MY FARMHOUSE

Purpose Of The Activity:
To express living and non-living entities using examples from the surroundings. Presenting observation results about the life cycle of a plant.

Theme Beyond Disciplinaries:
Sharing the Planet
Understanding the Workings of the World

QUESTIONING CYCLE

TUNING IN

Let's arouse curiosity!

FINDING OUT

What Should Future Science People Discover?

SORTING OUT

Let's Start Discovering!, Scientific Explanation For The Curious, Video

GOING FURTHER

What else can we do? ?

MAKING CONCLUSIONS

Activity Pages, Exit Card

TAKING ACTION

Question Of The Day?

CURIOUS BOX

MY FARMHOUSE

Let's Arouse Curiosity

Before the activity, the "Did You Save Your Water Today?" poster is hung in the classroom. Students are directed the following questions:

- Have you ever followed the development of a seed in the soil?
- What does a seed need to germinate?
- What does a seedling need when it grows into a young plant?

"The wonderful world of nature harbors various living and non-living entities. Each of these entities has its own unique characteristics and life cycles, contributing to the richness of our environment. Among living things, plants hold a significant place. Their life cycle affects the natural balance in our surroundings. Observing the life cycles of various plant species helps us understand and preserve nature. How about observing the life cycle of a plant?" is asked in this way. The activity materials are taken out and examined.

Let's Start Discovering!

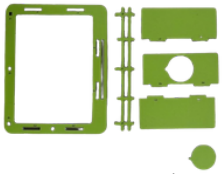
The activity video is watched by pausing. The content of the se is checked before proceeding with the activity. All the lid and package opening steps are done simultanously with the students.

Watch The Video By Pausing!

Content Of The Set

- [ ] Wooden farmhouse template
- [ ] Farm card
- [ ] Plastic cup
- [ ] Soil
- [ ] Seed
- [ ] Cow label
- [ ] Water (not included in the set)
- [ ] "What Does a Plant Need?" activity page
- [ ] "Did You Save Your Water Today?" poster

How Do We Do It?



Pieces are taken out from the wooden farmhouse template.

Rectangular pieces are attached to the parts numbered 1, 2, and 3 of the rectangle center gap piece, and then they are turned over.

Wooden fence labeled with number 4 is attached.

The farm card is inserted into the thin gap.

The cow label is pasted onto the circular wood and inserted into the small hole on the left side. The farmhouse template is ready!

The plastic cup is placed into the rectangular gap and half of the soil is poured into it.

- The seed is sprinkled evenly on top of the soil.
- The rest of the soil is emptied onto the seeds.
- The newly planted seeds are given some water.

What Should Future Science People Discover?

Students are directed the following questions:

- How do plants affect living and non-living entities?
- When autumn comes, pine trees do not shed their leaves, but oak trees do. What do you think is the reason for this?

Everything around us is referred to as existence. These entities can be living or non-living. We can understand whether an entity is alive by looking at its properties such as growth, movement, nutrition, respiration, excretion, and reproduction.

Examples of living entities include humans, plants, animals, and bacteria. Examples of non-living entities include books, buildings, air, and water. To better understand, let's think about plants among living entities. When provided with suitable conditions, plants grow and develop for a long time. Plants live for different lengths of time. Depending on the season, their leaves shed and grow again. Humans and animals obtain their food externally. Plants, on the other hand, produce their own food. They receive energy from the sun and absorb water and minerals from the soil. To absorb water from the soil, they move their roots. To receive energy from the sun, they turn their leaves towards the direction of sunlight. For example, after sunflowers bloom, they adjust the direction of their leaves and flowers according to the direction of sunlight. Some plants, like the sensitive plant, react by shrinking their leaves when touched.

In their life processes, plants utilize the carbon dioxide emitted by humans, animals, and other living organisms in the environment and produce oxygen gas. They use their self-produced oxygen gas and a certain amount of external oxygen gas to breathe. Plants reproduce to create new plants. During this reproduction, bees, insects, and humans assist in the reproduction process by transferring the pollen from one flower to another. Plants release their waste products by sweating droplets from their leaves or shedding their leaves.

Life Cycle of Plants

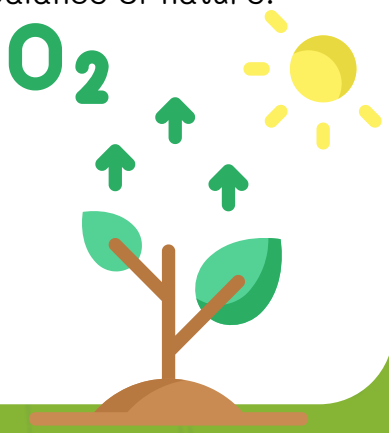
To form a plant, a seed is planted in the soil. Suitable conditions must be provided for germination. For this, the soil should be aerated, and an adequate amount of water should be given. When these conditions are met, the seed germinates. When a plant is young, it needs to be both watered and placed in a location with sufficient sunlight. When the plant matures, it produces its own seeds. After a certain period, its life cycle ends.

The life cycle varies for each plant. For example, coniferous trees can usually perform photosynthesis even in winter months. Pine trees can keep their needle leaves green during winter months to continue photosynthesis.

On the other hand, some deciduous trees like oak trees shed their leaves in autumn. This indicates that these trees lose their ability to photosynthesize during winter months and shed their leaves to conserve energy. Deciduous trees like oak trees use this strategy to adapt to the harsh environmental conditions in winter.

Do Plants Affect Natural Phenomena and Living Beings?

Plants are important factors that affect many events and living beings in nature. This effect begins with plants absorbing carbon dioxide from the atmosphere through photosynthesis and producing oxygen. The production of oxygen is vital for both humans and other living beings. Additionally, the growth of plants and the ecosystems they create with various species also affect other organisms in nature. The periods in which plants live according to seasons shape natural cycles and form certain characteristics of the climate. Therefore, the presence and interactions of plants largely determine the overall balance of nature.



Did You Know?

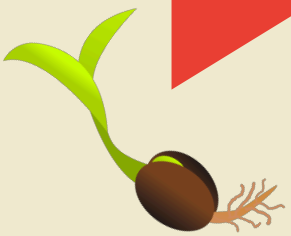
- The first plants on Earth, algae, emerged in water.
- Mushrooms are not plants.
- The branch of science that deals with plants is called botany.
- Although trees are usually the first thing that comes to mind as a source of oxygen, they contribute only 20% to the oxygen produced on Earth. The contribution of algae living in aquatic areas such as oceans, seas, and lakes is 70%.

LIFE OF TOMATO CYCLE

THE PLANT PRODUCES NEW SEEDS AND DIES.

THE SEED IS PLANTED IN THE SOIL. WATER LEAKS THROUGH A SMALL HOLE IN THE SEED SHELL. THE SEED SWELLS AND ITS SHELL CRACKS.

THE FIRST LEAVES OF THE PLANT GROW AND PRODUCE ITS OWN FOOD.



THE PLANT BECOMES AN ADULT AND PRODUCES ITS OWN SEEDS.

Scientific Explanation For The Curious

Students are directed the following questions:

- What are the parts of a plant? Can you list them?
- What are the functions of the roots and stems of a plant?
- What are the functions of leaves and flowers?

We can divide a plant into four groups: roots, stems, leaves, and flowers. Not all plants have flowers. Examples of plants without flowers include mosses and ferns.

Root: It is usually the part of the plant underground. It anchors the plant to the soil. Through its absorbing hairs, it takes up the water and dissolved minerals that the plant needs.
Stem: It is usually the part of the plant above ground. It transports the water and minerals absorbed by the roots towards the leaves. Leaves and flowers are found on the stem. Additionally, the nutrients produced in the leaves are transported to other parts of the plant through the stem. It also helps the plant stand upright.
Leaf: It is the part of the plant where food is produced. It produces food by using carbon dioxide, water, and sunlight.
Flower: It is the reproductive organ of plants. It enables plants to reproduce. Some attract other organisms like bees and butterflies with their beautiful colors and fragrances, aiding in pollination and reproduction.
Seed: It is a kernel that completes the plant and serves as a source of nutrition. When the seed begins to germinate, the sprout uses this source of nutrition as it emerges from the soil. Once it leafs out, it produces its own food.

From Seed to Plant

The first stage in the transformation of a seed into a plant following fertilization is germination. While the seed is dormant, it becomes activated and comes to life due to the influence of moisture, heat, and light. Then, it begins to grow. This stage is called germination. Germination requires a lot of energy. However, until the plant can absorb minerals from the soil through its roots, there is no source of nutrition available for the plant. During fertilization, a nutrient depot is formed along with the seed. This resource is utilized by the seed until germination is complete.
During the germination stage, the seed absorbs water from the soil. As a result, cells begin to divide. Then, the seed coat opens. First, small roots grow downward. Then, seeds that will produce stems and leaves develop. After that, the seed exhibits phototropism, i.e., orientation towards light, and begins to grow above the soil.

Photosynthesis

The chemical reaction in which carbon dioxide is converted into oxygen with the help of solar energy and chlorophyll is called photosynthesis. Organisms performing photosynthesis produce their own food through this process. Examples of organisms that carry out photosynthesis include plants, algae, euglena, and some bacteria.

Benefits Provided by Plants

- Plants play the most significant role in maintaining the balance of water and oxygen, which are essential for our lives, on the Earth's surface.
- Plants are crucial for maintaining the balance of temperature on Earth's surface and the gases in the atmosphere.
- The primary source of energy on Earth is the Sun. However, living organisms do not use this energy directly. Plants convert this energy into a usable form through photosynthesis.

What Else Can We Do?

Dear Teacher,
With future scientists, you planted seeds and gave them water. Now, you will examine the development of the plant together. You can enrich your lesson by doing the "My Plant Crown" activity together.

Materials (Samples of different types of plants and leaves, Eco-friendly string)

1. Different plant characteristics are explained to students.
2. Students are given plant parts (leaves, flowers, branches, seeds, etc.) and eco-friendly string.
3. Assistance is provided to students to cut plant parts in suitable shapes.
4. Plant parts are attached to the string to create a crown.
5. After the crowns are completed, students display them on their heads.

What Did We Discover?/Exit Card

"Today, we created a wonderful farmhouse by planting grass seeds. We discovered that plants are important factors that affect many events and living beings in nature. We talked about the role of plants in nature, their interactions, and their life cycles. "What Does a Plant Need?" activity page is given. Write down three things you learned in this activity. Write down three things you're curious about.

Where is the oldest tree on Earth located, and how old is it?

Exit Card

Draw two things you discovered today!

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