

Daily Lesson Plan

(DLP)

Topic: Root Exploration (what do roots do)		Day: 1
Grade: 2-3	Lesson Name: Root Exploration (what do roots do)	Time :(60 Mins.)

Topic	Root Exploration (what do roots do)
Weekly key words	Vascular plants, nutrients, store, fibrous roots, anchor, primary roots, secondary roots, etc.
Seating plan	<input type="checkbox"/> Individual <input type="checkbox"/> Pairs <input type="checkbox"/> Group of 4
Skill development	<input checked="" type="checkbox"/> Reading <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Presentation <input type="checkbox"/> Reflection <input type="checkbox"/> Illustration <input type="checkbox"/> Collaboration <input type="checkbox"/> Observation <input type="checkbox"/> Research <input type="checkbox"/> Other (Specify)

Objectives:	
➤ The students will be able to:	➤ Learn about roots, their types and their functions.
Teaching Resources:	writing board, notebook, laptop, picture card

Teaching Learning Strategies

Introduction: Oral Discussion:

Start the lesson by asking the students to share what plants need to grow. Take their responses and give feedback.

Methodology:

What are Roots?

Roots are the important underground part of all vascular plants. This part of the plant is mainly responsible for anchoring it down into the ground and absorbing the essential mineral elements, nutrients, and water from the soil. It is also used to store food.

However, not all plants have their roots underground, some plants have their roots growing above the ground. These are called aerial roots. Unlike underground roots, these aerial roots are also responsible for absorbing nutrients, anchoring and affixing the plant by supporting them to the structures such as nearby walls, rocks, trellises, etc.

Few examples of plants with the aerial roots are—Bonsai, Banyan Tree, Mangroves, etc.

Types of Roots

All roots have similar functions, however, their structure varies. Hence, based on these criteria, the root system is classified into two types:

Tap Root System

Taproots have a main central root upon which, small, lateral roots called root hairs are attached. Mustard, carrot, beetroot, parsley, china rose and all dicotyledons are examples of taproot systems.

Fibrous Root System

Fibrous roots, on the other hand, are bushy roots in which thin, moderately branching roots grow from the stem. Rice, wheat, maize, marigold, banana and all monocotyledons are some examples of the fibrous root system.

What Are Adventitious Roots?

Adventitious roots are a unique category of roots that develop from sources other than the radicle. Primary roots will also be present in plants with this particular sort of root system. The adventitious root system is a characteristic feature of angiosperms and they are modified for various purposes such as respiration, support and food storage.

The main difference between tap roots and adventitious roots is that the former penetrates deep into the soil while the latter does not.

Functions of Root

The following are the important functions of root:

Roots perform various functions that are necessary for the survival of the plants. They are an integral or integrated system that helps the plant in:

Anchoring: Roots are the reason plants remain attached to the ground. They support the plant body, ensuring that it stands erect.

Absorption: Primary function of the roots is to absorb water and dissolved minerals from the soil. This is crucial as it helps in the process of **photosynthesis**.

Storage: Plants prepare food and store in the form of starch in the leaves, shoots and roots. Prominent examples include carrots, radish, beetroot, etc.

Reproduction: Even though roots are not the reproductive part of plants, they are vegetative parts. In some plants, the roots are a means of reproduction. For instance, new plants arise from creeping horizontal stems called runners (stolons) in jasmine, grass, etc. This type of reproduction is called **vegetative propagation**.

Ecological Function: They check soil erosion, provide sustenance and also habitat to various organisms.

What are the different types of root systems?

The different types of root systems are:

- Taproots
- Fibrous roots
- Adventitious roots

What is the function of roots?

Roots perform the following functions:

- Roots absorb water and nutrients from the soil.
- They anchor the plant firmly.
- They help in storing food and nutrients.
- Roots transport water and minerals to the plant.

What are the differences between monocot and dicot roots?

The main difference between monocot and dicot root is that the dicot root contains xylem in the middle and phloem surrounding the xylem. Whereas in monocot root, xylem and phloem are arranged circularly.

What are the primary and secondary roots?

Primary roots are the early roots in young plants that consist of taproots, basal roots, and lateral roots. Secondary roots are the side branches of the primary roots.

Name the plants with taproots.

The plants with taproots are:

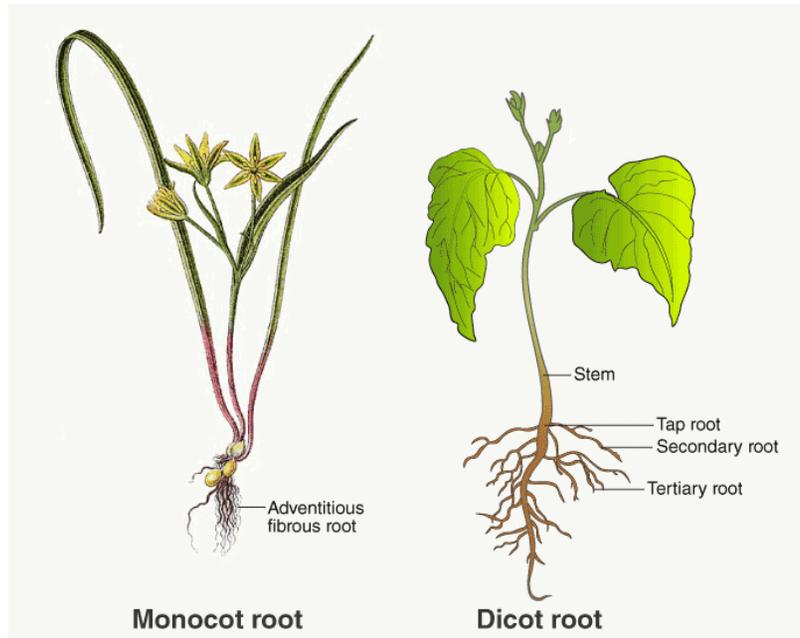
- Beetroot
- Carrot
- Parsley
- Dandelion

Mention some edible roots.

Some edible roots include:

- Ginger
- Turnip
- Yam tubers
- Cassava tubers

Activity:



Wrap up (5mins.): Wind up the lesson by asking the students to differentiate between dicot and monocot roots.

Home Assessment:

Worksheet

Lesson Evaluation:

- Teacher was able to accomplish all aspects of the lesson well

- Teacher was not able to do warm up activity ,
- develop lesson plan well ,
- do the learning activity ,
- do wrap up ,
- accomplish lesson objective ,
- manage time well ,
- manage class well

Worksheet Day

Name: _____

Class: _____

Topic: Root Exploration

Subject: Science

1. What are roots? What are the types of roots?

1. What are the functions of roots?

2. Give examples of roots vegetables.

3. What can you not control about your health?

Answer Key

What did you learn about factors that can impact plant growth? There are things that we can control in plant growth and things that we can't. 2. What things can be controlled? Water, soil, compost 3. What can't be controlled? Weather, pests, plant diseases 4. What can you control about your health? Diet, physical activity, not smoking 5. What can you not control about your health? Gender, age, family health history, genetics