

Plants of the Past

4th Grade

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References:

- “Plants of the Past” lesson plan from 4th grade Earth Science curriculum guide

Benchmarks:

(Benchmark C): Compare changes in an organism’s ecosystem/habitat that affect its survival. LS-5: Observe and explore how fossils provide evidence about animals that lived long ago and the nature of the environment at that time. ST-2: Investigate how technology and inventions change to meet peoples’ needs and wants.

Objectives:

By studying the plants of our past, we can get an idea of what the ecosystems were like. Plants played an important role in providing food for animals and they had historic significance to ancient civilizations. Investigating their historical utility can help students understand cultural and technological evolution and how plants serve as inspiration for inventions.

Materials:

- Gourds
- Horsetail
- Papyrus
- Lamb’s ear
- Willow
- Lab sheet

Initial Demonstration:

Have students list ways they interact with plants in their lives. Also pose these questions to the students and have them respond in their journals. **Each year, plant species disappear and become extinct as humans alter the environment. Why should we be concerned? Do you think we have discovered all the useful plants on Earth?** (We may lose plants that possess valuable characteristics, perhaps one containing a disease-fighting compound. Also, losing a species can alter the balance in the environment and impact the ecosystem, for example, a lost plant may be the sole food source for a certain animal species, and consequently that species’ existence will be threatened.

Target Observations:

- We use plants in our daily lives for food and shelter.
- They are an important part of our environment/landscapes
- We depend on them for the air we breathe
- Small residual pieces of the tablet are left floating on the top of the water
- There are a number of plant-derived products we use each day, such as paper and cotton

Target Model:

- Plants have always played a central role in the everyday workings of human societies. The process of discovering new plants by scientists and the development of new technologies by inventors never stops. This results in the replacement of plant-based products with man-made products.

Procedure:

Collect as many sample plants listed above in the Materials section as you can. The class needs to be broken up into small groups and give each group one of the plant samples. Have the students infer what type of ecosystem these plants came from. Give them time to discuss and formulate ideas about the use of their plants. Let each group present their conclusions and their reasoning process. Encourage students to be creative in their ideas and provide hints and clues as needed.

Once students are finished with that activity, they should receive a lab sheet for the experiment. At each station, the students will draw and write observations for each plant, starting with the one at their desk. From those observations, they should infer what type of environment that the plant lived in and how ancient civilizations used each one. Next, share the historical background information about each of the plants, which is provided in the reference.

Target Observations:

- Gourds can be hollowed out and things stored inside of them
- Papyrus feels like paper, which could be used to write on rather than stone
- The plants were able to survive thousands of years because they adapted to different conditions

Summary:

Students have conducted an experiment involving plants that survived for decades, yet we are still finding uses for these plants and the materials they contain. By exploring the less obvious uses for plants, students may develop more interest in and a deeper respect for nature. Perhaps they might feel stimulated to pursue some inventions of their own!