Colorado Academic Standards by Grade: Science

Preschool and Kindergarten

	Back to the Moon	Dark	Distant Worlds Alien Life?	Flight Adventures	From Earth to Universe	IBEX-Search Solar System	Journey to Center Milky Way*	Losing the Dark*	Magnetism	Mayan Archaeo-astronomy	NASA Journey to Mars*	New Horizons for a Little Planet*	Phantom of the Universe	Saturn Ring World	Seeing	Sunstruck	The Dark Matter Mystery	The Hot and Energetic Universe	The Incredible Sun*	Two Small Pieces of Glass
Grade Level Expectations: Preschool																				
Physical Science																				
1. Objects have properties and characteristics	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x
2. There are cause-and-effect relationships in everyday experiences	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x
Life Science																				
1. Living things have characteristics and basic needs			x						x						x					
2. Living things develop in predictable patterns			x																	
Earth Systems Science																				
1. Earth's materials have properties and characteristics that affect how we use those materials									x											
2. Events such as night, day, the movement of objects in the sky, weather, and seasons have patterns	x	x	x		x		x	x		x		x		x		x	x	x		x
Grade Level Expectations: Kindergarten																				
Physical Science																				
1. Objects can move in a variety of ways that can be described by speed and direction	x	x	x	x	x					x			x	x	x	x	x			x
Life Science																				
1. Organisms can be described and sorted by their physical characteristics																				
Earth Systems Science																				
1. The sun provides heat and light to Earth	x		x		x	x		x	x	x	x					x			x	

*Short film (add-on)

First and Second Grade

	Back to the Moon	Dark	Distant Worlds Alien Life?	Flight Adventure	From Earth to Universe	IBEX-Search Solar System	Journey to Center Milky Way*	Losing the Dark*	Magnetism	Mayan Archaeo-astronomy	NASA Journey to Mars*	New Horizons for a Little Planet*	Phantom of the Universe	Saturn Ring World	Seeing	Sunstruck	The Dark Matter Mystery	The Hot and Energetic Universe	The Incredible Sun	Two Small Pieces of Glass
Grade Level Expectations: First Grade																				
Physical Science																				
1. Solids and liquids have unique properties that distinguish them	x		x		x									x						
Life Science																				
1. Offspring have characteristics that are similar to but not exactly like their parents' characteristics																				
2. An organism is a living thing that has physical characteristics to help it survive			x						x											
Earth Systems Science																				
1. Earth's materials can be compared and classified based on their properties			x						x											x
Grade Level Expectations: Second Grade																				
Physical Science																				
1. Changes in speed or direction of motion are caused by forces such as pushes and pulls.	x	x	x	x	x		x		x			x	x	x	x	x	x			x
Life Science																				
1. Organisms depend on their habitat's nonliving parts to satisfy their needs			x						x											
2. Each plant or animal has different structures or behaviors that serve different functions			x												x					
Earth Systems Science																				
1. Weather and the changing seasons impact the environment and organisms such as humans, plants, and other animals			x						x	x										

*Short film (add-on)

Third and Fourth Grade

	Back to the Moon	Dark	Distant Worlds Alien Life	Flight Adventure	From Earth to Universe	IBEX-Search Solar System	Journey to Center Milky Way*	Losing the Dark*	Magnetism	Mayan Archaeo-astronomy	NASA Journey to Mars*	New Horizons for a Little Planet*	Phantom of the Universe	Saturn Ring World	Seeing	Sunstruck	The Dark Matter Mystery	The Hot and Energetic Universe	The Incredible Sun	Two Small Pieces of Glass
Grade Level Expectations: Third Grade																				
Physical Science																				
1. Matter exists in different states such as solids, liquids, and gases and can change from one state to another by heating and cooling	x		x		x								x	x	x					
Life Science																				
1. The duration and timing of life cycle events such as reproduction and longevity vary across organism and species																				

Earth Systems Science																					
1. Earth's materials can be broken down and/or combined into different materials such as rocks, minerals, rock cycle, formation of soil, and sand – some of which are usable resources for human activity																					
Grade Level Expectations: Fourth Grade																					
Physical Science																					
1. Energy comes in many forms such as light, heat, sound, magnetic, chemical, and electrical	x	x	x	x	x	x			x				x	x	x	x	x				x
Life Science																					
1. All living things share similar characteristics, but they also have differences that can be described and classified			x																		
2. Comparing fossils to each other or to living organisms reveals features of prehistoric environments and provides information about organisms today																					
3. There is interaction and interdependence between and among living and nonliving components of systems			x						x		x					x					
Earth Systems Science																					
1. Earth is part of the solar system, which includes the Sun, Moon, and other bodies that orbit the Sun in predictable patterns that lead to observable paths or objects in the sky as seen from Earth.	x	x	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	

Fifth and Sixth Grade

	Back to the Moon	Dark	Distant Worlds Alien Life	Flight Adventure	From Earth to Universe	IBEX-Search Solar System	Journey to Center Milky Way*	Losing the Dark*	Magnetism	Mayan Archaeo-astronomy	NASA Journey to Mars*	New Horizons for a Little Planet*	Phantom of the Universe	Saturn Ring World	Seeing	Sunstruck	The Dark Matter Mystery	The Hot and Energetic Universe	The Incredible Sun	Two Small Pieces of Glass
Grade Level Expectations: Fifth Grade																				
Physical Science																				
1. Mixtures of matter can be separated regardless of how they were created; all weight and mass of the mixture are the same as the sum of weight and mass of its parts													x							
Life Science																				
1. All organisms have structures and systems with spate functions			x												x					
2. Human body systems have basic structures, functions, and needs			x												x					
Earth Systems Science																				
1. Earth and sun provide a diversity of renewable and nonrenewable resources	x		x		x			x								x				
2. Earth's surface changes constantly through a variety of processes and forces			x		x				x							x				
3. Weather conditions change because of the uneven heating of Earth's surface by the Sun's energy. Weather changes are measured by differences in temperature, air pressure, wind and water in the atmosphere and type of precipitation					x				x	x				x		x			x	
Grade Level Expectations: Sixth Grade																				
Physical Science																				
1. All matter is made of atoms, which are far too small to see directly through a light microscope. Elements have unique atoms and thus, unique properties. Atoms themselves are made of even smaller particles						x							x		x					
2. Atoms may stick together in well-defined molecules or be packed tighter in large arrangements. Different arrangements of atoms into groups compose all substances															x	x				
3. The physical characteristics and changes of solid, liquid, and gas states can be explained using the particulate model																				
4. Distinguish among, explain, and apply the relationships among mass, weight, volume, and density																				
Life Science																				
1. Changes in environmental conditions can affect the survival of individual organism, and populations, and entire species.			x						x											
2. Organisms interact with each other and their environment in various ways that create a flow of energy and cycling of matter in an ecosystem																				
Earth Systems Science																				
1. Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive.					x				x											

2. Water on Earth is distributed and circulated through oceans, glaciers, rivers, ground water, and the atmosphere											x									
3. Earth's natural resources provide the foundations for human society's physical needs. Many natural resources are nonrenewable on human timescales, while others can be renewed or recycled.								x												

*Short film (add-on)

Seventh and Eighth Grades

	Back to the Moon	Dark	Distant Worlds Alien Life?	Flight Adventure	From Earth to Universe	IBEX-Search Solar System	Journey to Center Milky Way*	Losing the Dark*	Magnetism	Mayan Archaeo-astronomy	NASA Journey to Mars*	New Horizons for a Little Planet*	Phantom of the Universe	Saturn Ring World	Seeing	Sunstruck	The Dark Matter Mystery	The Hot and Energetic Universe	The Incredible Sun	Two Small Pieces of Glass
Grade Level Expectations: Seventh Grade																				
Physical Science																				
1. Mixtures of substances can be separated based on their properties such as solubility, boiling points, magnetic properties, and densities									x											
Life Science																				
1. Individual organisms with certain traits are more likely than others to survive and have offspring in a specific environment																				
2. The human body is composed of atoms, molecules, cells, tissues, organs, and organ systems that have specific functions and interactions																				
3. Cells are the smallest unit of life that can function independently and perform all the necessary functions of life																				
4. Photosynthesis and cellular respiration are important processes by which energy is acquired and utilized by organisms			x													x				
5. Multiple lines of evidence show the evolution of organisms over geologic time																				
Earth Systems Science																				
1. Major geologic events such as earthquakes, volcanic eruptions, mid-ocean ridges, and mountain formation are associated with plate boundaries and attributed to plate motions																				
2. Geologic time, history and changing life forms are indicated by fossils and successive sedimentation, folding, faulting, and uplifting of layers of sedimentary rock									x											
Grade Level Expectations: Eighth Grade																				
Physical Science																				
1. Identify and calculate the direction and magnitude of forces that act on an object, and explain the results in the object's change of motion				x													x			
2. There are different forms of energy, and those forms of energy can be changed from one form to another- but total energy is conserved																				
3. Distinguish between physical and chemical changes, noting that mass is conserved during any change																				
4. Recognize that waves such as electromagnetic, sound, seismic, and water have common characteristics and unique properties.									x							x		x		x
Life Science																				
1. Human activities can deliberately or inadvertently alter ecosystems and their resiliency																				
2. Organisms reproduce and transmit genetic information (genes) to offspring, which influences individuals' traits in the next generation																				
Earth Systems Science																				
1. Weather is a result of complex interactions of Earth's atmosphere, land and water, that are driven by energy from the sun, and can be predicted and described through complex models									x							x				
2. Earth has a variety of climates defined by average temperature, precipitation, humidity, air pressure, and wind that have changed over time in a particular location																				
3. The solar system is comprised of various objects that orbit the Sun and are classified based on their characteristics	x	x	x		x	x	x	x	x	x	x	x	x	x			x	x	x	x
4. The relative positions and motions of Earth, Moon, and Sun can be used to explain observable effects such as seasons, eclipses, and Moon phases		x	x		x		x	x	x	x			x			x			x	x

*Short film (add-on)