RCSD 6th Grade Science * Quick Reference Pacing Guide * 2022-2023

1st Term: Aug. 5 - Oct.7	2nd Term: Oct.12-Dec. 21	3rd Term: Jan.10 - March 10	4th Term: March 20 - May 25
August 1 - 4 - Staff Development *August 5 -1st Day of School* *Sept. 5 - School Holiday* *Oct. 10 - School Holiday* *Oct. 11 - Student Holiday*	*Nov. 21 - 25 - Thanksgiving Break* *Dec. 16 - 21 - Exams* *Dec. 21 - 60% Day* *Dec. 22 - 30 - Christmas Break*	*Jan. 2- 6 - Christmas Break* *Jan. 9 - Staff PD - Student Holiday* *Jan. 10 - Students Return* *Jan. 16 - School Holiday* *Feb. 20 - School Holiday* *March 13 - March 17 - Spring Break*	*April 7 - School Holiday* *April 10 - School Holiday* *May 22 - 25 - Exams* *May 25 - 60% Day* *May 26 - Teacher's Last Day*
Science and Engineering Practices Scientific Method; Data Analysis **Norms of Scientific Investigations** **Introduction to Engineering Design Process** *****_The above skills and concepts should be embedded in lessons throughout the year._ **L.6.1 Students will demonstrate an understanding that living things range from simple to complex, are organized hierarchically, and function as whole living systems.** _L.6.1.1 Use arguments supported by evidence to distinguish between living and non-living things, including viruses and bacteria._ **L.6.3 Students will demonstrate an understanding of the relationships among survival, environmental changes, and diversity as they relate to the interactions of organisms, populations, and the environment.** _L.6.3.1 Use scientific reasoning to explain differences between biotic&abiotic factors_ _L.6.3.2 Develop&use models to describe the levels of organization w/in ecosystems (species, populations, communities, ecosystems, and biomes)._ _L.6.3.3 Analyze cause/effect relationships to explore how changes in the physical_	**L.6.4 Students will demonstrate an understanding of classification tools and models such as dichotomous keys to classify representative organisms based on the characteristics of the kingdoms: Archaebacteria, Eubacteria, Protists, Fungi, Plants, and Animals.** _L.6.4.1 Compare and contrast modern classification techniques (e.g., analyzing genetic material) to the historical practices used by scientists such as Aristotle and Carolus Linnaeus._ _L.6.4.2 Use classification methods to explore the diversity of organisms in kingdoms (animals, plants, fungi, protists, bacteria). Support claims that organisms have shared structural and behavioral characteristics._ _L.6.4.3 Analyze and interpret data from observations to describe how fungi obtain energy and respond to stimuli (e.g., bread mold, rotting plant material)._ _L.6.4.4 Conduct investigations using a microscope or multimedia source to compare the characteristics of protists (euglena, paramecium, amoeba) and the methods they use to obtain energy and move through their environment (e.g., pond water)._	**P.6.6 Students will demonstrate an understanding of Newton's laws of motion using real world models and examples.** _P.6.6.1 Use an engineering design process to create or improve safety devices (e.g., seat belts, car seats, helmets) by applying Newton's Laws of motion. Use an engineering design process to define the problem, design, construct, evaluate, and improve the safety device.*_ _P.6.6.2 Use mathematical computation and diagrams to calculate the sum of forces acting on various objects._ _P.6.6.3 Investigate and communicate ways to manipulate applied/frictional forces to improve movement of objects on various surfaces (e.g., athletic shoes, wheels on cars)._ _P.6.6.4 Compare and contrast magnetic, electric, frictional, and gravitational forces._ _P.6.6.5 Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration._ _P.6.6.6 Investigate forces (gravity, friction, drag, lift, thrust) acting on objects (e.g., airplane, bicycle helmets). Use data to_	**E.6.8 Students will demonstrate an understanding of Earth's place in the universe and the interactions of the solar system (sun, planets, their moons, comets, and asteroids) using evidence from multiple scientific resources to explain how these objects are held in orbit around the Sun because of its gravitational pull.** _E.6.8.1 Obtain, evaluate, and summarize past and present theories and evidence to explain the formation and composition of the universe._ _E.6.8.2 Use graphical displays or models to explain the hierarchical structure (stars, galaxies, galactic clusters) of the universe._ _E.6.8.3- Evaluate modern techniques used to explore our solar system's position in the universe._ _E.6.8.4 Obtain and evaluate information to model and compare the characteristics and movements of objects in the solar system (including planets, moons, asteroids, comets, and meteors)._

environment (limiting factors, natural disasters) can lead to population changes within an ecosystem. *L.6.3.4 Investigate interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships).* *L.6.3.5 Develop& use food chains, webs, pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers.* *L.6.1.2 Obtain & communicate evidence to support the cell theory.* *L.6.1.3 Develop& use models to explain how specific cellular components (cell wall, cell membrane, nucleus, chloroplast, vacuole,mitochondria) function together to support prokaryotic & eukaryotic organisms to include plants, animals, fungi, protists, & bacteria (not to include biochemical function of cells or cell part).* *L.6.1.4 Compare/contrast different cells; classify them as a protist, fungus, plant, or animal.* *L.6.1.5 Provide evidence that organisms are unicellular or multicellular.* *L.6.1.6 Develop&use models to show relationships among the increasing complexity of multicellular organisms (cells, tissues, organs, organ systems, organisms) & how they serve the needs of the organism.*	*L.6.4.5 Engage in scientific arguments to support claims that bacteria (Archaebacteria and Eubacteria) and viruses can be both helpful and harmful to other organisms and the environment.*	*explain the differences between the forces in various environments.* *P.6.6.7 Determine the relationships between the concepts of potential, kinetic, and thermal energy*	*E.6.8.5 Construct explanations for how gravity affects the motion of objects in the solar system and tides on Earth.* *E.6.8.6 Design models representing motions within the Sun-Earth-Moon system to explain phenomena observed from the Earth's surface (positions of celestial bodies, day and year, moon phases, solar and lunar eclipses, and tides).* *E.6.8.7 Analyze and interpret data from the surface features of the Sun (e.g., photosphere, corona, sunspots, prominences, and solar flares) to predict how these features may affect Earth.*