Middle School

8th grade Physical Science

Instructional Plan

Seminole County Public Schools

Dept of Teaching and Learning

2012-2013

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Instructional Plan for Middle School
8th grade Physical Science

This Instructional Plan has been designed to support a common scope and sequence of classroom instruction while allowing teachers to exercise their creativity when generating lessons.

Explanation of contents

NGSSS Standards: these are the Next Generation Sunshine State Standards as mandated by the Florida DOE to be covered during the course

Common Core Standards: these are the national standards that have been adopted by Florida for Math and Language Arts. Every science course has a few Common Core standards from both content areas embedded. These standards will not be assessed during the science course, but should be infused throughout as part of best practices.

Essential Questions: these questions were selected/created to address the core concepts of each unit; a student who is able to answer the essential questions with confidence and accuracy, will have mastered the benchmarks in the unit

Symbols:

This symbol links a Physical Science benchmark with a supporting Life Science or Earth Science benchmark. These supporting benchmarks are to be reviewed but not necessarily assessed for mastery as they were already mastered in previous years.

This symbol indicates a benchmark which has a Common Lab associated with it. Common Labs were gathered/developed by the curriculum writing group and should be a part of every 8th grade science student's experience.

Concepts: shorthand reference to the content covered in the indicated benchmarks to help teachers understand the focus of the unit in a glance

DOE Vocabulary: these words are to be included in FCAT 2.0 items and will not be assessed directly but are assumed to be part of the students' working vocabulary.

Textbook references: relate to Pearson Interactive Science: Physical Science, Adopted 2010

Lab Component Definition from FLDOE:

Laboratory investigations that include the use of scientific inquiry, research, measurement, problem solving, laboratory apparatus and technologies, experimental procedures, and safety procedures are an integral part of this course. The National Science Teachers Association (NSTA) recommends that at the middle school level, all students should have multiple opportunities every week to explore science laboratory investigations (labs). School laboratory investigations are defined by the National Research Council (NRC) as an experience in the laboratory, classroom, or the field that provides students with opportunities to interact directly with natural phenomena or with data collected by others using tools, materials, data collection techniques, and models (NRC, 2006, p.3). Laboratory investigations in the middle school classroom should help all students develop a growing understanding of the complexity and ambiguity of empirical work, as well as the skills to calibrate and troubleshoot equipment used to make observations. Learners should understand measurement error; and have the skills to aggregate, interpret, and present the resulting data (NRC 2006, p. 77; NSTA, 2007).

Instructional Practices suggested by FLDOE:

Teaching from a range of complex text is optimized when teachers in all subject areas implement the following strategies on a routine basis:

1. Ensuring wide reading from complex text that varies in length.
2. Making close reading and rereading of texts central to lessons.
3. Emphasizing text specific complex questions, and cognitively complex tasks, reinforce focus on the text and cultivate independence.
4. Emphasizing students supporting answers based upon evidence from the text.
5. Providing extensive research and writing opportunities (claims and evidence).

Common Core Math and Language Arts Standards for 8th Grade Physical Science

(should be included throughout the year, infused in lessons, but not assessed separately)

LACC.68.RST.1.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LACC.68.RST.2.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

LACC.68.RST.3.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

LACC.68.RST.4.10: By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

LACC.68.WHST.1.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

LACC.68.WHST.3.9: Draw evidence from informational texts to support analysis reflection, and research.

MACC.6.SP.1.3: Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

MACC.6.SP.2.5: Summarize numerical data sets in relation to their context, such as by:

a. Reporting the number of observations.
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

MACC.8.F.2.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

8th grade Physical Science

Unit #1: Nature of Science	**1st Nine Weeks**	**Time Frame: 2-3 weeks**

Essential Questions
What tools do scientists use to investigate the natural world?
How does scientific knowledge develop?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.8.N.1.1 Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions. (H)	Scientific Processes	Analyze Conclusion Control group Controlled variable Data Empirical evidence Experiment Hypothesis Inference Investigation Model Observation Outcome variable Systematic observations Testable Test variable Theory Trials Valid ***Additional vocabulary words within the chapter**
SC.8.N.2.2: Discuss what characterizes science and its methods.(M)		
SC.8.N.2.1: Distinguish between scientific and pseudoscientific ideas. (M)	Science vs Pseudoscience	
SC.8.N.3.1 Select models useful in relating the results of their own investigations (M)	Models	
SC.8.N.3.2: Explain why theories may be modified but are rarely discarded (M)	Theories	

Textbook references	Chapter 1 and 2
Ancillary Materials	
Optional Extensions in book	Significant digits, percent error

Science Projects	**Each Nine Weeks**	**Time Frame: 1 week**

Essential Questions
How do scientists study the world around them to understand interactions?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.8.N.1.2: Design and conduct a study using repeated trials and replication. (H)	Replication and Repetition	Analyze Conclusion Control group Controlled variable Data Empirical evidence Experiment Hypothesis Inference Investigation Model Observation Outcome variable Systematic observations Testable Test variable Theory Trials Valid
SC.8.N.1.3: Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim (M)	Data and Hypotheses	
SC.8.N.1.4: Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data. (H)		
SC.8.N.1.6: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence. (M)	Evidence	

Textbook references	Chapter 1 and 2
Ancillary Materials	n/a
****Key Changes****	n/a

Unit #2: Forces and Motion	**1st Nine Weeks**	**Time Frame: 2-3 weeks**

Essential Questions
How do objects react to forces?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.6.P.12.1: Measure and graph distance versus time for an object moving at a constant speed. Interpret this relationship. (H) **(Spark Timer Lab)**	Distance vs Time	Acceleration Balanced forces Force Friction Net force Pressure Repetition Replication Speed ***Additional vocabulary words within the chapter**
SC.6.P.13.1: Investigate and describe types of forces including contact forces and forces acting at a distance, such as electrical, magnetic, and gravitational. (M)	Forces	
SC.6.P.13.3: Investigate and describe that an unbalanced force acting on an object changes its speed, or direction of motion, or both. (M)	Unbalanced Forces and Motion	
SC.8.N.1.2: Design and conduct a study using repeated trials and replication. (H)	Replication and Repetition	

Textbook references	Chapter 11 (Lesson 3 and 4), Chap 12 (not Gravity in depth)
Ancillary Materials	
Optional Extensions in book	Power, Kinetic energy, and Acceleration equations, graphing acceleration, Newton's Laws

Unit #3: Gravity	**2nd Nine Weeks**	**Time Frame: 1-2 weeks**

Essential Questions
What factors affect gravity?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.6.P.13.2: Explore the Law of Gravity by recognizing that every object exerts gravitational force on every other object and that the force depends on how much mass the objects have and how far apart they are. (L)	Law of Gravity	Force Law Mass Model Revolution Rotation Weight ***Additional vocabulary words within the chapter**
SC.8.P.8.2: Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass. (M)	Weight and Mass	
SC.8.E.5.4: Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions. (H)	Law of Universal Gravitation	
SC.8.E.5.7: Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as **gravitational force**, distance from the Sun, speed, movement, temperature, and atmospheric conditions. (M)		
SC.8.E.5.9: Explain the impact of objects in space on each other including: the Sun on the Earth including seasons and gravitational attraction; the Moon on the Earth, including phases, **tides**, and eclipses, and the relative position of each body. (H)	Earth-Moon Sun System (esp Tides)	
SC.8.N.3.1 Select models useful in relating the results of their own investigations	Models	

Textbook references	Chapter 12 (pp 393-395)
Ancillary Materials	Predict, Observe, Explain FM8, FM9, FM11; 6th grade text
Optional Extensions in book	

Unit #4: Energy Transformations	**2nd Nine Weeks**	**Time Frame: 3-4 weeks**

Essential Questions
How is energy conserved in a transformation?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.7.P.11.2: Investigate and describe the transformation of energy from one form to another. (M)	Energy Transformations	Law Mechanical energy
SC.6.P.11.1: Explore the Law of Conservation of Energy by differentiating between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa. (M)	Potential and Kinetic energy	
SC.7.P.11.3: Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another. (H)	Law of Conservation of Energy with Living systems	
SC.7.L.17.1: Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web. (H)		
SC.8.L.18.4: Cite evidence that living systems follow the Laws of Conservation of Mass and Energy. (H)		
SC.912.P.10.1 Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.	Forms of Energy (Adv Only)	
SC.8.N.4.1: Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels. (M)	Alternative Energy sources	
SC.8.N.4.2: Explain how political, social, and economic concerns can affect science, and vice versa. (H)		***Additional vocabulary words within the chapter**

Textbook references	Chapter 10 (Sec 1 only), Chap 11 (Lesson 1 and 2)
Ancillary Materials	
Optional Extensions in book	Potential Energy and Kinetic Energy calculations, Work and Power esp calculations

Unit #5: Light and Waves	**2nd Nine Weeks**	**Time Frame: 2-3 weeks**

Essential Questions:
How does light interact with matter?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.7.P.10.3 Recognize that light waves, sound waves, and other waves move at different speeds in different materials. (L)	Wave Behavior	Absorb Amplitude Conduct Light year Model Opaque Reflect Translucent Transparent
SC.7.P.10.2 Observe and explain that light can be reflected, refracted, and/or absorbed. (H)	Reflection, Refraction, Absorption	
SC.8.E.5.11 Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs. (H)	Electromagnetic Spectrum	
SC.7.P.10.1 Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors. (L)		
SC.6.E.7.9 Describe how the composition and structure of the atmosphere protects life and insulates the planet. (M)	Earth's Atmosphere	
SC.8.N.3.1 Select models useful in relating the results of their own investigations (M)	Models	***Additional vocabulary words within the chapter**

Textbook references	Chapter 9
Ancillary Materials	
Optional Extensions in book	N/A

Unit #6: Heat Flow	**3rd Nine Weeks**	**Time Frame: 2-3 weeks**

Essential Questions

What determines the temperature of an object?
How is thermal energy different from temperature?
How is heat transferred?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.7.P.11.1: Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state. (L)	Heat and Temperature	Absorb Conduct Insulator Model Repetition Replication
SC.8.P.8.1 Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases. (M)	Heat and Change of State	
SC.7.P.11.4: Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature (M) **Thermal Energy Lab**	Heat Flow	
SC.6.E.7.1: Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through Earth's system. (M)	Radiation, Conduction, Convection	
SC.6.E.7.5 Explain how energy provided by the sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land. (H)		
SC.7.E.6.7 Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins. (M)		
SC.912.P.8.1 Differentiate among the four states of matter.	Four states of Matter (Adv Only)	
SC.912.P.10.4 Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter	Radiation, Conduction, Convection (Adv Only)	
SC.912.P.10.5 Relate temperature to the average molecular kinetic energy	Molecular Kinetic Energy (Adv Only)	
SC.8.N.3.1 Select models useful in relating the results of their own investigations. (H)	Models	*Additional vocabulary words within the chapter
SC.8.N.1.2: Design and conduct a study using repeated trials and replication. (H)	Replication and Repetition	

Textbook references	Chapter 3 Lesson 2 (for States of Matter support), Chapter 10 (Lesson 2 and 3)
Ancillary Materials	
Optional Extensions in book	N/A

Unit #7: Structure of Matter and Periodic Table	**3rd Nine Weeks**	**Time Frame: 2-3 weeks**
can be taught after Unit #8 at teacher's discretion		
Essential Questions How is the atom the building block of matter?		
NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.8.P.8.7 Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons). (L)	Elements	Classify Mass Matter Model Molecule Nucleus Theory
SC.8.P.8.6 Recognize that elements are grouped in the periodic table according to similarities of their properties. (L)	Periodic Table organization	
SC.7.E.6.3 Identify current methods for measuring the age of Earth and its parts, including the law of superposition and **radioactive dating**. (M)	Radioactive dating	
SC.912.P.8.4 Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within the atom.	Atomic Theory (Adv Only)	
SC.912.P.8.5 Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.	Element Properties (Adv Only)	
SC.8.N.3.1 Select models useful in relating the results of their own investigations (M)	Models	
SC.8.N.3.2 Explain why theories may be modified but are rarely discarded. (M)	Theories	***Additional vocabulary words within the chapter**

Textbook references	Chapter 5
Ancillary Materials	Visualizing and Electron Cloud (Demo Lab pg 98, Labs), What are the trends in the Periodic Table (pg 100, Labs)
Optional Extensions in book	n/a

Unit #8: Properties of Matter	**3rd Nine Weeks**	**Time Frame: 1-2 weeks**
can be taught before Unit #7 at teacher's discretion		

Essential Questions
Why does a substance change states?
What are the properties of matter?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.8.P.8.5 Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter. (L)	Atoms, Molecules, Compounds (intro)	Boiling point Characteristic Chemical properties Classify Mass Melting point Molecule State of Matter Texture Theory Volume
SC.8.P.8.3 Explore and describe the densities of various materials through measurement of their masses and volumes. (M) **Dastardly Density Deed**	Density (with Equation)	
SC.8.P.8.4 Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured; for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample. (M)	Physical Properties	
SC.8.E.5.7 Compare and contrast the **properties** of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	Physical Properties in Space	
SC.8.E.5.5 Describe and classify specific **physical properties** of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).		
SC.8.N.3.2 Explain why theories may be modified but are rarely discarded. (M)	Theories	***Additional vocabulary words within the chapter**

Textbook references	Chapters 3, 4 (not Section 3)
Ancillary Materials	
Optional Extensions in book	Calculating pressure, polarity as it relates to solubility

Unit #9: Compounds	**3rd Nine Weeks**	**Time Frame: 1-2 weeks**

Essential Questions

What determines the properties of mixtures and pure substances?

What are the properties of acids, bases, and salts?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.8.P.8.5 Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter. (L)	Atoms, Molecules, Compounds (in depth)	Chemical properties Classify Heterogeneous Homogeneous Matter Molecule pH Saturation Solute Solvent
SC.6.L.14.1 Describe and identify patterns in the hierarchical organization of organisms from atoms to molecules and cells to tissues to organs to organ systems to organisms. (L)	Atoms to Cells to Organisms	
SC.8.P.8.9 Distinguish among mixtures (including solutions) and pure substances. (M)	Mixtures vs Pure Substances	
SC.8.P.8.8 Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts. (M)	Acids, Bases, and Salts	
SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure	Molecular Formulas (Adv Only)	
SC.912.P.8.11 Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.	pH (Adv Only)	
SC.8.N.1.2: Design and conduct a study using repeated trials and replication. (H)	Repetition and Replication	
SC.8.N.1.6: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence. (M)	Evidence	*__Additional vocabulary words within the chapter__

Textbook references	Chapter 6 (section 3, pp 214-217), Chapter 7
Ancillary Materials	Element Chemistry (pg 101, Labs), What color does litmus paper turn (pg 106, Labs)
Optional Extensions in book	All of Chapter 6 (except acids and bases, covered in Unit #10)

Unit #10: Changes in Matter	**4th Nine Weeks**	**Time Frame: 2-3 weeks**

Essential Questions
How is matter conserved in Physical and Chemical changes?

NGSSS Benchmarks **(with Complexity Level)**	**Concepts**	**DOE Vocabulary**
SC.8.P.9.1 Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes. (H)	Law of Conservation of Mass	Characteristic Chemical properties Condensation Evaporation Mass Matter Physical Change Precipitation State of Matter Temperature ***Additional vocabulary words within the chapter**
SC.8.P.9.2 Differentiate between physical changes and chemical changes. (M) **Sunset in a Bag Lab**	Physical vs Chemical Changes	
SC.8.P.9.3 Investigate and describe how temperature influences chemical changes. (H)		
SC.6.E.6.1 Describe and give examples of ways in which Earth's surface is built up and torn down by physical and chemical weathering, erosion, and deposition.	Weathering and Erosion	
SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter	Changes and Properties (Adv Only)	
SC.8.N.1.2: Design and conduct a study using repeated trials and replication. (H)	Repetition and Replication	
SC.8.N.1.6: Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence. (M)	Evidence	

Textbook references	Chapter 4 (only section 3), 8 (limited section 3)
Ancillary Materials	A Story of Changes in Matter (pp 374-377, Science Projects), Inquiry Warm-Up (pg 76, Labs)
Optional Extensions in book	Balancing chemical equations, Activation energy, Catalysts, enzymes, inhibitors

Unit #11: Post-FCAT HS Bio Prep	**4th Nine Weeks**	**Time Frame: 3 wks**
the content covered during these weeks is at the teacher's discretion, list below is not all inclusive		
Essential Questions How are biological systems effected by or related to chemical principles?		
NGSSS Benchmarks **(with Complexity Level)**		**Concepts**
MS Benchmarks	**SC.8.L.18.1** Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll; production of food; release of oxygen.	Photosynthesis
	SC.8.L.18.2 Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	Cellular Respiration
	SC.8.L.18.3 Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	Carbon Cycle
	SC.6.L.14.3 Recognize and explore how cells of all organisms undergo similar processes to maintain homeostasis, including extracting energy from food, getting rid of waste, and reproducing.	Homeostasis
HS Biology Benchmarks	**SC.912.L.18.1:** Describe the basic molecular structures and primary functions of the four major categories of biological macromolecules. (M)	Macromolecules
	SC.912.L.18.11: Explain the role of enzymes as catalysts that lower the activation energy of biochemical reactions. Identify factors, such as pH and temperature, and their effect on enzyme activity. (M)	Enzymes of Living Functions
	SC.912.L.17.11: Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests (H)	Alternative Energy Sources
	SC.912.L.18.12: Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent (M)	Special Properties of Water
	SC.912.L.18.7: Identify the reactants, products, and basic functions of photosynthesis. (M)	Photosynthesis and Respiration
	SC.912.L.18.8: Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration. (M)	
	SC.912.L.18.9: Explain the interrelated nature of photosynthesis and cellular respiration. (M)	
SC.8.N.1.5 Analyze the methods used to develop a scientific explanation as seen in different fields of science.		Generating and Applying Scientific knowledge
SC.8.N.4.2 Explain how political, social, and economic concerns can affect science, and vice versa.		
SC.8.N.4.1 Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.		