

WESTSIDE MIDDLE SCHOOL 6th GRADE SCIENCE CURRICULUM MAP

Revised December 2013

1st Quarter

Student Learning Expectation Number	Student Learning Expectation (SLE)	Vocabulary
NS.1.6.1	Verify the accuracy of observations.	Observation, accuracy, Senses, Inference, Fact
NS.1.6.2	Apply the components of experimental design used to produce empirical evidence *hypothesis*replication*sample size*appropriate use of control*use of standardized variables	Hypothesis, replication, control, variables, sample data, collection, conclusion, observation, accuracy
NS.1.6.3	Compare scientific data using mean, median, mode, and range using SI units	Mean, median, mode, range, SI units
NS.1.6.4	Construct and interpret scientific data using: *data tables/charts*bar and double bar graphs*line graphs*stem and leaf plots*circle graphs	x-axis, y-axis, bar and double-bar graph, line graph, circle graph, stem and leaf plot, variables
NS.1.6.5	Communicate results and conclusions from scientific inquiry	Conclusion, inquiry
NS.1.6.6	Develop and implement strategies for long-term, accurate data collection	Long-term data
NS.1.6.7	Distinguish between scientific fact and opinion	Scientific fact, Scientific opinion
NS.1.6.8	Explain the role of prediction in the development of a theory	Prediction, theory, hypothesis
NS.1.6.9	Define and give examples of laws and theories	Law, theory
PS.5.6.1	Identify common examples of chemical properties *ability to burn*ability to produce light*ability to react with other substances	Flammability, combustibility, reactivity, matter
PS.5.6.2	Compare and contrast characteristics of physical and chemical properties	Chemical reaction, chemical property, physical property
PS.5.6.3	Conduct investigations using acid-base indicators	Indicators, pH, litmus paper
PS.5.6.4	Apply skills of scientific investigation to determine density using SI units	Density, volume, mass, displacement
PS.5.6.5	Construct a density column using a minimum of four different liquids (e.g., alcohol, colored water, syrup, oil)	density column, mass, volume

PS.5.6.6	Use a density column to test the density of various solid objects (e.g., piece of candy, cork, candle, paper clip, egg)	density column, mass, volume
PS.5.6.7	Identify characteristics of chemical changes: *burning *production of a new substance *production of light *color change *endothermic and exothermic reactions *reactivity	Endothermic reaction, exothermic reaction, reactivity
PS.5.6.8	Conduct investigations comparing and contrasting physical and chemical changes	Physical change, chemical change, chemical reaction
PS.5.6.9	Demonstrate the law of the conservation of matter	Conservation, matter, law of conservation of matter, universal
PS.5.6.10	Investigate scientists, careers, and historical breakthroughs related to chemical properties and chemical changes	Chemist, chemical engineer

2nd Quarter

Student Learning Expectation Number	Student Learning Expectation (SLE)	Vocabulary
PS.6.6.1	Compare and contrast simple machines and compound machines	Simple machine, compound machine, work
PS.6.6.2	Identify and analyze the simple machines that make up a compound machine	Lever, pulley, inclined plane, wedge, screw, wheel and axle, fulcrum, pivot
PS.6.6.3	Conduct investigations of various forces using SI units (newton)	Newton, force, friction, inertia, gravitational force, magnetic force
PS.6.6.4	Recognize and give examples of different types of forces: *gravitational forces *magnetic forces *friction	Force, friction, inertia, gravitational force, magnetic force
PS.6.6.5	Understand why objects have weight	Weight, force, gravity, Newton
PS.6.6.6	Compare and contrast weight and mass	Grams, kilograms, ounces, pounds, spring scale, balance, SI units
PS.6.6.7	Describe the effects of force *move a stationary object *speed up, slow down, or change the direction of motion *change the shape of objects	Force, net force, motion, relative motion, reference point, speed, acceleration
PS.6.6.8	Conduct investigations to demonstrate change in direction caused by force	
PS.6.6.9	Conduct investigations to calculate the change in speed caused by applying forces to an object	
PS.6.6.10	Investigate careers, scientists, and historical breakthroughs related to compound machines and forces	Physicists, mechanic, machinist, Isaac Newton
PS.7.6.1	Classify examples of energy forms: *chemical *electromagnetic *mechanical *thermal *nuclear	Energy, chemical, electromagnetic, mechanical, thermal, nuclear
PS.7.6.2	Summarize the application of the law of conservation of energy in real world situations: *electrical energy into mechanical energy *electrical energy into heat *chemical energy into mechanical energy *chemical energy into light	Law of Conservation of Energy
PS.7.6.3	Conduct investigations demonstrating how energy can be converted from one form to another	Conversion
PS.7.6.4	Investigate the transfer of energy in real world situations *conduction *convection *radiation	Transfer, conduction, convection, radiation

PS.7.6.5	Investigate careers, scientists, and historical breakthroughs related to energy forms and conversions	Nuclear physicist
ESS.10.6.1	Explain how planets seem to wander against the background of the stars	Planets, rotation, revolution, orbit, elliptical, stars, astronomical unit, light year, solar system, galaxy, parallax
ESS.10.6.2	Compare the distance of the following: *from the sun to the earth (light minutes) *from the next nearest star to the earth (light years)	Astronomical units, solar system, light minute, light year, speed of light
ESS.10.6.3	Describe how astronomers measure distance to stars	Astronomers, telescope, astronomical units, solar system, light minute, light year, speed of light, kilometers
ESS.10.6.4	Calculate the rate at which we would have to travel to other stars and planets in our solar system using current technology	Astronomical unit, light minute, light year, kilometers, rate
ESS.10.6.5	Explain the effect of the sun on comets	Gravity, comets, comet tails, solar radiation, solar wind
ESS.10.6.6	Compare and contrast comets, meteors, and asteroids *size *orbits *nucleus *mass	Comets, meteors, asteroids, orbits, size, nucleus, mass
ESS.10.6.7	Model moon phases demonstrating the position of the earth, moon, and sun	Phases , waxing, waning, new moon, crescent, quarter, gibbous, full moon, rotation, revolution, orbit
ESS.10.6.8	Compare and contrast solar eclipse and lunar eclipse	Eclipse, solar eclipse, lunar eclipse, partial eclipse, total eclipse, tides
ESS.10.6.9	Investigate careers, scientists, and historical breakthroughs related to the sun and space travel	Astronomers, astronauts, engineers, astrophysics, aerodynamics, NASA, international space station

3rd Quarter

Student Learning Expectation Number	Student Learning Expectation (SLE)	Vocabulary
ESS.8.6.1	Identify & diagram the layers of the Earth: *crust *mantle *inner core *outer core	Crust, lithosphere, mantle, mesosphere, inner core, outer core
ESS.8.6.2	Model the layers of the Earth	Crust, mantle, inner core, outer core, direct observation, indirect observation
ESS.8.6.3	Model how convection currents in the mantle affect lithosphere movement	Crust, mantle, convection currents, lithosphere, asthenosphere
ESS.8.6.4	Conduct investigations to identify the variables within volcanoes that cause different types of eruptions	Variables, eruption, explosive eruption, non-explosive eruption, volcano, volcanic mountain, lava, magma, caldera, magma chamber, vent, viscosity
ESS.8.6.5	Diagram & explain how volcanoes work	Volcano, volcanic mountain, lava, magma, crater, vent, magma chamber, pipe, shield volcano, composite volcano, cinder-cone volcano
ESS.8.6.6	Explain how volcanic activity relates to mountain formation	Volcano, volcanic mountain, lava, magma, ash, volcanic bombs
ESS.8.6.7	Connect short-term changes in climate with volcanic activity	Aerosols, short-term, climate
ESS.8.6.8	Compare & contrast the different land forms caused by Earth's internal forces: *mountains *plateaus *trenches *islands	Mountain, plateau, trench/rift, island, landform faults: divergent (separating) convergent (colliding) transform-fault (sliding), internal forces, plates, lithosphere, subduction, convection, fault-block mountains, fold mountains, upwarped mountains, volcanic mountains, underwater mountains, mid-ocean ridge, principle of isostasy
ESS.8.6.9	Research local, regional, & state landforms created by internal forces in the earth: *Ozark Plateau *Crater of Diamonds *Ouachita Mountains *New Madrid Fault	Local landforms, state landforms, regional landforms, internal forces, Ozark Plateau, Crater of Diamonds, Ouachita Mountains, New Madrid Fault

ESS.8.6.10	Identify the effects of earthquakes on Earth's surface: *tsunamis *floods *changes in natural & man-made structures	Earthquakes, tsunamis, floods, natural structures, man-made structures
ESS.8.6.11	Investigate and map patterns of earthquake & volcanic activity	Map, patterns, earthquake activity, volcanic activity
ESS.8.6.12	Locate earthquake belts on Earth: Mediterranean-Trans-Asiatic, Circum-Pacific	Earthquake belts, Mediterranean-Trans-Asiatic, Circum-Pacific (Ring of Fire), lithosphere, plates, faults, subduction
ESS.8.6.13	Analyze how earthquake occurrences are recorded (seismograph) & measured (Richter scale)	Waves, seismograph, Richter scale, Mercalli scale
ESS.8.6.14	Model the effect of major geological events on land & ocean features: *mountain building *ocean trenches *island formation * mid-ocean ridges	Landform, mountain building, ocean trenches, island formation, mid-ocean ridges
ESS.8.6.15	Investigate careers, scientists & historical breakthroughs related to internal forces that change the earth	Internal forces, volcanologists, geologists, seismologist
ESS.9.6.1	Research methods of determining geologic time: *fossil records *mountain building *rock sequencing	Geological time, fossil records, mountain building, rock sequencing, sedimentary rock, fossils
ESS.9.6.2	Model rock layer sequencing based on characteristics of fossils	Rock layer sequencing, fossils, characteristics
ESS.9.6.3	Analyze evidence that supports the theory of plate tectonics: *matching coastlines *similar rock types *fossil record	Theory of plate tectonics, fossil record, matching coastlines, lithosphere, plates, fault, Pangaea

4th Quarter

Student Learning Expectation Number	Student Learning Expectation (SLE)	Vocabulary
LS.2.6.1	Observe, describe, & illustrate plant and animal tissues: *muscle *blood *skin *xylem *phloem	Muscle (muscle tissue), blood (connective tissue), skin (epithelial tissue), connective tissue, xylem, phloem
LS.2.6.2	Illustrate the hierarchical relationships of cells, tissues & organs	Hierarchical, cell, tissue, organ
LS.2.6.3	Investigate the functions of tissues	Muscle tissue, connective tissue, epithelial tissue, connective tissue
LS.2.6.4	Model & explain the function of animal organs: *Heart *lungs *kidneys *eyes *ears *skin *teeth	Heart, lungs, kidneys, eyes, ears, skin, teeth
LS.2.6.5	Model & explain the function of plant organs: *Leaves *roots *stems *flowers	Anchor, stem, xylem, phloem, roots, leaves, flower
LS.2.6.6	Dissect organs, including but not limited to: *heart *eye *lung *stem *root	Key components of stem and root
LS.2.6.7	Describe the relationship between the organ function & the following needs of cells: *oxygen *food *water *waste removal	Cell, tissue, organ, cellular respiration
LS.2.6.8	Investigate careers, scientists, & historical breakthroughs related to tissues & organs.	Biologist, physician, nurse, dietician, medical, researcher, zoologist, botanist
LS.3.6.1	Describe characteristics of plants & animals manipulated through selective breeding	Characteristics, selective breeding, heredity, genetic traits, DNA, genes
LS.3.6.2	Predict the outcome of selective breeding practices over several generations	Dominant trait, recessive trait

LS.3.6.3	Relate the development of Earth's present-day complex species from earlier, distinctly different simpler species	Single-cell organisms, (eukaryotic) multi-cell organisms, (prokaryotic), evolve
LS.3.6.4	Investigate careers, scientists, & historical breakthroughs related to adaptations & selective breeding	Cloning, genetic mutations, stem cell research, Gregor Mendel, genetic research
LS.3.6.5	Describe behavioral adaptations of organisms to the environment: *hibernation *estivation *tropism *territorial behavior *migration	Adaptation, behavioral adaptation, population, hibernation, estivation, tropism, territorial behavior, migration
LS.3.6.6	Differentiate between innate behaviors: *migration *web spinning *defensive posture *communication *imprinting And learned behaviors: *speaking a language *using tools	Innate behavior, learned behavior, stimulus, migration, web spinning, defensive posture, communication, imprinting
LS.3.6.7	Describe the following structural adaptations for survival in the environment: *coloration *mimicry *odor glands *beaks *feet *wings *fur *ears *spines *teeth *thorns *characteristics of seeds	Coloration, mimicry, odor glands, characteristics of seeds
LS.3.6.8	Investigate careers, scientist & historical breakthroughs related to learned & innate behaviors	Charles Darwin, Rachel Carson, Jane Goodall, Jacques Cousteau, zoologist, biologist, botanist
LS.4.6.1	Identify environmental conditions that can affect the survival of individual organisms & entire species	Organisms, species, environmental conditions, pollution, drought, floods, human impact/urban development, biotic factor, abiotic factor
LS.4.6.2	Conduct simulations demonstrating competition for resources within an ecosystem	Ecosystem, competition, resources, limiting factors
LS.4.6.3	Conduct simulations demonstrating natural selection	Natural selection, adaptations, endangered species, extinction
LS.4.6.4	Analyze natural selection	Natural selection, adaptations, endangered species, extinction