



Lesson Plan: Plant Structure and Function

Grade Level: 4

Subject: Life Science

Duration: 45–60 min

4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Learning Objectives

By the end of this lesson, students will be able to:

- **Identify** the main structures of a plant, including roots, stems, leaves, and flowers
- **Explain** how plants make their own food through the process of photosynthesis
- **Describe** the functions of different root systems and basic plant cell structures



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Materials Needed: (all links are included in this PDF)

- Study Guide (<https://newpathworksheets.com/api/guide/study-guide-science-grade-4-plant-structure-and-function-1.pdf>)
- Worksheet 1 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-structure-and-function-1-0.pdf>)
- Worksheet 2 (<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-structure-and-function-1-1.pdf>)



- Vocabulary Set 1 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-plant-structure-and-function-1-1.pdf>)
- Vocabulary Set 2 (<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-plant-structure-and-function-1-2.pdf>)

Lesson Procedure

Step 1: Introduction (5 minutes)

- Ask students: "How do plants get their food and water if they don't have mouths?"
- Show students an image of a plant and ask them to point out the visible parts such as the roots, stem, and leaves.
- Explain that today they will learn how these structures help the plant survive, grow, and make its own food.



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(<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-plant-structure-and-function-1-2.pdf>)

Step 4: Independent Practice (15 minutes)

- Have students complete Worksheet 1 individually to answer multiple-choice questions about stems, leaves, and photosynthesis.
(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-structure-and-function-1-0.pdf>)



- Instruct students to reference the Study Guide if they need help recalling the ingredients and products of photosynthesis.

Step 5: Assessment (10 minutes)

- Administer Worksheet 2 as an independent assessment to verify students' understanding of roots, root hairs, and basic plant needs.

(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-structure-and-function-1-1.pdf>)

- Review the quiz answers collectively as a class, addressing any remaining questions.

💡 Differentiation Strategies

For advanced learners:

- Have students research and present on unique plant structures adapted for extreme



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vs. taproot) and leaf shapes in local plants.

📚 Complete List of Available Resources:

- Topic: Plant Structure and Function (<https://newpathworksheets.com/science/grade-4/plant-structure-and-function-1>)
- Lesson Plan: Plant Growth and Reproduction (<https://newpathworksheets.com/api/lesson-plan/lesson-plan-science-grade-4-plant-growth-and-reproduction.pdf>)



- Worksheet: Plant Growth and Reproduction 0
(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-growth-and-reproduction-0.pdf>)
- Worksheet: Plant Growth and Reproduction 1
(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-growth-and-reproduction-1.pdf>)
- Worksheet: Plant Growth and Reproduction 2
(<https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-plant-growth-and-reproduction-2.pdf>)
- Vocabulary: Plant Growth and Reproduction 1
(<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-plant-growth-and-reproduction-1.pdf>)
- Vocabulary: Plant Growth and Reproduction 2
(<https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-4-plant-growth-and-reproduction-2.pdf>)



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PLANT STRUCTURE AND FUNCTION

Overview

Plants are living organisms made up of cells. Plants need sunlight and water to live and grow healthy.

Many plants, but **not** all plants, produce flowers, which make fruit and seeds in order for the plant to reproduce.

Lesson Checkpoint:
What does a plant need in order to survive?

Parts of a Plant

A plant has different parts that are all important in keeping the plant alive and healthy.



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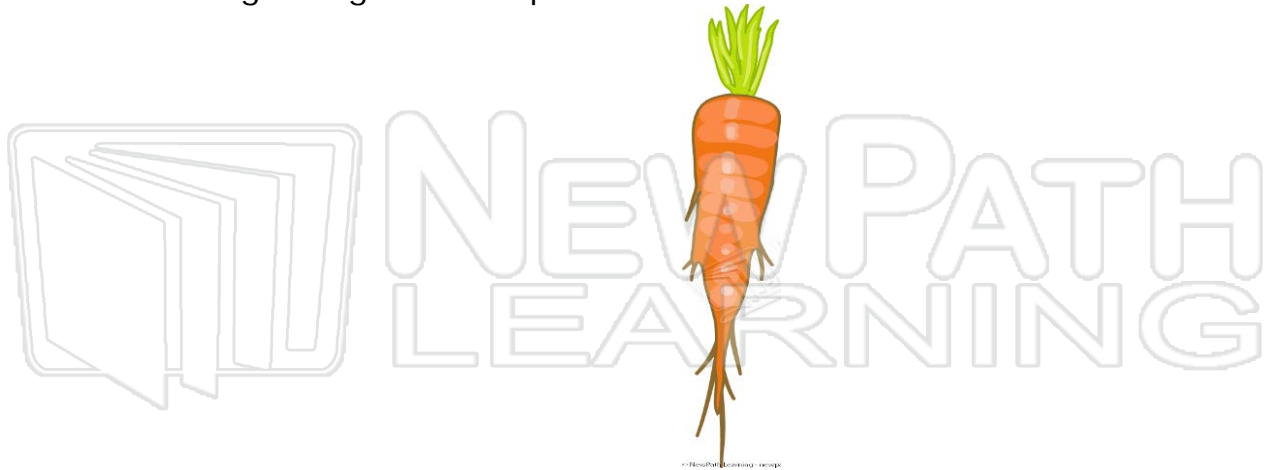
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There are two different types of root systems:

- A **fibrous root system** has many roots that grow in many different directions. Those many roots absorb water and nutrients from the soil.

- Plants that have a **taproot system** have only **one large main root** growing from the plant's stem.



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Leaves:

We know that plants make their own food, but where does this food making happen in a plant? It happens in the **LEAVES** of a plant!

- ✓ First of all, plants need sunlight in order to make their own food. The leaves of most plants are flat so that they are able to capture as much sunlight as possible.

- ✓ Every plant leaf contains **chlorophyll**, which is the **green material** that gives plants their green color. **Chlorophyll** captures sunlight which is needed by the plant to make its own food.
- ✓ The process of plants making their own food is called **photosynthesis**. The food made through the process of photosynthesis in plants is sugar. Two important ingredients needed for photosynthesis are carbon dioxide and water. Plants use the energy from the sun to change **water and carbon dioxide** into **food** for the plant. **Oxygen and water** are the **waste** products of photosynthesis.



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- ✓ The process of water leaving a plant through the tiny openings, stomata, under each leaf is called **transpiration**.
- ✓ In order for a plant to get energy from the food it has made and stored, one more process needs to occur: **respiration**. Respiration is the process of a plant taking in oxygen at night and using it to get energy from the food it has stored.

Lesson Checkpoint: What is transpiration?



Name _____ Class _____ Date _____

1

Like every living thing, plants are made up of _____.

- A leaves
- B oxygen
- C cells
- D carbon dioxide



2

Which two things do plants need to live and grow healthy?

- A sunlight and wind
- B sunlight and water
- C oxygen and cold temperatures
- D water and nitrogen



3

Plants take in _____ from the air around them, which they use to make their own food.

- A oxygen
- B chlorophyll



4

Many plants, but **not** all, produce colorful, sweet-smelling _____ to attract insects.

- A flowers
- B leaves



5



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9

Plants that have a **taproot system** have several roots growing **away** from the plant's stem into the soil.

True or false?

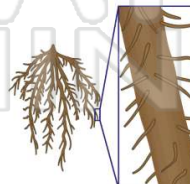
- A true
- B false



10

_____ grow from roots to **absorb water and nutrients** from the soil.

- A Buds
- B Stems
- C Root hairs
- D Leaves





Name _____ Class _____ Date _____

1 Like every **living thing**, **plants** are made up of _____.

- A leaves
- B oxygen
- C cells
- D carbon dioxide



C

2 Which **two things** do plants **need** to live and grow **healthy**?

- A sunlight and wind
- B sunlight and water
- C oxygen and cold temperatures
- D water and nitrogen



B

3 **Plants** take in _____ from the air around them, which they use to **make** their own **food**.

- A oxygen
- B chlorophyll



D

4 Many plants, but **not** all, produce colorful, sweet-smelling _____ to **attract insects**.

- A flowers
- B leaves



A

5



C

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A

9

Plants that have a **taproot system** have several roots growing **away** from the plant's stem into the soil.

True or false?

- A true
- B false

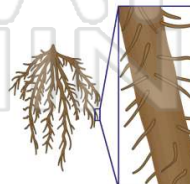


B

10

_____ grow from roots to **absorb water and nutrients** from the soil.

- A Buds
- B Stems
- C Root hairs
- D Leaves



C



Name _____ Class _____ Date _____

1 What is the **main job** of a plant's **stem**?

- A to collect nutrients from air
- B to catch sunlight
- C to make food
- D to carry water and minerals throughout plant



2 Plant **stems** also help **support the plant** so that it is able to reach _____, which is needed by plants to make their own food and grow healthy.

- A sunlight
- B oxygen
- C shade
- D the soil



3 In what part of the plant is **food for the plant** made through **photosynthesis**?

- A stem
- B roots
- C flower



4 Why are **leaves** usually **flat**?

- A to collect nutrients from the air
- B to collect oxygen from the air
- C to collect as much _____ as possible



5



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- B photosynthesis
- C transpiration
- D hypothesis

- D seeds



9

What are the **two** important materials needed for **photosynthesis**?

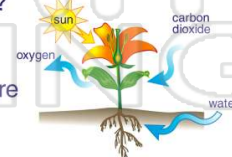


- A carbon dioxide and water
- B oxygen and carbon dioxide
- C oxygen and chloroplast
- D carbon dioxide and nitrogen

10

What is needed by plants in order to change **water and carbon dioxide** into **food** for the plant?

- A soil
- B cold temperature
- C sunlight
- D precipitation





Name _____ Class _____ Date _____

1 What is the **main job** of a plant's **stem**?

A to collect nutrients from air
B to catch sunlight
C to make food
D to carry water and minerals throughout plant



(D)

2 Plant **stems** also help **support the plant** so that it is able to reach _____, which is needed by plants to make their own food and grow healthy.

A sunlight
B oxygen
C shade
D the soil



(A)

3 In what part of the plant is **food for the plant** made through **photosynthesis**?

A stem
B roots
C flower



(D)

4 Why are **leaves** usually **flat**?

A to collect nutrients from the air
B to collect oxygen from the air
C to collect as much _____ as possible



(C)



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7

B photosynthesis
C transpiration
D hypothesis

9 What are the **two** important materials needed for **photosynthesis**?

A carbon dioxide and water
B oxygen and carbon dioxide
C oxygen and chloroplast
D carbon dioxide and nitrogen

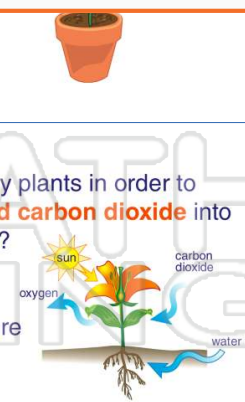


(A)

D seeds

10 What is needed by plants in order to change **water and carbon dioxide** into **food** for the plant?

A soil
B cold temperature
C sunlight
D precipitation



(C)



Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Cytoplasm

Compound microscope

Stem

Cell wall

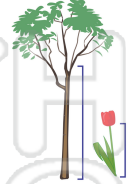
Cell membrane

DNA

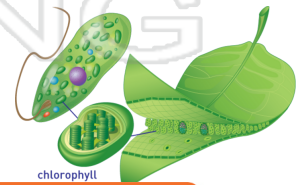
Chlorophyll

Cell

1. _____ - the part of the plant that supports the plant, allows plant to reach above soil to take in sunshine, and carries water and nutrients from the roots to the rest of the plant



2. _____ - a green pigment found in the chloroplasts of most plants and algae which absorbs light to produce sugars during the process of photosynthesis



3. _____
organism



4. _____
regulate
layer of

5. _____
other

6. _____
lens

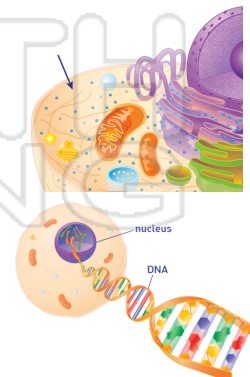
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7. _____ - a jelly-like substance found inside a cell surrounding its organelles; supports and protects the organelles of the cell



8. _____ within the nucleus - deoxyribonucleic acid; genetic material





Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Cytoplasm

Compound microscope

Stem

Cell wall

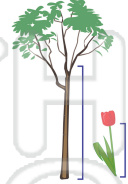
Cell membrane

DNA

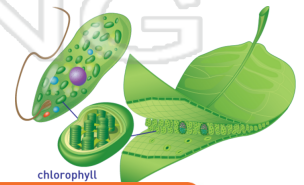
Chlorophyll

Cell

1. stem - the part of the plant that supports the plant, allows plant to reach above soil to take in sunshine, and carries water and nutrients from the roots to the rest of the plant



2. chlorophyll - a green pigment found in the chloroplasts of most plants and algae which absorbs light to produce sugars during the process of photosynthesis



3. cell

4. cell which animal

5. cell organi

6. con



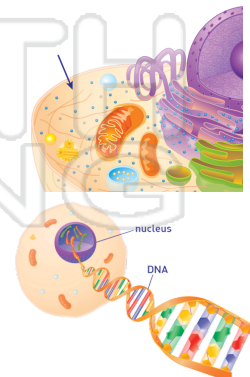
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7. cytoplasm - a jelly-like substance found inside a cell surrounding its organelles; supports and protects the organelles of the cell



8. DNA - deoxyribonucleic acid; genetic material within the nucleus





Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Endoplasmic reticulum

Fibrous root system

Flower

Leaf

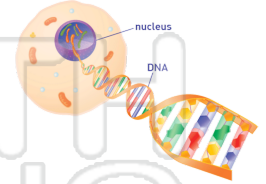
Golgi body

Microscope

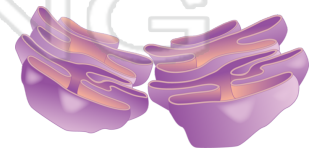
Lysosome

DNA

1. within the nucleus - deoxyribonucleic acid; genetic material



2. connecting cell organelles; a transport system that moves different materials around the cell - a transport system of tubes and channels



3. that g



4. seeds

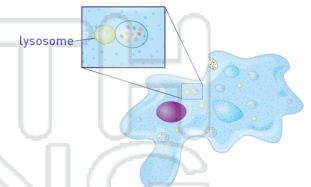
5. made

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6. the pr

7. (enzymes) to break down food and recycle waste materials - a cell organelle that contains chemicals



8. instrument that magnifies small objects - a tool used by scientists to make small things appear larger so that they are easier to observe and study;





Name _____ Class _____ Date _____

Match each of the following terms to its definition:

Endoplasmic reticulum

Fibrous root system

Flower

Leaf

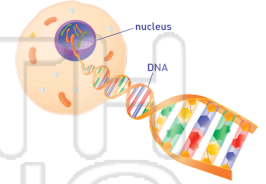
Golgi body

Microscope

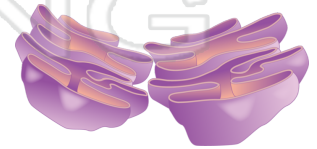
Lysosome

DNA

1. **DNA** - deoxyribonucleic acid; genetic material within the nucleus



2. **endoplasmic reticulum** - a transport system of tubes and channels connecting cell organelles; a transport system that moves different materials around the cell



3. **fibrous root system** - grows underground

4. **flower** - the reproductive part of a plant

5. **Golgi body** - where materials are packaged and sent to other parts of the cell

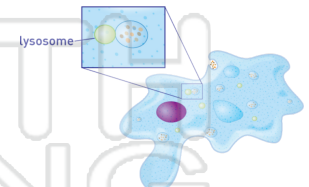
6. **leaf photosynthesis** - the process by which plants use sunlight to produce food



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7. **lysosome** - a cell organelle that contains chemicals (enzymes) to break down food and recycle waste materials



8. **microscope** - a tool used by scientists to make small things appear larger so that they are easier to observe and study; an instrument that magnifies small objects

