

Fifth Grade Science Grade Level Content Expectations (GLCEs) v.12.07

Content Statement / Content Expectation	Words to Know	Know –Nouns- Content	Be Able to Do –Verbs- Skills and Processes
SCIENCE PROCESSES: Inquiry Process			
<i>S.IP.M.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.</i>			
S.IP.05.11 Generate scientific questions based on observations, investigations, and research.		Questions, observations, investigations, research	Generate
S.IP.05.12 Design and conduct scientific investigations.		Investigations	design, conduct
S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.		Tools, equipment, investigations	Use
S.IP.05.14 Use metric measurement devices in an investigation.	Metric	Measurement, devices, investigation	Use
S.IP.05.15 Construct charts and graphs from data and observations.		Charts, graphs, data, Observations	construct
S.IP.05.16 Identify patterns in data.		Patterns, data	Identify
SCIENCE PROCESSES: Inquiry Analysis and Communication			
<i>S.IA.M.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.</i>			
S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions.		Information, data tables, graphs, questions	Analyze, answer
S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.	Claims, Collaborative, Discourse	Data, claims, personal knowledge	Evaluate
S.IA.05.13 Communicate and defend findings of observations and investigations using evidence.		Findings, observations, investigations, evidence	Communicate, defend
S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.	Multiple trials	Conclusions Sets of data Trials, investigation	Draw conclusions
S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.	Multiple Sources	Sources, information, strengths, weaknesses, claims, arguments, data	Use, evaluate
SCIENCE PROCESSES: Reflection and Social Implications			
<i>S.RS.M.1 Reflecting knowledge is the application of scientific knowledge to new and different situations. Reflecting knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.</i>			
S.RS.05.11 Evaluate the		Strengths,	evaluate

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strengths and weaknesses of claims, arguments, and data.		weaknesses, claims, arguments, data	
S.RS.05.12 Describe limitations in personal and scientific knowledge.		Limitations, knowledge	Describe
S.RS.05.13 Identify the need for evidence in making scientific decisions.		Evidence, decisions	Identify, making
S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		Concepts, illustrations, performances, models, exhibits, activities	demonstrate
S.RS.05.16 Design solutions to problems using technology.		Solutions, problems, technology	Design, using
S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.	balance	Effect, humans, organisms, world	describe
S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Advanced, contributions	Science, technology, people, history, cultures	describe
PHYSICAL SCIENCE: Forces and Motion			
<i>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.</i>			
P.FM.05.21 Distinguish between contact forces and non-contact forces.	Contact, non-contact	forces,	distinguish
P.FM.05.22 Demonstrate contact and non-contact forces to change the motion of an object.		Forces, motion, object	demonstrate
<i>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).</i>			
P.FM.05.31 Describe what happens when two forces act on an object in the same or opposing directions.	Opposing	forces, object, directions	Describe, act on
P.FM.05.32 Describe how constant motion is the result of balanced (zero net) forces.	Zero net	Motion, result, forces	Describe
P.FM.05.33 Describe how changes in the motion of objects are caused by a non-	Non-zero net Unbalanced	Changes, motion, objects, force	Describe, caused

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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.	Relate, mass	Size, change, motion, strength, forces, mass, object	Relate
<i>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.</i>			
P.FM.05.41 Explain the motion of an object relative to its point of reference.	Relative, point of reference	Motion, object, point of reference	Explain
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.	Relationship, terms	Motion, object, distance, time, direction, moves, relationship	Describe
P.FM.05.43 Illustrate how motion can be measured and represented on a graph.		Motion, graph	Illustrate, measure, represent
LIFE SCIENCE: Organization of Living Things			
<i>L.OL.M.4 Animal Systems- Multicellular organisms may have specialized systems that perform functions which serve the needs of the organism.</i>			
L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).	Digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, reproductive	purpose, systems,	Identify
L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Ditto—see above	Systems, activities	Explain, work, perform
Heredity			
<i>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.</i>			
L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.	Traits, genetics	Traits, individual, environment, genetics, individual	Explain, influence
L.HE.05.12 Distinguish between inherited and acquired traits.	Inherited, acquired	traits	Distinguish
Evolution			
<i>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</i>			

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<i>environment changes and the characteristics of a species are insufficient to allow survival.</i>			
L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.	Behavioral characteristics, adaptation, instinct, learning, habit	Characteristics, animals, environment	explain, help, survive
L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.	Physical characteristics, traits	Physical characteristics, traits, organism, environment	Describe, survive
L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed.	Fossils	Fossils, evidence, things, conditions	Describe, provide, 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.	Environmental change, environmental catastrophic, volcanic, eruption floods, asteroid impacts, tsunami, extinction	Relationship, change, events, species	Analyze
<i>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.</i>			
L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.	Degree, similarity, anatomical features, classification, contemporary	Similarity, features, classification, organisms, degree	relate
EARTH SCIENCE: Earth Systems			
<i>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.</i>			
E.ES.05.61 Demonstrate using a model, seasons as the result of variations in the intensity of sunlight caused by the tilt of the Earth on its axis, and revolution around the sun.	Seasons, variations, intensity, tilt, axis, revolution	Model, seasons, sunlight, earth, axis, sun	Demonstrate, caused, revolution
E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year.	Defines	earth, sun, year	Explain, revolution, defines

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Earth in Space and Time			
<i>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.</i>			
E.ST.05.11 Design a model that describes the position and relationship of the planets and other objects (comets and asteroids) to the sun.	Model, position, relationship, comets, asteroids	Model, position, relationship, planets, objects, sun, comets, asteroids	Design, describe
<i>E.ST.M.2 Solar System Motion- Gravity is the force that keeps most objects in the solar system in regular and predictable motion.</i>			
E.ST.05.21 Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.	Rotation, axis, orbits, gravity	Motion, planets, moons, axis, orbits, gravity	Describe, rotation, orbits
E.ST.05.22 Explain moon phases as they relate to the position of the moon in its orbit around the Earth, resulting in the amount of observable reflected light.	Phases, Observable Reflected, orbit	Moon phases, position, moon, earth, light, amount	Explain, orbit, resulting
E.ST.05.23 Recognize that nighttime objects (stars and constellations) and the sun appear to move because the Earth rotates on its axis and orbits the sun.	Stars, constellations, rotates, axis, orbits	Objects, star, constellations, sun, earth, axis,	Recognize, move, rotates, orbits
E.ST.05.24 Explain lunar and solar eclipses based on the relative positions of the Earth, moon, and sun, and the orbit of the moon.	Lunar, solar, eclipses, relative	Lunar, solar, eclipses, positions, earth, moon, sun, orbit	Explain, orbit
E.ST.05.25 Explain the tides of the oceans as they relate to the gravitational pull and orbit of the moon.	Tides, gravitational pull	Tides, oceans, pull, orbit, moon	Explain, relate