Seventh Grade Science Content Standards and Objectives

Standard 2:	Nature of Science	
SC.S.7.1	Students will • demonstrate an understanding of the history of science and the evolvement of scientific knowledge. • demonstrate an understanding of science as a human endeavor encompassing the contributions of diverse cultures and scientists. • demonstrate an understanding of the characteristics of a scientist. • demonstrate skills of scientific inquiry.	
Objectives	**Students will**	**PLT Activity and Page**
SC.O.7.1.01	realize that scientists formulate and test their explanations of nature using observation and experiments.	#4 Sounds Around p. 26 #27 Every Tree for Itself p.117 #72 Air We Breathe p.308 #84 The Global Climate p.363
SC.O.7.1.02	recognize scientific knowledge is subject to modification as new scientific information challenges current explanations.	
SC.O.7.1.03	examine the careers and contributions of men and women of diverse cultures to the development of science.	
SC.O.7.1.04	compare and contrast the historical significance of scientific discoveries.	

SC.O.7.1.05	cooperate and collaborate to ask questions, design and conduct investigations to find answers and solve problems.	#10 Charting Diversity p. 51 #11 Can It Be Real? p. 54 #47 Are Vacant Lots Vacant? p.200 #72 Air We Breathe p.308 #84 The Global Climate p.363
SC.O.7.1.06	formulate conclusions through close observations, logical reasoning, objectivity, perseverance and integrity in data collection.	
SC.O.7.1.07	apply skepticism, careful methods, logical reasoning and creativity in investigating the observable universe.	
SC.O.7.1.08	use a variety of technologies and scientific instruments to conduct explorations, investigations and experiments of the natural world.	
SC.O.7.1.09	demonstrate safe techniques for handling, manipulating and caring for science materials, equipment, natural specimens and living organisms.	#23 The Fallen Log p.105 #47 Are Vacant Lots Vacant? p.200 #48 Field, Forest & Stream p.203 #51 Make Your Own Paper p.224 #72 Air We Breathe p.308 #84 The Global Climate p.363

SC.O.7.1.10	utilize experimentation to demonstrate scientific processes and thinking skills (e.g., formulating questions, predicting, forming hypotheses, quantifying, or identifying dependent and independent variables).	
SC.O.7.1.11	construct and use charts, graphs and tables to organize, display, interpret, analyze and explain data.	#12 Invasive Species p. 59 #27 Every Tree for Itself p.117 #32 A Forest of Many Uses p.135 #39 Energy Sleuths p.167 #44 Water Wonders p.188 #73 Waste Watchers p.314 #86 Our Changing World p.375
SC.O.7.1.12	use inferential reasoning to make logical conclusions from collected data.	
Standard 2:	Content of Science	
SC.S.7.2	Students will • demonstrate knowledge, understanding and applications of scientific facts, concepts, principles, theories and models as delineated in the objectives. • demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy. • apply knowledge, understanding and skills of the science subject matter/concepts to daily life experiences.	
Objectives	**Students will**	**PLT Activity and Page**
SC.O.7.2.01	demonstrate an understanding of the interrelationships among physics, chemistry, biology, earth/environmental science, and astronomy.	
SC.O.7.2.02	identify and describe disease causing organisms (such as bacteria, viruses, protozoa, fungi) and the diseases they cause.	#10 Charting Diversity p.50
SC.O.7.2.03	explain how skeletal, muscular, and integumentary systems work together in the human body.	
SC.O.7.2.04	compare the level of organization of cells, tissues and organs in living things.	
SC.O.7.2.05	construct simple keys to differentiate among living things with similar characteristics.	
SC.O.7.2.06	use pictures to show cyclical processes in nature (e.g., water cycle, nitrogen cycle, or carbon cycle).	
SC.O.7.2.07	evaluate how the different adaptations and life cycles of plants and animals help them to survive in different niches and environments (e.g., inherited and acquired adaptations).	

SC.O.7.2.08	analyze how changes in the environment have led to reproductive adaptations through natural selection.	#22 Trees as Habitats p.102 #26 Dynamic Duos p.113 #27 Every Tree for Itself p.117 #43 Have Seeds, Will Travel p.183 #47 Are Vacant Lots Vacant? p.200 #66 Germinating Giants p.279 #88 Life on the Edge p.382
SC.O.7.2.09	explain how an organism's behavior response is a combination of heredity and the environment.	
SC.O.7.2.10	analyze the differences in the growth, development and reproduction in flowering and non-flowering plants.	#4 Sounds Around p. 26 #12 Invasive Species p. 59 #31 Plant a Tree p.132 #33 Forest Consequences p.138 #37 Reduce, Reuse, Recycle p.159 #38 Every Drop Counts p.163 #40 Then and Now p.174 #60 400-Acre Wood p.217 #71 Watch on Wetlands p.303 #72 Air We Breathe p.308 #73 Waste Watchers p.314 #84 The Global Climate p.363 #85 In the Driver's Seat p.370
SC.O.7.2.11	predict the trends of interdependent populations if one of the limiting factors is changed.	
SC.O.7.2.12	evaluate the consequences of the introduction of chemicals into the ecosystem (e.g., environmental consequences, human health risks, or mutations).	
SC.O.7.2.13	compare differences among elements, compounds, homogeneous and heterogeneous mixtures.	
SC.O.7.2.14	examine the differences in types of solutions (e.g., solutes and solvents, relative concentrations, conductivity, pH).	
SC.O.7.2.15	examine chemical reactions involving acids and bases by monitoring color changes of indicator(s) and identifying the salt formed in the neutralization reaction.	
SC.O.7.2.16	write word equations to describe chemical reactions.	
SC.O.7.2.17	describe the movement of individual particles and verify the conservation of matter during the phase changes (e.g., melting, boiling, or freezing).	
SC.O.7.2.18	identify the characteristics of sound waves and describe how sound is perceived by the ear.	#4 Sounds Around p. 26

SC.O.7.2.19	define the absorption and reflection of light as translucent, opaque and transparent.	
SC.O.7.2.20	interpret and illustrate changes in waves as they encounter various mediums (e.g., mirrors, or lenses).	#4 Sounds Around p. 26
SC.O.7.2.21	Investigate absorption and reflection of light by an object.	
SC.O.7.2.22	characterize series and parallel circuits; AC and DC currents.	
SC.O.7.2.23	explain conservation of matter and energy and investigate the different forms of energy (e.g., mechanical, potential, kinetic, or gravitational).	
SC.O.7.2.24	perform experiments with simple machines to demonstrate the relationship between forces and distance; use vectors to represent motion.	
SC.O.7.2.25	explain the effect of gravity on falling objects (e.g., $g=9.8m/s^2$, object dropped on earth and on moon).	
SC.O.7.2.26	describe and compare the causes of tides, surfs and currents.	
SC.O.7.2.27	examine the effects of the sun's energy on oceans and weather (e.g., air masses, or convection currents).	#14 Renewable or Not? p. 69 #23 The Fallen Log p. 105 #29 Rain Reasons p.123 #44 Water Wonders p.188 #71 Watch on Wetlands p.303 #75 Tipi Talk p.320
SC.O.7.2.28	interpret GIS maps and create and interpret topographical maps.	
SC.O.7.2.29	describe rock formations (e.g., rock cycle).	
SC.O.7.2.30	classify rocks (e.g., crystal/particle size, or mineral composition and uses).	
SC.O.7.2.31	determine the relevant age of rock layers using index fossils and the law of superposition.	
SC.O.7.2.32	explain how changing latitude affects climate.	
SC.O.7.2.33	trace the life cycle of a star.	
Standard 3:	Application of Science	

SC.S.7.3	Students will • explore the relationship between the parts and the whole system; construct a variety of useful models; examine changes that occur in an object or system. • demonstrate an understanding of the interdependence between science and technology. • demonstrate the ability to utilize technology to gather data and communicate designs, results and conclusions. • demonstrate the ability to evaluate the impact of different points of view on health, population, resource and environmental practices.

Objectives	Students will	PLT Activity and Page
SC.O.7.3.01	explore the relationship between the parts of a system to the whole system.	
SC.O.7.3.02	construct a variety of useful models of an object, event, or process.	
SC.O.7.3.03	compare and contrast changes that occur in an object or a system to its original state.	
SC.O.7.3.04	compare and contrast the influence that a variation in scale will have on the way an object or system works. (e.g., cooling rates of different-sized containers of water, strength of different-sized constructions from the same material, or flight characteristics of different-sized model airplanes).	
SC.O.7.3.05	research everyday applications and interactions of science and technology.	
SC.O.7.3.06	evaluate and critically analyze mass media reports of scientific developments and events.	
SC.O.7.3.07	explore the connections between science, technology, society and career opportunities.	