

Just for fun! Early Science Skills for Preschoolers

If you have preschool-aged children in your home school environment, below are some suggestions for ways to introduce them to science-related concepts before their kindergarten curriculum begins. Many of these suggested activities can involve the whole family!

Overview

Expectations for Preschool Students:

- **Physical Science:** Make observations and describe properties of materials. Recognize the cause and effect relationships between matter and energy.
- **Life Science:** Recognize that all living things have unique characteristics and basic needs and that living things develop in predictable patterns.
- **Earth Science:** Learn about the world around them by observing patterns related to changes in weather, seasons, and day and night. Explore natural objects, like rocks, soil, and sand and their different uses.

Throughout Preschool You May Find Students:

- Investigating different types of energy by exploring shadows and light, observing the sounds different musical instruments make.
- Discovering what makes an object move faster or slower.
- Looking at patterns in the weather, and keeping track of how the weather changes from day to day.
- Observing and engaging with live animals and plants and toys/stuffed animals and discuss the difference between living and nonliving things.
- Making observations about animals and plants they might see in their local environment.
- Using their senses and simple tools to explore natural materials.
- Making observations about daily weather conditions.

Preschool Learning Activities

- Recognize that physical properties of objects and/or materials help us understand the world.
 - Use senses to explore the properties of objects and materials (e.g., solids, liquids).
 - Make simple observations, predictions, explanations, and generalizations based on real-life experiences.
 - Observe, describe, and discuss living things and natural processes.
 - Provide a variety of materials and objects (i.e., solids and liquids) to encourage children to observe, manipulate, sort, and describe physical properties (e.g., size, shape, color, texture, weight) using their five senses as well as simple tools (e.g., magnifiers, balance scales, funnels).
 - Provide opportunities for children to explore changes in matter (e.g., solids and liquids) when adding heat or cold, when mixing ingredients during cooking, when adding items to liquid (e.g., oil, pebbles).
 - Provide each child with materials for experiments.
 - Display child observations, predictions, and projects.
- Recognize there are cause - and - effect relationships related to matter and energy.
 - Provide opportunities for children to explore motion (e.g., fans and scarves, ramps, and toy cars).

- Provide opportunities for children to investigate energy (e.g., heat, light, sound; investigate shadows, sort musical instruments, and discuss different sounds made by particular movements; explore transparent properties on a light table).
 - Provide opportunities for children to record observations in the changes of matter (e.g., ice melting at the sensory table).
 - Facilitate inquiry by asking how and why questions to encourage children to make predictions and chart results.
- Recognize that living things have unique characteristics and basic needs that can be observed and studied.
 - Observe, describe, and discuss living things.
 - Observe similarities and differences in the needs of living things.
 - Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light.
 - Ask and pursue questions through simple investigations and observations of living things.
 - Collect, describe, and record information about living things through discussion, drawings, graphs, technology, and charts.
 - Identify differences between living and nonliving things.
 - Provide opportunities for children to engage with live animals and plants along with toy/stuffed animals and plants and photographs/pictures throughout the classroom.
 - Read books about living and nonliving things, inquire about how we know if something is living or not.
 - Display worm farms, bird feeders, caterpillar/butterfly habitat, fish tank for observation.
 - Watching the fish, observe and discuss the movement of the gills, explaining this is how fish breathe under water.
 - Provide opportunities for children to use different materials (technology, journals, drawings, etc.) to observe living things.
 - Match photographs of different habitats to the things that occupy them (i.e., worms live in the ground; fish live in water).
 - Sequence a series of photographs/pictures of a plant's growth.
 - Sequence a series of photographs/pictures of the life cycle of a butterfly from caterpillar to chrysalis/cocoon to butterfly.
 - Document the life cycle of living thing.
 - Recognize that living things require water, air, food.
 - Recognize that living things develop in predictable patterns.
 - Identify the common needs such as food, air, and water of familiar living things.
 - Predict, explain, and infer patterns based on observations and representations of living things, their needs and life cycles.
 - Recognize that plants and animals grow and change.
 - Provide opportunities for observation and investigation of the characteristics of animals and plants over time.
 - Take nature walks.
 - Encourage children to identify similarities and differences between living things and document what each need to survive.
 - Provide opportunities for children to explore available outdoor habitats.

- Provide opportunities for children to help feed the family pet, water the plants, etc.
 - Identify and describe through a variety of modalities the changes in living things overtime (e.g., bears hibernate when it is cold outside).
 - Investigate living things by caring for animals and plants in the classroom.
 - Document the human life cycle - babies grow into children, children grow to adults, adults get older.
- Acquire concepts and facts related to the Earth materials and their uses.
 - Engage children in exploring natural objects such as small rocks, soil, leaves, sand, and other objects.
 - Provide soil and containers for planting.
 - Display rocks, stones and pebbles of different shapes and colors for sorting.
 - Ask questions and make comments that lead children to observe closely and think about how they could find out more.
 - Encourage children to compare and contrast types of earth materials.
 - Encourage children to ask question and seek answers through active exploration
 - Provide a variety of materials for children to document observations (e.g., tablets, computers, notebooks, poster paper).
 - Ask and pursue questions through simple investigations and observations of natural objects.
 - Explore rocks, soil and sand using a magnifier.
 - Use sense and simple tools to explore earth materials.
 - Discuss evidence from investigations and observations.
- Acquire concepts and facts related to the natural and physical world and the understanding of naturally occurring relationships.
 - Recognizes familiar elements of the natural world and demonstrates an understanding that these may change over time (e.g., sun and moon, weather).
 - Observe and describe patterns observed over the course of a number of days and nights (e.g., differences in the activities or appearance of plants and animals).
 - Take nature walks to observe weather conditions.
 - Talk about weather conditions daily.
 - Provide opportunities to sort pictures of activities, clothing, and toys according to the types of weather and seasons they correspond to (e.g., sled with snow, sunglasses in summer).
 - Talk about things that can be found in the day or night sky (e.g., sun, moon, clouds, stars).
 - Match types of clothing or activities to seasonal weather conditions (e.g., we use an umbrella when it is raining; we wear boots when it snows; we wear hats and gloves when it is cold outside).
 - Discuss current weather events that affect the community.
 - Observe and describe different types of clouds and moon phases.
 - Describe differences in weather patterns and day vs. night via drawing, dramatization, or words.