Grade 6 Science Proficiency Scale Quarter 1

	1-Novice	2-Approaching	3-Proficient	4-Advanced
Engineering and Design	Has been exposed to and is working towards being able to apply the engineering design process or scientific method.	Completes some of the steps of the engineering design process or scientific method in problem solving or conducting research.	Appropriately uses the steps in the engineering design process when solving a problem and/or uses the steps of the scientific method to conduct research (ETS1-1, ETS1-2, ETS1-3, ETS1-4).	Appropriately uses the steps in the engineering design process when solving a problem **and** uses the steps of the scientific method to conduct research, using precision and creativity while stating several potential impacts or limitations of the design or potential findings from research.
Kinetic Energy, Mass & Speed	Has been exposed to and is working towards being able to understand vocabulary and knowledge of the relationship between the mass, speed, and kinetic energy of an object.	Uses vocabulary to describe the relationship between kinetic energy and mass and/or speed of an object or has limited connection between knowing and doing.	Creates and interprets graphs to explain the relationships of kinetic energy to the mass and speed of an object (PS.3-1, RST.6-8.4).	Uses knowledge of kinetic energy and relates it to an object's speed and mass and applies it to think creatively or critically, applying knowledge to real world problems or situations.
Kinetic Energy Transfer	Has been exposed to vocabulary and is working towards being able to use vocabulary to demonstrate knowledge of the relationship between an object's kinetic energy and energy transfer.	Uses vocabulary to describe how a change in an object's kinetic energy causes energy transfer or has limited connection between knowing and doing.	Constructs, uses, and presents arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object (PS.3-5, RST.6-8.4).	Uses knowledge of kinetic energy and energy transfer to or from an object and applies it to solve real world problems.
Potential Energy	Has been exposed to and is working towards understanding the relationship between potential energy and how it is stored in a system.	Uses vocabulary to describe how potential energy is stored in a system or has limited connection between knowing and doing.	Develops a model to show how distance between two objects affects the amount of potential energy stored in the system (PS.3-2, RST.6-8.4).	Uses knowledge of potential energy and how it relates to the distance between two objects and applies it to solve real world examples.

Grade 6 Science Proficiency Scale Quarter 2

	1 – Novice	2-Approaching	3 -Proficient	4 -Advanced
Engineering and Design	Has been exposed to and is working towards being able to apply the engineering design process or scientific method.	Completes some of the steps of the engineering design process or scientific method in problem solving or conducting research.	Appropriately uses the steps in the engineering design process when solving a problem and/or uses the steps of the scientific method to conduct research (ETS1-1, ETS1-2, ETS1-3, ETS1-4).	Appropriately uses the steps in the engineering design process when solving a problem **and** uses the steps of the scientific method to conduct research, using precision and creativity while stating several potential impacts or limitations of the design or potential findings from research.
Newton's 1st Law	Has been exposed to and is working towards being able to use vocabulary and/or knowledge of Newton's First Law of Motion.	Uses specific vocabulary (inertia, force, velocity, mass) to describe the key parts of Newton's First Law of motion.	Plans an investigation to provide evidence to show an object's change in motion using Newton's First Law (PS.2-2, RST.6-8.4).	Uses knowledge of Newton's First Law of Motion and applies it to a variety of real- world examples to demonstrate understanding.
Newton's 2nd Law	Has been exposed to and is working towards being able to use vocabulary and/or knowledge of Newton's Second Law of Motion.	Uses specific vocabulary (inertia, force, velocity, mass) to describe the key parts of Newton's Second Law of motion or has limited connection between knowing and doing.	Plans an investigation to provide evidence to show an object's change in motion using Newton's Second Law (PS.2-2, RST.6-8.4).	Uses knowledge of Newton's Second Law of Motion and applies it to a variety of real-world examples to demonstrate understanding.
Newton's 3rd Law	Has been exposed to and is working towards demonstrating an understanding of some vocabulary and/or knowledge of Newton's Third Law of Motion.	Uses specific vocabulary to describe the key parts of Newton's Third Law (direction, acceleration, force) of motion **or** has limited connection between knowing and doing.	Applies Newton's Third Law of Motion to design a solution to a problem involving the motion of two colliding objects (PS.2-1, P2-3, RST.6-8.4).	Uses knowledge of Newton's Third Law of Motion and applies it to a variety of real-world examples to demonstrate understanding.
Magnetic Energy	Has been introduced to and is working towards using some vocabulary and understanding magnetic forces.	Uses specific vocabulary (magnetic fields, attraction) to describe magnetic forces.	Conducts an investigation and evaluates the experimental design to provide evidence that fields exist between objects and exert forces on each other even though the objects are not in contact (PS.2-5, PS.2-3, PS.2-4 RST.6-8.4).	Uses knowledge of magnetic forces and the factors causing them and creatively connects knowledge to a variety of real-world examples and/or applications to demonstrate understanding.

Grade 6 Science Proficiency Scale Quarter 3

	1 – Novice	2 -Approaching	3 -Proficient	4 -Advanced
Engineering and Design	Has been exposed to and is working towards being able to apply the engineering design process or scientific method.	Completes some of the steps of the engineering design process or scientific method in problem solving or conducting research.	Appropriately uses the steps in the engineering design process when solving a problem and/or uses the steps of the scientific method to conduct research (ETS1-1, ETS1-2, ETS1-3, ETS1-4).	Appropriately uses the steps in the engineering design process when solving a problem **and** uses the steps of the scientific method to conduct research, using precision and creativity while stating several potential impacts or limitations of the design or potential findings from research.
States of Matter	Has been introduced to and is working towards being able to use vocabulary and knowledge of changes in states of matter due to a change in thermal energy.	Uses specific vocabulary to describe the changes to a substance when thermal energy has been changed **OR** has a limited connection between knowing and doing.	Develops a model that predicts and describes changes in properties and states of matter of a substance when thermal energy is added or removed (PS.1-4, RST.6-8.4).	Uses knowledge of the relationship between thermal energy and changes in states of matter and applies it to a variety of real-world examples.
Molecular Structure	Has been exposed to and is working towards being able to use vocabulary and/or knowledge of the atomic composition of molecules.	Uses specific vocabulary to describe the atomic composition of molecules.	Develops models to describe the atomic composition of simple molecules (PS.1-1, RST.6-8.4).	Uses knowledge of atomic composition to develop models that demonstrate simple and complex molecules.
Chemical Properties	Has been introduced to and is working to understand vocabulary and knowledge of chemical reactions.	Uses specific vocabulary to describe the signs of a chemical reaction and how it changes a substance **or** has limited connection between knowing and doing regarding chemical reactions.	Analyzes and interprets data on the properties of substances to determine if a chemical reaction has occurred (PS.1-2, RST.6-8.4).	Uses knowledge of the properties of chemical reactions and how they result in a change in a substance and applies it to real world examples.

Grade 6 Science Proficiency Scale Quarter 4

	1 – Novice	2 - Approaching	3 -Proficiency	4 -Advanced
Engineering Design Process	Has been exposed to and is working towards being able to apply the engineering design process or scientific method.	Completes some of the steps of the engineering design process or scientific method in problem solving or conducting research.	Appropriately uses the steps in the engineering design process when solving a problem and/or uses the steps of the scientific method to conduct research (ETS1-1, ETS1-2, ETS1-3, ETS1-4).	Appropriately uses the steps in the engineering design process when solving a problem **and** uses the steps of the scientific method to conduct research, using precision and creativity while stating several potential impacts or limitations of the design or potential findings from research.
Thermal Energy Transfer	Has been introduced to and is working towards understanding some vocabulary and/or knowledge of thermal energy transfer.	Uses specific vocabulary to describe the relationships among energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles **OR** has limited connection between knowing and doing regarding thermal energy transfer.	Plans an investigation to determine the relationships among energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample (PS.3-4, RST.6-8.4).	Plans an investigation to determine the relationships among energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample and relates investigation to real world applications.
Conservation of Energy	Has been introduced to vocabulary and concepts and is working towards being able describe energy transfer and conservation.	Uses specific vocabulary to describe energy transfer and how energy can be converted but is conserved **OR** has limited connection between knowing and doing regarding conservation of energy.	Uses a model or an investigation <u>to collect evidence to support the claim</u> that energy is conserved during the transfer of energy (PS.1-6, PS.3-3 RST.6-8.4).	Uses a model or an investigation <u>to collect evidence to support the claim</u> that energy is conserved during the transfer of energy and applies it to real-world examples.
Conservation of Mass	Has been introduced to and is working towards being able to describe chemical reactions, the atomic structure of a molecule, and the conservation of mass.	Uses specific vocabulary to describe a chemical reaction and the atomic structure of a molecule and conservation of mass **OR** has limited connection between knowing and doing, regarding conservation of mass.	Develops and uses a model to describe how mass is conserved in a chemical reaction and describe how the number of atoms does not change (PS.1-5, RST.6-8.4).	Uses knowledge of the conservation of mass and relation to chemical reactions and applies it to a variety of real-world problems or situations to demonstrate understanding.
Waves	Has been exposed to and is working towards being able to describe a simple model for waves and develop and use a model to describe how waves are reflected, absorbed, or transmitted through materials.	Describes a simple model for waves that includes amplitude OR develops and/or uses a model to describe how waves are reflected, absorbed, or transmitted through various materials.	Describes a simple model for waves that <u>includes evidence</u> indicating how the amplitude is related to the energy in a wave (PS.4-1) and develops and uses a model to describe how waves are reflected, absorbed, or transmitted through various materials (PS.4-2).	Develops a simple model for waves that includes <u>evidence</u> indicating how the amplitude is related to the energy in a wave and develops and uses a model to describe how waves are reflected, absorbed, and transmitted through various materials and can provide relevant examples.