Science Curriculum Calendar – Grade 3

	Big Ideas	Unit	GLCE	Development → Support resources to build understanding through the use of flexible strategies.	Assessments
TRIMESTER 1	• Plants and animal structures have specific functions. • Plants and animals can be classified by observable characteristics. • Plants and animals have observable characteristics that allow them to live and survive in their environment.	**Unit 3: Structures and Functions of Living Things** **Content Statement-** L.OL.E.3 **Structures and Functions**- Organisms have different structures that serve different functions in growth, survival, and reproduction. **Content Statement-** L.OL.E.4 **Classification**- Organisms can be classified on the basis of observable characteristics. **Content Statement-** L.EV.E.1 **Environmental Adaptation**- Different kinds of organisms have characteristics that help them to live in different environments. ***Engage and Explore-**Please see grade level packet for engagement and exploration activity.	**L.OL.03.31** Describe the function of the following plant parts: flower, stem, root, and leaf. **L.OL.03.32** Identify and compare structures in animals used for controlling body temperature, support, movement, food getting, and protection (fur, wings, teeth, claws, scales). **L.OL.03.41** Classify plants on the basis of observable physical characteristics (roots, leaves, stems, and flowers). **L.OL.03.42** Classify animals on the basis of observable physical characteristics (backbone, body covering, limbs). **L.EV.03.11** Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (for example: leaf shape, thorns, odor, color). **L.EV.03.12** Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, odor, body coverings). ***See inquiry and reflection GLCEs**	Textbook: National Geographic- Life Science • Chapter 1 (Structures and Functions/Classification) • Chapter 2, pp. 45-67 (Classification) • Chapter 4 (Environmental Adaptation) • Chapter 5 (Structures and Functions) Inquiry Book: See Inquiry Book for student investigations. Suggested Trade Books: • *How Do Animals Adapt* by Bobbie Kalman and Niki Walker • *How Plants Survive* by Kathleen Kudlinski • *Plant Parts* by Louise Spilsbury • *The Magic School Bus Gets Planted* by Joanna Cole *For websites and video streaming titles, see Grade Level Resource Packet. Grade Level Resource Packet:: • See unit: Structures and Functions of Living Things	**Plants** **Formative Assessment:** • Use the students' pictures and labels in their science journals to assess their ability make and record observations with accuracy. **Summative Assessment:** • Students plan and create a make-believe plant to demonstrate their understanding of structures and characteristics that help a plant survive in its environment. The make-believe plant has to have all of the plant parts, labels, the plant shown in its correct environment, and an adaptation that will help the plant survive in its environment. **Animals** **Formative Assessment:** • Use the students' observations of animal body parts or body coverings to have further discussions about ways animals can survive in their environment. **Summative Assessment:** • Students design a make believe animal that has special body parts and body coverings that help the animal survive in its environment. The body parts and coverings need to match the animal's habitat, and a description of how the structures help the animal survive needs to be given. • Using a particular animal, give one or two body parts or body coverings that help the animal survive in its environment. For instance, a rabbit has brown fur for camouflage, large hind feet so it can run fast, large ears to hear predators, and large incisors for gnawing.

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	Big Ideas	Unit	GLCE	Development → Support resources to build understanding through the use of flexible strategies.	Assessments
TRIMESTER 2	• The Earth has natural resources that are renewable or non-renewable. • Humans are dependent on and affect their environments in helpful and harmful ways. • The Earth's surface changes through slow processes and fast processes. • Earth materials have useful properties and can enhance the quality of life.	**Unit 4: Earth Materials, Change, and Resources** **Content Statement-** E.ES.E.4 **Natural Resources—**The supply of many natural resources is limited. Humans have devised methods for extending their use of natural resources though recycling, reuse, and renewal. **Content Statement-** E.ES.E.5 **Human Impact**– Humans depend on their natural and constructed environment. Human change environments in ways that are helpful or harmful for themselves and other organisms. **Content Statement-** E.SE.E.1 **Earth Materials**– Some earth materials have properties that make them useful either in their present form or designed and modified to solve human problems. They can enhance the quality of life as in the case of materials used for building or fuels used for heating and transportation. **Content Statement-** E.SE.E.2 **Surface Changes**– The surface of the Earth changes. Some changes are due to slow processes, such as erosion and weathering, and some changes are due to eruptions, and earthquakes. **Content Statement-** E.SE.E.3 **Using Earth Materials**– Some earth materials have properties that make them useful either in their present form or designed and modified to solve human problems. They can enhance the quality of life as in the case of materials used for building or fuels used for heating and transportation. ***Engage and Explore-**Please see grade level packet for engagement and exploration activity.	**E.ES.03.41**Identify natural resources (metals, fuels, fresh water, soil, and forests). **E.ES.03.42** Classify renewable (fresh water, forests) and non-renewable (fuels, metals) resources. **E.ES.03.43** Describe ways humans are protecting, extending and restoring resources (recycle, reuse, reduce, renewal). **E.ES.03.44** Recognize that paper, metal, glass, and some plastics can be recycled. **E.ES.03.51** Describe ways humans are dependent on the natural environment (forests, water, clean air, earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry). **E.ES.03.52** Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources). **E.ES.03.13** Recognize and describe different types of earth materials (mineral, rock, clay, boulder, gravel, sand, soil). **E.ES.03.14** Recognize that rocks are made up of minerals. **E.ES.03.22** Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes). **E.SE.03.31** Identify earth materials used to construct some common objects (bricks, buildings, roads, glass). **E.SE.03.32** Describe how materials taken from the Earth can be used as fuels for heating and transportation. ***See inquiry and reflection GLCEs**	Textbook: National Geographic - Earth Science • Chapter 4 (Earth Materials) • Chapter 5 (Natural Resources/Human Impact/Using Earth Materials) • Chapter 6 (Surface Changes) • Chapter 7 (Surface Changes) Inquiry Book: See Inquiry Book for student investigations. Suggested Trade Books: • *50 Things Kids Can Do To Save the Earth* by The Earthworks Group • *Don't Know Much About Planet Earth* by Kenneth Davis and Tom Bloom • *How The Earth Works* by Michelle O'Brien Palmer • *Just A Dream* by Chris Van Allsburg • *Planet Earth Inside Out* by Gail Gibbons • *The Great Trash Bash* by Loreen Leedy • *The Three R's: Reduce, Reuse, Recycle* by Nuria Roca and Rosa Curto • *The Wartville Wizard* by Don Madden • *Where Does The Garbage Go?* By Paul Showers *For websites and video streaming titles, see Grade Level Resource Packet. Grade Level Resource Packet:: • See unit: Earth Materials, Change, and Resources	**Earth Systems** **Formative Assessment:** • Classify lists of classroom items into two groups: items found in nature and man-made items. • Classify and graphically organize natural resources into renewable and non-renewable. **Summative Assessment:** • In a paper grocery bag, each student collects his/her individual "clean" trash for a specified number of days. Students examine the trash and divide it into categories: reduce, reuse, recycle, renew, and other. Students identify and graphically display ways to reduce the amount of trash produced and improve their impact on the environment. • Design a pet house that uses all renewable materials. **Solid Earth** **Formative Assessment:** • Use the information students collected in their Earth Materials data charts to assess student understanding. **Summative Assessment:** • Categorize pictures of slow and rapid changes in the Earth's surface using a T-chart.

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	Big Ideas	Unit	GLCE	Development → Support resources to build understanding through the use of flexible strategies.	Assessments
TRIMESTER 2 and 3	• The position of the observer and object affect the description of motion. • Forces are pushes and pulls. • Gravity is the force that pulls objects to the Earth. • Motion is affected by the strength of the force and the mass of the object.	**Unit 1: Changes In Motion** **Content Statement-**P.FM.E.2 **Gravity**- Earth pulls down on all objects with a force called gravity. With very few exceptions, objects fall to the ground no matter where the object is on the Earth. **Content Statement-**P.FM.E.3 **Force**- A force is either a push or a pull. The motion of objects can be changed by forces. The size of the change is related to the size of the force. The change is also related to the mass of the object on which the force is being exerted. When an object does not move in response to a force, it is because the environment is applying another force. **Content Statement-**P.FM.E.4 **Speed**- An object is in motion when its position is changing. The speed of an object is defined by how far it travels in a standard amount of time. ***Engage and Explore-**Please see grade level packet for engagement and exploration activity.	**3rd P.FM.03.22** Identify the force that pulls objects towards the Earth. **3rd P.FM.03.35** Describe how a push or a pull is a force. **3rd P.FM.03.36** Relate a change in motion of an object to the force that caused the change in motion **3rd P.FM.03.37** Demonstrate how the change in motion of an object is related to the strength of the force acting upon the object and to the weight of the object. **3rd P.FM.03.38** Demonstrate when an object does not move in response to a force, it is because another force is acting on it. **3rd P.FM.03.41** Describe the motion of objects in terms of the path and direction. **3rd P.FM.03.42** Identify changes in motion (change direction, speeding up, slowing down). **3rd P.FM.03.43** Relate the speed of an object to the distance it travels in standard amount of time. ***See inquiry and reflection GLCEs**	Textbook: National Geographic – Physical Science • Chapter 3 Lesson 3, 4 (Motion, Speed & Force) • Chapter 3 Lesson 5 (Gravity) Inquiry Book: See Inquiry Book for student investigations. Suggested Trade Books: • *Forces and Motion* by Catherine A. Welch • *Forces Make Things Move* by Kimberly Brubaker Bradley • *Mr. Grumpy's Motor Car* by John Burningham • *The Magic School Bus Plays Ball: A Book About Forces (Magic School Bus Series)* by Joanna Cole • *What Is Friction?* By Lisa Trumbauer • *Why Can't I Jump Very High?* by Kamal Prasad • *Why Doesn't the Earth Fall Up?* By Vicki Cobb *For websites and video streaming titles, see Grade Level Resource Packet. Grade Level Resource Packet:: • See unit: Changes in Motion	**Formative Assessment** • Compare and contrast definitions (with pictures) for the terms *gravity*, *motion*, *force*, *direction*, and *speed*. • Draw a diagram of the motion of objects in games; label the forces and changes in motion. • Construct simple charts and bar graphs from data on speed investigations. **Summative Assessment** • Explain and illustrate the forces that are causing the motion in a dropped ball, a rolling ball, a stationary object such as large boulder, a ball changing direction, and a ball slowing down to a stop. • Create a drawing or performance to identify and explain the similarities and differences in the motion of objects in terms of path and direction. • After analyzing the data, students summarize the information on their charts and graphs to answer the question, "How can we measure the speed of a toy car?" Through purposeful conversation, collaborative groups of students develop a shared understanding of speed utilizing the data gathered as evidence to support their ideas, rather than expressing an opinion. Students use the writing process to summarize their findings in an organized format.

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	Big Ideas	Unit	GLCE	Development → Support resources to build understanding through the use of flexible strategies.	Assessments
TRIMESTER 3	• Light and sound are forms of energy. • Light and sound can be described by their properties. • Light travels in a straight path. • Vibrations produce sound.	**Unit 2: Light and Sound** **Content Statement-**P.EN.E.1 **Forms of Energy**- Heat, electricity, light, and sound are forms of energy. **Content Statement-**P.EN.E.2 **Light Properties**- Light travels in straight lines. Shadows result from light not being able to pass through an object. When light travels at an angle from one substance to another (air and water), it changes directions. **Content Statement-** P.EN.E.3 **Sound**- Vibrating objects produce sound. The pitch of sound varies by changing the rate of vibration. **Content Statement**- P.PM.E.5 **Conductive and Reflective Properties**- Objects vary to the extent they absorb and reflect light energy and conduct heat and electricity. ***Engage and Explore-**Please see grade level packet for engagement and exploration activity.	**P.EN.03.11** Identify light and sound as forms of energy. **P.EN.03.21** Demonstrate that light travels in a straight path and that shadows are made by placing an object in a path of light. **P.EN.03.22** Describe what happens to light when it travels from air to water (a straw half in water and half in the air looks bent). **P.EN.03.31** Relate sounds to their sources of vibrations (for example: a musical note produced by plucking a guitar string, the sounds of a drum made by striking a drumhead). **P.EN.03.32** Distinguish the effect of fast or slow vibrations as pitch. **P.PM.03.51** Demonstrate how some materials are heated more than others by light that shines on them. **P.PM.03.52** Explain how we need light to see objects: light from a source reflects off objects and enters our eyes. ***See inquiry and reflection GLCEs**	Textbook: National Geographic – Physical Science • Chapter 4 Lesson 4 (Sound) • Chapter 5 (Light) Inquiry Book: See Inquiry Book for student investigations. Suggested Trade Books: • *Bear Shadow* by Frank Asch • *Day Light, Night Light (Let's Read and Find Out Series 2)* by Franklyn M. Branley • *Hear! Hear! The Science of Sound* by Barbara Taylor • *Making Musical Things* by Ann Wiseman • *Rubber-Band Banjos and a Java Jive Bass* by Alex Sabbeth • *Shadow Magic* by Seymour Simon • *Sounds All Around (Let's Read and Find Out Series 1)* by Wendy Pfeffer • *The Magic School Bus In The Haunted Museum/House* by Joanna Cole • *Ty's One-man Band* by Mildred Walter and Margot Tomes *For websites and video streaming titles, see Grade Level Resource Packet. Grade Level Resource Packet:: • See unit: Light and Sound	**Light** **Formative Assessment** • Monitor discussions on light for student understanding. • Check student lab books or science journals for understanding. Do students make predictions based on previous experiences? Are students demonstrating increased application of previous observations to new experiences? Are students making connections? **Summative Assessment** • Predict and draw the shape of a shadow based on the object and the source of light. • Draw a picture of how a pencil would look when dropped into a glass/cup of water. Students explain in writing why the pencil looks as it does. **Sound** **Formative Assessment** • Monitor discussions on sound for student understanding. • Check student lab books or science journals for understanding. Do students make predictions based on previous experiences? Are students demonstrating increased application of previous observations to new experiences? Are students making connections? **Summative Assessment** • Create a concept map that shows the concepts of sound.