ISTEP+ Grade 6 Science
Performance Level Descriptors

Pass +	*Pass*	*Did Not Pass*
Pass+ students demonstrate advanced understanding of the physical world through investigations and experiences. They design solutions to problems through a variety of methodologies, such as: design simple devices, calculate, and organize data. *Pass+* students have a superior understanding of the relationships between and among the natural world, events, and processes. *Pass+* students demonstrate a strong understanding that all organisms are part of a complex system and that they work together to create a complete ecosystem in which each change can cause changes in other parts of the ecosystem. *Pass+* students apply mathematics to science when representing and synthesizing data and analyzing relationships within systems in great detail. Examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Pass+* level include, but are not limited to, the following: • Explain how gravity affects weight and how weight is different on other objects in the solar system. • Describe how energy can be transferred from kinetic	*Pass* students demonstrate a proficient understanding of the physical world through investigations and experiences. They design solutions to problems through scientific methodologies, such as: design simple devices, calculate, and organize data. *Pass* students understand the relationships between and among the natural world, events, and processes. *Pass* students demonstrate an understanding that all organisms are part of a complex system and that they work together to create a complete ecosystem in which each change can cause changes in other parts of the ecosystem. *Pass* students apply mathematics to science when representing and synthesizing data and analyzing relationships within systems. Examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Pass* level include, but are not limited to, the following: • Recognize how potential and kinetic energy are related and can occur in many forms. • Understand and describe the relationships (including predator/prey) between organisms found in a food chain/web.	*Did Not Pass* students demonstrate limited understanding of the physical world through investigations and experiences. They design simple solutions for problems through scientific methodologies, such as: design simple devices, calculate, and organize data. *Did Not Pass* students demonstrate a basic understanding of the relationships between and among the natural world, events, and processes. *Did Not Pass* students may have difficulty understanding that all organisms are part of a complex system and that they work together to create a complete ecosystem in which each change can cause changes in other parts of the ecosystem. *Did Not Pass* students demonstrate minimal ability in applying mathematics to science when representing and synthesizing data and when analyzing relationships within systems. Examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Did Not Pass* level include, but are not limited to, the following: • Select the appropriate tool (including technology) for scientific investigations. • Organize and interpret tables and graphs to identify simple patterns.

energy to potential energy and potential energy to kinetic energy. • Explain how prototypes can be useful when trying to find a solution to an engineering design problem. • Design, evaluate, and refine (if necessary) a simple investigation to solve a problem. • Explain how specific changes in an ecosystem will have positive or negative effects on certain ecosystems. • Explain the role of decomposers in the ecosystem and compare those roles with that of producers and consumers.	• Understand the biotic and abiotic factors that can limit the number of organisms that an ecosystem can support. • Explain the movements of objects in the solar system and explain how those movements affect seasons, night and day, and intensity of sunlight throughout the year. • Recognize the role and effects of gravity on Earth and in the solar system. • Organize and interpret simple tables and graphs and use the data to propose solutions and make inferences based on the data. • Choose appropriate tools to plan an investigation. • Understand the behavior of particles in solids, liquids, and gasses. • Understand and apply the law of conservation of mass in laboratory and real-world settings.	• Describe characteristics of objects in the solar system (i.e., size, shape, composition of Earth). • Identify producers, consumers, and decomposers. • Identify technologies that mimic the function of human body parts. • Accurately read scientific tools that show the volume and weight of a sample of a given material. • Understand that plants use the sun to make energy.