SDSA-Alt 8th Grade Achievement Level Descriptors / Performance Level Descriptors

Introducing	**Developing**	**Applying**	**Advancing**
A student performing at Introducing has not met most of the fundamental expectations of South Dakota's Science Standards Core Content Connectors at the end of 8th grade. A student at this level can explore a model of an atom, observe falling objects, explore cells, explore environmental factors that affect growth, explore a model of Earth orbiting the sun and the moon orbiting Earth, and explore the different plates of the Earth.	A student performing at Developing has partially met the expectations of South Dakota's Science Standards Core Content Connectors at the end of 8th grade. A student at this level can identify the nucleus and electrons in an atom model, recognize that the rate of gravity is the same for all objects, identify parts of a cell in a model, identify factors that influence growth of an ecosystem, recognize that the moon orbits Earth while Earth orbits the sun, and recognize the Earth's crust is made up of plates.	A student performing at Applying has met the expectations of South Dakota's Science Standards Core Content Connectors at the end of 8th grade. A student at this level can identify evidence of a chemical reaction, recognize that gravity exerts a greater force on massive objects, identify functions of cell components, identify environmental and genetic factors that affect growth, recognize interplanetary relationships as influenced by gravity, and recognize the major tectonic plates.	A student performing at Advancing exceeds the expectations of South Dakota's Science Standards Core Content Connectors at the end of 8th grade. A student at this level can demonstrate different signs of a chemical reaction, explain how smaller objects need less force to change motion than larger objects, explain how parts of a cell work together to support life, describe cycling of energy and matter among living and nonliving parts of an ecosystem, describe why we have solar and lunar eclipses, and describe how plate tectonics have changed Earth over time.
Explore model of atom	Identify nucleus and electrons in atom model	Identify protons and neutrons in nucleus, and surrounding electrons	Compare models of different atoms and explain how they differ
Respond to changes in a piece of bread before and after toasting	Recognize a change in color can be a chemical change	Identify evidence of a chemical reaction	Demonstrate different signs of a chemical reaction
Identify a collision	Recognize forces involved in a collision	Describe how forces work in action-reaction pairs	Explain how smaller objects need less force to change motion than larger objects
Observe falling objects	Recognize that the rate of gravity is the same for all objects	Recognize that gravity exerts a greater force on massive objects (e.g.earth and sun)	Compare magnitude of gravitational force on objects of different mass
Use an object to minimize thermal (temperature) transfer	Identify different objects that can prevent thermal (temperature) transfer	Recognize objects that can maximize or minimize thermal (temperature) transfer	Demonstrate that thermal (temperature) energyis transferred from hotter to colder objects
Observe transfer of kinetic (motion) energy	Recognize kinetic (motion) energy	Identify the transfer of kinetic (motion) energy in a model	Demonstrate the transfer of kinetic (motion)energy
Identify a wave	Locate the parts of a wave	Identify how amplitude is a measure of energy in the wave	Identify qualitatively how amplitude is related to energy in a wave
Explore sound transfer	Identify materials that transfer sound	Identify materials that absorb or reflect sound	Demonstrate how sound waves travel through various media
Explore light transfer	Identify materials that transfer light	Identify materials that absorb or reflect light	Demonstrate how light waves travel through various media
Explore cells	Identify parts of a cell in a model	Identify function of cell components	Explain how parts of a cell work together to support life
Explore organ systems	Identify levels of organization from cell to systems	Identify major organ systems (e.g. circulatory, excretory, digestive, respiratory etc.)	Explain how body is made of multiple interacting subsystems
Explore environmental factors that affect growth	Recognize environmental factors that affect growth	Identify environmental and genetic factors that affect growth	Explain how environmental and genetic factors affect growth
Explore energy conversion in plants (e.g. photosynthesis)	Identify plant structures involved in energy transfer	Use a model to identify flow of energy as plants use energy from light to make sugars	Demonstrate the flow of energy and matter as plants use energy from light to make sugars
Explore energy conversion in animals (e.g. cellular respiration)	Recognize common structures to release energy from food in organisms	Use a model to identify flow of energy as animals release energy from food	Identify the process of breaking down food molecules to release energy that can support other processes within an organism
Explore parts of an ecosystem	Identify factors that influence growth of an ecosystem	Describe energy transfer between organisms in an ecosystem	Describe cycling of energy and matter among living and nonliving parts of an ecosystem
Match pictures of young organisms with parents	Recognize similarities in pictures of organisms with a common ancestor	Recognize similarities and differences in pictures of organisms with common ancestors	Describe how organisms with a common ancestor change over time as they adapt to their environments
Explore a model of Earth orbiting the sun and the moon orbiting Earth	Recognize that the moon orbits Earth, and Earth orbits the sun	Use a model of Earth-sun-moon to visualize solar and lunar eclipses	Describe why we have solar and lunar eclipses
Attend to the concept of planets (use explore instead of attend)	State the solar system is made up of planets	Identify the solar system is one of many systems in the Milky Way galaxy	Describe that the solar system is one of many systems in the Milky Way, which is one of many galaxy systems in the universe
Explore concept of gravity	Recognize that gravity holds together the solar system	Recognize interplanetary (e.g. between planets and planets/moon) as influenced by gravity	Recognize the relationships and interactions between components of the solar system as a collection of many varied objects held together by gravity
Explore different objects in the solar system	Identify different planets in the solar system using pictures	Identify planets, meteors, asteroids, and comets in pictures	Use data to describe the characteristics of planets, meteors, asteroids, and comets in pictures based on their features
Explore the different plates of the Earth	Recognize the Earth's crust is made up of plates	Recognize the major tectonic plates	Describe how plate tectonics have changed the Earth over time
Observe different weather conditions	Indicate current weather conditions	Label factors that create weather	List factors that create weather
Explore natural hazards	Identify the effects of natural hazards	Recognize how technology has helped handled natural hazards	Describe technologies developed to deal with natural hazards by predicting, protecting life and property, or withstanding an event