

## Kindergarten

### Kit: OBSERVATION WITH SENSES

#### **Science Processes: Inquiry Process, Inquiry Analysis and Communication, Reflection, and Social Implications**

Kindergarten presents the initial opportunity for young learners to become engaged in the study of science through their natural curiosity in subject matter that is of high interest. The Grade Level Content Expectations for science at this level are centered on areas where the young learners have begun to form ideas and try to make sense of the world around them. Many of the building blocks of scientific understanding begin to emerge prior to school. Kindergarten students will be guided in the process of scientific inquiry through purposeful observations, raising questions, as well as making sense of their observations, investigations, meaning-making practices, and demonstrating their understanding through various activities. The curriculum builds cumulatively and in developmentally informed ways from students' early knowledge toward scientifically accepted concepts. Included in the inquiry curriculum is the use of the appropriate senses in purposeful observations. It is intended for the five senses to be taught within the content of science, giving the students the opportunity to learn and use their senses for purposeful observation, stressing the very limited use of the sense of taste in the study of science. The use of senses during observations continues to be present in the inquiry expectations for grades first through fourth.

### Kit: PUSHES AND PULLS

Prior to entering kindergarten, many students have developed an understanding of the motion of objects. For example, the young learner has discovered that solid objects cannot move through each other, changes in motion and position of objects are the result of a force outside them, and that objects tend to endure over space and time. They learn even though the ball has rolled out of sight, it still exists behind the wall, under the couch, or behind someone's back. They can also make inferences about reasonable causes of motion of inanimate objects. Pre-kindergarteners have their own concept of force that they use to explain what happens in the motion of objects. They think of forces as active pushes and pulls that are needed to explain an object's motion.

The kindergarten content expectations for physical science are meant to build on and use the early learners' ability to correctly sense some of the behaviors of simple mechanical objects and the motion of objects. The central idea is for the young learner to be able to attach appropriate language that describes motion, compares motion, and begin to develop an understanding of forces and their relationship to changes in motion. Finally the students are introduced to the concept that objects fall toward the Earth and that the force that pulls objects toward Earth affects the motion of all objects.

### **Kit: BASIC NEEDS OF LIVING THINGS**

The young learner enters kindergarten with a natural wonder and curiosity of the order of living and nonliving things. They are curious about the function of the different body parts of living things. They have a basic understanding that living things need food and that food is somehow changed in a manner that allows the living organism to grow and survive. They do not yet have a generalized understanding of how both plants and animals obtain their food or the process of digestion. At this level students are also beginning to categorize living and non-living things. They will sort plants and animals from toys or artifacts even though they have similarities in their appearance.

The kindergarten content expectations for life science build a greater understanding of the basic needs of all living things and classifying living and nonliving things. Through direct classroom experiences of living things and their habitats, students begin to think beyond movement as the defining characteristic of life and recognize characteristics of living things with eating, breathing, and reproducing.

### **Kit: MY EARTH**

Early learners are naturally curious about the objects in their environment – soil, rocks, water, sand, rain, snow, and so on. Kindergarteners enter school with an idea that the Earth is made up of soil, rocks, pebbles, sand, water and living things. They should be encouraged to closely observe materials found on Earth and begin to describe their properties.

The essential learning in Earth science for the kindergarten student is to be able to identify different Earth materials and recognize the Earth materials necessary to grow plants, linking the common thread of understanding in life science and Earth science.

Young students have difficulty understanding the concept that the Earth is round. Their own observations tell them that the Earth is essentially flat. When told that the Earth is round they may interpret that to mean that it is a flat disc or saucer. The introduction of globes as models of the Earth is essential in their beginning to understand the shape of objects in the sky such as the Earth, moon, and sun.