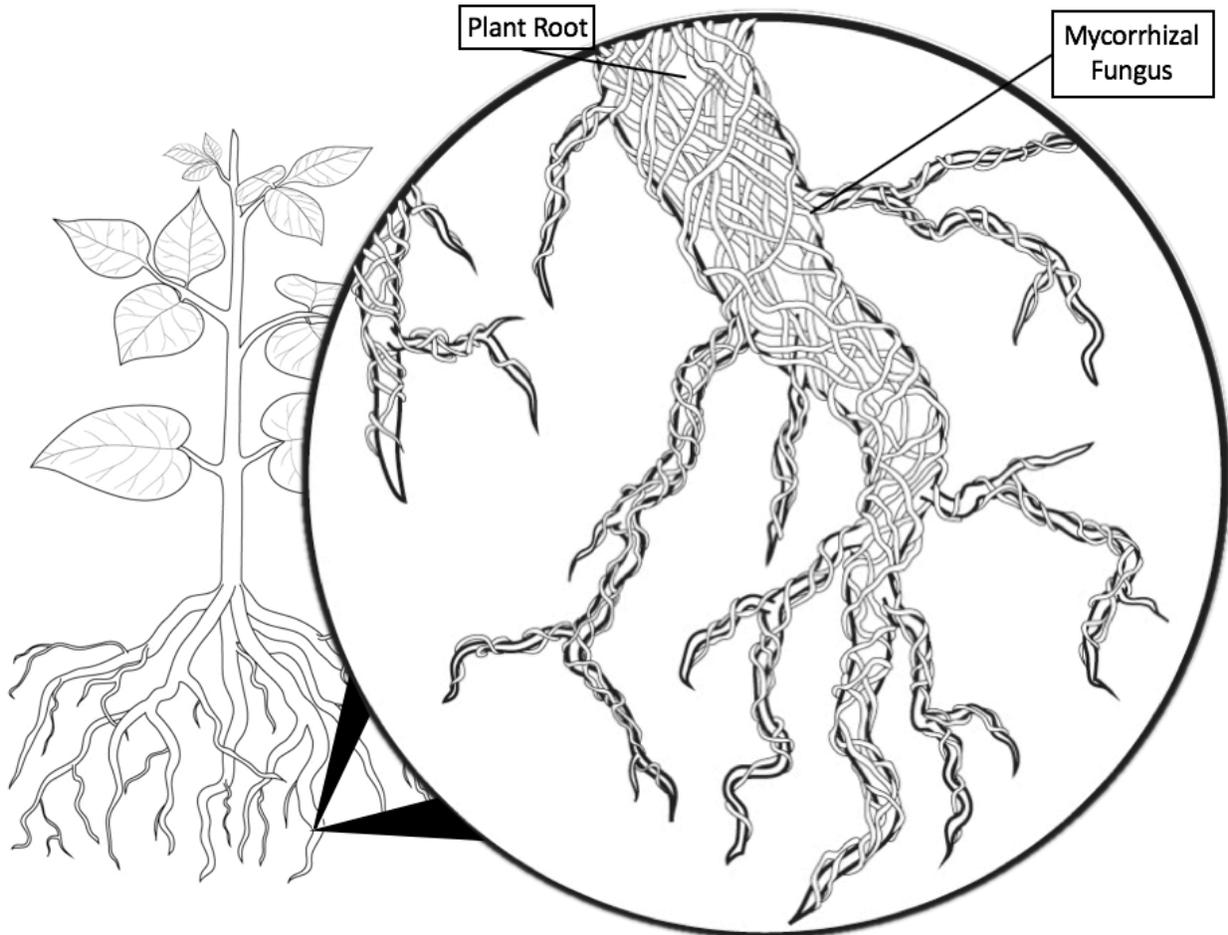


6.2: Mycorrhizal Fungi Worksheet

A. Draw and label arrows that represent the molecules that carbon atoms are in as they move into, through and out of the mycorrhizal fungus as it grows.

Label each arrow to show the kind of molecules that the carbon atoms are in: large organic molecules (LOM), sugar, or carbon dioxide (CO₂).



1. Mycorrhizal fungi use sugar from plant roots to live and grow. Where did the sugar come from, and how did it get to the plant roots?

2. How do the cells of mycorrhizal fungi get oxygen when they grow and function? What do the cells do with the oxygen?

B. Investigating how fungi grow and function

A class is investigating soil and decomposers in forests. They have a pot of soil from the forest. It has no living plants or animals, but it does have bits of dead leaves and roots, as well as fungi and bacteria. Enough water is added so the soil continues to have the same amount of water. The teacher asks, "What do you think the mass of the soil will be after two weeks?"

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

Agree	Disagree	Not sure	Jasmine claims: "I think the whole pot of soil will lose mass because the fungi take in molecules from the dead leaves and convert them into CO ₂ that is released into the air."
Agree	Disagree	Not sure	Monica claims: "I think the whole pot of soil will get heavier because the fungi get bigger as they grow. Nothing leaves the pot of soil."
Agree	Disagree	Not sure	Matt claims: "I think the whole pot will have the same mass because the molecules from the dead leaves and roots will be converted into fungus that stays in the pot."

4. Provide an explanation. Why did you agree or disagree with each student's claim? What are you not sure about?

The class does an experiment. They weighed 5 pots filled with soil that contained bits of dead leaves and roots, as well as fungi and bacteria. 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 pots with their contents. Below are their results.

Sample	Initial mass of the pot with soil including dead plant matter, fungi, and bacteria (g)	Mass of pot with soil including dead plant matter, fungi, and bacteria after two weeks (g)
1	305	301
2	332	320
3	323	318
4	310	309
5	307	299
Average	315	309

5. What patterns do you see in the data?

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

- Jasmine's claim
- Monica's claim
- Matt's claim

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

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

C. A question about how mycorrhizal fungi grow and functions

A mycorrhizal fungus needs energy to live and grow. Where does the mycorrhizal fungus get its energy?

9. Select True or False for the following statements.

Some of the energy in the mycorrhizal fungus:

- T F *comes from the air.*
- T F *comes from sugar in the plant roots.*
- T F *comes from water in the soil.*
- T F *comes from soil organic matter.*
- T F *comes from soil minerals*
- T F *is created by the mycorrhizal fungi.*

10. Which ONE of the following do you think provides the MOST energy to the mycorrhizal fungi?

- a. Energy stored in the air
- b. Energy stored in sugar in the plant roots
- c. Energy stored in water in the soil
- d. Energy stored in soil organic matter
- e. Energy stored in soil minerals
- f. Energy that the mycorrhizal fungus created

11. Explain your choices. Where does the energy in the mycorrhizal fungi come from?

C. Something interesting about mycorrhizal fungi

12. What is something interesting that you learned about mycorrhizal fungi from your reading and discussion?
