Third Grade Science Quarterly Pacing Guide – Organisms Have Character				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Content	**Organisms Have Matter** • See attached	**Earth & Me** • See attached	**Light & Sound** • See attached	**Changes in Motion** • See attached
Assessment	Test Pre/Post Test Journal Entries Science Studies Weekly Newspaper Observation Participation	Test Pre/Post Test Journal Entries Science Studies Weekly Newspaper Observation Participation	Test Pre/Post Test Journal Entries Science Studies Weekly Newspaper Observation Participation	Test Pre/Post Test Journal Entries Science Studies Weekly Newspaper Observation Participation
GLCE's	• See attached	• See attached	• See attached	• See attached

OBJECTIVES	Lesson 1 • What are the characteristics that define a plant? • What makes a plant? Lesson 2 • Describe the functions of the roots of plants. • Recognize that plant structures serve different life functions in growth and survival of plants. • What is the function of roots in a plant? Lesson 3 • Describe the functions of the stem of the plant? • What is the function of the plant stem? Lesson 4 • Describe the function of the leaves of plants. • Recognize that plant structures serve different life function in the growth and survival of plants. Lesson 5 • Describe the function of the flower of a plant. • Make purposeful observations of the flower and different flower parts. Lesson 6 • Describe the function of the flower and how the flower grows into a fruit. • Determine that the function of the fruit is to protect the seeds and help in seed dispersal. Lesson 7 • Compare and contrast the structures of different plants. Lesson 8 • What are the similarities and differences between fresh water plants? • What do aquatic plants need to survive? Lesson 9 • Classify animals on the basis of observable characteristics. • Identify physical characteristics of animals that help them to survive.	Lesson 1 • How are rocks similar and different? • What properties of rocks can be used to classify rocks. Lesson 2 • What are some of the earth's materials? • What are rocks made of? Lesson 3 • Recognize and describe different types of earth materials. • Describe helpful and harmful effects of humans on the environment. Lesson 4 • Recognize and describe soils and earth material. Lesson 5 • How can different types of earth materials be described when water is added to them. Lesson 6 • How are earth material taken from the earth used as natural resources. • What natural resources are renewable and non renewable. Lesson 7 • How are earth materials used to make common objects? Lesson 8 • Is farmland a renewable or non renewable resource? • How do choices in land use alter the environment? Lesson 9 • Describe ways in which humans alter the environment in their choices of resource use and resource development. • Describe ways humans are protecting, extending and restoring resources. • Plan and conduct an investigation that cleans an oil spill using a model. •	Lesson 1 • Understand that light is necessary to see. Lesson 2 • Understand that the pupil of an eyes gets larger in the dark and smaller in the light Lesson 3 • Demonstrate the light travels outward from its source in the form of rays that move in a straight line. Lesson 4 • Demonstrate how light moves in a straight path through observation and investigation. • Use mirrors to change the direction of the path of light. Lesson 5 • Demonstrate that light travels through some materials and not through other materials. • Recognize that how objects interact with light make subjects useful. • Describe the need for evidence in supporting and making decisions scientifically. Lesson 6 • Demonstrate the shadows are made by placing an object in the path of light. • Demonstrate that the position and length of a shadow depends on the location of the light source. Lesson 7 • Demonstrate how the length of a shadow depends on the position of the light source. • Demonstrate how the shadow always points away from the light source. Lesson 8 • Demonstrate how moving the light source can move the length of a shadow Lesson 9 • Demonstrate what happens to light when it travels from water to air. Lesson 10 • Describe sounds students have heard. • Relate sounds to their source.	Lesson 1 • Describe motion as a changing of position of an object. Lesson 2 • Describe motion in terms of direction and speed Lesson 3 • Compare and contrast the motion of different objects in terms of speed and direction. • Identify the changes in motion (change direction, speeding up, slowing down) Lesson 4 • Describe a force as a push or a pull • Explain how a force is needed to change the motion of an object. Lesson 5 • Identify friction as a force that changes the way an object moves. Lesson 6 • Investigate the force of friction on different types of surface. • Investigate the relationship between the mass of an object and the strength of force needed to move an object. Lesson 7 • Interpret data and construct a graph. Lesson 8 • Identify gravity as the force that pulls objects towards the earth. Lesson 9 • Identify gravity as a force that pulls objects to the earth. • Relate a change in motion of an object to the force that caused a change in motion. • Compare and contrast the motion of toys in an orbiting space craft to that of toys on earth. Lesson 10 • Make a wind up toy and describe its motion. • Relate the motion of the wind up toy to the forces that cause the motion. Lesson 11 • Discover ways that objects move in the air

OBJECTIVES	Lesson 10 • Make observations of the physical characteristics of a land snail. • Relate the physical characteristics of the land snail to its ability to live in its environment. Lesson 11 • Make observations of the physical characteristics of the crayfish. • Relate the physical characteristics of the crayfish to its ability to live in its environment. • Lesson 12 • Make and record observations of the changes in animal activity in the classroom habitats. • Relate physical characteristics of organisms to their ability to survive in their habitat. Lesson 13 • Compare the physical characteristics and habitats of the crayfish and land snail. • Relate the physical characteristics and functions of observable body parts to the ability of the crayfish and land snail to survive in their environment. Lesson 14 • Gather information through text. • Describe how animals get food and defend themselves. • Identify physical characteristics that aid in survival. Lesson 15 • Classify plants and animals on the basis of observable physical characteristics. Lesson 16 • Explain function of observable body parts and characteristics in animals. • Explain how physical characteristics of organisms help them to survive. • Describe positive and negative effects of humans on the environment. • Develop an awareness of insensitivity to the natural world. Lesson 17 Develop research skills for gathering information about the structure of animals and their survival characteristics. Describe the effect humans and other organisms have on the ability for some organisms to survive in their environment.	Lesson 10 • Describe how waste can be reduced, reused or recycled. • Recognize different material that can be recycled. • Determine what products have the most environmentally friendly packaging. Lesson 11 • Describe natural causes of change in the earth's surface through water erosion and landslides. • Describe how human activities can influence the changes in the Earth's surface. • How do erosion and landslides cause changes in the Earth's surface? Lesson 12 • Identify and describe earthquakes a natural cause of change in the Earth's surface. • How do earthquakes cause change in the Earth's surface? Lesson 13 • Identify and describe rapid natural changes in the Earth's surface that occur due to volcanoes. • How do volcanoes male a rapid change in the surface of the Earth?	Lesson 11 • Relate sounds to their sources of vibrations. • Demonstrate evidence of vibrations. • Distinguish the effect of fast or slow vibrations as pitch. Lesson 12 • Relate sounds of plucked strings to their source of vibrations. • Distinguish the effect of fast or slow vibrations of pitch. Lesson 13 • Relate the sound of a drum to the source of the vibrations. • Distinguish the effect of fast and slow vibrations of a drum head and the pitch of the sound produced by the drum. Lesson 14 • Relate vibrations to the sounds produced by wind instruments. • Distinguish fast and slow vibrations as related to pitch. Lesson 15 • Observe changes associated with the transfer of light energy. • Demonstrate how some materials are heated more than others by light energy. Lesson 16 • Relate sound to the concept of energy. • Observe how sound waves travel.	Lesson 12 • Relate a change in motion of an object to the force that caused the motion. • Demonstrate that when an object does not move I response to a force, it is because another force is acting on it. Lesson 13 • Relate the change in motion of an object to the force that caused the change of motion. • Collect data using a metric ruler and measure distance in centimeters. Lesson 14 • Apply knowledge of force and motion to the use of simple machines and lifting and moving objects.

Pacing Guide – 3rd Grade – 1st Marking Period

Organisms have Character

SCIENCE PROCESSES Inquiry Process

K-7 Standard S.IP: *Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.*

S.IP.E.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.

S.IP.03.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.03.12 Generate questions based on observations.
S.IP.03.13 Plan and conduct simple and fair investigations.
S.IP.03.14 Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer).
S.IP.03.15 Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.
S.IP.03.16 Construct simple charts and graphs from data and observations.

Inquiry Analysis and Communication

K-7 Standard S.IA: *Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using*
appropriate technology
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S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.

S.IA.03.11 Summarize information from charts and graphs to answer scientific questions.
S.IA.03.12 Share ideas about science through purposeful conversation in collaborative groups.
S.IA.03.13 Communicate and present findings of observations and investigations.
S.IA.03.14 Develop research strategies and skills for information gathering and problem solving.
S.IA.03.15 Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.

Reflection and Social Implications

K-7 Standard S.RS: *Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology.*

S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.

S.RS.03.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
S.RS.03.14 Use data/samples as evidence to separate fact from opinion.
S.RS.03.15 Use evidence when communicating scientific ideas.
S.RS.03.16 Identify technology used in everyday life.
S.RS.03.17 Identify current problems that may be solved through the use of technology.
S.RS.03.18 Describe the effect humans and other organisms have on the balance of the natural world.
S.RS.03.19 Describe how people have contributed to science throughout history and across cultures.

LIFE SCIENCE Organization of Living Things

K-7 Standard L.OL: *Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water, and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.*

L.OL.E.3 Structures and Functions- Organisms have different structures that serve different functions in growth, survival, and reproduction.

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 (for example: fur, wings, teeth, scales). *

L.OL.E.4 Classification- Organisms can be classified on the basis of observable characteristics.
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 coverings, limbs). *

Evolution

K-7 Standard L.EV: *Develop an understanding that plants and animals have observable parts and characteristics that help them survive and flourish in their environments. Understand that fossils provide evidence that life forms have changed over time and were influenced by changes in environmental conditions. Understand that life forms either change (evolve) over time or risk extinction due to environmental changes and describe how scientists identify the relatedness of various organisms based on similarities in anatomical features.*

L.EV.E.1 Environmental Adaptation- Different kinds of organisms have characteristics that help them to live in different environments.

L.EV.03.11 Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (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 (sharp teeth, claws, color, body coverings). *

Pacing Guide – 3rd Grade – 2nd Marking Period

Earth and Me

SCIENCE PROCESSES Inquiry Process

EARTH SCIENCE Earth Systems

K-7 Standard E.ES: *Develop an understanding of the warming of the Earth by the sun as the major source of energy for phenomenon on Earth and how the sun's warming relates to weather, climate, seasons, and the water cycle. Understand how human interaction and use of natural resources affects the environment.*

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 through recycling, reuse, and renewal.

E.ES.03.41 Identify natural resources (metals, fuels, fresh water, fertile soil, and forests). *

E.ES.03.42 Classify renewable (fresh water, fertile soil, 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.E.5 Human Impact- Humans depend on their natural and constructed environment. Humans change environments in ways that are helpful or harmful for themselves and other organisms.

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).

Solid Earth

K-7 Standard E.SE: *Develop an understanding of the properties of Earth materials and how those properties make materials useful. Understand gradual and rapid changes in Earth materials and features of the surface of Earth. Understand magnetic properties of Earth.*

E.SE.E.1 Earth Materials- Earth materials that occur in nature include rocks, minerals, soils, water, and the gases of the atmosphere. Some Earth materials have properties which sustain plant and animal life.

E.SE.03.13 Recognize and describe different types of Earth materials (mineral, rock, clay, boulder, gravel, sand, soil, water, and air). *

E.SE.03.14 Recognize that rocks are made up of minerals.

E.SE.E.2 Surface Changes- The surface of Earth changes. Some changes are due to slow processes, such as erosion and weathering; and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.

E.SE.03.22 Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).

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.

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.

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 through recycling, reuse, and renewal.

E.ES.03.41 Identify natural resources (metals, fuels, fresh water, farmland, and forests).

E.ES.03.42 Classify renewable (fresh water, farmland, forests) and non-renewable (fuels, metals) resources.

E.E.03.43 Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, renewal).

E.ES.03.44 Recognize that paper, metal, glass, and some plastics can be recycled.

E.ES.E.5 Human Impact – Humans depend on their natural and constructed environment. Humans change environments in ways that are helpful or harmful for themselves and other organisms.

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).

Pacing Guide – 3rd Grade – 3rd Marking Period

Light and Sound

SCIENCE PROCESSES Inquiry Process

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S.IP.03.12 Generate questions based on observations.
S.IP.03.13 Plan and conduct simple and fair investigations.
S.IP.03.14 Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer).
S.IP.03.15 Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.
S.IP.03.16 Construct simple charts and graphs from data and observations.

Inquiry Analysis and Communication

K-7 Standard S.IA: *Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.*

S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.

S.IA.03.11 Summarize information from charts and graphs to answer scientific questions.
S.IA.03.12 Share ideas about science through purposeful conversation in collaborative groups.
S.IA.03.13 Communicate and present findings of observations and investigations.
S.IA.03.14 Develop research strategies and skills for information gathering and problem solving.
S.IA.03.15 Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.

Reflection and Social Implications

K-7 Standard S.RS: *Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology.*

S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.

S.RS.03.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
S.RS.03.14 Use data/samples as evidence to separate fact from opinion.
S.RS.03.15 Use evidence when communicating scientific ideas.
S.RS.03.16 Identify technology used in everyday life.
S.RS.03.17 Identify current problems that may be solved through the use of technology.
S.RS.03.18 Describe the effect humans and other organisms have on the balance of the natural world.
S.RS.03.19 Describe how people have contributed to science throughout history and across cultures.

Energy

K-7 Standard P.EN: *Develop an understanding that there are many forms of energy (such as heat, light, sound, and electrical) and that energy is transferable by convection, conduction, or radiation. Understand energy can be in motion, called kinetic; or it can be stored, called potential. Develop an understanding that as temperature increases, more energy is added to a system.*
Understand nuclear reactions in the sun produce light and heat for the Earth.

P.EN.E.1 Forms of Energy- Heat, electricity, light, and sound are forms of energy.
P.EN.03.11 Identify light and sound as forms of energy.
P.EN.E.2 Light Properties- Light travels in a straight path. 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 direction. *
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 Observe what happens to light when it travels from air to water (a straw half in the water and half in the air looks bent). *
P.EN.E.3 Sound- Vibrating objects produce sound. The pitch of sound varies by changing the rate of vibration.
P.EN.03.31 Relate sounds to their sources of vibrations (for example: a musical note produced by a vibrating guitar string, the sounds of a drum made by the vibrating drum head).
P.EN.03.32 Distinguish the effect of fast or slow vibrations as pitch.

P.PM.E.5 Conductive and Reflective Properties – Objects vary to the extent they absorb and reflect light energy and conduct heat and electricity.

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.

Pacing Guide – 3rd Grade – 4th Marking Period

Changes in Motion

SCIENCE PROCESSES Inquiry Process

K-7 Standard S.IP: *Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.*

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S.IP.03.11 Make purposeful observation of the natural world using the appropriate senses.
S.IP.03.12 Generate questions based on observations.
S.IP.03.13 Plan and conduct simple and fair investigations.
S.IP.03.14 Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer).
S.IP.03.15 Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.
S.IP.03.16 Construct simple charts and graphs from data and observations.

Inquiry Analysis and Communication

K-7 Standard S.IA: *Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.*

S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.

S.IA.03.11 Summarize information from charts and graphs to answer scientific questions.
S.IA.03.12 Share ideas about science through purposeful conversation in collaborative groups.
S.IA.03.13 Communicate and present findings of observations and investigations.
S.IA.03.14 Develop research strategies and skills for information gathering and problem solving.
S.IA.03.15 Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.

Reflection and Social Implications

K-7 Standard S.RS: *Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology.*

S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations.

Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.

S.RS.03.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
S.RS.03.14 Use data/samples as evidence to separate fact from opinion.
S.RS.03.15 Use evidence when communicating scientific ideas.
S.RS.03.16 Identify technology used in everyday life.
S.RS.03.17 Identify current problems that may be solved through the use of technology.
S.RS.03.18 Describe the effect humans and other organisms have on the balance of the natural world.
S.RS.03.19 Describe how people have contributed to science throughout history and across cultures.

Force and Motion

K-7 Standard P.FM: *Develop an understanding that the position and/or motion of an object is relative to a point of reference. Understand forces affect the motion and speed of an object and that the net force on an object is the total of all of the forces acting on it. Understand the Earth pulls down on objects with a force called gravity. Develop an understanding that some forces are in direct contact with objects, while other forces are not in direct contact with objects.*

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.
P.FM.03.22 Identify the force that pulls objects towards the Earth.
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 weight (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 another force is being applied by the environment.
P.FM.03.35 Describe how a push or a pull is a force.
P.FM.03.36 Relate a change in motion of an object to the force that caused the change of motion.
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 mass of the object.
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.

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. *
P.FM.03.41 Describe the motion of objects in terms of direction. *
P.FM.03.42 Identify changes in motion (change direction, speeding up, slowing down).
P.FM.03.43 Relate the speed of an object to the distance it travels in a standard amount of time.

P.FM.E.1 Position – A position of an object can be described by locating the object relative to other objects or a background. The description of the motion of an object from one observers view may be different from that reported from a different observer's view.