

This document outlines the academic goals, the activities and materials used in the Eighth Grades class in order to achieve high academic success. There is a great deal of overlap in the standards within the activities and within the core areas, thus, standards addressed repeatedly throughout the year.

Time period	Standard	Resources (unit in textbook, learning center, recurring activity, other)	Internet/Media/ other resource
Weeks 1 to 37	(1) Scientific investigation and reasoning. The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:	Prentice-Hall Science Explorer Grade 8, Anemone Edition	
Week 1	(A) demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards; and	Lecture	
Weeks 1 to 37	(B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.	Lecture	
Weeks 1 to 37	(2) Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:	Science Fair Project Labs Science Explorer Intro	
Weeks 1 to 37	(A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;	Science Fair Project, Labs Science Explorer Intro	
Weeks 1 to 37	(B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;	Science Fair Project, Labs	
Weeks 1 to 37	(C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;	Science Fair Project, Labs	
1 to 37	(D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and	Science Fair Project, Labs	
Weeks 1 to 37	(E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.	Science Fair Project, Labs	
Weeks 1 to 37	(3) Scientific investigation and reasoning. The student uses logical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:	Overhead Science Timeline Science Fair Project	
1-37	(A) in all fields of science understand scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage scientific thinking by the student;	Science Explorer Science Fair Project	
1-5	(B) use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature;	Lecture Science Explorer Ch 1 Chem Kit Overhead Life Timeline	
1-37	(C) identify advantages and limitations of models such as size, scale, properties, and materials; and	Science Explorer	http://scaleofuniverse.com/ http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10/index.html
[Type text]	(D) relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.	Science Timeline Science Explorer Ch 9, 16, 18 Sis, 'The Tree of Life'	
	variety of tools and safety equipment to conduct science inquiry. The student is	Labs	

1-37	expected to:	Science Fair Project	
Week 1-37	(A) use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrosopes, timing devices, and other equipment as needed to teach the curriculum; and	Labs Science Fair Project Spectroscope	
Week 1	(B) use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher.	Labs Lecture	
Weeks 2-5	(5) Matter and energy. The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to:	Science Explorer Ch 1 Chem Kits Element Reports	http://www.ptable.com/
2	(A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud;	Magnets Fe Filings Science Explorer Ch 1	
2	(B) identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity;	Science Explorer Ch 1	
2-3	(C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements;	Science Explorer Ch 1 Periodic Table	
3-4	(D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts;	Science Explorer Ch 1	
3	(E) investigate how evidence of chemical reactions indicate that new substances with different properties are formed; and	Science Explorer Ch 1 Chemicals	
3-4	(F) recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass.	Science Explorer Ch 1	http://www.webqc.org/balance.php
Weeks 5 to 11	(6) Force, motion, and energy. The student knows that there is a relationship between force, motion, and energy. The student is expected to:	Science Explorer Ch 3, 4 Lab	
Week 5	(A) demonstrate and calculate how unbalanced forces change the speed or direction of an object's motion;	Science Explorer Ch 3 Models	
Week 5	(B) differentiate between speed, velocity, and acceleration; and	Models Science Explorer Ch 3	
Week 5	(C) investigate and describe applications of Newton's law of inertia, law of force and acceleration, and law of action-reaction such as in vehicle restraints, sports activities, amusement park rides, Earth's tectonic activities, and rocket launches.	Science Explorer Ch 3 Models Simple Machines	
Weeks 24 to 27	(7) Astronomy: Earth and space. The student knows the effects resulting from cyclical movements of the Sun, Earth, and Moon. The student is expected to:	Science Explorer Ch 14, 15	
27	(A) model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons;	Science Explorer Ch 15 PowerPoint	

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25	(B) demonstrate and predict the sequence of events in the lunar cycle; and	Science Explorer Ch 14	
25	(C) relate the position of the Moon and Sun to their effect on ocean tides.	Science Explorer Ch 14	
Weeks 11 to 15	(8) Astronomy: Earth and space. The student knows characteristics of the universe. The student is expected to:	Science Explorer Ch 8 Constellation Maps	
14	(A) describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Hertzsprung-Russell diagram for classification;	Science Explorer Ch 8	
14	(B) recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star;	Science Explorer Ch 8	http://primaxstudio.com/stuff/scale_of_universe/ http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10/index.html
Weeks 11 to 15	(C) explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe;	Science Explorer Ch 6, 8 Magnifying Glasses Lenses Mirage Pics Bulbs Spectroscope Fe Filings	http://www.youtube.com/watch?v=Gf33ueRXMzQ
14	(D) model and describe how light years are used to measure distances and sizes in the universe; and	Science Explorer Ch 8	http://primaxstudio.com/stuff/scale_of_universe/ http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10/index.html
14 and 15	(E) research how scientific data is used as evidence to develop scientific theories to describe the origin of the universe.	Science Explorer Ch 8	
Weeks 16 to 24	(9) Geology: Earth and space. The student knows that natural events can impact Earth systems. The student is expected to:	Science Explorer Ch 9-11 Plate Tectonic Map, Plate Tectonic PowerPoint Models Skinner, 'Physical Geology'	
16-19	(A) describe the historical development of evidence that supports plate tectonic theory;	Science Explorer Ch 9 Plate Tectonic Map Models Fe Filings Drosophilia DVD	http://www.youtube.com/watch?v=nNjoTyux5tg&playnext=1&list=PLB81402DF0D60364B
16-19	(B) relate plate tectonics to the formation of crustal features; and	Science Explorer Ch 9 Plate Tectonic Map, Plate Tectonic PowerPoint	
16-24	(C) interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering.	Science Explorer Ch 9 to 11 Rock & Mineral Samples Rock Pics Plate Tectonic Map, Skinner, 'Physical Geology'	https://www.facebook.com/photo.php?fbid=10150164572588706&set=a.10150164141158706.304823.513198705&type=3&theater http://biossaari.blogspot.com/2009/01/its-about-life.html
Weeks 26 to 28	(10) Meteorology: Earth and space. The student knows that climatic interactions exist among Earth, ocean, and weather systems. The student is expected to:	Science Explorer Ch 15, Skinner, 'Physical Geology'	http://www.youtube.com/watch?v=4hZNp3pF_4M http://www.nrdc.org/globalWarming
26	(A) recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents;	Science Explorer Ch 15 Models	
26	(B) identify how global patterns of atmospheric movement influence local	Science Explorer Ch 15	http://www.nrdc.org/globalWarming

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	weather using weather maps that show high and low pressures and fronts; and	Maps	
26	(C) identify the role of the oceans in the formation of weather systems such as hurricanes.	Science Explorer Ch 15 Skinner, 'Physical Geology'	http://www.youtube.com/watch?v=4hZNp3pF_4M
Weeks 24 to 26, 28 to 35	(11) Biology: Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to:	Science Explorer Ch 14, 16, 18, 19 Seeds Dixon, 'A Zoology of the Future' Sis, 'The Tree of Life' Isaak, 'The Counter-Creationism Handbook' Gilbert, "Developmental Biology", 1991 3rd Ed Shanavas, 'Evolution and/or Creationism: An Islamic Perspective' PreCog Test Models Ceratiidae Transparencies	http://www.youtube.com/watch?v=FdzBSo_Zliw&feature=autofb https://www.facebook.com/photo.php?fbid=10150164570408706&set=a.10150164141158706.304823.513198705&type=3&theater
24 to 26, 31 to 35	(A) describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs within marine, freshwater, and terrestrial ecosystems;	Science Explorer Ch 14, 18, 19 Ceratiidae Transparencies	
24 to 26, 33 to 35	(B) investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition;	Science Explorer Ch 14, 19	https://www.facebook.com/photo.php?fbid=10150164570408706&set=a.10150164141158706.304823.513198705&type=3&theater
31 to 35	(C) explore how short- and long-term environmental changes affect organisms and traits in subsequent populations; and	Science Explorer Ch 18, 19 Meiosis Slides	http://www.youtube.com/watch?v=FdzBSo_Zliw&feature=autofb
24 to 26	(D) recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems.	Science Explorer Ch 14	