Gateway Regional School District

SCOPE & SEQUENCE
Science – Kindergarten: Focus on Life Science

Massachusetts Standards	Curriculum Benchmarks	Possible Instructional Strategies	Evidence of Student Learning (Assessment)	Month
EARTH & SPACE SCIENCE				
1. Recognize that water, rocks, soil, and living organisms are found on the earth's surface.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 1		
2. Understand that air is a mixture of gases that is all around us and that wind is moving air.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 1		
3. Describe the weather changes from day to day and over the seasons.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 1, however, weather is introduced informally through the Houghton Mifflin reading program in the following themes: <u>Theme 3</u> Clothes in various weather-– pg T101 <u>Theme 6</u> Weather words -– pg T40 and T45 and T99 Writing about daily observations of weather – pg T113 Graphing daily observations of weather – pg T110 using Graph Club software available on district-supplied laptops		
4. Recognize that the sun supplies heat and light to the earth and is necessary for life.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 1		
5. Identify some events around us that have repeating patterns, including the seasons of the year, day and night.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 1, however, repeating patterns are introduced informally through the Houghton Mifflin reading program in the following theme: <u>Theme 3</u> Summer/winter activities-– pg T165		
LIFE SCIENCE				
1. Recognize that animals (including humans) and plants are living things that grow, reproduce, and need food, air, and water.	**Students will KNOW:** ▸ Life needs of animals and plants are food, air, and water. ▸A science article gives facts and information instead of telling a story. ▸Some animals are pets and some live in the wild. ▸Plants produce oxygen and food ▸Details about an animal of the student's choice.	Class discussion about needs they have (e.g. food, water, air) in common with plants and animals then observe and care for plants and small animals (e.g. fish, guinea pigs, salamander) as the teacher provides information about appropriate care for each animal or plant.	Participation in activities Student produced work	October

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	▸Snakes shed their skins as they grow. **Students will be able to DO:** ▸ Describe how animals and plants change as they grow ▸ Predict what will happen to animals and plants if life needs are not met. ▸Read a non-fiction content story to gather facts and information about animals/plants. ▸Contribute to class stories about animals/plants. ▸Write about animals in nature	Content Stories Potato Head Chia Pet /other planting Use actual plants to experiment to watch what happens if needs are not met/graph results. For example, children plant seeds then create science notebooks with simple charts and drawings that record observations of plant growth. This learning experience could be connected to math standards K.M.2 and K.M.3 in which students are estimating measurements and using non-standard measures. Use library resources such as books on ELA Framework Appendix A or B: *The Carrot Seed* by Ruth Krauss *Rabbit Hill* by Robert Lawson *The Red Eyed Tree Frog* by Joy Cowley *Chameleon, Chameleon* by Joy Cowley Do a graph on fact/fiction using Graph Club software available on district-supplied laptops Student project to research animal of choice, present facts to class.		
2. Differentiate between living and nonliving things. Group both living and nonliving things according to the characteristics that they share.	**Students will KNOW:** ▸ Living things breathe, eat, drink, grow, and reproduce. Non-living things do none of these things. **Students will be able to DO:** ▸ Identify and chart simple characteristics by	Create posters and charts such as a class chart listing characteristics of living and non-living things then create a class mural or individual artwork of living and non-living things.	Student produced work. Participation in classroom activities	October

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	which animals can be classified, including body coverings (hair, fur, feathers, scales, and shells), body shape, appendages (arms, legs, wings, fins, and tails), methods of movement (walking, crawling, flying, and swimming), wild or tame, and water homes or land homes. ▸ Distinguish between wild animals (raccoon, hawk, squirrel, shark) and tame animals (dog, cat, sheep) and recognize examples of each. Classify objects as to whether they are living or nonliving ▸ Describe the nonliving components of an organism's surroundings, including water, space, and shelter. ▸ Categorize the birds, fish, mammals, and retiles that live near a pond.	Animal sorting activity - For example, students go on a nature walk, collect or take photographs of living and non-living things that are discovered on the walk, then sort the objects or photographs into the categories of living, once living (dead), and never-living (ex – plastic) categories. Connect this learning experience with math standard K.D.1 in which students collect, sort, organize, and draw conclusions about data using concrete objects, pictures, numbers, and graphs. Graph wild/tame pictures of animals Drama/role playing wild vs. tame using Graph Club software available on district-supplied laptops Class discussion Create posters and charts Online Resources Animal Classification Living Things - Variation		
3. Recognize that plants and animals have life cycles, and that life cycles vary for different living things.	**Students will KNOW:** ▸ Stages in the life cycle of a butterfly ▸Examples of animals that hatch from eggs. ▸ Stages in the life cycle of a plant from flower to fruit. **Students will be able to DO:** ▸ Describe some simple changes animals and plants undergo during the life cycle. For animals this may include changes in color, body covering, and overall size. For plants this may include size, presence of leaves and	Reading concept stories/discussion Listen to class books, stories and informational books about the life cycles of animals and/or plants. Observe real creatures/plants going through life cycle (ex. Beans vs. popcorn seed, lentils, butterflies, chicks, etc.)	Participation in activities/experiments Student produced work	April/May

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	branches and ability to produce flowers and fruits. ▸Draw and label the stages in the life cycle of a plant or animal.	Online Resources Life Cycle of Plants Living Things – Life cycles Develop a life cycle learning center using the Bee Bot transparent gird to travel in the correct order to randomly placed events in the life cycle.		
4. Describe ways in which many plants and animals closely resemble their parents in observed appearance.	**Students will KNOW:** ▸Family resemblances can be appearance, mannerisms, or favorite activities. ▸Animals have both similarities and differences. **Students will be able to DO:** ▸Draw pictures of family members they resemble in some way then tell a friend about the family member. ▸ Compare and contrast young animals with their parents, using pictures and/or live organisms. ▸ Compare and contrast young plants with their parents, using pictures and/or live organisms.	Focus on Resemblance of Parents and Offspring - Houghton Mifflin Reading – Theme 3 Human family resemblance-– pg T116 Family book Students match pictures of adult animals with their babies and learn vocabulary related babies vs. adult animals Bulletin board baby pictures: guess who? Matching games Students observe and compare similarities and differences among similar species (ex – all birds have wings and feathers, but feather color varies). This learning experience could be connected with math standard K.P2 in which students sort and classify objects by varied properties. Children investigate variations within species (ex breeds of cats or dogs)	Participation in activities	November

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5. Recognize that fossils provide us with information about living things that inhabited the earth years ago.	**Students will KNOW:** ▸ A fossil is plant or animal remains that have turned to stone. **Students will be able to DO:** ▸Draw and write about fossils.	Look at real fossils and make simulated fossils by pressing leaves, shells, and branches into wet sand or play dough; examine the imprints when they dry; and discuss what the imprints tell us about the objects. Listen to or read books about fossils and discuss in small groups what they learned (ex – *Fossil* by Claire Ewart or *Fossils Tell of Long Ago* by Aliki) Writing activities Dinosaur unit (if time permits since this unit is beyond kindergarten standards, but of interest to children) Children's You tube videos Dinosaurs (song, 3:07 minutes)		Dec./Jan.
6. Recognize that people and other animals interact with the environment through their senses of sight, hearing, touch, smell, and taste.	**Students will KNOW:** ▸Definition of environment ▸ Identify and describe the five senses: taste, touch, smell, hearing, and sight. ▸People and other animals use their senses of sight, hearing, touch, smell, and taste to interact with the environment **Students will be able to DO:** ▸ Match sensing organs (eyes, ears, nose, tongue, and skin) with associated sense. ▸ Match sensory descriptors with the senses (taste: sweet, sour, bitter, salty; touch: smooth, hard, soft, cold, warm, hot; hearing: loud, soft, high, low; sight: bright, dull, color, black, and white.) ▸ Use sight, hearing, touch, smell, and taste to make observations of the environment	Focus on Senses - Houghton Mifflin Reading – Theme 1 Describe senses– T83 Explore with senses and magnifying glass – T91 Focus on Senses - Houghton Mifflin Reading – Theme 5 Match sensory descriptors with senses – T157 This standard connects with Physical Science Standard #1 Matching and/or I Spy games Describing words activities Take sensory walks Feel things in bag to guess	Create chart of objects in the classroom that students can see, hear, smell, taste, and touch. Theme 1, pg T135 Identify describing words for each way a sense can be used to experience food. Theme 1, pg T157 Participation in activities	September

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		Students record data about the sights, sounds, textures, and smells at different times of day or in different areas of the classroom or school yard then compare data. Read and discuss books about the senses such as *The Five Senses* by Keith Faulkner, *The Listening Walk* by Paul Showers, *Sounds All Around* by Wendy Pfessfer, or *Night Sounds, Morning Colors* by Reosemary Wells		
7. Recognize changes in appearance that animals and plants go through as the seasons change.	Students will KNOW: ▸Seasons mean a time of year – spring, summer, fall, or winter. ▸Identify some changes that people experience over time— growth in height and weight, color of hair. ▸ Describe how things change naturally (examples - seasonal changes, the growth in seeds and common plants, weather) ▸As the seasons change so do the animals we see. ▸Migration and hibernation are ways animals respond to seasonal changes. ▸Plants change as the seasons change. **Students will be able to DO:** ▸ Draw/write to describe the seasons of the year. ▸Predict how an animal or plant will respond to changes in the seasons. ▸Compare and contrast the activities of some common animals (e.g., squirrels, chipmunks, butterflies, bees, ants, bats, and frogs) during summer and winter by describing changes in their behaviors and body covering. ▸ Identify animals that migrate, hibernate, or show other changes throughout the seasons or	Focus on Seasons - Houghton Mifflin Reading – Theme 9 Complete graphic organizer as teacher readsaloud Spring is Here – pg T45 Write about the seasons – pg T65 Connect to Scottforesman Math Chapter #7 Observe a tree through the seasons Stories/discussion Squirrel nest; gathering acorns Fall stories (ex. Lois Elhert stories- Red Leaf, Yellow Leaf, Leaf People Books on ELA Framework Appendix B: *The Snowman* by Raymond Briggs Students visit the same outdoor area at least once a season to observe and document seasonal changes in plants and animals using as many of their senses as possible. Record seasonal	Participation in activities	Year Long March

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	in the presence of adverse environmental conditions.	changes and compare with changes humans make seasonally (dress, activities, lifestyle) Read and retell stories about seasonal animal behaviors or appearances through dramatization or illustration (e.g. *Summer Coat, Winter Coat: The Story of a Snowshoe Hare* by Doe Boyle)		
8. Identify the ways in which an organism's habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air, and shelter).	**Students will KNOW:** ▸A habitat is an organism's surroundings including water, space, and shelter. ▸ Animals need a habitat that provides basic needs - air, food, water, and a suitable place to live ▸ Plants need a habitat that provides basic needs - air, nutrients, water, and light. **Students will be able to DO:** ▸ Classify animals by where they live (their homes). ▸ Infer types of animal homes (water or land), using the physical characteristics of the animals, such as scales and fins that allow fish to live and move in water or fur and legs that allow dogs to live and move on land.	Focus on Seasons - Houghton Mifflin Reading – Theme 2 about fish can be used to create interest in this standard. Stories/discussions Observe Habitat/dioramas Terrarium Neighorhood walk Children's You tube videos Mr Rhino (song, 2:.23 minutes) and Rhino Song Workbook Bare Necessities (song about bears, 2:.23 minutes) Books on ELA Framework Appendix A or B: *The Carrot Seed* by Ruth Kraus *Rabbit Hill* by Robert Lawson *The Red Eyed Tree Frog* by Joy Cowley *Chameleon, Chameleon* by Joy Cowley	Contribute to a class mural about fish that shows possible ways to get food and shelter Theme 2 pg T93, T161	May

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PHYSICAL SCIENCES (Chemistry and Physics)		
1. Sort objects by observable properties such as size, shape, color, weight, and texture.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 2, however, observable properties are introduced in formally through the Houghton Mifflin reading program in the following themes: Theme 2 - colors Theme 3 - size
2. Identify objects and materials as solid, liquid, or gas. Recognize that solids have a definite shape and that liquids and gases take the shape of their container.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 2
3. Describe the various ways that objects can move, such as in a straight line, zigzag, back-and-forth, round-and-round, fast, and slow.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Kindergarten in Physical Education Curriculum Standard addressed in classroom in Grade 2
4. Demonstrate that the way to change the motion of an object is to apply a force (give it a push or a pull). The greater the force, the greater the change in the motion of the object.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 2
5. Recognize that under some conditions, objects can be balanced.	Standard not addressed in Kindergarten due to focus on Life Science	Standard addressed in Grade 2
TECHNOLOGY / ENGINEERING		
1.1 Identify and describe characteristics of natural materials (e.g., wood, cotton, fur, wool) and human-made materials (e.g., plastic, Styrofoam).	Standard addressed in Grade 1	
1.2 Identify and explain some possible uses for natural materials (e.g., wood, cotton, fur, wool) and human-made materials (e.g., plastic, Styrofoam).	Standard addressed in Grade 1	
1.3 Identify and describe the safe and proper use of tools and materials (e.g., glue, scissors, tape, ruler, paper, toothpicks, straws, spools) to construct simple structures.	Standard addressed in Grade 2	
2.1 Identify tools and simple machines used for a specific purpose, e.g., ramp, wheel, pulley, lever.	Standard addressed in Grade 2	

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2.2 Describe how human beings use parts of the body as tools (e.g., teeth for cutting, hands for grasping and catching), and compare their use with the ways in which animals use those parts of their bodies.	**Students will KNOW:** ▸ Humans use tools to extend the body's capacities **Students will be able to DO:** ▸ Compare and contrast how humans and animals use their body parts as tools to eat, drink, hunt, and move. ▸Compare how humans and animals use the tools of their body and external tools to create a home	Observe animals such as butterflies, caterpillars, ants, spiders, dogs, cats, gerbils, fish, or hermit crabs to see how they use their body parts as tools. Observe or read about animals building homes then make a book of drawings comparing human and animal use of body or external tools to make a home		

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