

Beginning Botanist



Acknowledgements

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Overview

Overall Goal: Children learn about the parts of plants and what plants need to live and grow.

Lesson	Objectives	Vocabulary	Key Concepts	Tools
#1: Traveling Seeds	Children will learn to compare seeds by size and explore how a seed travels in the wind.	botanist farther plant(s) seed(s) travel wind	<ul style="list-style-type: none"> Seeds make new plants. Wind helps some seeds travel. Larger seeds need more wind to travel. 	sorting tray drinking straw
#2: My Little Sprout	Children will learn that plants come from seeds, and what a germinating seed needs to grow.	dropper germinate magnifier plant(s) soak(ed) sprout	<ul style="list-style-type: none"> A seed grows into a plant. Seeds need water to grow into a young plant. Young plants need light and water. The parts of a plant are roots, stem, leaves and flowers. 	magnifier dropper
#3: Roots and Stems Together	Children will learn how roots and stems work together to carry water and help plants stand up.	flower leaves roots soil stem(s) together petals	<ul style="list-style-type: none"> Roots and stems work together to help plants get enough water. A plant stem helps a plant to stand up. Water moves up to all parts of a plant from the roots through the stems. Roots absorb and carry water. 	magnifier drinking straw
#4: Be Leaf It!	Children will examine and compare the different colors, shapes and sizes of leaves.	rounded/pointed small/large	<ul style="list-style-type: none"> Leaves come in many different shapes, colors and sizes. Leaves can be sorted by their shape, color and size. 	

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Science Process Skills

Science Process Skills	Lesson #1	Lesson #2	Lesson #3	Lesson #4
Observing				
Identifies object properties	●	●	●	●
Uses senses to observe concrete, familiar objects	●	●	●	●
Differentiates between models and the real thing			●	●
Uses measurement tools to record observations				
Uses tools to observe objects or events	●	●	●	
Describing				
Describes key attributes of objects			●	●
Creates drawings or models depicting objects			●	
Describes changes in objects	●		●	
Discusses changes in variables that affect an investigation	●			
Categorizing				
Notices similarities and differences	●	●	●	●
Sorts objects into groups using one attribute at a time				●
Establishes own sorting criteria	●			●
Sorts objects using multiple attributes				●
Provides reasoning for grouping objects				●
Predicting				
Verbalizes thinking	●		●	●
Recognizes and extends patterns				
Makes simple predictions	●	●	●	
Makes predictions based on observations	●		●	
Uses estimation to make quantitative predictions				
Experimenting				
Investigates models of objects/phenomena			●	
Manipulates materials	●	●	●	●
Identifies factors that might affect the outcome of an experiment			●	
Participates in collecting data				●
Interprets data using symbols or graphs				
Performs trial-and-error investigations	●			
Drawing Conclusions				
Makes verbal interpretations of observations	●	●	●	
Finds patterns from data collected				
Connects findings from an investigation				

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Lessons at a Glance

In **Traveling Seeds**, children investigate how the wind helps some seeds travel. Children are asked where seeds come from as they act as botanists, comparing and observing various seeds. Children participate in dramatic play where they pretend to be wind to help seeds travel.

Have you ever looked closely at a seed? What does a seed become when it grows? In **My Little Sprout**, children learn that plants come from seeds. The lesson begins with a simple story about how a seed grows. Later, an investigation of the inside of a moistened lima bean reveals how the seed coat protects all the parts of a plant (the roots, stems and leaves) until it begins to sprout. Children create an environment for a lima bean to germinate and grow into a young plant.

In **Roots and Stems Together**, children observe a thriving plant. What are the parts of a plant called? What do they do? Every part has a special function. Roots and stems work together to absorb and carry water to feed the leaves and to help a plant stand up. Children investigate the functions of stems and roots as they experiment with a broken flower stem that can no longer carry water. Children then assemble a simple plant puzzle to recall the parts of a plant.

Where do leaves come from? **Be Leaf It!** or not, they came from trees and plants. During an outdoor leaf expedition children explore the natural environment, and gather various leaves to take back to the classroom for a sorting and identifying discussion. Leaves come in many colors, shapes and sizes. What colors do you see? What shapes do you see? How do leaves feel? The young botanists practice their observation skills in a game of Leaf Lotto.



Key Concepts

Children develop an awareness of the parts of plants early on as they smell a flower or run their fingers along the veins of a leaf. Though children will learn more complex plant processes such as photosynthesis and respiration later in their schooling, preschool can provide important early learning experiences about seeds, the parts of plants, what plants need, and the varied colors, shapes and sizes of leaves. ***Beginning Botanist*** introduces these life science concepts through investigations that focus on living plants and plant parts.

- **Seeds** come in many different colors, shapes and sizes. Seeds can be found in the flowers and fruits of plants.
- The wind can blow seeds from one place to another. Seeds that are light can travel farther and faster. When seeds travel and scatter over the land, they may grow in a new location.
- The outer covering of a seed is called a seed coat. The seed coat keeps the young parts of a plant safe until it begins to **germinate** or sprout roots, stems and leaves.
- A germinating seed grows into a young plant if it has the right amount of water and light.
- Plants have four major parts: roots, stems, leaves and flowers. Each part of a plant helps it survive and grow.
 - **Roots** anchor a plant and transport water and nutrients from the soil to the rest of the plant.
 - **Stems** help a plant stand up and give it height. Stems also transport water throughout the plant.
 - **Leaves** capture energy from sunlight, and together with water and air, help feed the plant. Leaves come in many colors, shapes and sizes. All types of leaves have leaf veins that help carry water and nutrients within the leaf.
 - Colorful **flowers** attract pollinators like bees and hummingbirds. The pollinators carry pollen from plant to plant. Pollination is necessary for seeds to form in flowering plants.

Lesson Guide

TEACHER TALK

Teacher talk is indicated by **bold letters that appear in large print**. When you first start teaching ECHOS, you may need to rely heavily on this text to ensure that you are presenting the science concepts accurately. As you become familiar with the text, use it as a guide or refer to it only as needed. You should always read the entire script prior to delivering the lesson.

TEXT IN ALL CAPS

Text IN ALL CAPS appears throughout the script to emphasize a step or instructions given to children.

VOCABULARY WORDS

Vocabulary words are introduced during the lesson and reinforced in the Outcomes section.

They appear in *red italic letters* the first time they are introduced.

MATERIALS IN BLUE LETTERS

Materials listed in *blue letters* in the *Material Preparation* page, indicate materials that are non-consumable. Once acquired, these materials do not need to be replaced.

SCIENCE AREA

The last page of each lesson contains suggested materials that could be added to your science area. Before adding any materials for children's independent use, evaluate whether the item is safe to be explored with limited supervision. The science area should be a place that children use freely to explore and conduct their own trial and error experiments, rather than a display area.