

Name: _____

Plant Structures: Shoots & Roots Option 2

Many plants have vascular systems, a system of tubes they use to transport nutrients and water to different parts of the plant. Vascular plants have stems, leaves and roots. The roots pull water and minerals from the environment to nourish the plant. This is why they grow down, because the water and minerals needed for growth are below the ground in the soil. They also provide support and help anchor a plant to the ground. Without a strong root system, trees would not be able to stand tall and withstand high winds. Roots can also store food and nutrients. A well-developed root system can also prevent soil erosion. Some roots are even edible. For example, the carrots we eat are the roots of the carrot plant!

Two basic types of root systems exist. One type is the taproot, which grows vertically and has lateral branches. The other type has fibrous, branching roots that make a network close to the soil surface. Some plants have either a taproot or fibrous roots, and other plants combine the two systems.

Cut out the images provided and glue or tape them in the correct category below:

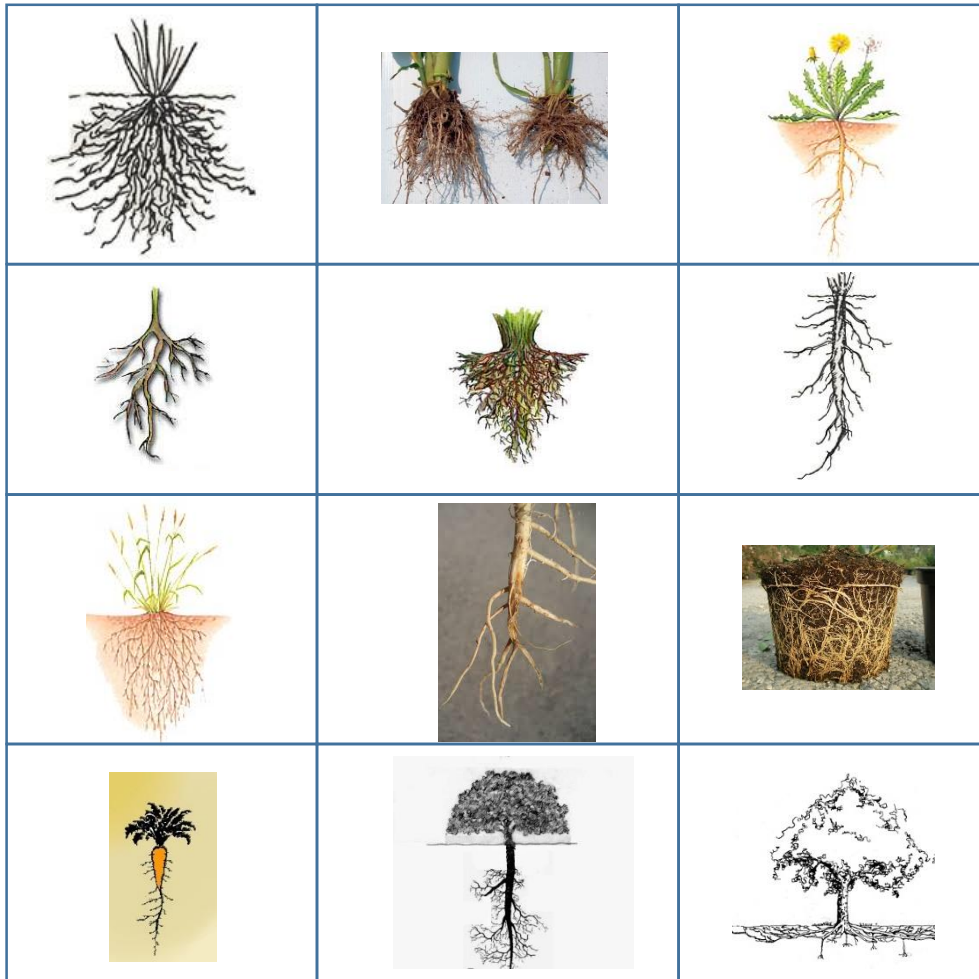
Taproot

Fibrous Root

What are the three functions of roots?

Which root is most likely to be a food source?

Cut out the images below.



Roots and Mycorrhizae

Mycorrhizae are mutualistic symbiotic relationships between fungi and the roots of plants. The fungus lives within the root cells. The plants provide the fungi with carbohydrates and other organic molecules made by photosynthesis. The fungi absorb from the soil phosphorous and other minerals needed by plants since the first plants lacked roots.

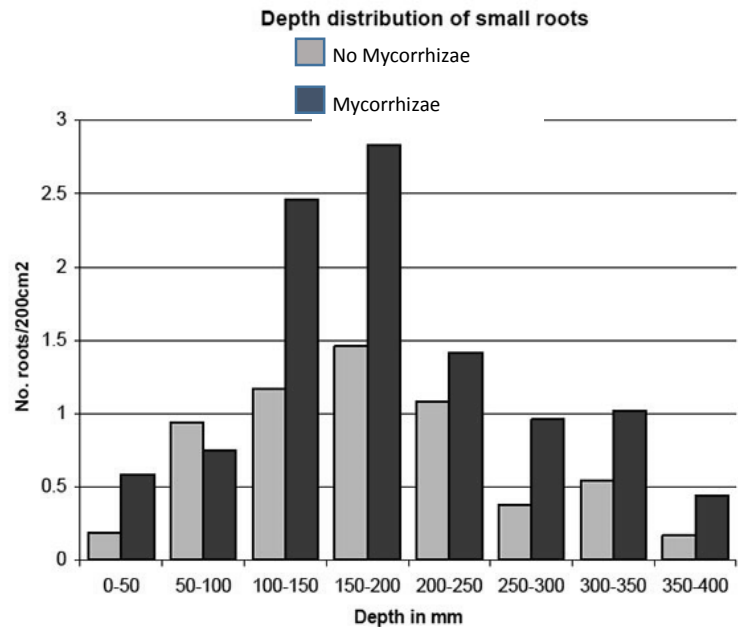


Image A

1. Why is this considered a mutualistic relationship? Explain in detail.
2. Describe the difference in the roots in Image A.
3. What does the graph tell you about the relationship of roots and mycorrhizae? Use data from the graph to support your answer.

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Per _____ Date _____

Plant Tropisms Webquest

Directions Watch the following video links to complete the worksheet below on plant hormones and plant tropisms; pause the videos when needed to answer the questions below. You may access these videos through the class website on the Cellular Energy and Plants page under Plant Tropisms Video and Plant Tropisms Song.

Video Links

Link 1 <https://www.youtube.com/watch?v=pCFstSMvAMI> - Video

Link 2 <https://www.youtube.com/watch?v=uX5eoxKbzHE> - Song

1. What is a plant tropism?
2. What is the different between positive and negative tropism?
3. What are each of the following tropisms:

Tropism	Definition	Image to Remember the Response
Geo/gravitropism		
Hydrotropism		
Phototropism		
Thigmotropism		

4. How does the response of a root to the pull of gravity help a plant?
5. Consider plant roots and stems. Which tropism affects both these plant tissues? Which tissue experiences negative tropism versus which experiences positive tropisms?
6. Based on your observations, do plants respond and change the way they grow depending on where the light is? Which tropism is this?

In the boxes below, write the name of the correct tropism.

