

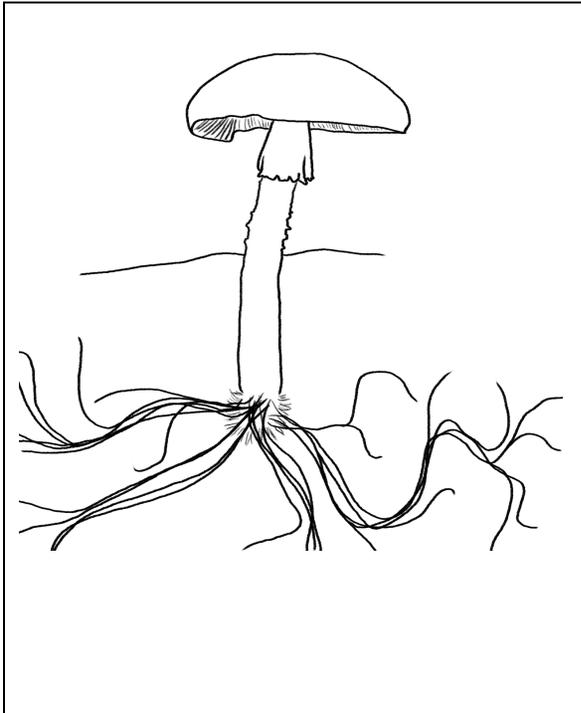
Name _____ Teacher _____ Date _____

6.3 Grading Comparing Decomposers, Plants, and Animals

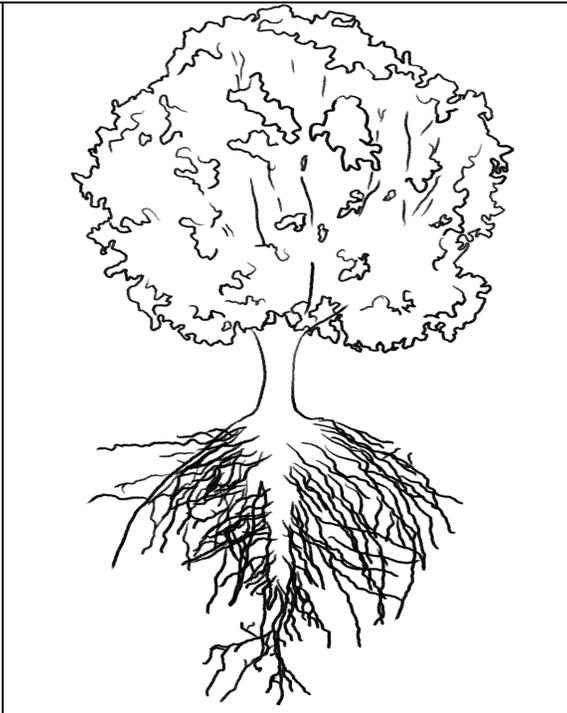
*This worksheet has “grading” in the title because at this point, students can be held accountable for correct answers. Level 4 (correct) responses to the questions are in **blue bold italics** below.*

Red italics suggest ways to grade student responses by giving them points for correct or partially correct answers. There are 17 points total on this worksheet.

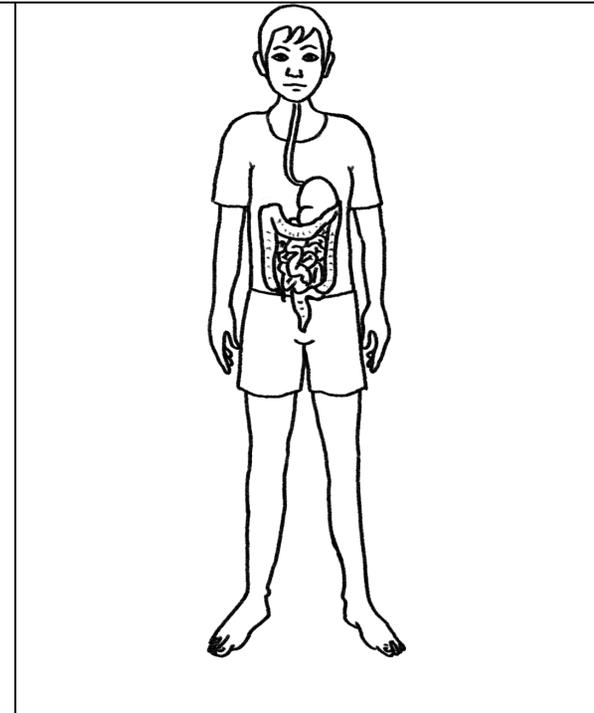
Compare the pathways that carbon atoms take through a growing fungus, a growing tree, and a growing child.



Draw arrows to show where carbon atoms enter the fungi and the pathway through the fungi that they take to reach the growing mushroom.



Draw arrows to show where carbon atoms enter the tree and the pathway through the tree that they take to reach its growing root.



Draw arrows to show where the carbon atoms enter the child and the pathway through the child that they take to reach a growing leg muscle.

Telling the story of the carbon atoms

Use the table below to tell a step-by-step story of what happens to the carbon atoms in the fungus, the tree, and the child.

Stage in the story	Fungus Story	Tree story	Child story
Words to use:	Include these words in your fungus story (you can use a word more than once) <ul style="list-style-type: none"> • Digestion • Dead materials • Cellular Respiration • Biosynthesis • CO₂ • Large organic molecule • Small organic molecule 	Include these words in your tree story (you can use a word more than once): <ul style="list-style-type: none"> • Photosynthesis • CO₂ • Glucose • Small organic molecule • Large organic molecule • Biosynthesis • Cellular respiration 	Include these words in your child story (you can use a word more than once): <ul style="list-style-type: none"> • Digestion • CO₂ • Glucose • Small organic molecule • Large organic molecule • Biosynthesis • Cellular respiration
1. Entering the fungus, tree, or child: Explain where and how carbon atoms enter the fungus, tree, or child and what kind of molecules the atoms are in.	C atoms come from dead materials.	Carbon dioxide and water enter into the tree's leaf cells.	C atoms come from food (containing organic molecules) that the child eats
2.¹ First chemical change: Describe the first chemical change that rearranges the atoms into more useful molecules.	Fungi release enzymes that break down large organic molecules in dead materials into small organic molecules. (Chemical energy in C-C and C-H bonds of large organic molecules is still present as chemical energy in small organic molecules.)	Carbon dioxide and water are changed into glucose and oxygen during photosynthesis in the leaf cells. (Light energy is transformed into chemical energy stored in the C-C and C-H bonds in glucose.)	Large organic molecules in food are digested into smaller organic molecules. (Chemical energy in C-C and C-H bonds of large organic molecules is still present as chemical energy in small organic molecules.)
3. Traveling: Explain how the molecules with carbon atoms	...to a cell in the mushroom. The small organic molecules enter the	...to a cell in the root of the tree. The sugar made in in the leaves by	...to a cell in the leg of the child. The blood carries small organic

¹ Steps 1 and 2 are out of order for decomposers. Students should recognize that this is something that makes decomposers different from animals.

move...	fungi and travel through the hyphae to all parts of the fungus.	photosynthesis travels from the leaves to all parts of the tree, including the roots.²	molecules to all parts of the child's body, including the leg.
4. Cellular growth: Explain how the cell changes some molecules to grow and divide into more cells.	Small organic molecules are bonded together inside the cells to make large organic molecules.	The cells make large organic molecules through a two-step process: 1. Other small organic molecules are made from glucose and atoms in soil minerals such as nitrogen. 2. The small organic molecules are bonded together to make large organic molecules.	Small organic molecules are bonded together inside the cells to make large organic molecules.
5. Cellular energy: Explain how the cell changes some molecules to get energy for growth and cellular work.	Glucose reacts with oxygen to produce carbon dioxide and water: the process of cellular respiration. Chemical energy in glucose (in C-C and C-H bonds) is transformed into motion and heat energy (and energy for other cell functions).	Glucose reacts with oxygen to produce carbon dioxide and water: the process of cellular respiration. Chemical energy in glucose (in C-C and C-H bonds) is transformed into motion and heat energy (and energy for other cell functions).	Glucose reacts with oxygen to produce carbon dioxide and water: the process of cellular respiration. Chemical energy in glucose (in C-C and C-H bonds) is transformed into motion and heat energy (and energy for other cell functions).

Comparing Fungi, Plants, and Animals

A fungus is more like a PLANT / *an ANIMAL*. (circle one)

Explain your reasoning.

A fungus is more like an animal, because it carries out the same three processes (digestion, cellular respiration, and biosynthesis) in order to grow, move, and function.

How is a fungus different from your choice?

Digestion take place outside of fungi. In an animal, digestion takes place internally.

² *The vessels carrying the sugar to the roots are called the phloem. You may want students to include this information.*

Although we do not include this in readings or PowerPoints, the sugar traveling through the phloem is actually a disaccharide, sucrose (C₁₂H₂₂O₁₁).