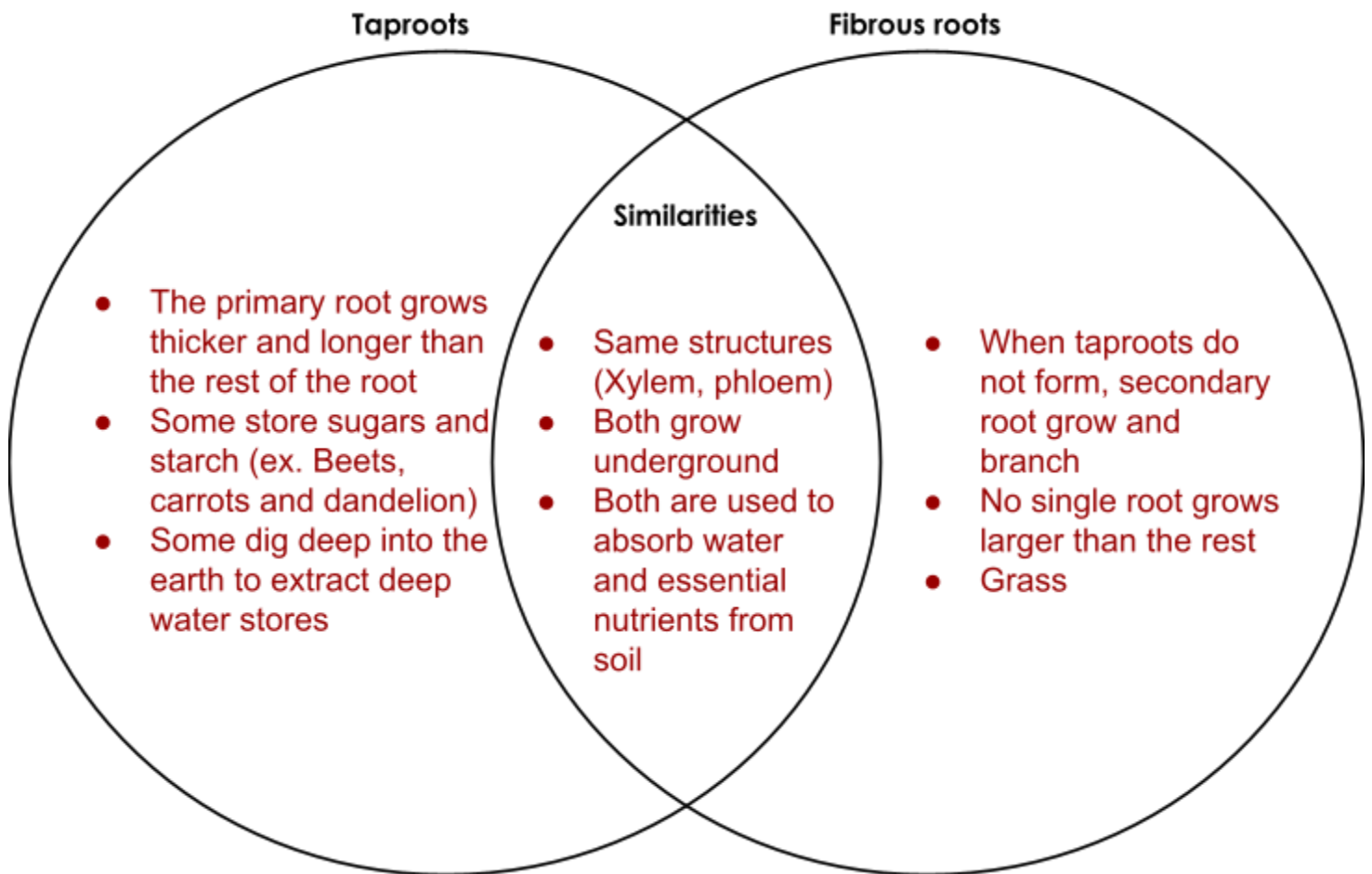


# Root Connections - Answer Key

Name: \_\_\_\_\_ Block: \_\_\_\_\_ Date: \_\_\_\_\_

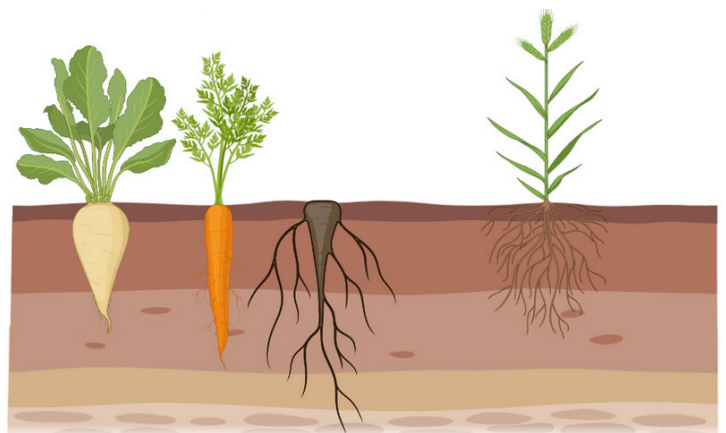
## Part 1 - Comparing and Contrasting Root types:

Using the Biology - Miller and Levine Textbook - go to page 494 (Taproots and Fibrous Roots). Fill out the following Venn Diagram to compare and contrast the two different types of roots.



Label the diagram, which are taproots and which are fibrous roots?

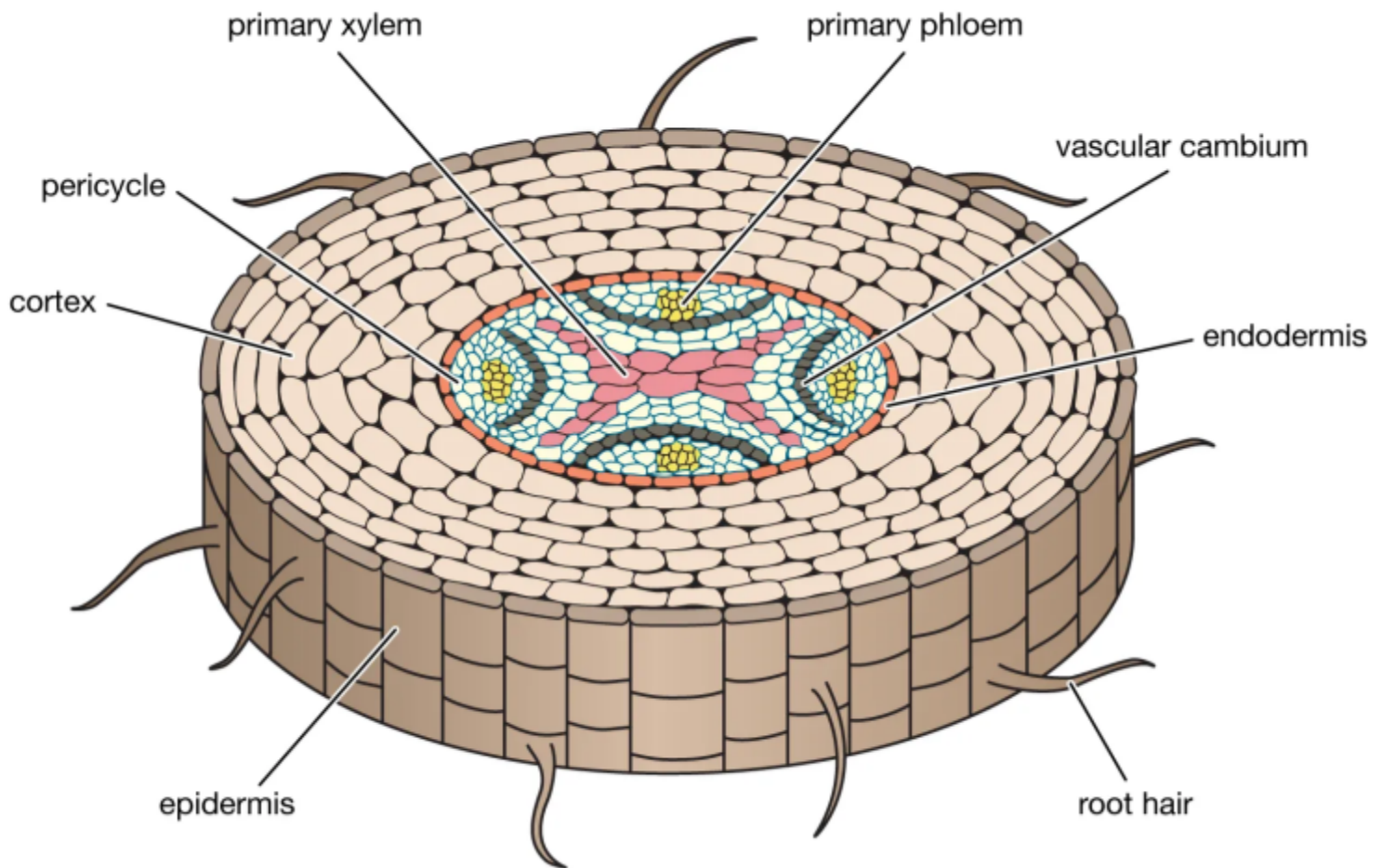
First 3 are taproots, the farthest right is fibrous



## Part 2 - Tracing out root uptake:

Using your Biology Miller and Levine textbook (pages 495-498)

1. Label the diagram below using a pencil.
2. Using a blue or purple pencil crayon/pen, use arrows to indicate the movement of water. Label areas where active transport or osmosis is occurring
3. Using a red or orange pencil crayon/pen, use arrows to indicate the movement of nutrients. Label areas where active transport or osmosis is occurring

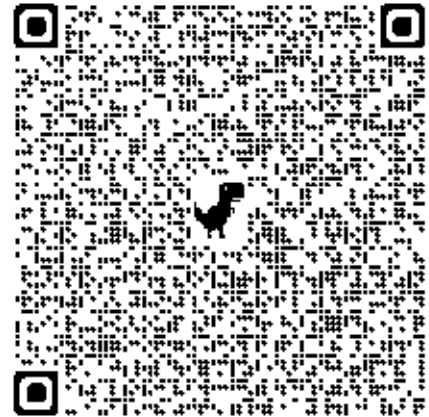


Summarize the movement of nutrients and water into the root system (starting at the root hair and ending at the xylem and phloem) in 3 steps:

### Part 3 - Root systems as community:

“Imagine a forest full of trees. Each tree stands tall and solitary. It has its own trunk, branches, and leaves. But did you know that those trees are connected by a complex hidden underground.” - *Let's Talk Science*.

The QR code will direct you to a Let's Talk Science page, where you will find 2 short videos. Use these videos to answer the following questions.



1. Define symbiosis. Is all symbiosis mutualistic?  
What are some other forms of symbiosis

**Symbiosis is a close, long-term relationship between two organisms. Mutualistic symbiosis means that both organisms benefit in this relationship, however not all symbiosis is mutualistic. In commensalistic symbiosis, one species benefits but the other is not really affected. In parasitic symbiosis one species benefits while the other is harmed**

2. How do trees communicate with one another? When do trees communicate with one another? Explain

**Trees communicate through mycorrhizal networks, which are fungi that attach themselves to the roots of trees. These fungi form a mutualistic relationship with the trees and help trees to share resources, pass along information (especially when they are in danger) or when they are defending their own territory.**

3. Currently, there is a major battle in BC between conservationists and the BC government in regards to the logging of old growth forests. Using the information learned from the article, explain why it would not be sustainable (or a good idea) to log old growth forests and replant new baby trees.

**There can be a wide variety of answers, but the main idea is that new trees do not hold information about the land and changes in the land the same way old growth trees do. If you remove all the mother trees, new trees need time to build their networks and therefore are not likely to be as “sturdy” as old growth**