Fifth Grade Science GLCEs		***I can...***
SCIENCE PROCESSES		
Inquiry Process		
K-7 Standard S.IP: Develop an understanding that scientific inquiry and reasoning involves observing, questioning, recording, and developing solutions to problems		
S.IP.M.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.		
S.IP.05.11	Generate scientific questions based on observations, investigations, and research.	*I can generate scientific questions based on observations, investigations, and research.*
S.IP.05.13	Use tools and equipment (spring scale, stop watches, meter sticks and tapes, models, hand lens) appropriate to science investigations.	*I can use tools and equipment (spring scale, stop watches, meter sticks and tapes, models, hand lens) appropriate to science investigations.*
S.IP.05.14	Use metric measurement devices in an investigation.	*I can use metric measurement devices in an investigation.*
S.IP.05.15	Construct charts and graphs from data and observations.	*I can construct charts and graphs from data and observations.*
S.IP.05.16	Identify patterns in data.	*I can identify patterns in data.*
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.M.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.		
S.IA.05.11	Analyze information from data tables and graphs to answer scientific questions.	*I can analyze information from data tables and graphs to answer scientific questions.*
S.IA.05.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.	*I can evaluate data, claims, and personal knowledge through collaborative science discourse.*
S.IA.05.13	Communicate and defend findings of observations and investigations using evidence.	*I can communicate and defend findings of observations and investigations using evidence.*
S.IA.05.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.	*I can draw conclusions from sets of data from multiple trials of a scientific investigation.*
S.IA.05.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.	*I can use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.*

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.M.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.05.11	Evaluate the strengths and weaknesses of claims, arguments, and data.	*I can evaluate the strengths and weaknesses of claims, arguments, and data.*
S.RS.05.12	Describe limitations in personal and scientific knowledge.	*I can describe limitations in personal and scientific knowledge.*
S.RS.05.13	Identify the need for evidence in making scientific decisions.	*I can identify the need for evidence in making scientific decisions.*
S.RS.05.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	*I can demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.*
S.RS.05.16	Design solutions to problems using technology.	*I can design solutions to problems using technology.*
S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.	*I can describe the effect humans and other organisms have on the balance in the natural world.*
S.RS.05.19	Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	*I can describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.*
PHYSICAL SCIENCE		
Forces 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.M.2 Force Interactions- Some forces between objects act when the objects are in direct contact (touching), such as friction and air resistance, or when they are not in direct contact (not touching), such as magnetic force, electrical force, and gravitational force.		
P.FM.05.21	Distinguish between contact forces and non-contact forces.	*I can distinguish between contact forces and non-contact forces.*
P.FM.05.22	Demonstrate contact and non-contact forces to change the motion of an object.	*I can demonstrate contact and non-contact forces to change the motion of an object.*

P.FM.M.3 Force- Forces have a magnitude and direction. Forces can be added. The net force on an object is the sum of all of the forces acting on the object. The speed and/or direction of motion of an object changes when a non-zero net force is applied to it. A balanced force on an object does not change the motion of the object (the object either remains at rest or continues to move at a constant speed in a straight line).		
P.FM.05.31	Describe what happens when two forces act on an object in the same or opposing directions.	*I can describe what happens when two forces act on an object in the same or opposing directions.*
P.FM.05.32	Describe how constant motion is the result of balanced (zero net) forces.	*I can describe how constant motion is the result of balanced (zero net) forces.*
P.FM.05.33	Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force.	*I can describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force.*
P.FM.05.34	Relate the size of change in motion to the strength of unbalanced forces and the mass of the object.	*I can relate the size of change in motion to the strength of unbalanced forces and the mass of the object.*
P.FM.M.4 Speed- Motion can be described by a change in position relative to a point of reference. The motion of an object can be described by its speed and the direction it is moving. The position and speed of an object can be measured and graphed as a function of time.		
P.FM.05.41	Explain the motion of an object relative to its point of reference	*I can explain the motion of an object relative to its point of reference.*
P.FM.05.42	Describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.	*I can describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.*
P.FM.05.43	Illustrate how motion can be measured and represented on a graph.	*I can illustrate how motion can be measured and represented on a graph.*
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.M.4 Animal Systems- Multicellular organisms may have specialized systems that perform functions which serve the needs of the organism.		
L.OL.05.41	Identify the general purpose of selected animal	*I can identify the general purpose of selected animal*

	systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).	*systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).*
L.OL.05.42	Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	*I can explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.*
Heredity		
K-7 Standard L.HE: Develop an understanding that all life forms must reproduce to survive. Understand that characteristics of mature plants and animals may be inherited or acquired and that only inherited traits are passed on to their young. Understand that inherited traits can be influenced by changes in the environment and by genetics.		
L.HE.M.1 Inherited and Acquired Traits - The characteristics of organisms are influenced by heredity and environment. For some characteristics, inheritance is more important; for other characteristics, interactions with the environment are more important.		
L.HE.05.11	Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.	*I can explain that the traits of an individual are influenced by both the environment and the genetics of the individual.*
L.HE.05.12	Distinguish between inherited and acquired traits.	*I can distinguish between inherited and acquired traits.*
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.M.1 Species Adaptation and Survival- Species with certain traits are more likely than others to survive and have offspring in particular environments. When an environment changes, the advantage or disadvantage of the species' characteristics can change. Extinction of a species occurs when the environment changes and the characteristics of a species are insufficient to allow survival.		
L.EV.05.11	Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.	*I can explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.*
L.EV.05.12	Describe the physical characteristics (traits) of organisms that help them survive in their environment.	*I can describe the physical characteristics (traits) of organisms that help them survive in their environment.*
L.EV.05.13	Describe how fossils provide evidence about how living things and environmental conditions have changed.	*I can describe how fossils provide evidence about how living things and environmental conditions have changed.*

L.EV.05.14	Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.	*I can analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.*
L.EV.M.2 Relationships Among Organisms- Similarities among organisms are found in anatomical features, which can be used to infer the degree of relatedness among organisms. In classifying organisms, biologists consider details of internal and external structures to be more important than behavior or general appearance.		
L.EV.05.21	Relate degree of similarity in anatomical features to the classification of contemporary organisms.	*I can relate degree of similarity in anatomical features to the I can classification of contemporary organisms.*

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.M.6 Seasons- Seasons result from annual variations in the intensity of sunlight and length of day due to the tilt of the axis of the Earth relative to the plane of its yearly orbit around the sun.		
E.ES.05.61	Demonstrate and explain seasons using a model. *	*I can demonstrate and explain seasons using a model. **
E.ES.05.62	Explain how the revolution of the Earth around the sun defines a year.	*I can explain how the revolution of the Earth around the sun defines a year.*
Earth in Space and Time		
K-7 Standard E.ST: Develop an understanding that the sun is the central and largest body in the solar system and that Earth and other objects in the sky move in a regular and predictable motion around the sun. Understand that those motions explain the day, year, moon phases, eclipses and the appearance of motion of objects across the sky. Understand that gravity is the force that keeps the planets in orbit around the sun and governs motion in the solar system. Develop an understanding that fossils and layers of Earth provide evidence of the history of Earth's life forms, changes over long periods of time, and theories regarding Earth's history and continental drift.		
E.ST.M.1 Solar System- The sun is the central and largest body in our solar system. Earth is the third planet from the sun in a system that includes other planets and their moons, as well as smaller objects, such as asteroids and comets.		

E.ST.05.11	Design a model that of the solar system that shows the relative order and scale of the planets, dwarf planets, comets, and asteriods to the sun. *	*I can design a model that of the solar system that shows the relative order and scale of the planets, dwarf planets, comets, and asteriods to the sun. **
E.ST.M.2 Solar System Motion- Gravity is the force that keeps most objects in the solar system in regular and predictable motion.		
E.ST.05.21	Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.	*I can describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.*
E.ST.05.22	Explain the phases of the moon. *	*I can explain the phases of the moon. **
E.ST.05.23	Explain the apparent motion of the stars (constellations) and the sun across the sky. *	*I can explain the apparent motion of the stars (constellations) and the sun across the sky. **
E.ST.05.24	Explain lunar and solar eclipses. *	*I can explain lunar and solar eclipses. **