain your reasoning. Why does the mass of the bread and mold change in the way you selected above?**

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2. In autumn, people pile fallen leaves and put them in a compost pile. After several weeks, the pile becomes warm. Where does the heat come from?



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3. A class is investigating the process of decomposition. A teacher describes a scenario where there is a moldy tomato sitting in a pot of dirt. The teacher asks, “What do you think the mass of the moldy tomato and the pot of dirt will be after two weeks?”

**a. Three students shared their ideas about what happened. Choose whether you agree, disagree, or are not sure about each claim:**

Agree	Disagree	Not sure	Sanjay claims: "I think the whole pot of (both dirt and moldy tomato) will <b>lose mass</b> because the mold takes in molecules from the tomato and converts them into CO <sub>2</sub> released into the air."
Agree	Disagree	Not sure	Keller claims: "I think the whole pot will <b>get heavier</b> because the mold gets bigger as it grows on the tomato and nothing leaves the pot."
Agree	Disagree	Not sure	Latisha claims: "I think the whole pot will have <b>the same mass</b> because the molecules in the tomato will be converted into dirt that stays in the pot."

**b. Provide an explanation. Why did you agree or disagree with each student's claim?**

**What are you not sure about?**

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c. The class does an experiment. They weighed out 300 grams of dirt into 5 pots. They then weighed 5 tomatoes just beginning to mold and set one on top of the dirt in each pot. They put the pots in a warm, moist room and left them alone for two weeks. At the end of that time, they reweighed the tomatoes and the dirt. Below are their results.

Sample	Change in mass of moldy tomato (g)	Change in mass of dirt (g)
1	-3.0	+0.2
2	-3.2	+0.1
3	-2.9	-0.1
4	-3.4	+0.3
5	-3.1	-0.1
<b>Average</b>	<b>-3.2</b>	<b>+0.1</b>

Name \_\_\_\_\_ Teacher \_\_\_\_\_ Date \_\_\_\_\_

**What patterns do you see in the data?**

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**Which claim do you think is best supported by the data? (Circle one choice.)**

- a. Sanjay's claim
- b. Keller's claim
- c. Latisha's claim

**Explain how the patterns in the data support the claim that you chose.**

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**d. What additional evidence would you collect to help show that the claim you chose is the best claim?**

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**4.** A mushroom is a part of a fungus that needs energy to live and grow. Where does the mushroom get its energy?

**Select True or False for the following statements.**

Some of the energy in the mushroom:

T F *comes from the air.*

T F *comes from sunlight.*

T F *comes from water.*

T F *comes from soil organic matter.*

T F *is created by the mushroom.*

**Which ONE of the following do you think provides the MOST energy to the mushroom?**

- a. Energy stored in the air
- b. Energy from sunlight
- c. Energy stored in water
- d. Energy stored in soil organic matter
- e. Energy that the mushroom created

**Explain your choices. How does energy get into the mushroom?**

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5. A potato is left outside and gradually decays. One of the main materials in the potato is the starch, which is made of many sugar molecules ( $C_6H_{12}O_6$ ) bonded together. What happens to the atoms in starch molecules as the potato decays? **Choose True or False for each option.**

True	False	Some of the atoms are changed into soil nutrients: nitrogen and phosphorus.
True	False	Some of the atoms are used up by decomposers and no longer exist.
True	False	Some of the atoms go into the air in carbon dioxide.
True	False	Some of the atoms are turned into energy by decomposers.
True	False	Some of the atoms go into the air in water.

**Explain the pattern in your answers. What happens to the atoms in the starch when the potato decays?**

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