Jefferson City Public Schools- Curriculum

SUBJECT: Grade 8

COURSE: Science

STRAND: Properties and Principles of Matter and Energy

Assessment/Evaluation	Instructional Activities
 Lab reports Performance assessment	 Separation of mixtures lab Identify and differentiate between mixtures, elements, and compounds lab (Graphic organizers)
 Teacher observation Accuracy of checklist 	 Textbook Lab station with checklist
 Written assessment questions Verbal questioning 	 Demonstrations: Ink in water Oil in water Dust particles in air Spray mist in air for diffusion of particles in air
-	 Assessment/Evaluation Lab reports Performance assessment Teacher observation Accuracy of checklist Accuracy of checklist Written assessment questions Verbal questioning

Objectives	Assessment/Evaluation	Instructional Activities
(D) Using the Kinetic Theory model, illustrate and account for the physical properties (i.e., shape, volume, malleability, viscosity) of a solid, liquid, or gas in terms of the arrangement and motion of molecules in a substance	 Lab report Performance assessment/observation 	 Molecular motion lab Burn a candle and check viscosity
Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.1.Da		
(E) Use the Kinetic Theory model to explain changes in the volume, shape, and viscosity of materials in response to temperature changes during a phase change	 Lab report Performance assessment/observation	 Molecular motion lab Candle lab Balloon flask/temperature change lab
Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.1.Db		
(F) Predict the effect of transfer on the physical properties of a substance as it changes to or from a solid, liquid, or gas (i.e., phase changes that occur during freezing, melting, evaporation, boiling, condensation)	 Lab report Performance assessment/observation Verbal questioning 	 Phase change lab Popcorn lab Demonstration (teacher)
Performance: 1.8 Knowledge (SC): 1 SCGLE: 1.1.Dc		
 (G) Recognize more than 100 known elements (unique atoms) exist that may be combined in nature or by man to produce compounds that make up the living and nonliving substances in the environment (Do NOT assess memorization of the Periodic Table) 	 Student presentation and rubric Lab report Performance assessment/observation 	Adopt an element activityMolecular puzzle pieces
Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.1.Fa		
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Objectives	Assessment/Evaluation	Instructional Activities
 (H) Provide evidence that mass is conserved during a chemical change in a closed system (e.g., vinegar + baking soda, mold growing in a closed container, steel wool rusting) 	 Lab report Written assessment questions	Popcorn labCombustion lab
Performance: 1.2 Knowledge (SC): 1 SCGLE: 1.1.Ia		
 (I) Recognize chemical energy is stored in chemical compounds (e.g., energy stored in and released from food molecules, batteries, nitrogen explosives, fireworks, organic fuels) 	 Lab report and performance observation Written assessment questions Verbal questioning 	 Calorimeter lab (peanut lab) Photosynthesis demonstration Nitric acid demonstration with penny before 1975 and after
Performance: 1.3 Knowledge (SC): 1 SCGLE: 1.2.Aa		
(J) Identify the evidence of different energy transformations (e.g., explosion of light, heat, and sound, temperature change, electrical charge) that may occur as chemical energy is released during a chemical reaction	 Written assessment questions Verbal questioning Student presentations and rubric 	 Nitric acid demonstration Energy transformation poster activity
Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.2.Fa		
$(K\) \ Identify the different energy transformations that occur between different systems (e.g., chemical energy in battery converted to electricity in circuit converted to light and heat from a bulb)$	 Student presentation and rubric Lab report Performance assessment/observation 	Energy transformation poster activityCircuit lab
Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.2.Fa (7th gr.)		
 (L) Recognize that, during an energy transformation, heat is often transferred from one object (system) to another because of a difference in temperature Performance: 1.6 	 Lab report Performance assessment/observation Written assessment questions 	Calorimeter lab
Knowledge (SC): 1 SCGLE: 1.2.Fb (7th gr.) Last Revised: 5/3/07 Board Approved: 9-11-07	Page 3 Grade 8-Scier	ace – Properties and Principles of Matter and Energy

Assessment/Evaluation	Instructional Activities
 Lab report Performance assessment/observation Written assessment questions 	Calorimeter lab
 Lab report Performance assessment/observation Written assessment questions 	Molecular motion lab
 Lab report Performance assessment/observation Written assessment questions 	Molecular motion lab
 Lab report Performance assessment/observation Written assessment questions 	Equilibrium lab (Fast 2)
Written assessment questionsVerbal assessment questions	 Demonstration Conductometer Conduction of current (convection) Solar oven activity
 Written assessment questions Verbal questioning Lab reports Performance assessment/observation - rubric 	 Demonstration Conductometer activity Conduction/convection activity Solar oven activity
	Assessment/Evaluation• Lab report • Performance assessment/observation • Written assessment questions• Written assessment questions • Verbal assessment questions • Verbal assessment questions • Verbal questioning • Lab reports • Performance assessment/observation - rubric

Objectives	Assessment/Evaluation	Instructional Activities
(S) Classify common materials (e.g., wood, foam, plastic, glass, aluminum foil, soil, air, water) as conductors or insulators of thermal energy	 Lab report Performance assessment/observation	Sunlight and heat labCircuit lab
Performance: 1.8 Knowledge (SC): 1 SCGLE: 1.2.Af (7th gr.)		
 (T) Predict the differences in temperature over time on different colored (black and white) objects placed under the same heat source Performance: 1.8 	 Lab report Performance assessment/observation	Sunlight and heat labSolar oven lab
(U) Describe the interactions (i.e., repel, attract) of like and unlike charges (i.e., magnetic, static electric, electrical)	 Lab report Performance assessment/observation 	Static lab • Comb
Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.2.Ah (7th gr.)	• Written assessment questions	Styrofoam ballsBalloonsMagnets
 (V) Diagram and identify a complete electric circuit by using a source (battery), means of transfer (wires), and receiver (resistance bulbs, motors, fans) Performance: 1.9 Knowledge (SC): 1 SCGLE: 1.2.Ai (7th gr.) 	 Lab reports Performance assessment/observation Written assessment questions 	Circuit labs • Simple • Series • Parallel
 (W) Observe and describe the evidence of energy transfer in a closed series circuit Performance: 1.2 Knowledge (SC): 1 SCGLE: 1.2.Aj (7th gr.) 	 Lab report Performance assessment/observation Written assessment questions 	Circuit lab • Light bulbs
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Objectives	Assessment/Evaluation	Instructional Activities
 (X) Describe the effects of resistance (number of receivers), amount of voltage (number of energy sources), and kind of transfer materials on the current being transferred through a circuit (e.g., brightness of light, speed of motor) Performance: 1.8 Knowledge (SC): 1 SCGLE: 1.2.4k (7th gr.) 	 Written assignments with calculation assessment Written assessment questions 	Ohms Law • Model • Activity (Practice calculations)
 (Y) Classify materials as conductors or insulators of electricity when placed within a circuit (e.g., wood, pencil lead, plastic, glass, aluminum foil, lemon juice, air, water) 	 Lab report Performance assessment/observation Written assessment questions 	Conduction lab
Performance: 1.8 Knowledge (SC): 1 SCGLE: 1.2.Al (7th gr.)		
 (01) Diagram and distinguish between complete series and parallel circuits Performance: 1.8 Knowledge (SC): 1 SCGLE: 1.2.Am (7th gr.) 	 Lab report Performance assessment/observation Student generated diagrams 	Circuit lab • Series • Parallel
 (02) Identify advantages and disadvantages of series and parallel circuits Performance: 1.10 Knowledge (SC): 1 SCGLE: 1.2.An (7th gr.) 	Verbal questioningWritten assessment questions	Circuit lab • House wiring diagram • Christmas lights
 Explain that the amount of matter remains constant while being recycled through food chains and food webs Performance: 1.6 Knowledge (SC): 1 SCGLE: 1.1.Ic 	 Lab report Verbal questioning Performance assessment/observation Student demonstration/poster rubric 	 Calorimeter lab Photosynthesis demo Poster activity Food chain Food web
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Objectives	Assessment/Evaluation	Instructional Activities
 (A) Describe the circular motion of a moving object as the result of a force acting toward the center Performance: 1.6 Knowledge (SC): 2 SCGLE: 2.1.Aa (7th gr.) 	 Lab report Verbal questioning Performance assessment/observation Written assessment questions 	 Demonstration Force and motion labs Hot Wheels Roller coaster
 (B) Classify different types of motion (e.g., straight line, projectile, circular, vibrational) Performance: 3.5 Knowledge (SC): 2 SCGLE: 2.1.Ab (7th gr.) 	Verbal questioningWritten identification/classify assessment	Demonstrations: • Straight line • Projectile - catapult • Circular - CD, etc. • Vibration - "cell phone"
 (C) Given an object in motion, calculate its speed (distance/time) Performance: 3.4 Knowledge (SC): 2 SCGLE: 2.1.Ac (7th gr.) 	 Performance assessment/observation Lab report Calculation written assessment 	 Hot Wheel Force and motion labs Calculation practice Crash Newton
 (D) Interpret a line graph representing an object's motion in terms of distance over time (speed) using metric units Performance: 3.5 Knowledge (SC): 2 SCGLE: 2.1.Ad 	Written assessment demonstrating correct interpretation of a line graph	Demonstrate and practice
 (E) Identify and describe the types of forces acting on an object in motion, at rest, floating/sinking (i.e., type of force, direction, amount of force in Newtons) Performance: 3.1 Knowledge (SC): 2 SCGLE: 2.2.Aa (7th gr.) 	 Lab report Performance assessment/observation Descriptive writing assessment (bicycle scenario) 	Force and motion lab with spring scales
 (F) Compare the forces acting on an object by using a spring scale to measure them to the nearest Newton Performance: 1.4 Knowledge (SC): 2 SCGLE: 2.2.Ab (7th gr.) 	 Lab report Performance assessment/observation Descriptive writing assessment (bicycle scenario) 	Force and motion lab with spring scales
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Objectives	Assessment/Evaluation	Instructional Activities
(G) Compare the effects of balanced and unbalanced forces (including magnetic, gravity, friction, push or pull) on an object's motion	Verbal questioningWritten compare and contrast assessment	Tug of War activityDemonstration (pool balls)
Performance: 1.6 Knowledge (SC): 2 SCGLE: 2.2.Da (7th gr.)		
 (H) Explain that when forces (including magnetic, gravity, friction, push or pull) are balanced, objects are at rest or their motion remains constant Performance: 41 	Verbal questioningWritten compare and contrast assessment	TextbookDemonstrations
Knowledge (SC): 2 SCGLE: 2.2.Db (7th gr.)		
(I) Explain that a change in motion is the result of an unbalanced force acting upon an object	 Descriptive writing assessment (bicycle scenario) Video guide questions 	Bicycle writing activityVideo
Performance: 4.1 Knowledge (SC): 2 SCGLE: 2.2.Dc (7th gr.)	• Verbal questioning	DemonstrationsTug of War
(J) Explain how the acceleration of a moving object is affected by the amount of net force applied and the mass of the object	Written compare/contrast assessment	Text differentiating between speed and acceleration
Performance: 4.1 Knowledge (SC): 2 SCGLE: 2.2.Dd (7th gr.)		
(K) Recognize examples of work being done on an object (force applied and distance moved in the direction of the applied force) with and without the use of simple machines	 Lab report Verbal questioning Performance assessment/observation Written assessment 	Mouse trap labDemonstrations of force and motion
Performance: 3.4 Knowledge (SC): 2 SCGLE: 2.2.Fa (7th gr.)		
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Objectives	Assessment/Evaluation	Instructional Activities
(L) Calculate the amount of work done when a force is applied to an object over a distance $(W = F x d)$	Verbal questioningWritten calculations assessment	DemonstrationsPractice calculations
Performance: 3.4 Knowledge (SC): 2 SCGLE: 2.2.Fb (7th gr.)		
^(M) Explain how simple machines affect the amount of effort force, distance through which a force is applied, and/or direction of force while doing work	Verbal questioningPerformance assessment with rubricVideo guide questions	Egg-beating demonstrationTextbookVideo
Performance: 4.1 Knowledge (SC): 2 SCGLE: 2.2.Fc (7th gr.)		
(N) Recognize the amount of work output is never greater than the amount of work input, with or without the use of a simple machine	 Lab report Performance assessment/observation Written efficiency calculations assessment 	 <u>Rope</u> - spring scale lab (pg. 113) Efficiency calculations
Performance: 3.4 Knowledge (SC): 2 SCGLE: 2.2.Fd (7th gr.)		
O) Evaluate simple machine designs to determine which design requires the least amount of effort force and explain why	 Lab report Performance assessment/observation	 Pulley labs <u>Seesaw Science</u> (pg. 116) Textbook activities
Performance: 3.7 Knowledge (SC): 2 SCGLE: 2.2.Fe (7th gr.)		
(A) Recognize photosynthesis is a chemical change with reactants (water and carbon dioxide) and products (energy-rich sugar molecules and oxygen) that takes place in the presence of light and chlorophyll	 Verbal questioning Lab report Performance assessment/observation Written constructive response 	 Demonstration - potassium nitrate and sugar Calorimeter lab
Performance: 1.3 Knowledge (SC): 3 SCGLE: 3.2.Ba		
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Objectives	Assessment/Evaluation	Instructional Activities
(A) Identify the biotic factors (populations of organisms) and abiotic factors (e.g., quantity of light and water, range of temperatures, soil composition) that make up an ecosystem	Ecosystem rubric to encompass: • Written research question • Performance assessment/observation	 Outdoor classroom Living ecosystem project with student presentations Research in computer lab
Performance: 1.3 Knowledge (SC): 4 SCGLE: 4.1.Aa (6th gr.)		
 (B) Identify populations within a community that are in competition with one another for resources Performance: 1.3 Knowledge (SC): 4 SCGLE: 4.1.Ba (6th gr.) 	Peer analysisEcological contentStudent presentation	Living ecosystem project
(C) Recognize the factors that affect the number and types of organisms an ecosystem can support (e.g., food availability, abiotic factors such as quantity of light and water, temperature and temperature range, soil composition, disease, competitions from other organisms, predation)	 Peer analysis Ecological content Student presentation 	Living ecosystem project
Performance: 1.3 Knowledge (SC): 4 SCGLE: 4.1.Bb (6th gr.)		
 (D) Predict the possible effects of changes in the number and types of organisms in an ecosystem on the populations of other organisms within that ecosystem Performance: 1.3 	 Peer analysis Ecological content Student presentation	Living ecosystem project
Knowledge (SC): 4 SCGLE: 4.1.Bc (6th gr.)		

Assessment/Evaluation	Instructional Activities
 Peer analysis Ecological content Student presentation 	Student research and presentation
Written assessment questions on historical and current natural disasters	Current event activities
Written assessment questions on historical and current natural disasters	Current event activities
Ecosystem rubric	Living ecosystem project
Ecosystem rubric	Living ecosystem project
	Assessment/Evaluation • Peer analysis • Ecological content • Student presentation Written assessment questions on historical and current natural disasters Written assessment questions on historical and current natural disasters Ecosystem rubric Ecosystem rubric

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Objectives	Assessment/Evaluation	Instructional Activities
(J) Relate examples of adaptations (specialized structures or behaviors) within a species to its ability to survive in a specific environment (e.g., hollow bones/flight, hollow hair/insulation, dense root structure/compact soil, seeds/food, protection for plant embryo vs. spores, fins/movement in water)	Written constructive response	 Outdoor classroom - examine species to determine adaptations Discussion
Performance: 1.3 Knowledge (SC): 4 SCGLE: 4.3.Ca (6th gr.)		
(K) Predict how certain adaptations, such as behavior, body structure, or coloration, may offer a survival advantage to an organism in a particular environment	Written constructive response	 Outdoor classroom - examine species to determine adaptations Discussion
Performance: 1.3 Knowledge (SC): 4 SCGLE: 4.3.Cb (6th gr.)		
(A) Relate the comparative amounts of fresh water and salt water on the Earth to the availability of water as a resource for living organisms and human activity	Performance assessment/observation	Current eventsGlobal warming activityDebate pros and cons of societal issues
Performance: 2.1 Knowledge (SC): 5 SCGLE: 5.3.Aa (6th gr.)		
(B) Describe the affect of human activities (e.g., landfills, use of fertilizers and herbicides, farming, septic systems) on the quality of water	Performance assessment/observation	Current eventsGlobal warming activityDebate pros and cons of societal issues
Performance: 3.6 Knowledge (SC): 5 SCGLE: 5.3.Ab (6th gr.)		
(C) Distinguish between renewable (e.g., geothermal, hydroelectric) and nonrenewable (e.g., fossil fuel) energy sources	Performance assessment/observation	Current eventsGlobal warming activity
Performance: 3.5 Knowledge (SC): 5 SCGLE: 5.3.Aa (7th gr.)		
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Objectives	Assessment/Evaluation	Instructional Activities
(A) Formulate testable questions and hypotheses Performance: 1.1 Knowledge (SC): 7 SCGLE: 7.1.Aa	Scientific inquiry/experimental design rubric (8th gr. common assessment needed)	 Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants
(B) Recognize the importance of the independent variable, dependent variables, control of constants, and multiple trials to the design of a valid experiment Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Ab	Scientific inquiry/experimental design rubric (8th gr. common assessment needed)	 Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants

Design and conduct a valid experiment Performance: 1.1 Knowledge (SC): 7 SCGLE: 7.1.Ac	Scientific inquiry/experimental design rubric (8th gr. common assessment needed)	 Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants
Evaluate the design of an experiment and make suggestions for reasonable improvements or extensions of an experiment Performance: 1.8 Knowledge (SC): 7 SCGLE: 7.1.Ad	Scientific inquiry/experimental design rubric (8th gr. common assessment needed)	 Peer evaluation Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants

Recognize that different kinds of questions suggest different kinds of scientific investigations (e.g., some involve observing and describing objects organisms, or events: some involve collecting specimens: some	Scientific inquiry/experimental design rubric	 Scientific Method project Demonstration and notes
involve experiments; some involve making observations in nature; some involve discovery of new objects and phenomena; some involve making models) Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Ae	8th gr. common assessment needed)	 Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants
Acknowledge there is no fixed procedure called "the scientific method", but some investigations involve systematic observations, carefully collected and relevant evidence, logical reasoning, and imagination in developing hypotheses and other explanations Performance: 1.6 Knowledge (SC): 7 SCGLE: 7.1.Af	Scientific inquiry/experimental design rubric 8th gr. common assessment needed)	 Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants

Objectives	Assessment/Evaluation	Instructional Activities
(G) Make qualitative observations using the five senses Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Ba	Scientific inquiry/experimental design rubric (8th gr. common assessment needed)	 Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants
 (H) Determine the appropriate tools and techniques to collect data Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Bb 	Scientific inquiry/experimental design rubric (8th gr. common assessment needed)	 Scientific Method project Demonstration and notes Experimental design (Cothran) diagram involving: Write testable question (purpose) Procedure Design experiment Collect data and construct graph and data table Analyze results Draw conclusion Identify IV and DV control and constants
 (1) Use a variety of tools and equipment to gather data (e.g., microscopes, thermometers, analog and digital meters, computers, spring scales, balances, metric rulers, graduated cylinders, stopwatches) Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Bc 	 Performance assessment/observation Written assessment questions 	 Labs throughout the year Activities Work sheets

Objectives	Assessment/Evaluation	Instructional Activities
(J) Measure length to the nearest millimeter, mass to the nearest gram, volume to the nearest milliliter, force (weight) to the nearest Newton, temperature to the nearest degree Celsius, time to the nearest second	 Performance assessment/observation Written assessment questions 	 Labs throughout the year Activities Work sheets
Performance: 1.4 Knowledge (SC): 7 SCGLE: 7.1.Bd		
 (K) Compare amounts/measurements Performance: 1.8 Knowledge (SC): 7 SCGLE: 7.1.Be 	Performance assessment/observationWritten assessment questions	 Labs throughout the year Activities Work sheets
 (L) Judge whether measurements and computation of quantities are reasonable Performance: 1.7 Knowledge (SC): 7 SCGLE: 7.1.Bf 	Performance assessment/observationWritten assessment questions	 Labs throughout the year Activities Work sheets
(M) Calculate the range and average/mean of a set of data Performance: 1.7 Knowledge (SC): 7 SCGLE: 7.1.Bg	Performance assessment/observationWritten assessment questions	Labs and follow-up questions throughout the year
 (N) Use quantitative and qualitative data as support for reasonable explanations (conclusions) Performance: 1.7 Knowledge (SC): 7 SCGLE: 7.1.Ca 	Assessment of written lab reports throughout the year	 Experimental design unit Modeled throughout the year with each lab activity Science projects
(O) Use data as support for observed patterns and relationships, and to make predictions to be tested Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Cb	Assessment of written lab reports throughout the year	Graphing exercises throughout the year
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Objectives	Assessment/Evaluation	Instructional Activities
 (P) Recognize the possible effects of errors in observations, measurements, and calculations on the formulation of explanations (conclusions) Performance: 1.2 Knowledge (SC): 7 SCGLE: 7.1.Cc 	Assessment of written lab reports throughout the year	 Modeled throughout the year Current events Human error (outliers) mistakes in data (discussion)
 (Q) Evaluate the reasonableness of an explanation (conclusion) Performance: 1.7 Knowledge (SC): 7 SCGLE: 7.1.Da 	Assessment of written lab reports throughout the year	 Modeled throughout the year Current events Human error (outliers) mistakes in data (discussion)
(R) Analyze whether evidence (data) and scientific principles support proposed explanations (hypotheses, laws, theories)	Performance assessment/observation	Discussion of historical theories Spontaneous generation Evolution vs. creative design
Performance: 1.7 Knowledge (SC): 7 SCGLE: 7.1.Db		
 (S) Communicate the procedures and results of investigations and explanations through: oral presentations drawings and maps data tables (allowing for the recording and analysis of data relevant to the experiment, such as independent and dependent variables, multiple trials, beginning and ending times or temperatures, derived quantities) graphs (bar, single line, pictograph) equations and writings 	Science inquiry rubric	Student presentations of scientific method unit
Performance: 2.1 Knowledge (SC): 7 SCGLE: 7.1.Ea		

Objectives	Assessment/Evaluation	Instructional Activities
(A) Explain how technological improvements, such as those developed for use in space exploration, the military, or medicine, have led to the invention of new products that may improve lives here on Earth (e.g., new materials, freeze-dried foods, infrared goggles, Velcro, satellite imagery, robotics, lasers)	 Verbal questioning Written assessment questions 	 Student research and presentation Current science Science World
Performance: 2.7 Knowledge (SC): 8 SCGLE: 8.1.Aa		
(B) Identify the link between technological developments and the scientific discoveries made possible through their development (e.g., Hubble telescope and stellar evolution, composition and structure of the universe; the electron microscope and cell organelles; sonar and the composition of the Earth; manned and unmanned space missions and space exploration; Doppler radar and weather conditions; MRI and CAT-scans and brain activity)	Verbal questioningWritten assessment questions	 Student research and presentation Current events Current science Science World
Performance: 1.10 Knowledge (SC): 8 SCGLE: 8.1.Ba		
C) Describe how technological solutions to problems (e.g., storm water runoff, fiber optics, windmills, efficient car design, electronic trains without conductors, sonar, robotics, Hubble telescope) can have both benefits and drawbacks (e.g., design constraints, unintended consequences, risks) (Assess Locally)	Verbal questioningWritten assessment questions	VideosCurrent scienceScience World
Performance: 3.7 Knowledge (SC): 8 SCGLE: 8.1.Ca		
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Objectives	Assessment/Evaluation	Instructional Activities
(D) Describe how the contributions of scientists and inventors, representing different cultures, races, and gender, have contributed to science, technology and human activity (e.g., George Washington Carver, Thomas Edison, Thomas Jefferson, Isaac Newton, Marie Curie, Galileo, Albert Einstein, Mae Jemison, Edwin Hubble, Charles Darwin, Jonas Salk, Louis Pasteur, Jane Goodall, Tom Akers, John Wesley Powell, Rachel Carson) (Assess Locally)	 Poster activity rubric Video guide questions 	Wanted poster activity Videos
Performance: 1.9 Knowledge (SC): 8 SCGLE: 8.2.Aa		
 (E) Recognize the difficulty science innovators experience as they attempt to break through accepted ideas (hypotheses, laws, theories) of their time to reach conclusions that may lead to changes in those ideas and serve to advance scientific understanding (e.g., Darwin, Copernicus, Newton) 	Poster activity rubricVideo guide questions	Wanted poster activityVideos
Performance: 1.2 Knowledge (SC): 8 SCGLE: 8.2.Ba		
 (F) Recognize explanations have changed over time as a result of new evidence Performance: 3.4 Knowledge (SC): 8 SCGLE: 8.2.Bb 	Verbal questioningWritten assessment questions	 Current events Discussion of historical theories
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Objectives	Assessment/Evaluation	Instructional Activities
(G) Describe ways in which science and society influence one another (e.g., scientific knowledge and the procedures used by scientists influence the way many individuals in society think about themselves, others, and the environment; societal challenges often inspire questions for scientific research; social priorities often influence research priorities through the availability of funding for research)	 Verbal questioning Written assessment questions 	 Current events Current science Science World
Performance: 3.2 Knowledge (SC): 8 SCGLE: 8.3.Ba		
(H) Identify and evaluate the physical, social, economic, and/or environmental problems that may be overcome using science and technology (e.g., the need for alternative fuels, human travel in space, AIDS) Performance: 3.1 Knowledge (SC): 8 SCGLE: 8.3.Bb	 Verbal questioning Written assessment questions 	 Current events Current science Science World
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