A NOTE ABOUT THE SAMPLE ACTIVITIES

The following are sample activities designed to show you examples of possible activities for each API. You are not required to use these specific activities in your portfolios. The APIs used in this document come from the column for grades 6-8 in the TCAP-Alt Performance Indicators document, which is available on the Tennessee State Department of Education website.

Activities should be written in the past tense (e.g., “[Student’s name] completed . . .”), since the evidence sheet should be filled out after the activity has been completed. Be sure to use the student’s name when describing what he or she did during the activity (e.g., not, “The student poured hydrogen peroxide over a raw potato,” but “Anaxamander poured hydrogen peroxide over a raw potato.”).

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.1 *Responds to living organisms (e.g., animals, plants, people)*

Sample Activities:

- The teacher placed a live rabbit on [student's name]'s lap, helped [student's name] touch the rabbit's fur and whiskers, and held the rabbit to [student's name]'s face. [Student's name] responded to the rabbit by attempting to stroke it, tracking it with his/her eyes, and making facial expressions in response to the animal's movements and behaviors.
- As [student's name] entered science class, he/she was greeted by name by a peer. In response, [student's name] touch-activated his/her "Big Mac" switch, which said, "Hi. What's up?" Two other peers greeted [student's name] by name, and each time, [student's name] responded by activating the switch.
- The teacher placed a bouquet of six roses in a variety of colors (and with the thorns removed) on [student's name] wheelchair tray. [Student's name] reached for and touched the petals, leaves, and stem, with help from the teacher as needed. The teacher stroked [student's name]'s cheek with each flower, and then helped him/her smell the blossom. The teacher verbally described each rose by color as it was presented. [Student's name] responded with vocalizations and facial expressions.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.2 *Identify plants and animals*

Sample Activities:

- With the teacher's help, [student's name] looked through a *National Geographic* magazine. The teacher pointed to pictured objects, plants, or animals and asked, "Is this an animal?" [Student's name] nodded yes or shook his/her head no.
- Given two pictures, one of a plant and one of an animal, [student's name] responded to the question, "Which is the animal?" by pointing to the picture of the animal. When asked, "Which is the plant?" [student's name] pointed to the picture of the plant. This sequence was repeated for a series of five pairs of photographs.
- Given magazines, scissors, glue, and two poster boards (one labeled "plants" and one labeled "animals"), [student's name] cut out pictures of plants and animals from the magazines and glued each one to the correct poster board.
- Given pictures of five familiar animals—horse, dog, cat, bird, and snake—[student's name] verbally identified each.
- On a field trip to the zoo, [student's name] verbally named familiar animals when asked, "What is that?" by a peer partner. The peer praised [student's name] when he/she answered correctly and told him/her the correct name when he/she was wrong.
- On a field trip to a greenhouse, [student's name] correctly identified familiar plants by pointing to each upon request (e.g., Where is the rose? Where is the fern? Where is the sunflower?).

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.3 *Indicate appropriate uses of a magnifier*

Sample Activities:

- A magnifying glass was placed in front of [student's name], and he/she reached for it when encouraged to do so by the teacher.
- A magnifying glass was placed in front of [student's name], and he/she grasped the handle when encouraged to do so by a peer.
- Given a magnifying glass and a collection of five small objects—marble, thimble, penny, piece of dandelion fluff, and seashell—[student's name] looked through the magnifying glass to see the objects in greater detail. When asked what he/she saw, [student's name] verbally described each magnified object as he/she looked at it.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.4 *Identify animal body parts such as legs, arms, foot, hand, head, eyes, ears, nose, mouth, and teeth*

Sample Activities:

- On request, [student's name] identified his/her body parts by touching each body part as the teacher named it.
- On request, [student's name] identified his/her body parts by verbally naming each body part as the teacher pointed to it.
- On request, [Student's name] pointed to and verbally identified the body parts (e.g., hands, feet, arms, legs) of a doll.
- [Student's name] glued foam body parts to their appropriate positions on a human silhouette made of poster board. Student was prompted as needed by his/her teacher, who provided a full-length mirror and asked guiding questions (e.g., What else is on the face?). [Student's name], upon request, showed where his/her own body parts are located in comparison to the silhouette's.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.5 *Identify plant parts such as roots, stem, leaf, fruit, petal*

Sample Activities:

- Given a live plant, [student's name] identified the root, leaf, and stem by pointing to each one as it was named by the teacher.
- Given a paper diagram of a plant, [student's name] receptively identified the plant parts by pointing to the correct part on the diagram when requested by the teacher.
- Given a diagram of a plant drawn on the whiteboard, [student's name] expressively identified the plant parts by naming the correct part on the diagram when the teacher pointed to it.
- Given a worksheet about the parts of a plant, [student's name] used a pencil to complete the worksheet by drawing a line from the correct plant part to its name.
- Given a plant from the classroom garden, [student's name] verbally identified the following plant parts when the teacher pointed to them: roots, stems, leaf, fruit, and petal.
- Given a worksheet with a picture of a plant on it, [student's name] used a pencil to correctly label each plant part: root, stem, leaf, fruit, and petal.
- Given an artificial plant with all the visible parts of a real plant (root, leaf, stem, flower), [student's name] interacted with a peer by pointing to and touching each part as it was named by the peer. Next, the peer drew the plant on a sheet of paper. [Student's name] used a pencil to copy it onto another sheet of paper and label the parts, with assistance as needed.
- Given art paper and a choice of colored pencils or markers, [student's name] drew a representation of a plant of choice and labeled its parts.
- Given a collection of various art supplies (e.g., foam, yarn, poster board, colored pencils, scissors, pipe cleaners, glue, construction paper), [student's name] created a model of a plant and labeled the following plant parts: root, leaf, stem, petal.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.6 *Identify the part that is missing from a specific plant or animal*

Sample Activities:

- [Student's name] was given a felt fish with removable parts—eyes, mouth, fin, and tail. One body part was missing. [Student's name] was asked which part was missing, and he/she verbally identified the correct part. This process was repeated until the fish had been presented with each part missing at least twice.
- Given a set of magazine photos of animals, each altered so that the animal represented was missing a body part, [student's name] verbally identified the missing part in response to the question, "What's missing?"
- Given a series of 10 photographs, each of a plant with a missing part, [student's name] correctly stated which part—roots, stem, or leaf—was missing.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.7 *Identify a single-celled organism and an organism with 2 or more cells*

Sample Activities:

- With help from a peer, when presented with a microscope, [student's name] looked through the eyepiece. (Prerequisite)
- [Student's name] watched a video about single-celled and multi-celled organisms.
- [Student's name] identified a single-celled organism and an organism with two or more cells by looking through a microscope at an example of each one, drawing a picture (with felt-tip pens on art paper) of what he/she saw, and labeling each picture.
- When presented with a book of photographs of single-celled and multi-celled organisms, [student's name] identified each on request by pointing to a picture of a cell or a picture of several connected cells.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.8 *Identify organs and their functions*

Sample Activities:

- [Student's name] used colored pencils to color a picture of a human silhouette with the various internal organs correctly placed.
- Given a plastic "Visible Man" model showing the placement of the organs (heart, lungs, brain, eyes, large intestine, small intestine, kidneys, liver), [student's name] pointed to each organ as the teacher named it.
- Given a diagram of the human body showing organs, [student's name] used his/her communication device to identify each organ (heart, lungs, brain, eyes, large intestine, small intestine, kidneys, liver) as the teacher pointed to it.
- Given a human shape cut from felt and five felt pieces representing major organs—heart, lungs, liver, brain, and intestines—[student's name] correctly placed the felt organs on the felt human.
- When verbally asked questions (e.g., Where is your heart? Where is your eye? Where is your brain?), [student's name] correctly pointed to the part of the body where that organ is located.
- [Student's name] verbally answered questions about the function of organs, (e.g., What does your heart do? What does your liver do? What do we do with our eyes? Our lungs? Our brains?).
- [Student's name] watched a video about the human heart.
- [Student's name] used a pencil to complete a worksheet by drawing a line from the name of an organ (heart, lungs, brain, eyes, intestines, kidneys, liver) to its function.
- [Student's name] and a peer explored and discussed the book/interactive kit: *Smartlab: The Human Body*, composed of a 12-inch plastic human body model; nine removable vital organs made of squishy foam; skeletal, vascular and muscular systems made of plastic; forceps and tweezers; tray to organize the organs; and a 32-page fully illustrated book.

Content Standard: LIFE SCIENCE (Cell Structure and Function)

Standard: *The student will investigate the structure and function of plant and animal cells.*

Alternate Learning Expectation (ALE): LS.1A *Recognize that living things are made up of smaller parts that contribute to the operation and well-being of entire organisms*

Alternate Performance Indicator (API): LS.1A.9 *Recognize that living organisms are made up of water*

Sample Activities:

- After playing kickball in the gym, [student's name] participated in a class discussion about sweat, dehydration, and how drinking water makes us feel better because our bodies are mostly made up of water. They discussed how drinking water is like "filling up the bucket" again after losing water by sweating. The class then discussed whether any of them had ever gotten a cut or a scrape. The discussion about the liquid properties of blood was used to further show that our bodies are made up largely of water.
- [Student's name] watched a video about how the human body works, including the fact that the body is largely made up of water. Afterward, he/she helped fill up a large container with enough water to equal the amount found in the body of a person approximately the size of students in the class.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.1 *Responds to sensory input*

Sample Activities:

- LS.2A.1: The teacher gently stroked [student's name]'s hands and arms with a variety of textured objects (e.g., a silk scarf, a scrap of velvet, a square of slick vinyl, a piece of nubby wool) and talked about the differences in how each one felt. [Student's name] responded with arm movements and facial expressions.
- LS.2A.1: The teacher helped [student's name] smell, taste, and touch a variety of fruits and vegetables cut into small bites. As [student's name] explored each, the teacher named each one and discussed how it looked, tasted, smelled, and felt.
- LS.2B.1: [Student's name] looked at, smelled, touched, and tasted a real apple and then looked at, smelled, and touched a plastic apple. Then [student's name] smelled a real mint leaf and a plastic mint leaf. The teacher explained the differences between them as [student's name] explored them. (Prerequisite)
- LS.2C.1: [Student's name] and a peer watched and discussed the actions of a pair of anole lizards in their terrarium, which incorporated live plants.
- LS.2D.1: [Student's name] went on a nature walk with the teacher and a small group of peers. The teacher and peers pointed out litter and other evidence of pollution, and [student's name] responded by looking in the designated direction.
- LS.2E.1: [Student's name] and a peer watched and discussed the actions of the classroom gerbils playing with the toys in their Habitrail.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

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Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
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LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.2 *Attend to and interact with surroundings*

Sample Activities:

- LS.2A.2: A peer took [student's name] on a walk around the school, pointing to various living things (e.g., plant, class pet, teacher, student) and non-living things (e.g., desk, pencil, door, water fountain) and asking, "Is this alive?" [Student's name] answered either verbally or by nodding his/her head yes or shaking his/her head no.
- LS.2B.2: On a class trip to a petting zoo with farm animals, [student's name] used his/her senses to interact with the animals in a constructive manner and explore a farm environment. He/she fed the goats and felt their warm, wet tongues on his fingers; stroked the horse's mane and body; rode the horse; ground dried corn in a hand mill and smelled its aroma; and rode an open train and listened to the train whistle. [Student's name] orally answered simple questions during the trip about what he/she was experiencing with his/her senses.
- LS.2B.2: Given four foods—pineapple, apple, orange, and coconut—[student's name], with the teacher's help, explored each food by looking at, touching, and smelling it. Then the teacher cut each food open and [student's name] explored the texture, smell, and taste of each food.
- LS.2C.2: With hand-over-hand assistance as needed, [student's name] helped assemble a terrarium (including live plants) to be used as a habitat for a pair of anole lizards.
- LS.2D.2: During a "community clean-up" project, a peer helped [student's name] identify pieces of trash to pick up and encouraged [student's name] to pick them up. [Student's name] picked up each piece of trash and put it in a garbage sack carried by the peer.
- LS.2E.2: On a field trip to the zoo, [student's name] watched the animals interact with each other and their environment. [Student's name] and his/her assigned "buddy" discussed each animal's behavior in relation to the other animals and its environment.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
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LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.3 *Recognize that there are five senses*

Sample Activities:

- LS.2A.3: [student's name] and a small group of peers were given pictures of five living things and five non-living things. They discussed whether the subject of the picture could see, smell, taste, and touch; whether it was alive or not; and how they knew. Then they sorted the pictures correctly into the categories "living" and "non-living."
- LS.2B.3: [Student's name] and the other students in the classroom watched a video on volcanoes. After the video, each student was instructed to make a fist and hold up his/her arm. The teacher pressed on each student's hand to demonstrate pressure. Then students answered a series of questions about what it would be like to experience a volcanic eruption (e.g., Can you hear a volcano erupt? What would it sound like? What would you see? What might you feel? What would the air smell like? If you took a breath with your mouth, what would you taste?). After answering these questions, each student used colored pencils to draw a picture on art paper of a volcano erupting.
- LS.2B.3: [Student's name] participated in a class activity in which the teacher asked questions about which body part is used for a given sense (e.g., What do you smell with? What do you taste with?), and [student's name] and class pointed to his/her appropriate body part.
- LS.2C.3: [Student's name] watched a video about rabbits, then discussed with a small group of peers how the rabbits used their five senses to survive in the wild.
- LS.2D.3: [Student's name] accompanied the class on a trip to a landfill. They discussed how the air around the landfill smells, how the area looked, and how the local people and wildlife might be affected by living near the landfill.
- LS.2E.3: [Student's name] and a peer played with the classroom guinea pig, and then discussed how the guinea pig used its senses to interact with [student's name] and with the nonliving objects in its cage.
- [Student's name] explored the following items using all five senses: tasted, smelled, and touched–lemon, cookie; touched–cotton, driftwood; smelled–perfume, smelled and touched–coffee beans; listened–music, listened and touched–rain stick; looked and touched–photograph, mobile.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
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LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.4 *Demonstrate use of the senses to explore the environment*

Sample Activities:

- LS.2A.4: [Student's name] went on a nature walk with peers and used a disposable camera to take pictures of living things. The pictures were put in a scrapbook about living things.
- LS.2B.4: After being blindfolded, [student's name] and peers explored the look, feel, and taste of Jell-o, pudding, cooked spaghetti, raw spaghetti, grapes, Triscuits, cashews, raw broccoli, raw jicama strips, and lemon slices. [Student's name] and the rest of the group discussed each item after everyone had a chance to try it.
- LS.2B.4: [Student's name] listened to a lecture about how animals use their senses for survival. Then each student was provided with ear plugs, a blindfold, and gloves and asked to perform various tasks (e.g., finding a wedge of grapefruit while blindfolded and using the sense of smell; explaining the taste of a piece of candy; identifying a series of sounds with and without earplugs). [Student's name] completed each task and participated in a discussion of how each sense might help an animal or person to explore their environment and survive in it.
- LS.2B.4: Given pictures of objects, along with a word used to describe each object (e.g., colorful balloons, ringing alarm clock), [student's name] orally explained to the teacher which sense he/she would use to describe each object.
- LS.2C.4: [Student's name] accompanied the class on a field trip to the Botanical Gardens. Afterward, he/she used tempera paints on art paper to paint a picture of the plants and animals (e.g., butterflies, insects, Koi fish, birds) seen there.
- LS.2D.4: [Student's name] accompanied the class to the stingray petting tank, where he/she fed and petted the stingrays. He/she orally described to the teacher how the stingray looked and felt and how the tank smelled.
- LS.2E.4: [Student's name] accompanied the class on a field trip to the lorikeet aviary at the zoo. He/she fed the birds nectar and orally described to a peer partner how the birds looked and sounded and how it felt when the birds landed on him/her to drink the nectar.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B*. Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
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LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.5 *Demonstrate knowledge of cause and effect by expecting specific results*

Sample Activities:

- LS.2A.5: Given a baby chick and a metal spoon and asked which was alive and which was not, [student's name] gave a correct oral response. Then, when asked what would happen if [student's name] touched the chick and the spoon, [student's name] made a reasonable prediction about the behavior of each. [Student's name] then tested his/her prediction by touching both. Next, [student's name] predicted what would happen if he/she placed a kernel of corn in front of the chick and the spoon. He/she tested that prediction as well.
- LS.2B.5: When asked to predict a pet rat's behavior under various circumstances, [student's name] responded with oral predictions about how the rat would use its senses to explore each of the following four new objects placed one at a time into its cage: cardboard tube, apple slice, run-on wheel, and seed-and-honey treat stick. Each object was placed in the cage after [student's name]'s prediction to see if the prediction was correct.
- LS.2C.5: When asked to predict the behavior of anoles when a new plant was added to their terrarium, [student's name] gave a reasonable oral prediction. Then the plant was put in the habitat to see if [student's name]'s prediction was correct.
- LS.2D.5: [Student's name] watched a video about how pollution may cause genetic defects in frogs. The video was paused at intervals, and, in response to questions from the teacher, [student's name] gave reasonable oral predictions about what would happen next.
- LS.2E.5: With the teacher's assistance as needed, [student's name] read aloud from a pop-up book for adults (about open-wheel racing). [Student's name] made oral predictions about what would happen when each flap was pulled or opened and tested those predictions by performing the necessary actions.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

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LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.6 *Recognize how plants and animals interact with each other in their environment*

Sample Activities:

- LS.2A.6: The teacher showed the class three live plants—a spider plant, a miniature rose bush, and a cactus—and one dead plant. [Student's name] participated in a class discussion about how we can know if a plant is alive or dead.
- LS.2B.6: [Student's name] watched a short video about rabbits. Then he/she and a small group of peers discussed how the rabbit used its senses to find food, find shelter, and detect danger.
- LS.2C.6: [Student's name] listened to a park ranger speak about how environmental issues that affect plants also affect animals, and vice versa.
- LS.2C.6: [Student's name] watched a video about the plants and animals of the rain forest and how they interact.
- LS.2C.6: [Student's name] helped a group of peers make a butcher paper map of an African savannah and place plastic animals on it in numbers that would proportionally represent their numbers in real life. The group added or subtracted animals in response to scenarios proposed by the teacher (e.g., a drought kills the plants and dries up the water; poachers kill most of the apex predators; developers take half of the land for houses and businesses; a brush fire destroys many of the plants and animals; the number of prey animals decreases dramatically due to illness or overhunting). These scenarios demonstrated the connections between the animals and their environment.
- LS.2D.6: [Student's name] used photos, markers, and glue to make a poster about the effects of water pollution on plants and animals.
- LS.2E.6: After reading a book about the ways in which butterflies and flowers benefit from each other, [student's name] helped plant a butterfly garden outside the classroom.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

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LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.7 *Identify examples of pollutants found in the environment (e.g., garbage, mold)*

Sample Activities:

- LS.2A.7: On a poster, the teacher put pictures of living things (e.g., turtle, salamander, fish, frog, deer) and non-living things (e.g., rock, dead branch) found in or near a pond. Then pictures of various environmental pollutants (e.g., garbage, mold, Clorox) were shown to the class. [Student's name] participated in a class discussion about which of the animals or objects would be affected by each pollutant, and in what way.
- LS.2B.7: Given poster board and a choice of markers or colored pencils, [student's name] made a poster about different types of pollutants (e.g., garbage, car exhaust, smoke) and which of the five senses might be involved in identifying them.
- LS.2C.7: During a small-group activity, [student's name] and peers wrote a list of various environmental pollutants (e.g., garbage, car exhaust, smoke) with markers on poster board and discussed how each affects the plants and animals in the environment
- LS.2D.7: [Student's name] watched a video about volunteers who helped care for animals affected by the Exxon Valdez oil spill.
- LS.2E.7: Each student was given a nametag identifying him/her either as something in the environment (e.g., grass, water, insect, songbird, fish, osprey, deer, wolf) or a type of pollutant (e.g., air pollution, pesticide, litter, water pollution). Each student with an environmental label was connected to the appropriate others by a length of yarn (e.g., the deer was connected to the wolf, the grass, and the water; the wolf was connected to the deer and the water; the fish was connected to the water and the osprey). When the "pollutants" were brought in, the things they would directly affect were removed from the web. The plants/animals/elements attached to those things were then also removed. After the entire web had collapsed, the class discussed how the things in the environment were related and what happens when one of those things is damaged or removed.
- LS.2E.7: [Student's name] helped pick up trash on the school grounds. (Prerequisite)

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

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Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.8 *Identify the sense used to collect specific information (e.g., ears – hear)*

Sample Activities:

- LS.2A.8: A peer took [student's name] around the classroom, pointing to various classroom objects (e.g., pencil sharpener, bookshelf) and living things (e.g., classmates, class pets) and asking, "Does [this person or thing] have senses?" [Student's name] answered correctly. Then [student's name] and peer discussed the differences between objects, which have no senses, and living things, which do have senses.
- LS.2B.8: [Student's name] and a small group of peers were given containers of the following items: Jell-o, grapes, cooked spaghetti, uncooked noodles, Cool Whip, and marbles. [Student's name] and peers opened the containers and tested the items using their senses. They wrote down which senses were most useful in testing a given material and why. [Student's name] gave his/her answers verbally, and a peer wrote them down on paper.
- LS.2C.8: [Student's name] watched the film *The Bear*. The teacher stopped the film at various points to ask what sense the bear was using, how the viewer might tell which sense was being used, and what information the bear might be getting through that sense, and [student's name] answered orally.
- LS.2D.8: [Student's name] watched a video about how pollution can affect the senses of various organisms.
- LS.2E.8: [Student's name] and a peer played a game called "Two Chairs." To play, students sat across from each other. One made a visual observation about the other (e.g., "I see a pair of red glasses on your face."). Then the other student made an observation (e.g., "I see you have brown, curly hair."). They continued alternating observations until each was described thoroughly. Then the group discussed how much we can learn about each other with our eyes. The teacher then led a discussion about what we can learn about each other using our ears and our noses (e.g., Does the person have a loud or soft voice? What might that tell us about him/her? Does the person wear perfume or cologne? How much? What kind? What might that tell us about that person?)

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.9 *Categorize objects as living and non-living*

Sample Activities:

- LS.2A.9: Given magazines, scissors, glue, and two pieces of poster board (one labeled “living” and one labeled “non-living”), [student’s name] cut pictures of living and non-living things from the magazines. He/she pasted each picture on the correct poster.
- LS.2B.9: Given pictures of 10 living things (including some, such as bats and earthworms, that perceive the world differently from humans) and 10 things that are not alive, [student’s name] sorted the pictures into two piles, classifying each as to whether it is alive or not, and whether it has senses. The teacher used guiding questions to help [student’s name] realize that living things all have some way of sensing their environment (even though they may not have all of the *same* senses).
- LS.2C.9: Given 10 pictures of living things and 10 pictures of non-living things from a desert environment, [student’s name] orally identified each as living or non-living and discussed the relationship each one has with the others. The teacher then used guiding questions to help [student’s name] understand the differences in the relationships between living and non-living things
- LS.2D.9: Given five pictures of living things and five pictures of non-living things, [student’s name] participated in a discussion of how pollution affects each and how it affects living things differently from non-living things.
- LS.2E.9: On a field trip to a farm, [student’s name] and peers pointed out living things (e.g., dog, chickens, cows, horses, pigs, sheep) and non-living things (e.g., lead rope, tractor, feed trough, salt block) to each other and the teacher. They observed and discussed how—and whether—the living and non-living things interact with each other and their environment.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.10 *Select the plants and animals found in a specific environment*

Sample Activities:

- LS.2A.10: [Student's name] made a shoebox diorama of a jungle scene, complete with plastic models of plants, animals, and inanimate objects. As each item was placed in the scene, [student's name] told whether it represented a living or nonliving thing.
- LS.2B.10: With help from a peer tutor, [student's name] made a 10-page book, bound with yarn and illustrated with pictures cut from wildlife magazines, about how woodland animals use their senses to explore the plants and objects around them.
- LS.2C.10: Given stickers of plants and animals from various habitats and a teacher-made "Colorform"-type desert landscape—a laminated picture of a desert with no plants or animals—[student's name] placed stickers of desert plants and animals in appropriate positions on the landscape.
- LS.2D.10: [Student's name] and the teacher discussed the differences between the plants and animals in two pictures, one taken of the area surrounding an unpolluted pond and the other taken of the same area after it was tainted by industrial pollution.
- LS.2E.10: From a collection of wildlife magazines, [student's name] chose pictures of marshland animals and made a poster of the plants, animals, and inanimate objects that inhabit a marshland. [Student's name] used a red marker to connect subjects that interact with each other (e.g., a frog and an insect, a heron and a fish).

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D*. Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.11 *Identify ways that organisms affect their environment*

Sample Activities:

- LS.2A.11: Given pictures of 10 living things, [student's name] orally identified each as being alive and discussed how each affects its environment.
- LS.2B.11: [Student's name] watched a video about earthworms and discussed with a peer how worms affect their environment and how worms might perceive the world (e.g., Do worms have senses? How are a worm's senses different from ours? What would it be like to be a worm? If you were a worm, what sense would you use most?)
- LS.2C.11: [Student's name] watched the inhabitants of a saltwater coral reef aquarium and discussed with the teacher how each plant, animal, or object contributes to and benefits from the ecology of the reef.
- LS.2D.11: Using markers and a whiteboard, [student's name] made a list of ways the environment is affected by pollution and how adaptations (or inability to adapt) by the plants and animals can in turn affect the environment.
- LS.2E.11: [Student's name] watched a video about how beavers make dams and how the dams affect the environment. Then [student's name] and a small group of peers made a model in a sand-filled tub demonstrating how a dam can change the landscape. They made a "river" by making a trench and pouring water into it, then added a dam made from toothpicks and modeling clay and showed how the dam would affect the flow of the water and change the terrain.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.12 *Identify ways that human actions or natural disasters affect the environment*

Sample Activities:

- LS.2A.12: [Student's name] watched a video about California wildfires, and then took part in a group discussion about what might cause these fires and how the fires affect living and nonliving things. The discussion encompassed both positive and negative effects of forest fires.
- LS.2B.12: After listening to a story about volcanoes, [student's name] helped a group of peers make a model of a volcano that would erupt with a solution of vinegar, food coloring, and baking soda. After a demonstration of the eruption, [student's name] participated in a discussion about what animals and people in the area of an eruption might see, hear, feel, and smell as they become aware of the eruption, as they escape it, and after their return when it is over.
- LS.2C.12: [Student's name] watched a movie about a community affected by flooding, and then took part in a class discussion about how the flood affected the plants and animals in the area and their relationships to each other.
- LS.2D.12: [Student's name] used glue, poster board, markers, colored pencils, and pictures cut from magazines to make a poster of how pollution affects the environment and its inhabitants.
- LS.2D.12: [Student's name] accompanied the class to a stingray petting tank, where he/she fed and petted the stingrays. He/she described to the teacher how the stingray looked and felt and how the tank smelled. Then he/she listened to the stingray expert talk about how pollution can affect stingrays in the wild.
- LS.2E.12: [Student's name] watched a documentary about an earthquake and how the people and animals were affected by it.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

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Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.13 *Identify what (e.g., animal, plant, or climate) is commonly found in a selected biome (e.g., desert, tundra, tropical)*

Sample Activities:

- LS.2A.13: [Student's name] and a peer looked through a book of rain forest photographs and discussed the climate; named the pictured plants, animals, and objects; and discussed whether the things pictured were living or nonliving.
- LS.2B.13: Given a 16-page bound blank book, markers, scissors, crayons, colored pencils, glue, and old magazines to cut photos from, [student's name] and a peer created a book about how animals of the African savannah use their senses to survive.
- LS.2C.13: [Student's name] played the computer game *Zoo Tycoon*, in which he or she must create exhibits for animals based on their natural habitats. In order for [student's name]'s virtual animals to thrive, [student's name] had to choose plants and terrain suitable for the animal and then practice good husbandry to make sure the created habitat remained in balance.
- LS.2C.13: [Student's name] made a diorama of a woodland biome using plastic animals and model railroad terrain (e.g., moss, trees, ferns, rocks).
- LS.2D.13: [Student's name] accompanied the class on a field trip to a small wildlife sanctuary, where a conservationist showed them animals native to the area and discussed the affects of pollution on the local wildlife. Upon returning to school, [student's name] gave oral suggestions to help the class generate a list of ways to combat pollution and how doing so could help the wildlife.
- LS.2E.13: Given art paper and a choice of colored pencils or crayons, [student's name] drew a picture of the desert which included at least one animal and one plant and which showed the correct weather/climate for that biome.
- LS.2E.13: [Student's name] read a book about the tundra while listening to the accompanying book on tape. Then [student's name] orally named 3 animals and one plant from the tundra, described the climate and location, and told the difference between the alpine and arctic tundra.

Content Standard: LIFE SCIENCE (Interactions between living things and their environment)

Standard: *The student will investigate how living things interact with one another and with non-living elements of their environment.*

Alternate Learning Expectation (ALE): LS.2A. *Recognize the distinction between living and non-living things*
LS.2B. *Realize that organisms use their senses to interact with their environment*
LS.2C. *Examine interrelationships among plants, animals, and their environment*
LS.2D. *Recognize that the environment and the organisms that live in it can be affected by pollution*
LS.2E. *Investigate how living things interact with one another and with non-living elements of their environment*

Alternate Performance Indicator (API): LS.2A-E.14 *Identify a relationship where one organism is hurt and the other benefits (e.g., ticks on dogs, mistletoe on trees)*

Sample Activities:

- LS.2A.14: [Student's name] was given a picture of a tick. Next, [student's name] was shown a series of 10 photographs of animals, plants, and inanimate objects. [Student's name] sorted the 10 photographs into two piles: things the tick can feed on and things the tick cannot feed on. The teacher asked guiding questions to help [student's name] reach the conclusion that ticks feed on animals, but not on plants or inanimate objects.
- LS.2B.14: [Student's name] watched a short film about parasitic insects (e.g., fleas, ticks, mosquitoes), then took part in a class discussion about how these insects feed on their hosts, how it feels to the host (e.g., itchy, painful), and which of the host's senses provide the most information about the infestation (touch).
- LS.2C.14: After a lecture and slideshow from a visiting vet about how heartworms can be harmful to pets, [student's name] colored and labeled a worksheet about the life cycle of heartworms.
- LS.2D.14: [Student's name] listened to a presentation by a visiting representative from the Tennessee Department of Environment and Conservation (TSEC), who discussed the effects of water pollution on fish, turtles, water snakes, and amphibians. Among the topics discussed was the fact that when animals are weakened by exposure to pollution, they become more vulnerable to parasites. After the presentation, [student's name] used markers on Bristol board to make a poster representing the effects of pollution on fish, turtles, water snakes, frogs, and salamanders, and the parasites that feed on them.
- LS.2E.14: [Student's name] used a pencil to complete a 5-item worksheet by drawing a line from a pictured plant or animal to the parasite that typically attacks it: dog/tick, tree/mistletoe, whitefly/wasp, bloodworm/horse, vine/corpse flower.

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.1 *Distinguish between plants and animals*

Sample Activities:

- On a field trip to the zoo, [student's name]'s peer partner pointed to various plants and animals along the trail and asked, "Is this a plant or an animal? ... How can you tell?" [Student's name] responded verbally. The peer praised [student's name] for correct answers and, when he/she was incorrect, the peer gave verbal cues to help him/her arrive at the correct answer.
- Given magazines, scissors, and glue, [student's name] cut out pictures of plants and animals and glued them into the correct column of a poster divided into two columns, one labeled "plants" and the other labeled "animals."
- Given 20 index cards (ten with pictures of plants and 10 with pictures of animals) and a folder with two pockets, one labeled "plants" and one labeled "animals," [student's name] put each card in the correct pocket.
- Given a poster with plants and animals on it and asked to identify the animals, [student's name] pointed to the animals rather than to the plants.
- [Student's name] was shown a poster depicting different plants and a poster depicting different animals. In a group discussion led by the teacher, [student's name] and a group of peers talked about what the plants have in common with each other, what the animals have in common with each other, and how the plants and animals are different.
- Given a set of pictures from various magazines, [student's name] verbally responded to questions about distinct differences between plants and animals.

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.2. *Match an organism that belongs in a specific environment (e.g., fish–water, bird–air)*

Sample Activities:

- [Student's name] helped a group of peers create a multimedia (e.g., sponge painting for bark, yarn for vines, construction paper for leaves) mural of a rain forest with a river running through it. Once the landscape was created, [student's name] helped place pictures of birds, fish, insects, reptiles, amphibians, and mammals in appropriate locations on the mural.
- Using paint, markers, and colored pencils, [student's name] created a poster depicting a robin, a rabbit, a deer, a koi fish, a turtle, and a salamander in appropriate habitats.
- Given 20 index cards with pictures of animals from various environments and a folder with four pockets labeled "water," "tree," "desert," and "meadow," [student's name] designated the environment in which the pictured animal belongs by placing each of the cards in the appropriate pocket.
- [Student's name] watched a slide show about animals that live in water.
- [Student's name] made a shoebox diorama (using plastic animals and model railroad terrain) showing animals that live in the forest.
- When given a picture of an organism and a choice between two pictured environments, [student's name] named the organism and pointed to the environment in which that organism is most likely to be found.
- [Student's name] was shown four environments pictured on a poster board. Next, [student's name] was given a picture book with pictures of animals from the four pictured environments. When shown each animal and asked, "Where does this animal live?" [student's name] pointed to the picture of the correct environment.

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.3. *Identify differences of plants and animals of the same kind*

Sample Activities:

- [Student's name] and the teacher looked through an encyclopedia of dog breeds and talked about the ways in which the various breeds are different (e.g., the dachshund has a long body and short legs; the poodle has a curly coat).
- On a class field trip to a greenhouse, the teacher showed [student's name] a variety of roses and asked how they were different from each other. [Student's name] verbally stated at least two ways in which the roses differed from each other (e.g., size, color, flaws in the petals, climbing rose vs. rose bush).
- Given colored pencils and art paper, [student's name] drew and colored a representation of the goldfish in the class aquarium, then described his/her picture, including the differences among the various fish (e.g., the bubble-eye, the lion-head, the gold oranda, the black oranda, the one with the white scales).

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.4 *Identify similarities of plants and animals*

Sample Activities:

- [Student's name] and a peer looked through an encyclopedia of horse breeds and talked about the ways in which the various breeds are the same (e.g., four legs, a mane, a long face, hooves).
- On a class field trip to a greenhouse, the teacher showed [student's name] a variety of flowers and asked how they were similar to each other. [Student's name] verbally stated at least two ways in which the flowers were similar to each other (e.g., leaves, petals, roots).
- Given colored pencils and art paper, [student's name] drew and colored a representation of the tropical fish in the class aquarium, then described his/her picture, including the similarities between the various fish (e.g., fins, gills, tail, basic body shape).
- [Student's name] participated in a class discussion of the ways in which plants and animals are similar to each other (e.g., they are alive; they need water and nourishment; they need air).

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.5 *Specify the features that enable a plant or animal to survive in its environment*

Sample Activities:

- Given a picture of a polar bear in the arctic, a fennec fox in the desert, and a maned wolf in the grasslands, [student's name] and a small group of peers discussed the features that help each animal survive in its environment (e.g., bear – dense fur, thickly furred webbed feet for swimming, layer of body fat for insulation, exceptionally long and sharp teeth for tearing at walrus and seals; fennec fox – large ears to dissipate heat, pale fur to reflect sun; maned wolf – stilt-like legs for peering over the tall grass).
- Given a description of an environment on an imaginary planet, [student's name] and a small group of peers created five imaginary creatures and two imaginary plants that might be able to live there. The group used markers and colored pencils to make a poster depicting the inhabitants of their planet and explained to the rest of the class the features that would allow their creations to survive in their environment. [Student's name] contributed orally to the discussion and colored parts of the poster.
- Shown pictures of five different animals in their natural environments, [student's name] described the features that allow each one to survive.

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.6 *Identify the adaptations that enhance the survival of living things in an environment (e.g., animals shedding/fur thickening)*

Sample Activities:

- [Student's name] watched a video about arctic foxes and how they are adapted for survival in the arctic.
- [Student's name] participated in a class discussion about how animals grow thick coats for winter and shed them in the spring. The teacher gave [student's name] 10 photographs of horses (five with their winter coats and five with their summer coats), and [student's name] sorted them according to which coat each horse had.
- [Student's name] and a small group of peers looked at a photograph of a platypus, orally identified the adaptations that help the platypus survive, and discussed how each helps the platypus survive.
- [Student's name] watched the movie *March of the Penguins* with a class of typically developing peers. After the movie, [student's name] participated in a small group discussion about adaptations that allow the penguin to survive in the Antarctic.
- After a class discussion of animal and plant camouflage, [student's name] (with the help of a peer partner) searched for multi-colored toothpicks in the grass. The peer asked questions to lead [student's name] to the conclusion that the toothpicks that were easiest to find looked very different from the grass, while the ones that were hardest to find were the ones that blended into it. Then they discussed how an animal's camouflage works the same way as the green toothpicks in the grass, making them harder to see and helping them survive.

Content Standard: LIFE SCIENCE (Diversity and Adaptation Among Living Things)

Standard: *The student will understand that living things have characteristics that enable them to survive in their environment.*

Alternate Learning Expectation (ALE): LS.3A. *Recognize the differences among plants and animals of the same kind, including the features that help them to survive in different environments*

Alternate Performance Indicator (API): LS.3A.7 *Recognize the environment in which an organism is typically found*

Sample Activities:

- [Student's name] used markers, photos, and glue to make a poster of a pond and the organisms that are typically found in a pond environment.
- [Student's name] made a model of an African savannah (using a cookie sheet and model railroad terrain), chose plastic animal replicas to represent animals that would be found in a savannah, and placed the animals appropriately in the scene.
- Given 20 small plastic models of various organisms (e.g., shark, whale, otter, deer, elephant, chimpanzee) and a plastic mat divided into five environments—river, ocean, woodland, jungle, and grassland—[student's name] placed each organism in its appropriate environment.

Content Standard: LIFE SCIENCE (Food Production and Energy for Life)

Standard: *The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.*

Alternate Learning Expectation (ALE): LS.4A. *Recognize the basic requirements of all living things*
LS.4B. *Recognize the basic parts of plants*

Alternate Performance Indicator (API): LS.4A-B.1 *Express basic wants and needs*

Sample Activities:

- LS.4A.1: Given a communication board and asked to make a choice between juice and milk, [student's name] pointed to a picture of the desired drink. **Note: It is the symbol on the communication board that allowed this to be acceptable. Simply asking for or pointing to milk or juice is not acceptable.**
- LS.4A.1: While in the lunch line, [student's name] used picture exchange cards to order items for his/her lunch tray. **Note: It is the picture exchange card that made this acceptable. Simply asking for or pointing to food items is not acceptable.**
- LS.4B.1: Given a set of pictures depicting the plant-based ingredients for a salad—lettuce, tomato, carrots, cucumbers, onion, olives, and chick peas—plus three additional, unrelated pictures, [student's name] pointed to appropriate items for a tossed salad. [Student's name] then matched the pictures to the actual ingredients and helped make a salad from the chosen ingredients.
- LS.4B.1: Given a set of pictures depicting the plant-based ingredients for a fruit salad—apple, cherries, mandarin oranges, banana, grapes, and walnuts—plus three additional, unrelated pictures, [student's name] pointed to appropriate items for a fruit salad. [Student's name] then matched the pictures to the actual ingredients and helped make the fruit salad from the chosen ingredients.

Content Standard: LIFE SCIENCE (Food Production and Energy for Life)

Standard: *The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.*

Alternate Learning Expectation (ALE): LS.4A. *Recognize the basic requirements of all living things*
LS.4B. *Recognize the basic parts of plants*

Alternate Performance Indicator (API): LS.4A-B.2 *Recognize the basic needs of living things (e.g., food, water, air, sunlight)*

Sample Activities:

- LS.4A.2: [Student's name] helped give food and water to the class gerbils.
- LS.4A.2: Given a pencil and a worksheet with 10 pictured items, four of which are necessary for survival and the rest of which are not, [student's name] circled the ones that are necessary for survival.
- LS.4A.2: [Student's name] was shown a pet guinea pig and allowed to pet it and hold it. Then [student's name] participated in a class discussion about the basic survival needs of the guinea pig (e.g., food, water, air, sunlight, a clean cage) and whether they are the same as ours.
- LS.4A.2: With the help of a peer, [student's name] made a terrarium from a liter cola bottle, potting soil, pebbles, and seeds.
- LS.4A.2: With help from the teacher, [student's name] planted marigold seeds in a pot using potting soil, placed the pot in the window, and watered the plant.
- LS.4B.2: [Student's name] took part in an experiment to show how plants get water and nutrients from their environment. A piece of celery was placed in a cup of water and food coloring. [Student's name] used markers to illustrate the steps of the experiment on 5"x5" cards. At the end of the hour, [student's name] looked at the celery and discussed with peers how the color had already begun to be visible in the stalk and leaves. The group predicted what the celery would look like the next day.
- LS.4B.2: [Student's name] looked at and touched a broadleaf plant. The teacher showed each part (e.g., root, stem, leaf) and explained how each part helps the plant attain nutrition, water, sunlight, and air. [Student's name] then correctly identified each part by pointing when asked to "show me the roots" or "show me the part that takes in sunlight."

Content Standard: LIFE SCIENCE (Food Production and Energy for Life)

Standard: *The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.*

Alternate Learning Expectation (ALE): LS.4A. *Recognize the basic requirements of all living things*
LS.4B. *Recognize the basic parts of plants*

Alternate Performance Indicator (API): LS.4A-B.3 *Recognize that plants use sunlight, water and air to live*

Sample Activities:

- LS.4A.3: [Student's name] shared the results of the following experiment, including a discussion of the fact that plants need water and sunlight. Several weeks previously, [student's name] helped plant three ferns, each in a separate Styrofoam cup. One was watered regularly and placed in the window where it received sunlight. Another plant was placed in the window to receive sunlight, but was not watered. Another was watered, but placed in a dark cabinet where it received no sunlight. Each day, [student's name] recorded the results (drew a picture with colored pencils and wrote a simple description of what each plant looked like and how well it was doing). For today's activity, [student's name] made a display of the plants, drawings, and descriptions, and explained them to the class.
- LS.4A.3: [Student's name] participated in a class discussion about the needs of plants, and then helped plant a classroom garden in a plastic wading pool.
- LS.4B.3: [Student's name] used a pencil to complete a worksheet by drawing a line from each plant part (leaf, stem, root) to the basic need it supplies.

Content Standard: LIFE SCIENCE (Food Production and Energy for Life)

Standard: *The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.*

Alternate Learning Expectation (ALE): LS.4A. *Recognize the basic requirements of all living things*
LS.4B. *Recognize the basic parts of plants*

Alternate Performance Indicator (API): LS.4A-B.4 *Recognize that animals obtain their food by eating plants or other animals*

Sample Activities:

- LS.4A.4: [Student's name] watched a video about wolves. Afterward, [student's name] participated in a group discussion about what wolves eat and how they get their food.
- LS.4A.4: [Student's name] used markers and colored pencils to make a poster depicting seven different animals—wolf, hawk, bear, raccoon, deer, rabbit, and mouse—and what they eat.
- LS.4B.4: [Student's name] looked at pictures of plants from which we get vegetables and fruits (e.g., tomatoes on a vine, apples on a tree, a carrot with the roots and leaves attached). When prompted, [student's name] pointed to the part (or parts of the plant) we eat.

Content Standard: LIFE SCIENCE (Food Production and Energy for Life)

Standard: *The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.*

Alternate Learning Expectation (ALE): LS.4A. *Recognize the basic requirements of all living things*
LS.4B. *Recognize the basic parts of plants*

Alternate Performance Indicator (API): LS.4A-B.5 *Identify the functions of the basic parts of plants*

Sample Activities:

- LS.4A.5: [Student's name] participated in a small-group project making a model of a plant using papier-mâché over chicken wire for the stalk, yarn or pipe stems for roots, and construction paper leaves. Then [student's name] used stickers to label each part, both by name and by its function in meeting the plant's basic requirements.
- LS.4B.5 [Student's name] completed a worksheet on plant parts by gluing foam parts—flower, leaf, stem, root, and seed—onto the worksheet. (Prerequisite)
- LS.4B.5: [student's name] was given pictures of four different plant parts—leaf, stem, root, and flower. When the teacher named a function, [student's name] pointed to the part of the plant that performs that function.
- LS.4B.5: [Student's name] was given pictures of four different plant parts—leaf, stem, root, and flower. When the teacher pointed to a picture, [student's name] verbally named the plant part and described the function it performs.

Content Standard: LIFE SCIENCE (Food Production and Energy for Life)

Standard: *The student will study the basic parts of plants, investigate how plants produce food, and discover that plants and animals use food to sustain life.*

Alternate Learning Expectation (ALE): LS.4A. *Recognize the basic requirements of all living things*
LS.4B. *Recognize the basic parts of plants*

Alternate Performance Indicator (API): LS.4A-B.6 *Identify how various animals obtain and use food for energy*

Sample Activities:

- LS.4A.6: [Student's name] drew 10 animal cards from a "surprise box," (one at a time), orally named each animal, and described how it obtains food.
- LS.4A.6: [Student's name] used markers, magazine photos, and glue to make a poster depicting animals that find their food by grazing (e.g., horses, cattle, goats).
- LS.4B.6: Given art paper, construction paper, markers, and yarn (for binding), [student's name] made a twelve-page book about animals that eat plants (e.g., horses, cattle, donkeys, sheep). The book showed which parts of each plant each animal eats.

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5A. *Recognize that living things reproduce*
LS.5B. *Recognize that offspring tend to resemble their parents*

Alternate Performance Indicator (API): LS.5A-B.1 *Respond to a familiar adult (e.g., teacher, parent, sibling)*

Sample Activities:

- LS.5A-B.1: The teacher called [student's name]'s name and used verbal and tactile cues to encourage him/her to turn his head toward the teacher. After three tries, [student's name] turned his/her head toward the teacher when his/her name was called.
- LS.5A-B.1: While going through the cafeteria line, [student's name] was greeted by a familiar cafeteria worker. [Student's name] responded by smiling and making eye contact.

LS.5A-B.1: [Student's name] entered the classroom and was greeted by the teacher. With verbal encouragement from the teacher, [student's name] respond with an oral greeting (e.g., "Hi") using a normal tone of voice and a polite demeanor.

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5A. *Recognize that living things reproduce*
LS.5B. *Recognize that offspring tend to resemble their parents*

Alternate Performance Indicator (API): LS.5A-B.2 *Match offspring with their parents (e.g., adult dog with puppy)*

Sample Activities:

- LS.5A.2: [Student's name] was shown a picture of a woman with a baby, a cat with kittens, and a bird with a nest full of eggs. Then [student's name] participated in a group discussion about the fact that living things reproduce. (Prerequisite)
- LS.5A.2: [Student's name] examined the following plants and their seeds: corn, marigold, dandelion, maple, watermelon, and daffodil. Then he/she participated in a discussion of how plants reproduce. (Prerequisite)
- LS.5B.2: Given a set of 10 two-piece animal puzzles (parent on one half, baby on the other), [student's name] correctly matched each parent to its offspring.
- LS.5B.2: [Student's name] assembled a 12-piece puzzle that matches animals to their offspring.
- LS.5B.2: Given a pencil and a worksheet with adult-stage animals on the left and their offspring on the right, [student's name] completed the worksheet by drawing a line from each animal to its offspring.
- LS.5B.2: On a field trip to a horse farm, [student's name] and a peer observed the mares and foals together and discussed the ways in which the foal is similar to its parents.
- LS.5B.2: Given two sets of picture cards (parent animals in one set, baby animals in the other), [student's name] matched the baby animals to the parent. Pictured animals were: horse/foal, cow/calf, seal/seal pup, frog/tadpole, sheep/lamb, snake/hatchlings, butterfly/caterpillar, cat/kitten, dog/puppy, duck/duckling.
- LS.5B.2: [Student's name] played a "Concentration"-type memory matching game in which adult animals are matched to their offspring (e.g., an adult pig to a piglet, a dog to a puppy).

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5A. *Recognize that living things reproduce*
LS.5B. *Recognize that offspring tend to resemble their parents*

Alternate Performance Indicator (API): LS.5A-B.3 *Recognize all living things come from other living things*

Sample Activities:

- LS.5A.3: [Student's name] was shown a picture of a woman with a baby, a cat with kittens, and a bird with a nest full of eggs. Then [student's name] participated in a group discussion about the fact that living things reproduce.
- LS.5A.3: [Student's name] examined the following plants and their seeds: corn, marigold, dandelion, maple, watermelon, and daffodil. Then he/she participated in a discussion of how plants reproduce.
- LS.5A.3: After watching a video about baby animals, [student's name] participated in a group discussion about how all animals come from parents of the same species.
- LS.5A.3: On a field trip to a farm, [student's name] petted a mother collie, petted and held her six-week-old puppies, and took part in a discussion about how all animals come from parents of the same species.
- LS.5A.3: [Student's name] and a small group of peers examined a lima bean that had been soaked overnight. [Student's name] looked at the seed through a magnifying glass, tried to peel off the outer seed covering, split the seed in half, drew the bean/seed, and labeled the different parts of the seed. Then they looked at a picture of a lima bean plant and discussed how the seed would become a plant. (Prerequisite)
- LS.5B.3: After hatching baby chicks in an incubator, [student's name] looked at pictures of an adult hen and a rooster, He/she and the teacher discussed the ways in which the babies resembled the parents.

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5A. *Recognize that living things reproduce*
LS.5B. *Recognize that offspring tend to resemble their parents*

Alternate Performance Indicator (API): LS.5A-B.4 *Distinguish between an adult and a child*

Sample Activities:

- Given a set of 20 pictures (10 pictures of adults and 10 pictures of children of various ages), [student's name] placed the pictures of adults in one pile and the pictures of children in a separate pile.
- On the playground, [student's name] answered correctly when the teacher pointed to a person and asked, "Is that an adult or a child?" The teacher asked about five adults and five children, giving verbal prompts when [student's name] answered incorrectly.

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5A. *Recognize that living things reproduce*
LS.5B. *Recognize that offspring tend to resemble their parents*

Alternate Performance Indicator (API): LS.5A-B.5 *Recognize all living things come from other living things and change as they mature*

Sample Activities:

- LS.5A.5: [Student's name] watched the National Geographic video *Life Before Birth (In the Womb)* and discussed the way babies change from conception to birth.
- LS.5B.5: Using paper, markers, photographs, or pictures cut from magazines, [student's name] made a book about how a kitten changes as it grows from a newborn kitten to a cat.
- LS.5B.5: After a discussion about how living things grow and change, [student's name] was given a set of pictures showing the growth of person from infancy to old age. [Student's name] placed the pictures in sequential order: infant, toddler, teen, young man, old man.

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5A. *Recognize that living things reproduce*
LS.5B. *Recognize that offspring tend to resemble their parents*

Alternate Performance Indicator (API): LS.5A-B.6 *Two-step sequence development of a specific organism (e.g., butterfly, frog, chick)*

Sample Activities:

- LS.5A.6: [Student's name] was shown posters of various animals (e.g., duck, moth, frog, cat) in the science hall and given flash cards of these same animals at an earlier stage of development (e.g., egg, cocoon, tadpole, kitten). When shown a specific poster and asked to find the card that matched, [student's name] found the correct card and showed it to the teacher.
- LS.5A.6: After watching a video about the life cycle of a butterfly, [student's name] used colored pencils on art paper to draw a picture showing the transformation of the caterpillar to the butterfly.
- LS.5A.6: After watching a video about the metamorphosis of a tadpole to a frog, [student's name] helped set up a classroom tadpole tank. After the frog eggs were placed in the tank, [student's name] predicted what would happen to the eggs by drawing a sequence of pictures (with a pencil on unlined paper) showing the transformation from egg to tadpole to frog.
- LS.5B.6: [Student's name] watched baby chicks hatch from eggs in a classroom incubator.

Content Standard: LIFE SCIENCE (Heredity and Reproduction)

Standard: *The student will understand the basic principles of inheritance.*

Alternate Learning Expectation (ALE): LS.5C. *Recognize that the appearance of plants and animals changes as they mature*

Alternate Performance Indicator (API): LS.5C.1 *Recognize an illustration that depicts the change that occurs as a result of complete metamorphosis (e.g., butterfly, tadpole development)*

Sample Activities:

- Given a picture of the life cycle of a butterfly and asked what it represented, [student's name] correctly verbally identified it.
- [Student's name] read a picture book about the life cycle of a frog, and then orally explained an illustration of the tadpole's metamorphosis into a frog.
- Given a poster showing the life cycle of a butterfly, [student's name] used a laser pointer to point to each stage of development as the teacher described it.
- Given glue, a piece of Bristol board, and a scrambled set of pictures showing the stages of a butterfly's life cycle, [student's name] unscrambled and glued the pictures to the board in the correct order to illustrate the metamorphosis of a butterfly.

Content Standard: LIFE SCIENCE (Biological Change)

Standard: *The student will understand that living things have changed over time.*

Alternate Learning Expectation (ALE): LS.6A. *Recognize that some plants and animals that once lived are no longer found on earth*

Alternate Performance Indicator (API): LS.6A.1 *Identify animals that are extinct (e.g., dinosaurs)*

Sample Activities:

- [Student's name] and the rest of the class were read a picture book about dinosaurs. To demonstrate the size of some dinosaurs, the class was shown a life-sized paper outline of a T-Rex footprint. [Student's name] and peers tried to guess how many children's footprints would fit inside the T-Rex footprint. Each child stepped into the footprint, and the teacher traced his/her feet. This process continued until the T-Rex footprint was completely filled with student footprints. Then [student's name] and his/her peers counted students' footprints and compared the actual number with their guesses.
- [Student's name] made a diorama of a prehistoric landscape, complete with plastic dinosaurs. Terrain was made from construction paper.
- After a class discussion about paleontologists and how they dig up fossils, [student's name] helped make plaster castings of "dinosaur footprints" (previously made by the teacher in a tub of wet, packed sand). After the plaster dried, the plaster footprints were buried in sand for [student's name] to carefully dig up using plastic excavation tools and a brush (to brush away the sand).
- After watching the video *Walking with Dinosaurs*, [student's name] participated in a class discussion about dinosaurs.
- [Student's name] helped a small group of peers used dowels and construction paper to make stick puppets of dinosaurs and a felt backdrop modeled after a prehistoric landscape. Then the group performed an original puppet show about how dinosaurs lived and how they became extinct.
- [Student's name] listened to a peer read from the book *I Wonder Why the Dodo is Dead*, a book about extinct and endangered creatures. Then [student's name] made a papier-mâché dodo egg and a paper bag puppet of a dodo bird.

Content Standard: LIFE SCIENCE (Biological Change)

Standard: *The student will understand that living things have changed over time.*

Alternate Learning Expectation (ALE): LS.6A. *Recognize that some plants and animals that once lived are no longer found on earth*

Alternate Performance Indicator (API): LS.6A.2 *Identify plants and animals that are endangered*

Sample Activities:

- [Student's name] used paper, markers, scissors, glue, magazine photos, and yarn for binding to make a book of endangered animals.
- [Student's name] participated in a group discussion about the book *Wildlife Special Agent*, about the division of Law Enforcement of the U.S. Fish and Wildlife Service. The book described how agents help protect endangered species from poachers and other dangers. It also described cases involving specific endangered animals. After the discussion, [student's name] collaborated with the group to write a story about a fictional wildlife special agent protecting the endangered animal of their choice. [Student's name] dictated several events to a peer, who wrote them into the story.
- Given a pencil and a worksheet with 20 pictured animals, 10 of which are endangered and 10 of which are not, [student's name] completed the worksheet by circling the endangered animals.
- [Student's name] read a story about endangered plants aloud to the teacher.
- [Student's name] listened to a presentation about endangered plants and animals given by a wildlife management specialist.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.1 *Recognize night and day*

Sample Activities:

- ES.1A.1: [Student's name] matched a sun picture to pictures of activities that occur in the daytime and a moon picture to pictures of activities that occur at night.
- ES.1A.1: Shown 10 pictures, five depicting day and five depicting night, [student's name] placed the daytime pictures in one pile and the nighttime pictures in another.
- ES.1B.1: [Student's name] and two peers acted out the movement of the Earth around the sun and the moon around the Earth. The child depicting the sun shone a large flashlight on the Earth and moon at appropriate times. Each child had a chance to play all three parts. The group discussed the fact that the part of the Earth facing away from the sun's light (the flashlight) is having night, while the part facing the sun is having day.
- ES.1B.1: [Student's name] used Styrofoam balls and wire to help make a model demonstrating the orbits of Earth around the sun and the moon around the Earth. With help as needed, [student's name] shone a penlight from the sun to the Earth to show how the rotation of the earth creates day and night.
- ES.1B.1: Using a flashlight to represent the sun and a globe to represent the Earth, [student's name] explored how the sun's light and the Earth's rotation create day and night by shining the light onto the globe as a peer turned the globe.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.2 *Sequence daily events in relation to the student's environment (e.g., schedule)*

Sample Activities:

- ES.1A.2: Given a set of four picture cards—boy waking up with sun shining through window, boy playing outside with sun shining, boy watching TV with moon shining through window, and boy sleeping with moon shining through window—[student's name] placed the cards in sequential order.
- ES.1B.2: Given two cause-and-effect picture cards, [student's name] correctly placed the picture cards in chronological order. (Prerequisite)
- ES.1B.2: Given a picture sequence of the steps involved in baking chocolate cupcakes, [student's name], with help, followed the sequence of instructions, and then shared the cupcakes with the class.
- ES.1B.2: [Student's name] was given his/her daily schedule, a pocket folder with pictures of the day's activities Velcroed to the right-hand side of the folder. [Student's name] showed a peer what came after Reading class (Art) by removing the Reading card from the Velcro, placing it in the "completed" pocket on the left, and pointing to the Art card on the right. **Note: When describing the use of a daily schedule, you must choose one occurrence of use to describe, rather than giving an overview of an entire day, week, month, etc.**
- ES.1B.2: After [student's name]'s math lesson, a peer helped [student's name] place a sticker beside the "math" icon on his/her paper schedule. The peer asked [student's name] what came next and used verbal prompts and gestures to help [student's name] point to the "science" icon and name the class (Science) to occur next. [Student's name] and peer discussed what preparations would be needed for that next class (e.g., going to the science area, getting his/her project to share with the class). **Note: When describing the use of a daily schedule, you must choose one occurrence of use to describe, rather than giving an overview of an entire day, week, month, etc.**

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.3 *Identify day and night*

Sample Activities:

- ES.1A.3: Given a set of 10 photographs, five of which showed nighttime scenes and five of which showed daytime scenes, and asked, “Is this day or night?” [student’s name] correctly identified each picture by signing “day” or “night.”
- ES.1B.3: Using the Google Earth computer program, [student’s name] orally identified various parts of the world as having daytime or nighttime as the teacher pointed to each location.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky.*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.4 *Identify sun, moon, stars, and planets*

Sample Activities:

- ES.1A.4: [Student's name] watched the *Vitsie Space Video* section on Mars. Afterward, [student's name] used markers to draw a picture of Mars on art paper and made a model of Mars by putting water and red food coloring in a round balloon, freezing it, and then removing the balloon from the model.
- ES.1B.4: [Student's name] accompanied the class on a field trip to the planetarium and watched a presentation on the stars and planets.
- ES.1B.4: [Student's name] used markers, photographs, and glue to make a poster showing how the planets of our solar system orbit around the sun.
- ES.1B.4: Using a model, [student's name] made a mobile of the solar system using dowels, string, construction paper, and markers or colored pencils. [Student's name] labeled the sun, moon, and planets. When asked to identify Earth, [student's name] did so by pointing to the correct construction paper planet.
- ES.1B.4: Given a model of the solar system, [student's name] identified the sun, planet, moon, and stars by pointing to the correct part of the model upon request.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.5 *Identify approximate time of day from the sun's position in the sky*

Sample Activities:

- ES.1A.5: [Student's name] listened to the story *The Sun, Our Nearest Star* and orally answered questions about the sun and what we can tell from its position in the sky.
- ES.1B.5: [Student's name] made a simple sundial by inserting a straw through a hole in the center of a cardboard circle pre-marked with the hours (established a day earlier by the teacher). Then he/she and the class went outside and tried to approximate the time of day using the sun dial. The sundial was placed on in the same location and position as when the teacher made the marks—on a cinderblock with a circle marked in permanent marker where the sundial should be.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.6 *Identify tools for observing objects in the day and nighttime sky*

Sample Activities:

- ES.1A.6: [Student's name] looked through a telescope to see how it made faraway objects seem closer. After [student's name] was familiar with the telescope, [student's name] and teacher discussed how the telescope might be used at night to look at stars.
- ES.1A.6: [Student's name] listened to and discussed the book *Comets, Stars, the Moon, and Mars: Space Poems and* Paintings with the teacher. Part of the discussion included talking about the tools scientists used to discover the facts represented in the poems and paintings.
- ES.1B.6: After listening to *The Starry Messenger*, a picture book about Galileo's life and ideas, [student's name] and three peers discussed the story and talked about the tools Galileo used to make his observations. The teacher showed students pictures of the instruments Galileo used and compared them to the instruments available to modern astronomers.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.7 *Understand that planets revolve around the sun*

Sample Activities:

- ES.1A.7: After a class discussion of how the rotation of the Earth and its revolution around the sun affect day and night, [student's name] used a pencil and crayons to draw a picture on art paper of things visible in the sky during the day and things visible in the sky at night.
- ES.1B.7: With verbal prompting from a peer partner, [student's name] read and discussed the Level 1 "See More Readers" book *Planets Around the Sun* aloud.

Content Standard: EARTH SCIENCE (Earth and Its Place in the Universe)

Standard: *The student will investigate the structure of the universe.*

Alternate Learning Expectation (ALE): ES.1A. *Recognize that different objects appear in the day and nighttime sky*
ES.1B. *Recognize that there are predictable patterns which occur in the universe*

Alternate Performance Indicator (API): ES.1A-B.8 *Identify some of the planets (e.g., Earth, Mars, Saturn, Venus)*

Sample Activities:

- ES.1A.8: [Student's name] used markers on art paper to draw a picture of the planets that are sometimes visible in the night sky (i.e., Mercury, Venus, Mars, Jupiter, and Saturn).
- ES.1B.8: [Student's name] was provided with a chart of the planets, a plastic model of the solar system, and an encyclopedia illustration to use for reference. After studying the reference materials for 30 minutes, [student's name] drew the planets in an art tablet, labeled them, and orally named each one for a peer.
- ES.1B.8: [Student's name] created a model of the solar system by correctly placing flannel board figures of the sun and planets on the flannel board. [Student's name] then pointed to each planet and orally named it.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.1 *Identify daily weather conditions (e.g., hot, cool, sunny, snowy, and rainy)*

Sample Activities:

- ES.2A.1: From five different weather pictures—rainy, snowy, sunny, cloudy, and partly cloudy—[student's name] chose the correct weather picture to represent the day's weather condition and placed it on the weather graph.
- ES.2A.1: During Morning Meeting, [student's name] told the group whether it was hot/cold or cloudy/sunny outside, then put the correct picture on the calendar.
- ES.2B.1: [Student's name] made a construction paper thermometer with a sliding red strip to represent the mercury. On request, [student's name] slid the red strip up (for hot) or down (for cold) to indicate whether it was hot or cold outside.
- ES.2B.1: On the morning of a rainy day, [student's name] prepared for this activity by putting out a measuring cup and a regular coffee mug to collect water. At the end of the day, [student's name] measured the amount of rainfall in two different ways: by using the measurement marks on the measuring cup and by holding a ruler upright in the coffee cup to see how far up the ruler the water came.
- ES.2B.1: On a sheet of graphing paper, [student's name] used a pencil to create a bar graph of weather conditions that had been observed and recorded in a journal for the past month. The bar graph included a title, correctly labeled axes, and a 1-unit-per-inch scale. It visually and mathematically demonstrated the weather changes that occurred over time. A peer helped [student's name] make the bar graph.
- ES.2B.1: With the help of a peer, [student's name] used a pen to log in the daily weather conditions in the weather notebook for the GLOBE weather project, in which a group of students record the daily weather (e.g., sunny, rainy, snowy, hot, cold). At the end of the project, this information will be sent to the organizers of the project, who will use the information to track weather conditions and compare then to conditions in other areas.
- ES.2B.1: Given 10 photos of various weather conditions (e.g., cool, hot, clear and sunny, cloudy, raining, snowing), [student's name] selected one photo at a time and described the weather conditions depicted in the photo.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.2 *Associate clothing and activity choices with various types of weather*

Sample Activities:

- ES.2A.2: A peer asked [student's name] what the weather outside was like. [Student's name] answered, and the peer recorded [student's name]'s answer on a piece of poster board. Then [student's name] chose a catalog and cut out pictures of clothes that would be appropriate to wear for that type of weather. After cutting out the clothes, [student's name] glued them on the poster board.
- ES.2A.2: Before going outside on a nature walk to collect fall leaves, [student's name] was asked whether or not he/she would need a jacket, hat, or gloves. [Student's name] responded orally and discussed his/her choices with the teacher (yes to a jacket, no to hat and gloves).
- ES.2B.2: [Student's name] was given three fashion dolls and clothing for a variety of weather conditions. Next, [student's name] drew one of three weather cards—hot, cold, and raining—and dressed the first doll appropriately for the weather condition depicted on the card. [Student's name] repeated the process for each of the remaining weather condition cards.
- ES.2B.2: Given a paper doll and clothing for a variety of weather conditions, [student's name] dressed the doll appropriately for each of five types of weather the teacher described (e.g., snowing, sunny, raining).
- ES.2B.2: [Student's name] logged onto the computer, got onto the Weather Channel website, and found the 10-day forecast. He/she orally stated the weather for the week, told what clothing he/she would wear outside, and with the help of a peer, used a pen to filll out a weekend activity chart based on the weather.
- ES.2B.2: Using magnets and a magnetic picture board, [student's name] dressed a magnetic doll according to a weather picture card (e.g., sunny, raining, snowing) presented by the teacher.
- ES.2B.2: [Student's name] orally discussed what clothing and activities would be appropriate for each of five weather picture cards (e.g., raining, sunny, snowing) presented by the teacher.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.3 *Identify the appropriate tool for measuring temperature*

Sample Activities:

- ES.2A.3: Given a cardboard model of a thermometer with a sliding indicator (a red rubber band with a button that could be moved up and down), and shown picture cards representing various seasons and weather conditions (e.g., a girl wearing a sweater and raking fall leaves, two children building a snowman, a boy in a bathing suit on the beach), [student's name] correctly moved the indicator up (for warmer) or down (for cooler) to indicate a reasonable temperature
- ES.2B.3: Given pictures of a thermometer, compass, clock, ruler, and measuring cup and asked which is used for measuring temperature, [student's name] correctly pointed to the thermometer.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.4 *Identify seasons*

Sample Activities:

- ES.2A.4: Given Bristol board and tempera paint, [student's name] painted four different trees, one to represent each of the four seasons (i.e., fall—autumn leaves, winter—bare branches, spring—budding leaves, summer—lush green leaves).
- ES.2A.4: [Student's name] went on a nature hike to gather different types and colors of autumn leaves, then put them in a scrapbook about autumn.
- ES.2A.4: [Student's name] made large autumn leaves by cutting matching pairs of leaf shapes from wax paper, scraping crayon shavings—red, yellow, orange, and brown—onto waxed paper, and (with the teacher's help) ironing the two pieces of wax paper so that they melted together with the crayon shavings melted between them. The result resembled stained glass. **Note: There was a light cloth between the hot iron and the waxed paper to prevent the wax from melting onto the iron.**
- ES.2A.4: [Student's name] helped make a large multimedia mural of the four seasons (e.g., construction paper flowers and yarn grass for spring, cotton batting for winter snow, leaves made from waxed paper and crayon shavings for fall, butcher paper for the background of the mural).
- ES.2B.4: Given four pictures, one representing each season, [student's name] pointed to the correct picture when the teacher named the season represented on it. Then, upon request, [student's name] named weather conditions associated with each season.
- ES.2B.4: On a whiteboard divided into four columns, one labeled for each season, [student's name] used a dry-erase marker to list weather conditions associated with each season in the appropriate columns.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.5 *Identify seasons based on the weather conditions*

Sample Activities:

- ES.2A.5: With guiding questions from the teacher as needed, [student's name] verbally identified the day's weather, stated the current season, and discussed the relationship between the weather and the season (e.g., "It is cold outside, and winter is when it is cold.").
- ES.2B.5: [Student's name] colored pictures of different kinds of weather from each of the four seasons. Then, with guidance from the special education assistant and a peer partner, [student's name] cut out the pictures and glued them onto a poster about the four seasons.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.6 *Identify evaporation, precipitation, and runoff as parts of a water cycle in a diagram*

Sample Activities:

- ES.2A.6: Wearing a raincoat and rain hat, [student's name] went outside with the class on a rainy day to watch the rain and see what happens when the rain falls on a variety of surfaces. [Student's name] discussed his/her observations with the teacher.
- ES.2B.6: Looking at a picture of the water cycle, [student's name] pointed to each event in the cycle, named it, and orally described that event in the cycle.
- ES.2B.6: In his/her science workbook, [student's name] used a pencil to draw a diagram of the water cycle and label the following parts: evaporation, precipitation, and runoff.
- ES.2B.6: Using a sloped sand table with the sand sculpted into contoured terrain, [student's name] explored the effects of precipitation and runoff by sprinkling water from a watering can over the modeled terrain.

Content Standard: EARTH SCIENCE (Atmospheric Cycles)

Standard: *The student will investigate the relationships among atmospheric conditions, weather, and climate.*

Alternate Learning Expectation (ALE): E.S2A. *Recognize daily and seasonal weather changes*
ES.2B. *Realize that weather is associated with temperature, precipitation, and wind conditions and can be measured using tools and instruments*

Alternate Performance Indicator (API): ES.2A-B.7 *Recognize that temperature affects evaporation*

Sample Activities:

- ES.2A.7: [Student's name] wet two paper towels, placed one in the refrigerator and one near the heater, and then orally predicted which one would dry the fastest. [Student's name] checked each towel every 10 minutes. When one towel was dry, [student's name] retrieved the other and discussed which one dried the fastest and why.
- ES.2B.7: A week prior to the lesson, [student's name] had filled two transparent plastic glasses with water and marked the water line with a permanent marker. One, labeled "warm," was placed in a warm spot on the windowsill. The other, labeled "cold," was placed on the top shelf of the class refrigerator. On the day of the lesson, [student's name] looked at the water level in each glass and saw which had the most evaporation. [Student's name] used a Sharpie to mark the new water level for each glass, recorded the results of the experiment in his/her science journal, and discussed the implications of the results (i.e., which temperature resulted in the greatest amount of evaporation and why). Then, with the help of a peer, [student's name] wrote the results in the journal along with the implications.

Content Standard: EARTH SCIENCE (Earth Features)

Standard: *The student will understand that the earth has many geological features that are constantly changing.*

Alternate Learning Expectation (ALE): ES.3A *Identify the earth's major geological features*

Alternate Performance Indicator (API): ES.3A.1 *Distinguish between land and water*

Sample Activities:

- [Student's name] helped a small group of peers make a large salt-and-flour map of the continents and oceans. The salt-and-flour mixture for the oceans was tinted with blue food coloring. The mixture for the land was uncolored to be painted later.
- [Student's name] used colored pencils to color a world map identifying the Earth's major features. He/she colored the land brown and green and the water blue.
- Given a globe and a laser pointer, [student's name] correctly pointed to land or water as verbally directed by the teacher.

Content Standard: EARTH SCIENCE (Earth Features)

Standard: *The student will understand that the earth has many geological features that are constantly changing.*

Alternate Learning Expectation (ALE): ES.3A *Identify the earth's major geological features*

Alternate Performance Indicator (API): ES.3A.2 *Identify the earth's major geological features (e.g., land masses, mountains, oceans, lakes, and rivers)*

Sample Activities:

- The class was shown a film about the landscape of Tennessee. After the film, [student's name] participated in a class discussion about the different geological features found in Tennessee. As part of a group activity, [student's name] used colored pencils and art paper to draw examples of a lake, a mountain, and a river and labeled them, with help from peers and a reference book.
- [Student's name] used a pointer to demonstrate understanding of landforms on a topological globe by pointing to each landform as the teacher named it.
- [Student's name] was given a papier-mâché globe he/she had made previously. He/she used the science textbook as a reference to draw the continents and paint them various shades of green and brown and to paint the rivers, lakes, and oceans blue.

Content Standard: EARTH SCIENCE (Earth Features)

Standard: *The student will understand that the earth has many geological features that are constantly changing.*

Alternate Learning Expectation (ALE): ES.3A *Identify the earth's major geological features*

Alternate Performance Indicator (API): ES.3A.3 *Identify certain forces that cause changes in the environment (e.g., wind, water)*

Sample Activities:

- [Student's name] watched a video about how land masses are formed by natural forces (e.g., wind, water, earthquakes, volcanoes).
- [Student's name] created a terrain from damp sand, then explored how wind (represented by a small fan), rain (represented by water sprinkled from a watering can), and rivers (represented by water poured into a groove from a glass) changed the terrain.

Content Standard: EARTH SCIENCE (Earth Features)

Standard: *The student will understand that the earth has many geological features that are constantly changing.*

Alternate Learning Expectation (ALE): ES.3A *Identify the earth's major geological features*

Alternate Performance Indicator (API): ES.3A.4 *Identify the crust and mantle of the earth*

Sample Activities:

- Using colored pencils on art paper, [student's name] drew, colored, and labeled a diagram of the crust and mantle layers of the Earth.
- With help (verbal prompts) from a peer partner, [student's name] read a picture book about the layers of the Earth.

Content Standard: EARTH SCIENCE (Earth Resources)

Standard: *The student will investigate the properties, uses, and conservation of earth's resources.*

Alternate Learning Expectation (ALE): ES.4A. *Recognize that there are a variety of earth materials which have basic observable and measurable properties*

Alternate Performance Indicator (API): ES.4A.1 *Recognize that there are a variety of earth materials (e.g., rocks, soil, pebbles, and sand)*

Sample Activities:

- Given five jars, each containing a different type of earth material (e.g., rocks, soil, small pebbles, sand), [student's name] explored the jars by looking at and touching the contents of each one. The teacher named each one, and [student's name] repeated each name.
- Given five jars, each containing a different type of earth material (e.g., rocks, soil, small pebbles, sand), [student's name] correctly identified them by pointing to each as the teacher named it.
- Given five jars, each containing a different type of earth material (e.g., rocks, soil, small pebbles, sand), [student's name] correctly identified them by naming each as the teacher pointed to it.
- While on a nature walk, [student's name] used a disposable camera to take pictures of different types of earth materials (e.g., rocks, soil, small pebbles, sand).

Content Standard: EARTH SCIENCE (Earth Resources)

Standard: *The student will investigate the properties, uses, and conservation of earth's resources.*

Alternate Learning Expectation (ALE): ES.4A. *Recognize that there are a variety of earth materials which have basic observable and measurable properties*

Alternate Performance Indicator (API): ES.4A.2 *Identify an object as natural or man-made*

Sample Activities:

- Given 10 items—pencil sharpener, rock, turtle shell, toy car, pencil, leaf, shoe, bird's nest, flower, and drinking straw—[student's name] discussed with the teacher whether each object was natural or man-made and how he/she could tell.
- Given 10 items—pencil sharpener, rock, turtle shell, toy car, pencil, leaf, shoe, bird's nest, flower, and drinking straw—and two shoeboxes labeled "nature" and "man," [student's name] put each object in the appropriate box.
- Given colored pencils and a worksheet with pictures of five man-made objects and five natural objects, [student's name] colored the natural objects green and the man-made objects blue.

Content Standard: EARTH SCIENCE (Earth Resources)

Standard: *The student will investigate the properties, uses, and conservation of earth's resources.*

Alternate Learning Expectation (ALE): ES.4B. *Demonstrate understanding that earth materials can be recycled or conserved*

Alternate Performance Indicator (API): ES.4B.1 *Identify ways that Earth's resources benefit man*

Sample Activities:

- Given magazines and scissors, [student's name] and a group of peers cut out pictures of natural resources that benefit man (e.g., tree, river, stone). Then [student's name] participated in a group discussion about how each of the resources might be used to make people's lives better.
- [Student's name] participated in a class discussion about the ways in which trees are beneficial to man (i.e., clean the air, provide wood for building). Then [student's name] helped the class plant a tree.
- Using art paper, markers and/or colored pencils, pictures cut from magazines, and brads and a hole puncher for binding, [student's name], with the help of a peer, made a 20-page booklet showing 10 natural resources that benefit man (e.g., tree, river, stone). Each resource had two pages, one showing the resource in its natural state and one showing ways in which the resource could be used.
- Using erasable markers on whiteboard, [student's name] made a list of natural resources that benefit man.

Content Standard: EARTH SCIENCE (Earth Resources)

Standard: *The student will investigate the properties, uses, and conservation of earth's resources.*

Alternate Learning Expectation (ALE): ES.4B. *Demonstrate understanding that earth materials can be recycled or conserved*

Alternate Performance Indicator (API): ES.4B.2 *Identify materials that can be recycled or reused (e.g., water bottles, cans, paper)*

Sample Activities:

- While participating in a school-wide program to clean up the playground, [student's name] identified aluminum soft drink cans by picking them up and placing them in the recycling bin.
- When shown 10 different items, [student's name] used his/her communication board to answer "yes" or "no" when asked if the item could be recycled or reused.

Content Standard: EARTH SCIENCE (Earth Resources)

Standard: *The student will investigate the properties, uses, and conservation of earth's resources.*

Alternate Learning Expectation (ALE): ES.4B. *Demonstrate understanding that earth materials can be recycled or conserved*

Alternate Performance Indicator (API): ES.4B.3 *Identify methods for conserving resources (e.g., replanting trees, conserving water or electricity)*

Sample Activities:

- [Student's name] took part in a school-wide project in which each student planted five trees in a nearby park. With verbal cues from a peer, [student's name] put each of his/her five trees in a pre-dug hole and filed in the dirt around them.
- [Student's name] participated in a class discussion about ways to conserve water, electricity, and fossil fuels.
- [Student's name] and a group of peers wrote a play about conserving energy and performed the play using hand puppets. One peer was assigned to write down the dialogue as the others dictated it. [Student's name] contributed several lines of dialogue and performed the part of a person who always leaves the lights on.

Content Standard: EARTH SCIENCE (Earth Resources)

Standard: *The student will investigate the properties, uses, and conservation of earth's resources.*

Alternate Learning Expectation (ALE): ES.4B. *Demonstrate understanding that earth materials can be recycled or conserved*

Alternate Performance Indicator (API): ES.4B.4 *Distinguish between different kinds of rocks (e.g., weight, texture, and color)*

Sample Activities:

- Given five different types of rocks of approximately the same size—granite, marble, quartz, shale, and a geode—[student's name] orally described each one and compared/contrasted it with the others. The teacher asked guiding questions as needed to help [student's name] notice weight, texture, color, and other specific details.
- Given photographs of five different types of rocks (e.g., shale, sandstone, quartz), five index cards, and a Sharpie pen, [student's name] made an index card label for each type of rock and placed each rock on its correct label.
- [Student's name] watched and listened to a presentation given by a local geologist. The presentation included information on how to identify various types of rocks.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.1 *Recognize that a push or pull can move objects*

Sample Activities:

- PS.1A.1: [Student's name] activated a rocking pig by pushing a switch.
- PS.1A.1: [Student's name] pushed a kinetic sculpture to make it rock back and forth.
- PS.1B.1: Given a skateboard and a variety of objects—a bag of flour, a Koosh ball, a hardback Oxford dictionary, and a yo-yo—[student's name] explored how the weight and position of an object affects its balance. [Student's name] placed each object on the skateboard and pushed the skateboard to see how easily it could be balanced and how it affected the movement of the board. He/she tried each object in several different positions (e.g., at the front of the skateboard, at the rear, or in the middle).
- PS.1B.1: [Student's name] made a paper airplane. Using varying numbers of paper clips to weight different sections of the plane, [student's name] explored how the weight and position of the paper clips affected the ability of the plane to fly.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.2 *Recognize that objects can move in different directions and at different speeds on different surfaces*

Sample Activities:

- PS.1A.2: Given a toy car and four different surface samples—carpet, vinyl, wood, and ice, [student's name] conducted an experiment to find out which surface a toy car will travel fastest on. [Student's name] pushed the car three times on each surface and used a pencil and paper to write whether the car went fast or slow, how far it went, and how it moved (e.g., whether it went in a straight line, veered randomly, spun around).
- PS.1B.2: Students played kickball, first on the gym floor and then on grass turf. Afterward, [student's name] participated in a group discussion of the difference in the way the kickball moved on the different surfaces.
- Given five boards, each with a different texture—carpet, vinyl, cork, sponge, and Astroturf—and a variety of marbles and small balls, [student's name] and a peer group experimented to determine if the marbles and balls rolled differently on the different surfaces.
- [Student's name] and a group of peers were given a number of balls, toy cars, and various other items that could be rolled. Then the group made ramps from whiteboards, books, and other classroom items. [Student's name] experimented by rolling different items down the ramps and onto different surfaces (e.g., carpet, tile, grass), and then saw what happened when the ramp was made steeper or less steep. Tunnels (oatmeal boxes, paper towel rolls, and curved plastic gerbil tunnels) were added, so [student's name] could roll the ball down the ramp and into the tunnels to change direction. He/she made predictions and then discussed the results (e.g., how far each toy went, which went the fastest, why it might have happened that way).
- [Student's name] played the "Forces in Action" game on the BBC Schools website: http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/. To play the game, [student's name] clicked on buttons and levers to increase or decrease the incline of a track, then released a virtual truck and measured how the incline affected the distance the truck traveled.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.3 *Recognize objects that are balanced or unbalanced*

Sample Activities:

- Given a small wooden seesaw (from the bird toy section of the pet store) and a variety of objects of various shapes and weights to be placed on it (e.g., wooden bead, pencil, paperweight), [student's name] experimented to see how the placement and weights of the objects affect their balance. For example, does moving a lighter object toward the center help balance a heavier object at the other end? Does moving the heavier object toward the middle and the lighter object to the end work better or not as well? Or is there no difference?
- [Student's name] used tag board, paper clips, rubber bands, string, straws, and decorated index cards to make a mobile, making sure the various elements were balanced so that the mobile hung correctly, rather than being tilted to one side.
- [Student's name] walked from one side of the room to another, balancing a book on his/her head. Then [student's name] experimented to see if other objects were easier or more difficult to balance. At the end of the activity, [student's name] orally answered 10 questions, including the following: Is it easier to balance a large book or a smaller one? Is it easier to balance the book or a pillow? How about a ball? Why?

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.4 *Recognize that objects fall unless supported (e.g., gravity)*

Sample Activities:

- PS.1A.4: [Student's name] used a yo-yo and then discussed with a peer how and why the yo-yo fell until it was stopped by the string.
- PS.1A.4: [Student's name] played the "gravity" computer game at http://www.primarygames.com, landing a virtual "lunar lander" on planets with more or less gravitational pull.
- PS.1B.4: [Student's name] and a partner stood side by side and dropped two objects of similar size but different weights to see if they both fell at the same speed or if they hit the ground at the same time. Afterward, they discussed the results and the meaning of the results.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.5 *Identify materials that are attracted to magnets*

Sample Activities:

- Given a bar magnet and a number of small items (e.g., thimble, paper clip, pebble, plastic button, metal button), [student's name] experimented to see which of the items were attracted to the magnet and which were not. The teacher used guiding questions to help [student's name] discover what the items that were attracted had in common.
- [Student's name] used a bar magnet to move a metal marble through a plastic maze. [Student's name] then tried to move the marble using non-magnetic items, (e.g., pencil, plastic bead). The teacher used guiding questions as needed to help [student's name] realize that, in order to make the marble move, he/she must physically touch the marble with the non-magnetic items, but that the magnet could be used to move the marble without touching it. [Student's name] then attempted to move a glass marble through the maze. The teacher asked guiding questions as needed to help [student's name] understand that only metal items can be moved using magnets.
- After a discussion about magnets and the earth's magnetism, [student's name] made a compass from a magnetized sewing needle (made by running a magnet along the needle in the same direction), a small piece of cork, and a cup of water (for the cork + needle to float in).

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.6 *Identify a simple machine (e.g., ramp, screwdriver, broom)*

Sample Activities:

- PS.1A.6: [Student's name] played the "simple machines" computer game at www.edheads.org. To play, [student's name] chose a location (e.g., bedroom, garage, kitchen), dragged the mouse to highlight each simple machine, then answered questions about which type of simple machine it was and how it worked.
- PS.1B.6: [Student's name] and a group of peers were given a number of balls, toy cars, and various other items that could be rolled. Then the group made ramps (a simple machine) from whiteboards, books, and other classroom items. [Student's name] experimented by rolling different items down the ramps and onto different surfaces (e.g., carpet, tile, grass), and then saw what happened when the ramp was made steeper or less steep. He/she made predictions and then discussed the results (e.g., how far each toy went, which went the fastest, why it might have happened that way).
- [Student's name] and a peer partner walked around the classroom. The partner pointed to various objects in the classroom, and [student's name] stated whether or not the object was a simple machine.
- [Student's name] and peers pushed a series of heavy objects (medicine ball, wagon with sandbags, punching bag) up the steps and then up a ramp. [Student's name] and peers discussed whether it was easier to push the items up the steps or up the ramp and why.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.7 *Identify a simple machine as an appropriate mechanism to move a heavy object*

Sample Activities:

- PS.1A.7: [Student's name] used a pencil to complete a worksheet by drawing a line from a heavy object to the simple machine that would be most appropriate to move the object with.
- PS.1B.7: [Student's name] moved a box of encyclopedias using each of the following simple machines: a lever, a ramp, and a pulley. Then [student's name] discussed with the teacher which was the easiest to use and why.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.8 *Solve a simple problem involving distance (e.g., longest or shortest), time (e.g., longest or shortest), and speed (e.g., fast or slow)*

Sample Activities:

- [Student's name] solved a simple problem involving distance by following a teacher-made map to find a hidden "treasure" (a bag of chocolate coins wrapped in gold foil) in the classroom. The map was on parchment paper and had icons to represent desks, tables, and other classroom "landmarks." Smaller prizes were hidden at key points on the map, and [student's name] had to use the relative distance between items on the map to find each hidden item and, ultimately, the treasure.
- [Student's name] and a peer were each given a weighted foam board racecar with a long string threaded through a hole at the top. [Student's name] held one end of his/her string. The other end of the string was attached to a table leg. The peer also had a string attached to a different leg on the same side of the table. [Student's name] and peer stood an equal distance apart. They lifted and lowered the string to move the racecar along the length of the string toward the table. The teacher timed each racecar with a stopwatch. [Student's name] marked the times on a whiteboard, determined who had the faster time, and noted which went faster and which went slower.

Content Standard: PHYSICAL SCIENCE (Forces and Motion)

Standard: *The student will investigate the effects of force on the movement of objects.*

Alternate Learning Expectation (ALE): PS.1A. *Understand the basic concept that forces can move objects (push/pull)*
PS.1B. *Observe and predict how the weight of an object and its position affect balance*

Alternate Performance Indicator (API): PS.1A-B.9 *Recognize that magnets can be used to move objects*

Sample Activities:

- Given a bar magnet and several toy cars with small bar magnets attached to the fronts, [student's name] used the magnet's ability to attract and repel to "drive" the cars with magnets.
- [Student's name] used a magnet to move a metal marble through a plastic maze.

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.1 *Describe objects according to simple properties (e.g., shape, size, color, weight, texture, floating, sinking, flexibility)*

Sample Activities:

- Using a wooden bead, a fishing bobber, a piece of clay, an aluminum nut, a glass marble, and a large wooden cylinder, [student's name] orally described each item and predicted whether it would float or sink in water. Then the item was placed in water to see if [student's name] was correct. After the activity, the teacher led a group discussion about the properties of the floating objects versus the properties of the sinking objects. [Student's name] participated by sharing his/her observations and conclusions.
- During a class activity about the density of objects, [student's name] and a peer partner wrote down a list (with a pencil on notebook paper) of classroom objects small enough to be used in a float/sink test (e.g., pencil, paper clip, ballpoint pen, ruler). He/she made a checkmark beside each object he/she thought would float and an X beside each object he/she thought would sink. Then he/she tested the results by placing the objects in a container of water and observing whether they floated or sank. [Student's name] marked on his or her paper whether his/her predictions were correct.
- The class was divided into two teams. Different items—a wooden block, a flexible straw, a marble, a golf ball, and a pipe cleaner—were placed into two Ziplock bags. A player from each team was blindfolded and reached into bag. The player orally described the object based on size, shape, flexibility, and whether [student's name] believed the item would float. The player then tried to guess which object he or she had chosen. The team with the most correct answers won. When it was [student's name]'s turn to guess, a peer tutor provided assistance.
- [Student's name] was given a collection of long, slim objects (pencil, pen, pick-up stick, bendable straw, pipe cleaner, dowel, florist's wire). He/she picked up each one and attempted to bend it, then sorted the objects into two groups—flexible and rigid. [Student's name] and the teacher discussed the differences between the two groups.

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.2 *Sort objects according to weight, length, and size*

Sample Activities:

- [Student's name] worked with a peer to construct a gingerbread house. There were several pieces to the house. [Student's name] and the peer sorted the pieces and lined them up according to length so matching pieces could be easily spotted. The pieces were assembled using icing as mortar. Then [student's name] sorted the candy pieces according to weight so the heaviest pieces were placed on the walls and the lightest-weight candies were placed on the roof.
- In Music class, [student's name] helped put away the musical instruments, sorting the harmonicas and recorders by length.
- [Student's name] helped put away the playground balls by separating balls of different sizes into different barrels—beach balls into one barrel, basketballs and rubber playground balls into another, and small balls, such a baseballs and wiffle balls into yet another.

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.3 *Distinguish between solids and liquids*

Sample Activities:

- While blindfolded, [student's name] handled items sorted into various Ziplock baggies—water, soup, pudding, marbles, blocks, and rocks—and stated whether they were solids or liquids.
- Using 20 picture cards of various solids and liquids and two sorting baskets (one labeled "solids" and one labeled "liquids"), [student's name] sorted the cards by placing each card into the appropriately labeled basket.
- [Student's name] and the rest of the class discussed foods that change from liquids to solids when heated, frozen, or shaken (e.g., cake batter, ice, eggs). Then [student's name] made butter to observe how a food changes. [Student's name] poured heavy cream into a jar with a tight-fitting lid and then shook the cream. The other students in the class helped by taking turns shaking the jar. While waiting for the cream to turn to butter, [student's name] participated in a class discussion about how the butter was formed from the liquid. After the butter formed, the class used it to make buttered toast, which everyone then ate.

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.4 *Distinguish between solids, liquids, and gas*

Sample Activities:

- The teacher introduced a unit on solids, liquids, and gases by showing a video. After the video, [student's name] participated in an oral question-and-answer session. Then [student's name] cut pictures of solids, liquids, and gases from magazines and old textbooks and glued each one in the appropriate column of a poster board divided into three sections labeled "Solids," "Liquids," and "Gases."
- [Student's name] helped make "Magic Matter" by adding two cups of corn starch to one cup water. [Student's name] orally described what the Magic Matter looked and felt like. Then [student's name] tactilely explored the Magic Matter and discussed how it flowed like a liquid but broke like a solid, became more like a solid as it began to dry out, then became more like a liquid when more water was added.
- Given 10 pictures that represented solids, liquids, or gases, [student's name] used his/her communication board (with the words "solid," liquid," and "gas" included on it) to tell whether each picture represented a solid, a liquid, or a gas.
- [Student's name] observed the different states of matter by pouring juice (liquid) into Popsicle molds, freezing it to make Popsicles (solid), melting them to make a liquid again, and then watching what happened when the juice was boiled, making steam (gas).
- After a class discussion on particles, [student's name] and classmates identified the particles in different states of matter by "becoming" particles and moving about the room. The class examined how a solid changes to a gas when heat is applied by changing the speed of their movements. [Student's name] explored the processes of evaporation, condensation, and freezing through his/her own movements and by observing the other "particles" in the class. [Student's name] then joined in a group discussion of the activity.

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.5 *Demonstrate that properties can change by mixing, cooling, or heating*

Sample Activities:

- [Student's name] orally identified the primary colors of poster paint, then mixed them to create and identify all three secondary colors: orange, green, and purple (e.g., yellow + blue = green).
- [Student's name] made a sculpture from Sculpey polyform clay. After the sculpture was baked and hardened, [student's name] discussed the differences in the way the sculpture looked and felt before and after baking.
- Given translucent color paddles, [student's name] orally identified the primary colors and then overlapped the paddles to create and identify the secondary colors of orange, green, and purple (e.g., blue + yellow = green).
- [Student's name] helped make a chocolate cake. Throughout the process, [student's name] orally answered questions about the various processes (e.g., what happens when the solid and liquid ingredients are combined, or what happens when the batter is heated in the oven).

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.6 *Recognize that adding heat is associated with melting, and subtracting heat or a drop in temperature is associated with freezing or formation of a solid*

Sample Activities:

- [Student's name] observed the effects of heat and cold on butter by watching the butter melt when heated, and then putting it in the freezer. When it solidified again, [student's name] and peers discussed what happened to the butter when it was heated or cooled.
- [Student's name] made a candle by helping the teacher melt crayons on the stove in a double boiler. While the crayons were melting, [student's name] participated in a discussion about what happens to wax when it is heated (it melts) and whether other substances also melt when heated. After the wax melted and a wick placed in the liquid wax, the candle was placed in the refrigerator to cool. When the candle was removed, [student's name] and the rest of the class discussed how the melted wax changed back to a solid when it cooled.
- [Student's name] orally predicted what would happen to an ice cube if it were heated. Then the teacher melted the ice cube in a saucepan. After the ice melted, [student's name] discussed whether or not his/her prediction was correct. Then [student's name] predicted what would happen if the water from the ice cube were put in the freezer. After the water was re-frozen, [student's name] discussed whether *that* prediction was correct.

Content Standard: PHYSICAL SCIENCE (Structure and Properties of Matter)

Standard: *The student will investigate the characteristic properties of matter.*

Alternate Learning Expectation (ALE): PS.2A. *Recognize that objects have observable properties that can change over time and under different conditions*

Alternate Performance Indicator (API): PS.2A.7 *Select the appropriate instrument to measure weight, mass, length, width, height, or temperature*

Sample Activities:

- Given a variety of measuring tools—ruler, measuring cup, scale, and measuring spoons—and asked which instrument was appropriate for measuring the teacher's desk, [student's name] correctly chose the ruler.
- Given a scale, a measuring tape, and five objects—a bag of flour, a model ship, a pencil, a pair of scissors, and a silk scarf—[student's name] chose the appropriate instrument and measured the weight and length of each.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3A *Identify the sun as the main source of earth's heat and light energy*

Alternate Performance Indicator (API): PS.3A.1 *Respond to light*

Sample Activities:

- When the teacher shone a flashlight on the wall near [student's name], he/she followed the beam with his/her gaze.
- [Student's name] looked at the rainbows made by a prism in sunlight. The teacher gave [student's name] oral and tactile cues to call his/her attention to the rainbows, then gave hand-over-hand assistance to help [student's name] make rainbows of his/her own.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3A *Identify the sun as the main source of earth's heat and light energy*

Alternate Performance Indicator (API): PS.3A.2 *Respond to sound*

Sample Activities:

- The teacher stood beside [student's name] and shook a maraca to one side of [student's name]'s head, then the other. [Student's name] turned his/her head toward the sound six out of eight times.
- When a peer partner shook a rain stick near [student's name], he/she looked directly at the rain stick four out of five times.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3A *Identify the sun as the main source of earth's heat and light energy*

Alternate Performance Indicator (API): PS.3A.3 *Identify the sun as the source of the earth's heat and light energy*

Sample Activities:

- [Student's name] and a small group of peers went outside with the teacher and orally answered questions about how the sun felt on their faces, how the sun gives us light, and how it gives heat and light to the earth.
- During library, [student's name] watched a movie about the sun's role in giving the earth heat and energy. He/she participated in a class discussion about the movie. The librarian led the discussion.
- [Student's name] listened to the teacher read the book *The Sun: Our Nearest Star* aloud, then discussed the book with the teacher and two peers.
- [Student's name] read the book *The Sun: Our Nearest Star* to a peer tutor. Then [student's name] and the peer tutor discussed the book.
- The class was divided into small groups. [Student's name] and his/her group built a mini-solar car from instructions found at: http://www.xof1.com/educationmini.html. When each group had completed a car, students raced the cars to see whose was the fastest.
- [Student's name] used a magnifying glass to make kindling in an aluminum pie tin smolder.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3A *Identify the sun as the main source of earth's heat and light energy*

Alternate Performance Indicator (API): PS.3A.4 *Identify the effects of the sun on various materials*

Sample Activities:

- [Student's name] placed the following materials in direct sunlight to see how the sun affected each one: a cup of water, a leaf, a cup of mud, a cup of damp sand, an unbaked Pillsbury biscuit, an apple slice, a cup of yogurt, and a lemon slice. [Student's name] checked the objects at the end of the day and used a pencil to record the changes in the materials in his/her science journal.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3A *Identify the sun as the main source of earth's heat and light energy*

Alternate Performance Indicator (API): PS.3A.5 *Recognize that a lens changes light rays (e.g., glasses, magnifiers, camera)*

Sample Activities:

- [Student's name] used a magnifying glass to look at a variety of objects on the playground and discussed with the teacher why the magnifier made the objects look bigger.
- [Student's name] and a small group of peers took apart a disposable camera, used a pencil to draw the parts on unlined paper, and did an oral presentation about how cameras work.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3A *Identify the sun as the main source of earth's heat and light energy*

Alternate Performance Indicator (API): PS.3A.6 *Recognize that energy causes changes*

Sample Activities:

- [Student's name] watched a video about how the sun's energy causes a plant to grow from a seed, and then participated in a small-group discussion by sharing his/her observations and insights about the video with the group.
- [Student's name] put a piece of chocolate on a saucer in the sun and watched to see how the sun's energy changed the chocolate. Then he/she and the teacher discussed what happened to the chocolate and why.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3B *Recognize that sound is produced when objects vibrate*

Alternate Performance Indicator (API): PS.3B.1 *Identify sounds*

Sample Activities:

- When the teacher played a CD of individual musical instruments, each playing a few bars of the same tune, [student's name] named each instrument when it began to play.
- [Student's name] sat blindfolded in a chair while a peer played various musical instruments—triangle, drum, cymbals, bells, and recorder. [Student's name] named each instrument as it was played.
- [Student's name] listened to a recording of various sound effects (e.g., rain, ocean, frogs, birdsong, train, car horn) and named each sound.
- When given a choice of two pictures and exposed to a recording of a sound made by the object/animal in one of the pictures, [student's name] pointed to the picture of the object/animal that made the sound.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3B *Recognize that sound is produced when objects vibrate*

Alternate Performance Indicator (API): PS.3B.2 *Distinguish different sounds and their sources*

Sample Activities:

- [Student's name] was given a picture BINGO card and a choice of markers. [Student's name] listened to sounds on a tape and marked the pictures of the objects/animals that made each sound.
- [Student's name] was blindfolded inside a large circle. One peer was given a whistle and another peer was given a rattle. [Student's name] was told to tag either the student with the whistle or the one with the rattle. The peers moved slowly around in the circle constantly sounding their instruments. [Student's name] showed the ability to distinguish a sound and determine its source by tagging the one making the designated sound.

Content Standard: PHYSICAL SCIENCE (Energy)

Standard: *The student will investigate energy and its uses.*

Alternate Learning Expectation (ALE): PS.3B *Recognize that sound is produced when objects vibrate*

Alternate Performance Indicator (API): PS.3B.3 *Classify sounds according to their basic characteristics (e.g., loud and soft, natural or manmade)*

Sample Activities:

- [Student's name] listened to a CD of different sounds (e.g., birdsong, rain falling, car engine revving, train whistle). For each sound, [student's name] stated whether the sound was natural or manmade.
- While the teacher played music on a CD player, adjusting the volume up or down, [student's name] signaled "thumbs up" when the music got louder and a "thumbs down" when it got softer.

Content Standard: PHYSICAL SCIENCE (Interactions of Matter)

Standard: *The student will investigate the interactions of matter.*

Alternate Learning Expectation (ALE): PS.4A *Investigate the kinds of changes that occur when different types of matter interact*

Alternate Performance Indicator (API): PS.4A.1 *Indicate the changes that occur when two materials interact (e.g., sugar/milk, salt/pepper)*

Sample Activities:

- [Student's name] was given Styrofoam cups and a variety of materials to combine and observe. Then he/she used a pen to record the results in his/her science journal. The combinations to be observed were: milk/sugar, salt/pepper, oil/water, cornstarch/water, flour/cornstarch, water/liquid soap, oil/liquid soap. [Student's name] also made combinations of his/her own to record. The combinations he/she chose were cornstarch/liquid soap and oil/sugar.
- [Student's name] helped make walnut brownies. The teacher used guiding questions as needed to help [student's name] observe and discuss what happened as each ingredient was added.

Content Standard: PHYSICAL SCIENCE (Interactions of Matter)

Standard: *The student will investigate the interactions of matter.*

Alternate Learning Expectation (ALE): PS.4A *Investigate the kinds of changes that occur when different types of matter interact*

Alternate Performance Indicator (API): PS.4A.2 *Describe a physical change, given an example*

Sample Activities:

- [Student's name] created and observed the following physical changes: blotting/absorbing water into a paper towel, crumpling a sheet of paper, rolling Play-Doh into various shapes, tearing a piece of aluminum foil, cutting a piece of cloth, crushing an aluminum can, melting butter, freezing and unfreezing a juice box. [Student's name] orally described what happened in each case and how the object was changed.
- After a class discussion about physical change, [student's name] used markers on paper to make a list of 10 examples of physical change.
- [Student's name] used poster board, markers, magazine photos, and glue to make a poster showing examples of physical change and then gave an oral presentation explaining what physical changes are.

Content Standard: PHYSICAL SCIENCE (Interactions of Matter)

Standard: *The student will investigate the interactions of matter.*

Alternate Learning Expectation (ALE): PS.4A *Investigate the kinds of changes that occur when different types of matter interact*

Alternate Performance Indicator (API): PS.4A.3 *Describe a chemical change, given an example*

Sample Activities:

- [Student's name] created and observed the following chemical changes: burning a match, mixing vinegar and baking soda, and pouring hydrogen peroxide on a raw potato. [Student's name] orally described what happened in each case and how the object was changed.
- Using markers on paper, [student's name] made a list of five examples of chemical change.
- [Student's name] used tempera paint on poster board to make a poster showing examples of chemical change and then gave an oral presentation explaining what chemical changes are.
- [Student's name] conducted an experiment using turmeric powder, detergent powder, water, and vinegar. First, [student's name] put the turmeric powder (yellow) and detergent (white) into a metal bowl. [Student's name] discussed the physical change that occurred when the two powders were mixed. When water was added, a chemical change occurred and the mixture turned red. To turn it back into yellow, [student's name] added the vinegar. [Student's name] discussed how the white and yellow changed to red and how the vinegar added to red changed it back to yellow. [Student's name] and teacher discussed how this might have happened.
- [Student's name] created and/or observed the following chemical changes: burning a sugar cube (with help from the teacher), polishing tarnished jewelry, toasting bread. [Student's name] described to the teacher what happened in each case and how the object was changed.

Content Standard: PHYSICAL SCIENCE (Interactions of Matter)

Standard: *The student will investigate the interactions of matter.*

Alternate Learning Expectation (ALE): PS.4A *Investigate the kinds of changes that occur when different types of matter interact*

Alternate Performance Indicator (API): PS.4A.4 *Understand the basic characteristics of an acid or a base (e.g. battery, cleaning solutions, food products)*

Sample Activities:

- [Student's name] used litmus paper to determine the acidity or alkalinity of baking soda and water, vinegar, lemon juice, dishwashing liquid, and various foods and cleaning solutions. [Student's name] drew a picture with colored pencils on art paper to show his/her results.
- [Student's name] drew a line with a pencil to divide a piece of notebook paper into two columns. One column was labeled "Acid" and the other "Base." [Student's name] made a list of the characteristics of each in the appropriate column.
- [Student's name] was given a pencil and a list (on notebook paper) of the following twelve substances: grape juice, vinegar, lemon juice, wine, shampoo, soap, baking soda, window cleaner, Drano, water, blood, and saliva. Beside each substance, [student's name] wrote whether it was an acid, a base, or neutral.