



## Teacher's Notes: Roots

### Learning Objectives:

- The students will be able to match picture to picture.
- The students will be able to complete a graphic organizer.
- The students will use a graphic organizer to write sentences.
- The students will be able to identify roots on different plants.
- The students will be able to identify where roots grow, what roots need.
- The students will be able to chart the growth of a soybean to a plant.
- The students will utilize technology to find pictures of roots, type sentences.
- The students will be able to identify and draw examples of how roots adapt to dry and wet regions.

### Activities

1. Students do image searches. Have the students save pictures of their favorite ones. Those are then inserted onto a Word document or a PowerPoint. Students write a sentence about each bird characteristic. **See Technology printable in the materials.**
2. Bring weeds or plants into school. Have students look at the roots.
3. Bring in root vegetables. Cut them up and make a salad for the student to eat.
4. Have students draw a picture of a plant. Have them glue pieces of string at the bottom of the plant to represent roots.
5. Grow a soybean in a Ziploc bag.
  - Place a moist paper towel in a clear, clean plastic bag. Then place the bean seeds between the bag and the moist towel.
  - Tape the plastic bag on a window or on a clothesline outside. The bean seeds must receive sunlight for the germination process to occur.
  - Observe the germination process over several days.  
**\*\*Use worksheet to record changes in the bean plant**

**General Tips:** The goal is to build background knowledge while leading an engaging discussion on any and all information that can be talked about on a given page. The items that you choose to bring up or focus on can be modified for the students you are working with. For example, if you have a student who can point to something in the picture, answer yes/no questions be sure to incorporate a lot more of that as you go through the book. On the same token, be sure to ask a lot of comprehension questions and critical thinking questions at the level appropriate for students. There is something for everyone.

**Page 1:** All plants start as a seed. Seeds are small, but they grow into plants. Different seeds turn into different plants and trees. Have students watch the following video about how a seed grows into a plant.

<https://www.youtube.com/watch?v=tkFPyue5X3Q> Have students listen to the video of Eric Carle’s book, **The Tiny Seed**.

**Point:** dirt, seeds, hand

**WH Questions:** What do plants start as? What does a seed grow?

**Yes/No:** Are seeds big? Are seeds small? Do plants start as a seed? Do seeds grow roots?

**Opinions/Experiences:** Have you ever planted a seed? There are some seeds that we can eat. We can eat sunflower seeds. Have you ever eaten sunflower seeds?

**Peer to Peer Interaction:** After you read Page 1, ask students, “What does a plant come from?” The answer is the main idea card “seeds.” Students will find the main idea card and read it to their partner. Teacher will prompt them to ask their partner some of the questions talked about above.

**Page 2:** Have the students view the following video about roots.

<https://www.youtube.com/watch?v=jHde1styKR8>

**Point:** roots, dirt, leaves, flower

**WH Questions:** Where do roots grow?

**Yes/No:** Do the roots grow in the air? Do the roots grow in the dirt? Do roots hold the plant?

**Opinion/Experiences:** Have you ever pulled a root?

**Peer to Peer Interaction:** After you read Page 2, ask students, “Where do roots grow?” The answer is the main idea card “dirt.” Students will find the main idea card and read it to their partner. Teacher will prompt them to ask their partner some of the questions talked about above.

**Page 3** A plant needs water to grow. The water goes into the dirt. The roots get water from wet dirt. The roots are like a sponge. Roots soak up the water and the water moves up to the stem of the plant and then to the leaves. Have students view the following video about the parts of the plants and the jobs they do.

[https://www.youtube.com/watch?v=ql6OL7\\_qFgU](https://www.youtube.com/watch?v=ql6OL7_qFgU)

**Point:** water, watering can, leaves, flowers

**WH Questions:** Where do roots get water from? Where does the water go?

**Yes/No:** Do roots need water? Do roots get water from dry dirt? Do roots get water from wet dirt? Does the water move up to the stem of the plant??

**Opinion/Experiences:** Plants need water to grow. They drink water. What do you like to drink? Root get the water first. Roots get water from the wet dirt. Have you ever felt wet dirt? Do you like how wet dirt feels?

**Peer to Peer Interaction:** After you read Page 3, ask students, “Where do roots get water from?” The answer is the main idea card “wet dirt.” Students will find the main idea card and read it to their partner. Teacher will prompt them to ask their partner some of the questions talked about above.

**Page 4:** Shallow means not deep. Some roots are shallow. That means that the roots are not deep down into the dirt. Because shallow roots are not deep into the ground, they can get water quickly when it rains. Sometimes you can see shallow roots. Show the students the following video that shows a tree with shallow roots. <https://youtu.be/vtWmj90bri0?t=1m26s>

**Point:** cloud, rain, dirt, roots

**Questions:** What does shallow mean? Do shallow roots grow down or on the sides of a plant?

**Yes/No:** Are shallow roots deep into the ground? Are shallow roots not deep into the ground? Can shallow roots get water quickly? Do shallow roots grow to the sides of a plant?

**Sharing Opinion/Experiences:** Shallow means “not deep.” If you go into a shallow pool, it means that it is not deep. If you swim in a shallow lake, it means that the lake is not deep. Have you ever swam in a

shallow pool? A shallow lake? Shallow roots mean that the roots are not deep. Have you ever seen shallow roots?

**Peer to Peer Interaction:** Have students find the “shallow” main idea card and talk to each other about what shallow means and how shallow roots grow.

**Page 5:** Deep roots are far down into the ground. Deep roots grow downward. It takes more rain or water to get deep down to where the roots are.

**Point:** tree, roots

**WH Questions:** What are roots that grow far down into the ground called?

**Yes/No:** Are deep roots far down into the ground? Can you see deep roots. Do you a lot of water to get down to deep roots?

**Sharing Opinion/Experiences:** Deep means “far down.” A pool can be deep. That means that there is water far down below you. Deep water is over your head. Have you ever swam in deep water.

**Peer to Peer Interaction:** After you read Page 5, have the students find the “deep” flashcard and talk about what deep means, where deep roots grow, and how much water is needed to get to deep roots.

**Page 6:** Nutrients is something in food that keeps people healthy. There are also nutrients in dirt. The nutrients keep plants healthy and help the plants to grow.

**Point:** hands, dirt, plant

**WH Questions:** What is food for plants? What keeps plants healthy? **Yes/No:** Are nutrients bad for plants? Are nutrients food for plants? Do nutrients keep plants healthy?

**Opinion/Experiences:**

**Peer to Peer Interaction:** After you read Page 6, ask students, “What is food for plants?” The answer is the main idea card “nutrients.” Students will find the main idea card and read it to their partner. Teacher will prompt them to ask their partner some of the questions talked about above.

**Page 7:** Different plants have different sizes of roots. Trees have big roots. A tomato plant has smaller roots.

**Point:** roots, leaves

**WH Questions:** What is different about roots?

**Yes/No:** Are all roots the same size? Are there different sizes for roots?

**Opinion/Experiences:** Have you ever pulled a plant out of the ground? If so, how big were the roots?

**Peer to Peer Interaction:** After you read Page 7, ask students, “What is different about roots” The answer is the main idea card “dry season.” Students will find the main idea card and read it to their partner. Teacher will prompt them to ask their partner some of the questions talked about above.

**Page 8:** Different plants have different size roots. Remember that roots hold plants up. A big plant like a tree needs big roots to hold it up. Have students view the following video of a man sawing a tree with exposed root ball. <https://www.youtube.com/watch?v=tNvsZC5XorA>

**Point:** tree, roots

**WH Questions:** What plant has big roots?

**Yes/No:** Do trees have small roots? Do trees have big roots?

**Opinion/Experiences:** Why do you think trees have big roots?

**Peer to Peer Interaction:** After you read Page 8, ask students, “What plant has big roots?” The answer is the main idea card “trees.” Students will find the main idea card and read it to their partner. Teacher will prompt them to ask their partner some of the questions talked about above.

**Page 9:** Did you know that people eat roots??? Carrots are actually a root. They grow under the grounds. Radishes are roots. Potatoes are roots. Have students view the following video song about tap roots. <https://www.youtube.com/watch?v=tiU8BuTbfls>

**Point:** dirt, carrots, hand

**WH Questions:** What root do people eat? Where do carrots grow?

**Yes/No:** Do people eat roots? Are carrots a root? Do carrots grow in the dirt.

**Opinion/Experiences:** Do you like carrots? Carrots, potatoes, radishes and onions are roots. Which is your favorite root?

**Peer to Peer Interaction:** After you read Page 9, ask students, “What root do people eat?” The answer is the main idea card “carrot.” Students will find the main idea card and read it to their partner.

Teacher will prompt them to ask their partner some of the questions talked about above.