

7TH GRADE CHEMICAL INTERACTIONS CONCEPT MAP 2008-2009

UNITS OF STUDY	STANDARDS, BENCHMARKS, GLCEs OR HSCES	BIG IDEAS / KEY CONCEPTS	ASSESSMENTS		LEARNING STRATEGIES <i>Skills</i>	CONTENT ACTIVITIES <i>Knowledge</i>	VOCABULARY	INSTRUCTIONAL RESOURCES
			FOR LEARNING <i>(Formative)</i>	OF LEARNING <i>(Summative)</i>				
								FOSS (FULL OPTION SCIENCE SYSTEM) – CHEMICAL INTERACTIONS KIT W/LABS & HANDS-ON ACTIVITIES
	Chemical Interactions							
<i>Chemical Interactions</i>	P.EN.06.41 Explain how different forms of energy can be transferred from one place to another by radiation, conduction, or convection.	Expansion and contraction of solids, liquids and gases Kinetic energy – motion of particles	Mid-Summative Exam #4 Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Heat and cool gas, liquid and solid matter to observe expansion and contraction. 	<ul style="list-style-type: none"> Discuss expansion and contraction at the macroscopic and particle levels. Explain expansion and contraction in terms of kinetic energy. Explain how a thermometer works. 	Heat Energy Kinetic Energy Expansion Contraction Thermometer Temperature	FOSS MODULE Investigation: 4 Parts 2-3 pgs. 130-141 (TE) Resource Books, pgs. 28-29, 38-41
	P.EN.06.42 Illustrate how energy can be transferred while no energy is lost or gained in the transfer.	Expansion and contraction of solids, liquids and gases Kinetic energy – motion of particles Energy Transfer	Mid-Summative Exam #4, 5 CD Activities Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Heat and cool gas, liquid and solid matter to observe expansion and contraction. Mix hot and cold water to observe energy transfer. Calculate energy transfer in calories. 	<ul style="list-style-type: none"> Discuss expansion and contraction at the macroscopic and particle levels. Explain expansion and contraction in terms of kinetic energy. Explain how a thermometer works. Explain energy transfer in terms of the change of particle kinetic energy resulting from collision. Discuss energy transfer in water in terms of calories. 	Heat Energy Kinetic Energy Expansion Contraction Thermometer Temperature Energy Transfer Conduction Radiation Equilibrium Calorie (cal)	FOSS MODULE Investigation: 4 Parts 1-3 pgs. 122-141 (TE) Investigation 5 Parts 1-3 pgs. 153-171 (TE) Resource Books, pgs. 32-33, 38-41 CD ROM
	P.CM.06.11 Describe and illustrate changes in state, in terms of the arrangement and relative motion of the atoms or molecules.	Phases (states) of matter	Mid-Summative Exam #7 Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use ice, hot water, and flame to transfer heat to and from substances to observe phase change. 	<ul style="list-style-type: none"> Explain phase in terms of the relationship of particles to one another in a substance. Discuss phase change in terms of kinetic energy and energy transfer. 	Phases (states) of matter Solid Liquid Gas Melted (liquefied) Vaporized (evaporated) Sublimed Condensed Solidified (froze) Deposited	FOSS MODULE Investigation 7 Parts 1-4 pgs. 204-228 (TE) Resource Books, pgs. 16-27, 43-48 CD ROM

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Chemical Interactions	P.CM.06.12 Explain how mass is conserved as it changes from state to state in a closed system.	Phases (states) of matter	Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use ice, hot water, and flame to transfer heat to and from substances to observe phase change. 	<ul style="list-style-type: none"> Explain phase in terms of the relationship of particles to one another in a substance. Discuss phase change in terms of kinetic energy and energy transfer. 	Phases (states) of matter Solid Liquid Gas Melted (liquefied) Vaporized (evaporated) Sublimed Condensed Solidified (froze) Deposited	FOSS MODULE Resource Books, pgs. 16-22, 24-25 *additional resources necessary – article does not really cover all necessary information.
	S.IP.07.11 Generate scientific questions based on observations, investigations, and research.	Solutions	Mid-Summative Exam #8 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Mix substances to observe that some solids dissolve and others don't. Determine the mass of two different substances needed to saturate 30 g of water. Use balances to compare densities of solutions and to infer concentration. 	<ul style="list-style-type: none"> Explain the process of dissolving. Explain how to determine the amount of solute needed to saturate a volume of solvent. Describe the characteristics of a solution at the particle level. Explain concentration. 	Mixture Dissolves Solution Solvent Saturation	FOSS MODULE Investigation: 8 Parts 1-3 pgs. 248-268 (TE)
	S.IP.07.12 Design and conduct scientific investigations.	Reactions Chemical equations	Mid-Summative Exam #9 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use atom tiles to model the rearrangement of atoms to form new substances during reactions. Use chemical formulas and balanced chemical equations to represent chemical reactions. Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. 	<ul style="list-style-type: none"> Explain chemical reaction as a process in which atoms rearrange to form new substances. Explain how to determine the effectiveness of an antacid using a neutralization reaction. 	Atoms Molecules Covalent bonding Reactants Products Compound	FOSS MODULE Investigation: 9 Parts 1-4 pgs. 280-312
	S.IP.07.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lenses, thermometer, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.	Energy Transfer	Mid-Summative #5 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Mix hot and cold water to observe energy transfer. Calculate energy transfer in calories. 	<ul style="list-style-type: none"> Explain energy transfer in terms of the change of particle kinetic energy resulting from collision. Discuss energy transfer in water in terms of calories. 	Energy Transfer Conduction Radiation Equilibrium Calorie (cal)	FOSS MODULE Investigation: 5 Part 3 pgs. 165-171 (TE)
	S.IP.07.14 Use metric measurement devices in an investigation.	Phases (states) of matter	Mid-Summative #7 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use ice, hot water, and flame to transfer heat to and from substances to observe phase change. 	<ul style="list-style-type: none"> Explain phase in terms of the relationship of particles to one another in a substance. Discuss phase change in terms of kinetic energy and energy transfer. 	Phases (states) of matter Solid Liquid Gas Melted (liquefied) Vaporized (evaporated) Sublimed Condensed Solidified (froze) Deposited	FOSS MODULE Investigation: 7 Parts 2-4 pgs. 210-228 (TE)
	S.IA.07.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.	Energy Transfer	Mid-Summative #5 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Mix hot and cold water to observe energy transfer. Calculate energy transfer in calories. 	<ul style="list-style-type: none"> Explain energy transfer in terms of the change of particle kinetic energy resulting from collision. Discuss energy transfer in water in terms of calories. 	Energy Transfer Conduction Radiation Equilibrium Calorie (cal)	FOSS MODULE Investigation: 5 Parts 1-3 pgs. 153-171 (TE)

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Chemical Interactions	S.IA.07.13 Communicate and defend findings of observations and investigations.	Phases (states) of matter	Mid-Summative #7 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use ice, hot water, and flame to transfer heat to and from substances to observe phase change. 	<ul style="list-style-type: none"> Explain phase in terms of the relationship of particles to one another in a substance. Discuss phase change in terms of kinetic energy and energy transfer. 	Phases (states) of matter Solid Liquid Gas Melted (liquefied) Vaporized (evaporated) Sublimed Condensed Solidified (froze) Deposited	FOSS MODULE Investigation: 7 Parts 2-4 pgs. 210-228 (TE)
	S.IA.07.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.	Energy Transfer	Mid-Summative #5 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Mix hot and cold water to observe energy transfer. Calculate energy transfer in calories. 	<ul style="list-style-type: none"> Explain energy transfer in terms of the change of particle kinetic energy resulting from collision. Discuss energy transfer in water in terms of calories. 	Energy Transfer Conduction Radiation Equilibrium Calorie (cal)	FOSS MODULE Investigation: 5 Parts 1- 3 pgs. 153-171 (TE)
	S.RS.07.11 Evaluate the strengths and weaknesses of claims, arguments, and data.	Energy Transfer	Mid-Summative #5 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Mix hot and cold water to observe energy transfer. Calculate energy transfer in calories. 	<ul style="list-style-type: none"> Explain energy transfer in terms of the change of particle kinetic energy resulting from collision. Discuss energy transfer in water in terms of calories. 	Energy Transfer Conduction Radiation Equilibrium Calorie (cal)	FOSS MODULE Investigation: 5 Parts 1- 3 pgs. 153-171 (TE)
	S.RS.07.14 Evaluate scientific explanations based on current evidence and scientific principles.	Phases (states) of matter	Mid-Summative #7 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use ice, hot water, and flame to transfer heat to and from substances to observe phase change. 	<ul style="list-style-type: none"> Explain phase in terms of the relationship of particles to one another in a substance. Discuss phase change in terms of kinetic energy and energy transfer. 	Phases (states) of matter Solid Liquid Gas Melted (liquefied) Vaporized (evaporated) Sublimed Condensed Solidified (froze) Deposited	FOSS MODULE Investigation: 7 Parts 1-3 pgs. 215-228 (TE)
	S.RS.07.16 Design solutions too problems using technology.	Phases (states) of matter	Mid-Summative #7 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use ice, hot water, and flame to transfer heat to and from substances to observe phase change. 	<ul style="list-style-type: none"> Explain phase in terms of the relationship of particles to one another in a substance. Discuss phase change in terms of kinetic energy and energy transfer. 	Phases (states) of matter Solid Liquid Gas Melted (liquefied) Vaporized (evaporated) Sublimed Condensed Solidified (froze) Deposited	FOSS MODULE Investigation: 7 Parts 2-4 pgs. 210-228 (TE) *additional material is necessary to emphasize GLCE.
	S.RS.07.18 Describe what science and technology can and cannot reasonable contribute to society.	Factors that limit reactions	Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Measure the volume of gas produced in a reaction to infer the concentrations of reactants. Use water displacement to determine the volume of oxygen consumed during the oxidation of iron. 	<ul style="list-style-type: none"> Explain the concept of limiting factor in chemical reactions. Discuss rusting (iron oxidation) in terms of reactants and products. 	Synthesis reactions Decomposition reactions Single-displacement reactions Double-displacement reactions Combustion reactions Oxidation Ion Limiting Factor	FOSS MODULE Resource Books, pgs. 80-83 *need to add additional questions to those supplied

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Chemical Interactions	S.RS.07.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Substances / Elements	Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use information in the periodic table to analyze substances in terms of their elemental composition. 	<ul style="list-style-type: none"> Explain that all common matter is made of elements. 	Mendeleev Elements Metals	FOSS MODULE Resource Books, pgs. 5, 7-8, 69-72, 82
	P.PM.07.11 Classify substances by their chemical properties (flammability, pH, acid-base indicators, reactivity).	Substances / Elements Reactions Chemical equations	Mid-Summative Exam #1, 9 Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Mix substances with water in order to determine the identity of an unknown mixture of substances. Observe and compare chemical reactions as they occur. Observe and compare residues left behind after water evaporates from reaction cups. Use atom tiles to model the rearrangement of atoms to form new substances during reactions. Use chemical formulas and balanced chemical equations to represent chemical reactions. Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. 	<ul style="list-style-type: none"> Explain that a reaction changes initial substances into new, different substances. Explain how to identify the two two substances in a mystery mixture. Explain chemical reaction as a process in which atoms rearrange to form new substances. Explain how to determine the effectiveness of an antacid using a neutralization reaction. 	Substances Particle Common name Chemical name Chemical formula Atoms Molecules Covalent bonding Reactants Products Compound	FOSS MODULE Investigation 1 Part 2 pgs. 46-58 (TE) *additional material necessary Investigation 9 Part 2 pgs. 288-297 *additional material necessary
	P.PM.07.21 Identify the smallest component that makes up an element.	Reactions Chemical equations	Mid-Summative #9 Video: Atoms and Molecules Homework	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use atom tiles to model the rearrangement of atoms to form new substances during reactions. Use chemical formulas and balanced chemical equations to represent chemical reactions. Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. 	<ul style="list-style-type: none"> Explain chemical reaction as a process in which atoms rearrange to form new substances. Explain how to determine the effectiveness of an antacid using a neutralization reaction. 	Atoms Molecules Covalent bonding Reactants Products Compound	FOSS MODULE Investigation 9 Part 1 pgs. 280-287 (TE) Resource Books, pg. 64 Video: Atoms and Molecules
	P.PM.07.22 Describe how the elements within the Periodic Table are organized by similar properties into families (highly reactive metals, less reactive metals, highly reactive nonmetals, and some almost completely non-reactive gases).	Elements	Mid-Summative Exams #2 CD Activities Homework Article Reading	Chemical Interactions District Common Assessment	<ul style="list-style-type: none"> Use information in the periodic table to analyze substances in terms of their elemental composition. 	* Explain that all common matter is made of elements.	Mendeleev Metals Elements	FOSS MODULE Investigation 2 Part 1 pgs. 70-74 (TE) Resource Books, pgs. 3-6, 90-91 CD ROM: Periodic Table

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<p>Chemical Interactions</p>	<p>P.PM.07.23 Illustrate the structure of molecules using models or drawings (water, carbon dioxide, salt).</p>	<p>Reactions Chemical equations</p>	<p>Mid-Summative Exam #9, Homework Article Reading</p>	<p>Chemical Interactions District Common Assessment</p>	<ul style="list-style-type: none"> Use atom tiles to model the rearrangement of atoms to form new substances during reactions. Use chemical formulas and balanced chemical equations to represent chemical reactions. Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. 	<ul style="list-style-type: none"> Explain chemical reaction as a process in which atoms rearrange to form new substances. Explain how to determine the effectiveness of an antacid using a neutralization reaction. 	<p>Atoms Molecules Covalent bonding Reactants Products Compound</p>	<p>FOSS MODULE Investigation 9 Parts 1- 2 pgs. 280-297 (TE) Resource Books, pgs. 63-67, 73-74</p>
	<p>P.PM.07.24 List examples of physical and chemical properties of elements and compounds (boiling point, density, color, conductivity, reactivity).</p>	<p>Reactions Chemical equations Limiting factor</p>	<p>Mid-Summative Exam #9, 10 Homework Article Reading</p>	<p>Chemical Interactions District Common Assessment</p>	<ul style="list-style-type: none"> Use atom tiles to model the rearrangement of atoms to form new substances during reactions. Use chemical formulas and balanced chemical equations to represent chemical reactions. Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. Measure the volume of gas produced in a reaction to infer the concentrations of reactants. Use water displacement to determine the volume of oxygen consumed during the oxidation of iron. 	<ul style="list-style-type: none"> Explain chemical reaction as a process in which atoms rearrange to form new substances. Explain how to determine the effectiveness of an antacid using a neutralization reaction. Explain the concept of limiting factor in chemical reactions. Discuss rusting (iron oxidation) in terms of reactants and products. 	<p>Atoms Molecules Covalent bonding Reactants Products Compound Synthesis reactions Decomposition reactions Single-displacement reactions Double-displacement reactions Combustion reactions Oxidation Ion Limiting Factor</p>	<p>FOSS MODULE Investigation 9 Parts 2-4 pgs. 288-312 (TE) *BENCHMARK IS NOT ADDRESSED!! Investigation 10 Parts 1-2 pgs. 323-336 (TE) Resource Books, pgs. 64-67 *BENCHMARK IS NOT ADDRESSED!!</p>
	<p>P.CM.07.21 Identify evidence of chemical change through color, gas formation, solid formation, and temperature change.</p>	<p>Reactions Chemical equations Limiting factor</p>	<p>Mid-Summative Exam #9, 10 Homework Article Reading</p>	<p>Chemical Interactions District Common Assessment</p>	<ul style="list-style-type: none"> Use atom tiles to model the rearrangement of atoms to form new substances during reactions. Use chemical formulas and balanced chemical equations to represent chemical reactions. Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. Measure the volume of gas produced in a reaction to infer the concentrations of reactants. Use water displacement to determine the volume of oxygen consumed during the oxidation of iron. 	<ul style="list-style-type: none"> Explain chemical reaction as a process in which atoms rearrange to form new substances. Explain how to determine the effectiveness of an antacid using a neutralization reaction. Explain the concept of limiting factor in chemical reactions. Discuss rusting (iron oxidation) in terms of reactants and products. 	<p>Atoms Molecules Covalent bonding Reactants Products Compound Synthesis reactions Decomposition reactions Single-displacement reactions Double-displacement reactions Combustion reactions Oxidation Ion Limiting Factor</p>	<p>FOSS MODULE Investigation 9 Parts 2-4 pgs. 288-312 (TE) Investigation 10 Parts 1-2 pgs. 323-336 (TE) Resource Books, pgs. 64-67</p>

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<p>Chemical Interactions</p>	<p>P.CM.07.22 Compare and contrast the chemical properties of a new substance with the original after a chemical change.</p>	<p>Reactions Chemical equations Limiting factor</p>	<p>Mid-Summative Exam #9, 10 Homework Article Reading</p>	<p>Chemical Interactions District Common Assessment</p>	<ul style="list-style-type: none"> • Use atom tiles to model the rearrangement of atoms to form new substances during reactions. • Use chemical formulas and balanced chemical equations to represent chemical reactions. • Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. • Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. • Measure the volume of gas produced in a reaction to infer the concentrations of reactants. • Use water displacement to determine the volume of oxygen consumed during the oxidation of iron. 	<ul style="list-style-type: none"> • Explain chemical reaction as a process in which atoms rearrange to form new substances. • Explain how to determine the effectiveness of an antacid using a neutralization reaction. • Explain the concept of limiting factor in chemical reactions. • Discuss rusting (iron oxidation) in terms of reactants and products. 	<p>Atoms Molecules Covalent bonding Reactants Products Compound Synthesis reactions Decomposition reactions Single-displacement reactions Double-displacement reactions Combustion reactions Oxidation Ion Limiting Factor</p>	<p>FOSS MODULE Investigation 9 Part 2 pgs. 288-292 (TE) Investigation 10 Part 2 pgs. 330-336 (TE) Resource Books, pg. 67</p>
	<p>P.CM.07.23 Describe the physical properties and chemical properties of the products and reactants in a chemical change.</p>	<p>Reactions Chemical equations Limiting factor</p>	<p>Mid-Summative Exam #9, 10 Homework Article Reading</p>	<p>Chemical Interactions District Common Assessment</p>	<ul style="list-style-type: none"> • Use atom tiles to model the rearrangement of atoms to form new substances during reactions. • Use chemical formulas and balanced chemical equations to represent chemical reactions. • Use lime water to confirm that carbon dioxide is produced when hydrochloric acid and sodium bicarbonate react. • Conduct a neutralization reaction to determine the effectiveness of an antacid tablet. • Measure the volume of gas produced in a reaction to infer the concentrations of reactants. • Use water displacement to determine the volume of oxygen consumed during the oxidation of iron. 	<ul style="list-style-type: none"> • Explain chemical reaction as a process in which atoms rearrange to form new substances. • Explain how to determine the effectiveness of an antacid using a neutralization reaction. • Explain the concept of limiting factor in chemical reactions. • Discuss rusting (iron oxidation) in terms of reactants and products. 	<p>Atoms Molecules Covalent bonding Reactants Products Compound Synthesis reactions Decomposition reactions Single-displacement reactions Double-displacement reactions Combustion reactions Oxidation Ion Limiting Factor</p>	<p>FOSS MODULE Investigation 9 Parts 2-3 pgs. 288-307 (TE) Investigation 10 Part 2 pgs. 330-336 (TE) Resource Books, pg. 67</p>

UNITS OF STUDY	STANDARDS, BENCHMARKS, GLCEs OR HSCEs	BIG IDEAS / KEY CONCEPTS	ASSESSMENTS		LEARNING STRATEGIES <i>Skills</i>	CONTENT ACTIVITIES <i>Knowledge</i>	VOCABULARY	INSTRUCTIONAL RESOURCES
			FOR LEARNING <i>(Formative)</i>	OF LEARNING <i>(Summative)</i>				
								FOSS (FULL OPTION SCIENCE SYSTEM) – DIVERSITY OF LIFE KITS W/LABS & HANDS-ON ACTIVITIES
	Diversity of Life							
<i>Diversity of Life</i>	L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).	Biological Structure/Function	Mid-Summative Exam 4 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Compare structure and function of cells from different organisms. 	<ul style="list-style-type: none"> Relate the structure and function of cells, tissues, organs, organ systems, and organisms. 	Cell Membrane Coacervates Prokaryotes Monera Nucleus Organelles Eukaryotic Protists Algae Animals	FOSS MODULE Investigation: 4 Supplemental material needed regarding animal systems.
	L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Biological Structure/Function	Mid-Summative Exam 4 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Compare structure and function of cells from different organisms. 	<ul style="list-style-type: none"> Relate the structure and function of cells, tissues, organs, organ systems, and organisms. 	Cell Membrane Coacervates Prokaryotes Monera Nucleus Organelles Eukaryotic Protists Algae Animals	FOSS MODULE Investigation: 4 *connect with seven characteristics of life Supplemental material needed regarding animal systems.
	L.OL.06.52 Distinguish between the ways in which consumers and decomposers obtain energy.	* Objective met in Populations and Ecosystems	Homework Article Reading	Diversity of Life District Common Assessment	* Objective met in Populations and Ecosystems	* Objective met in Populations and Ecosystems	* Objective met in Populations and Ecosystems	FOSS MODULE Resource Books, pgs. 67-68 *only refers to protists/fungi
	L.EC.06.21 Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predatory/prey).	* Objective met in Populations and Ecosystems	Homework Article Reading	Diversity of Life District Common Assessment	* Objective met in Populations and Ecosystems	* Objective met in Populations and Ecosystems	<ul style="list-style-type: none"> Objective met in Populations and Ecosystems 	FOSS MODULE Resource Books, pgs. 42, 48-49 *bee and flower *seed dispersal by animals

Diversity of Life	S.IP.07.11 Generate scientific questions based on observations, investigations, and research.	Transpiration	Mid-Summative Exam 6 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairs	FOSS MODULE Investigation: 6 Parts 1-3 pgs. 186-202 (TE)
	S.IP.07.12 Design and conduct scientific investigations.	Structure/Behavior of Multicellular Organisms	Mid-Summative #8 (as class discussion) Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design and conduct an experiment safely and appropriately using a living organism. Collect data and draw conclusions. 	<ul style="list-style-type: none"> Determine the difference between scientific observations and inferences. 	Anthropomorphism	FOSS MODULE Investigation: 8 *land snails investigation – not done in Michigan
	S.IP.07.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lenses, thermometer, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.	Microscope	Mid-Summative #2 Microscope Quiz Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Use the microscope to study layers in a sample of and structures of brine shrimp. Draw scale representations of images seen in a microscope to estimate size correctly. 	<ul style="list-style-type: none"> Explain how focal plane affects the image seen through a microscope. 	(all microscope parts) Focal Plane Optical Power Magnification	FOSS MODULE Investigation: 2 Parts 1-3 pgs. 72-91 (TE) *microscope
	S.IP.07.15 Construct charts and graphs from data and observations.	Kingdoms of Life	Mid-Summative #10 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Use lab procedures to inoculate agar plates with bacteria and fungi from natural sources. Make observations and collect data to draw conclusions. Calculate the reproductive potential of bacteria. 	<ul style="list-style-type: none"> Compare bacteria and fungi to plants, animals and protists. Describe the role of microorganisms in transforming foods and recycling nutrients through decomposition. 	Reproductive Potential Microbe	FOSS MODULE Investigation: 10 Part 2 pgs. 310-316 (TE) *exponential growth
	S.IP.07.16 Identify patterns in data.	Kingdoms of Life	Mid-Summative #10 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Use lab procedures to inoculate agar plates with bacteria and fungi from natural sources. Make observations and collect data to draw conclusions. Calculate the reproductive potential of bacteria. 	<ul style="list-style-type: none"> Compare bacteria and fungi to plants, animals and protists. Describe the role of microorganisms in transforming foods and recycling nutrients through decomposition. 	Reproductive Potential Microbe	FOSS MODULE Investigation: 10 Part 2 pgs. 310-316 (TE) *exponential growth
	S.IA.07.11 Analyze information from data tables and graphs to answer scientific questions.	Kingdoms of Life	Mid-Summative #10 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Use lab procedures to inoculate agar plates with bacteria and fungi from natural sources. Make observations and collect data to draw conclusions. Calculate the reproductive potential of bacteria. 	<ul style="list-style-type: none"> Compare bacteria and fungi to plants, animals and protists. Describe the role of microorganisms in transforming foods and recycling nutrients through decomposition. 	Reproductive Potential Microbe	FOSS MODULE Investigation: 10 Part 2 pgs. 310-316 (TE) *exponential growth

Diversity of Life	S.IA.07.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.	Adaptations	Mid-Summative #9 Homework Cockroach discussion after observations	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Observe hissing cockroaches to identify several behavioral and structural adaptations. Ask questions about the purposes of behaviors of the hissing cockroach and design experiments to answer those questions. 	<ul style="list-style-type: none"> Explain how hissing cockroach structural and behavioral adaptations help them survive. Make inferences about the habitat of the hissing cockroaches and other insects based on observing their color, body shape, mouth parts, wings/lack of wings, response to stimuli, and speed of movement. 	Adaptation Exoskeleton Chitin Head Thorax Abdomen Antenna Compound Eyes Simple Eyes Trachea Spiracles Molting Metamorphosis Larva Pupa	FOSS MODULE Investigation 9 Part 2 pgs. 278-285 (TE)
	S.IA.07.13 Communicate and defend findings of observations and investigations.	Habitat	Mid-Summative #8 (as class discussion) Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Demonstrate respect for living organisms while conducting investigations. Sort and analyze shells to appreciate the diversity of life expressed by snails Use Venn Diagrams to compare distantly related organisms. 	<ul style="list-style-type: none"> Describe habitat in terms of the needs and preferences of an organism. Discuss gastropod diversity, including shell design, habitat, and lifestyle. Explain similarities and differences between snails and other organisms (not done in Michigan). 	Gastropod	FOSS MODULE Investigation: 8 *land snails investigation – not done in Michigan
	S.IA.07.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.	Microscopic Life	Mid-Summative #3 CD Activities Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Discover cells by examining Elodea leaves with a microscope. Observe structures and behaviors of single-celled microorganisms with a microscope. Compare paramecium cells to Elodea cells. 	<ul style="list-style-type: none"> Generate evidence to support the idea that single-celled paramecia are organisms. Describe the difference between living cells that are organisms and living cells that are not organisms. Modify the working definition of life to include the cell, as the basic unit of life. 	Cells Organisms Chloroplasts Cytoplasmic Streaming Paramecia Cilia Amoeba Flagellum	FOSS MODULE Investigation: 3 Part 3 pgs. 116-122 (TE) *microorganism guide – CD ROM
	S.RS.07.11 Evaluate the strengths and weaknesses of claims, arguments, and data	Adaptations	Mid-Summative #9 Homework Cockroach discussion after observations	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Observe hissing cockroaches to identify several behavioral and structural adaptations. Ask questions about the purposes of behaviors of the hissing cockroach and design experiments to answer those questions. 	<ul style="list-style-type: none"> Explain how hissing cockroach structural and behavioral adaptations help them survive. Make inferences about the habitat of the hissing cockroaches and other insects based on observing their color, body shape, mouth parts, wings/lack of wings, response to stimuli, and speed of movement. 	Adaptation Exoskeleton Chitin Head Thorax Abdomen Antenna Compound Eyes Simple Eyes Trachea Spiracles Molting Metamorphosis Larva Pupa	FOSS MODULE Investigation: 9 Part 2 pgs. 278-285 (TE)

<i>Diversity of Life</i>	S.RS.07.13 Identify the need for evidence in making scientific decisions.	Adaptations	Mid-Summative #9 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Observe hissing cockroaches to identify several behavioral and structural adaptations. Ask questions about the purposes of behaviors of the hissing cockroach and design experiments to answer those questions. 	<ul style="list-style-type: none"> Explain how hissing cockroach structural and behavioral adaptations help them survive. Make inferences about the habitat of the hissing cockroaches and other insects based on observing their color, body shape, mouth parts, wings/lack of wings, response to stimuli, and speed of movement. 	Adaptation Exoskeleton Chitin Head Thorax Abdomen Antenna Compound Eyes Simple Eyes Trachea Spiracles Molting Metamorphosis Larva Pupa	FOSS MODULE Investigation: 9 Part 2 pgs. 278-285 (TE)
	P.EN.07.43 Explain how light energy is transferred to chemical energy through the process of photosynthesis.	Transpiration	Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairs	FOSS MODULE Resource Books, pg. 36 *reading does not use the term "chemical energy"
	L.OL.07.21 Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms).	Microscopic Life Biological Structure/Function Seeds/Germination	Mid-Summative Exams #3,4,5 CD Activities Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Discover cells by examining Elodea leaves with a microscope. Observe structures and behaviors of single-celled microorganisms with a microscope. Compare paramecium cells to Elodea cells. Compare structure and function of cells from different organisms. Dissect seeds to discover their structures. Observe germinating seeds to determine the sequence of developments. Use good lab procedures and data recording to investigate the early development of two groups of complex plants, monocots, and dicots. Investigate the effect of light on germinated seeds. 	<ul style="list-style-type: none"> Generate evidence to support the idea that single-celled paramecia are organisms. Describe the difference between living cells that are organisms and living cells that are not organisms. Modify the working definition of life to include the cell, as the basic unit of life. Relate the structure and function of cells, tissues, organs, and organ systems and organisms. Explain the role of cotyledons in early plant growth. Discuss the development and function of roots in early plant growth. 	Cells Organisms Chloroplasts Cytoplasmic Streaming Paramecia Cilia Amoeba Flagellum Cell Membrane Coacervates Prokaryotes Monera Nucleus Organelles Eukaryotic Protists Algae Animals Seed Coat Embryo Cotyledon Monocot Dicot (all parts of the root)	FOSS MODULE Investigation 3 Parts 1-3 pgs. 102-122 (TE) Investigation 4 Parts 1-2 pgs. 133-141 (TE) Investigation 5 Part 3 pgs. 165-170 (TE) Resource Books, pgs. 24-30, 37-39 CD ROM

Diversity of Life	L.OL.07.22 Explain how cells make up different body tissues, organs, and organ systems.	Transpiration Plant Reproduction	Mid-Summative Exams #6, 7 CD Activities Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. Dissect and mount the structures of a simple flower. Examine a variety of seeds to discover their dispersal mechanisms. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle. Explain the function of flowers and pollination. Describe the production of seeds in terms of sexual reproduction. Explain how seed-dispersal mechanisms contribute to a plant's survival. 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairs Petals Sepals Stamens Anther Pistil Ovary Pollination Dispersal	FOSS MODULE Investigation 6 Part 3 pgs. 165-170 (TE) Investigation 7 Part 1 pgs. 218-223 (TE) *both investigations deal with plants only – teachers must include animal systems Resource Books, pgs. 32, 37-39, 43 CD ROM
	L.OL.07.23 Describe how cells in all multicellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs.	Transpiration	Mid-Summative Exam #6 Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairs	FOSS MODULE Investigation 6 Part 2 pgs. 165-170 (TE) *investigation deals with plants only – teachers must include animal systems CD ROM
	L.OL.07.24 Recognize that cells function in a similar way in all organisms.	Biological Structure/Function	Mid-Summative #4 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Compare structure and function of cells from different organisms. 	<ul style="list-style-type: none"> Relate the structure and function of cells, tissues, organs, organ systems, and organisms. 	Cell Membrane Coacervates Prokaryotes Monera Nucleus Organelles Eukaryotic Protists Algae Animals	FOSS MODULE Investigation 4 Part 1 pgs. 133-136 (TE) *additional resources are needed
	L.OL.07.31 Describe growth and development in terms of increase of cell number and/or cell size.	Seeds/Germination	Mid-Summative Exams #5, 10 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Dissect seeds to discover their structures. Observe germinating seeds to determine the sequence of developments. Use good lab procedures and data recording to investigate the early development of two groups of complex plants, monocots, and dicots. Investigate the effect of light on germinated seeds. 	<ul style="list-style-type: none"> Explain the role of cotyledons in early plant growth. Discuss the development and function of roots in early plant growth. 	Cell Membrane Coacervates Prokaryotes Monera Nucleus Organelles Eukaryotic Protists Algae Animals Seed Coat Embryo Cotyledon Monocot Dicot (all parts of the root)	FOSS MODULE Investigation 5 Part 3 pgs. 165-170 (TE) *plants only – must include animal systems Investigation 10 Part 2 pgs. 310-316

Diversity of Life	L.OL.07.32 Examine how through cell division, cells can become specialized for specific functions.	Biological Structure/Function	Mid-Summative Exam #4 Homework	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Compare structure and function of cells from different organisms. 	<ul style="list-style-type: none"> Relate the structure and function of cells, tissues, organs, organ systems, and organisms. 	Cell Membrane Coacervates Prokaryotes Monera Nucleus Organelles Eukaryotic Protists Algae Animals	FOSS MODULE Investigation 4 Part 2 pgs. 137-141 (TE) *additional resources are needed
	L.OL.07.61 Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.	Transpiration	Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairs	FOSS MODULE Resource Books, pg. 36 *discusses carbohydrates only, not proteins and fats
	L.OL.07.62 Explain that carbon dioxide and water are used to produce carbohydrates, proteins, and fats.	Transpiration	Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairsm	FOSS MODULE Resource Books, pg. 36 *discusses carbohydrates only, not proteins and fats
	L.OL.07.63 Describe evidence that plants make, use, and store food.	Transpiration	Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Design an experiment to see what happens to water in a celery stalk. Collect and analyze data to develop evidence for an explanation for how water enters a plant's roots and flows through the plant during transpiration. 	<ul style="list-style-type: none"> Relate transpiration to the water cycle 	Vascular channels Xylem Phloem Guard Cells Stomates Zone of Elongation Zone of Maturation Root Hairs	FOSS MODULE Resource Books, pg. 36 *discusses carbohydrates only, not proteins and fats
	L.HE.07.22 Compare and contrast the advantages and disadvantages of sexual vs. asexual reproduction.	Plant Reproduction	Mid-Summative Exam #7 Homework Article Reading	Diversity of Life District Common Assessment	<ul style="list-style-type: none"> Dissect and mount the structures of a simple flower. Examine a variety of seeds to discover their dispersal mechanisms. 	<ul style="list-style-type: none"> Explain the function of flowers and pollination. Describe the production of seeds in terms of sexual reproduction. Explain how seed-dispersal mechanisms contribute to a plant's survival. 	Petals Sepals Stamens Anther Pistil Ovary Pollination Dispersal	FOSS MODULE Investigation 7 Part 1 pgs. 218-223 (TE) Resource Books, pgs. 26, 43-44, 53-54, 61-62 *flower dissection is sexual reproduction only

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UNITS OF STUDY	STANDARDS, BENCHMARKS, GLCEs OR HSCES	BIG IDEAS / KEY CONCEPTS	ASSESSMENTS		LEARNING STRATEGIES <i>Skills</i>	CONTENT ACTIVITIES <i>Knowledge</i>	VOCABULARY	INSTRUCTIONAL RESOURCES
			FOR LEARNING <i>(Formative)</i>	OF LEARNING <i>(Summative)</i>				
								FOSS (FULL OPTION SCIENCE SYSTEM) – WEATHER AND WATER KIT W/LABS & HANDS-ON ACTIVITIES
	Weather and Water							
<i>Weather and Water</i>	E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year.	Seasons Sun	Mid-Summative Exam #3 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Graph monthly day-length data for a single location to look for a pattern. Use an Earth globe and light bulb to model daily and seasonal variations in day length. Use light sources and surfaces to model beam spreading. 	<ul style="list-style-type: none"> Explain how the tilt of Earth's axis and Earth's revolution around the Sun produce seasons. Discuss seasonal variation in day length as a consequence of axis tilt, rotation, and revolution. Explain how beam spreading reduces the intensity of solar radiation. 	Perihelion Aphelion Summer Solstice Winter Solstice Vernal Equinox Autumnal Equinox Beam Spreading	FOSS MODULE Investigation: 3 Parts 1-3 pgs. 83-111 (TE)
	S.IP.06.14 Use metric measurement devices in an investigation.	Convection	Mid-Summative Exam #5 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 5 Part 1 pgs. 152-162 (TE)
	S.IP.06.15 Construct charts and graphs from data and observations.	Heat Transfer	Mid-Summative Exam #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)
	S.IP.06.16 Identify patterns in data.	Heat Transfer	Mid-Summative Exam #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)
<i>Weather and Water</i>	S.IA.06.11 Analyze information from data tables and graphs to answer scientific questions.	Heat Transfer	Mid-Summative Exam #4	Weather and Water District Common	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid 	Heat Radiation	FOSS MODULE Investigation: 4

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			Homework	Assessment	<ul style="list-style-type: none"> Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Temperature	Part 1 pgs. 121-130 (TE)
S.IA.06.13 Communicate and defend findings of observations and investigations using evidence.	Heat Transfer	Mid-Summative Exam #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Parts 1-2 pgs. 121-139 (TE)	
S.IA.06.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.	Convection	Mid-Summative Exam #5 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 5 Part 1-2 pgs. 152-168 (TE)	
S.RS.06.13 Identify the need for evidence in making scientific decisions.	Heat Transfer	Mid-Summative Exam #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)	
P.EN.06.41 Explain how different forms of energy can be transferred from one place to another by radiation, conduction, or convection.	Heat Transfer Convection	Mid-Summative Exam #4, 5 Homework Article Reading Video Questions	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Heat Radiation Temperature Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 4 Parts 2 pgs. 131-139 (TE) *conduction and radiation only Investigation 5 Parts 2-3 pgs. 163-174 (TE) Resource Books, pgs. 32-33, 53-54 Video: Convection Chamber *convection	
P.CM.06.11 Describe and illustrate changes in state, in terms of the arrangement and relative motion of the atoms or molecules.	Heat Transfer	CD Activities Homework Article Reading	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Resource Books, pgs. 22-24 CD: Matter & Energy; Molecules in Solids, Liquids and Gases	

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Weather and Water	S.IP.07.12 Design and conduct scientific investigations.	Heat Transfer	Mid-Summative Exam #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Parts 1 pgs. 121-130 (TE)
	S.IP.07.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lenses, thermometer, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.	Convection	Mid-Summative #5 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 5 Part 1 pgs. 152-162 (TE)
	S.IP.07.14 Use metric measurement devices in an investigation.	Convection	Mid-Summative #5 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 5 Part 1 pgs. 152-162 (TE)
	S.IP.07.15 Construct charts and graphs from data and observations.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)
	S.IP.07.16 Identify patterns in data.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)
	S.IA.07.11 Analyze information from data tables and graphs to answer scientific questions.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)
	S.IA.07.13 Communicate and defend findings of observations and investigations.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Parts 1-2 pgs. 121-139 (TE)

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<i>Weather and Water</i>	S.IA.07.14 Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.	Convection	Mid-Summative #5 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 5 Parts 1-2 pgs. 152-168 (TE)
	S.RS.07.13 Identify the need for evidence in making scientific decisions.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE)
	S.RS.07.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Seasons Sun	Mid-Summative Exam #3 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Graph monthly day-length data for a single location to look for a pattern. Use an Earth globe and light bulb to model daily and seasonal variations in day length. Use light sources and surfaces to model beam spreading. 	<ul style="list-style-type: none"> Explain how the tilt of Earth's axis and Earth's revolution around the Sun produce seasons. Discuss seasonal variation in day length as a consequence of axis tilt, rotation, and revolution. Explain how beam spreading reduces the intensity of solar radiation. 	Perihelion Aphelion Summer Solstice Winter Solstice Vernal Equinox Autumnal Equinox Beam Spreading	FOSS MODULE Investigation: 3 Parts 1-2 pgs. 93-102 (TE)
	S.RS.07.18 Describe what science and technology can and cannot reasonable contribute to society.	Heat Transfer	Homework Article Reading	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Resource Books, pgs. 63-65
	P.EN.07.31 Identify examples of waves, including sound waves, seismic waves, and waves on water.	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE
	P.EN.07.32 Describe how waves are produced by vibrations in matter.	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE
	P.EN.07.33 Demonstrate how waves transfer energy when they interact with matter (for example: tuning fork in water, waves hitting a beach, earthquake knocking over buildings.	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE	COVERED IN 8TH GRADE

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Weather and Water	P.EN.07.61 Identify that nuclear reactions take place in the sun, producing heat and light.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Parts 1-2 pgs. 121-140 (TE) *Need additional resources!!
	P.EN.07.62 Explain how only a tiny fraction of light energy from the sun is transformed to heat energy on Earth.	Heat Transfer	Mid-Summative #4 Homework	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	Heat Radiation Temperature	FOSS MODULE Investigation: 4 Parts 1-2 pgs. 121-140 (TE) *Need additional resources!!
	E.ES.07.11 Demonstrate, using a model or drawing, the relationship between the warming by the sun of the Earth and the water cycle as it applies to the atmosphere (evaporation, water vapor, warm air rising, cooling, condensation, clouds).	Water Cycle	Mid-Summative Exam #7 Homework Art	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Engage in classroom simulations and use multimedia to identify the various paths a water molecule might follow in Earth's water cycle. 	<ul style="list-style-type: none"> Explain with words and drawings how evaporation, condensation, precipitation, and other processes produce many variations of the water cycle. 	Drainage Basin	FOSS MODULE Investigation 7 Parts 1-2 pgs. 232-243
	E.ES.07.12 Describe the relationship between the warming of the atmosphere of the Earth by the sun and convection within the atmosphere and oceans.	Convection	Mid-Summative #5 Homework Article Reading	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Layer salt solutions to determine their relative density. Use mass and volume data to calculate densities (g/cc). Observe convection in liquid and gas environments. 	<ul style="list-style-type: none"> Explain density as a ratio between a mass and its volume. Describe how materials of different densities interact. Explain how energy transfer drives the process of convection. 	Pressure Convection Cell Avogadro's Number	FOSS MODULE Investigation: 5 Parts 2-3 pgs. 163-174 (TE) Resource Books, pgs. 32-33, 53-55
	E.ES.07.13 Describe how the warming of the Earth by the sun produces winds and ocean currents.	Air Pressure Wind	Mid-Summative #8 Homework CD Activities Article Reading	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Apply pressure to a system and observe the compression of the gas. Build an anemometer and use it to gather wind-speed data for mapping. Interpret a pressure map. 	<ul style="list-style-type: none"> Describe the relationship between changing air pressure and wind. Explain how differential heating of the Earth by the Sun creates local winds. 	Diatomic Mole Atmospheric Pressure Aneroid Barometer Sea Breezes Land Breezes Valley Breezes Mountain Breezes	FOSS MODULE Investigation: 8 Part 2 pgs. 265-270 (TE) Resource Books, pgs. 53-55 CD: Climate Factors, Local Winds *need to stress this information!!
	E.ES.07.42 Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.	Weather and Climate	Mid-Summative #9 Homework Article Reading	Weather and Water District Common Assessment	<ul style="list-style-type: none"> Set up a solar-heated bag to model the formation of an air mass. Observe the interaction of two liquids of different densities as a model for frontal boundaries. 	<ul style="list-style-type: none"> Explain the interaction between two air masses in terms of their densities. Explain how a global temperature increase could affect the water cycle and Earth's climate. 	Air Masses Source Regions Temp. Classifications Humidity Continental Polar Continental Arctic Maritime Polar Continental Tropical Maritime Tropical Nor'easter Front Overrunning Inundation	FOSS MODULE Investigation: 9 Part 4 pgs. 315-318 (TE) Resource Books, pgs. 63-66

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<p>Weather and Water</p>	<p>E.ES.07.71 Compare and contrast the difference and relationship between climate and weather.</p>	<p>Weather and Climate</p>	<p>Mid-Summative #9 Homework Video Questions</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Set up a solar-heated bag to model the formation of an air mass. Observe the interaction of two liquids of different densities as a model for frontal boundaries. 	<ul style="list-style-type: none"> Explain the interaction between two air masses in terms of their densities. Explain how a global temperature increase could affect the water cycle and Earth's climate. 	<p>Air Masses Source Regions Temp. Classifications Humidity Continental Polar Continental Arctic Maritime Polar Continental Tropical Maritime Tropical Nor'easter Front Overrunning Inundation</p>	<p>FOSS MODULE Investigation: 9 Part 3 pgs. 311-314 (TE) Video: Wonders of Weather</p>
	<p>E.ES.07.72 Describe how different weather occurs due to the constant motion of the atmosphere from the energy of the sun reaching the surface of the Earth.</p>	<p>Air Pressure Wind Weather and Climate</p>	<p>Mid-Summative #8, 9 Homework Article Reading</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Apply pressure to a system and observe the compression of the gas. Build an anemometer and use it to gather wind-speed data for mapping. Interpret a pressure map. Set up a solar-heated bag to model the formation of an air mass. Observe the interaction of two liquids of different densities as a model for frontal boundaries. 	<ul style="list-style-type: none"> Describe the relationship between changing air pressure and wind. Explain how differential heating of the Earth by the Sun creates local winds. Explain the interaction between two air masses in terms of their densities. Explain how a global temperature increase could affect the water cycle and Earth's climate. 	<p>Diatomic Mole Atmospheric Pressure Aneroid Barometer Sea Breezes Land Breezes Valley Breezes Mountain Breezes Air Masses Source Regions Temp. Classifications Humidity Continental Polar Continental Arctic Maritime Polar Continental Tropical Maritime Tropical Nor'easter Front Overrunning Inundation</p>	<p>FOSS MODULE Investigation: 8 Part 2 pgs. 265-270 (TE) *Not really covered well. Investigation 9 Part 2 pgs. 303-310 (TE) *need to stress "sun" - use information in "background" section of TE notes Resource Books, pgs. 53-55</p>
	<p>E.ES.07.73 Explain how the temperature of the oceans affects the different climates on Earth because water in the oceans holds a large amount of heat.</p>	<p>Heat Transfer</p>	<p>Mid-Summative #4 Homework</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Use thermometers to measure the temperature of materials. Measure the heating and cooling of earth materials when moved into and out of sunshine. Design and conduct experiments to observe heat transfer by conduction through solids and liquids. 	<ul style="list-style-type: none"> Explain how radiant energy from the Sun heats solid and liquid materials. Describe heat transfer through multiple materials in terms of molecular activity. 	<p>Heat Radiation Temperature</p>	<p>FOSS MODULE Investigation: 4 Part 1 pgs. 121-130 (TE) *Need additional resources!!</p>
	<p>E.ES.07.74 Describe weather conditions associated with frontal boundaries (cold, warm, stationary, and occluded) and the movement of major air masses and the jet stream across North America using a weather map.</p>	<p>Weather and Climate</p>	<p>Mid-Summative #9 Homework Article Reading</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Set up a solar-heated bag to model the formation of an air mass. Observe the interaction of two liquids of different densities as a model for frontal boundaries. 	<ul style="list-style-type: none"> Explain the interaction between two air masses in terms of their densities. Explain how a global temperature increase could affect the water cycle and Earth's climate. 	<p>Air Masses Source Regions Temp. Classifications Humidity Continental Polar Continental Arctic Maritime Polar Continental Tropical Maritime Tropical Nor'easter Front Overrunning Inundation</p>	<p>FOSS MODULE Investigation: 9 Parts 1-2 pgs 296-310 (TE) *Part 1 – air masses *Part 2 – fronts Resource Books, pgs. 84-86</p>

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<p><i>Weather and Water</i></p>	<p>E.ES.07.81 Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle</p>	<p>Water Cycle</p>	<p>Mid-Summative Exam #7 CD Activities Homework</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Engage in classroom simulations and use multimedia to identify the various paths a water molecule might follow in Earth's water cycle. 	<ul style="list-style-type: none"> Explain with words and drawings how evaporation, condensation, precipitation, and other processes produce many variations of the water cycle. 	<p>Drainage Basin</p>	<p>FOSS MODULE Investigation 7 Parts 1-2 pgs. 232-243 *stress terminology CD: Water Cycle *game</p>
	<p>E.ES.07.82 Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.</p>	<p>Water Cycle</p>	<p>Mid-Summative Exam #7 CD Activities Homework</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Engage in classroom simulations and use multimedia to identify the various paths a water molecule might follow in Earth's water cycle. 	<ul style="list-style-type: none"> Explain with words and drawings how evaporation, condensation, precipitation, and other processes produce many variations of the water cycle. 	<p>Drainage Basin</p>	<p>FOSS MODULE Investigation 7 Parts 1-2 pgs. 232-243 *small gap in information – may need additional resources. CD: Water Cycle</p>
	<p>E.FE.07.11 Describe the atmosphere as a mixture of gases.</p>	<p>Atmosphere</p>	<p>Mid-Summative Exam #2 Homework Article Reading</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Conduct experiments to determine that air has mass. 	<ul style="list-style-type: none"> Use a molecular model to compare a gas at standard pressure and a gas under increased pressure. Explain how experimental results provide evidence that air has mass. 	<p>Permanent Gases Variable Gases Greenhouse Effect</p>	<p>FOSS MODULE Investigation 2 Part 2 pgs. 76-80 *need to stress information Resource Books, pgs. 6-7</p>
	<p>E.FE.07.12 Compare and contrast the composition of the atmosphere at different elevations.</p>	<p>Atmosphere</p>	<p>Mid-Summative Exam #2 Homework CD Activities Article Reading</p>	<p>Weather and Water District Common Assessment</p>	<ul style="list-style-type: none"> Conduct experiments to determine that air has mass. 	<ul style="list-style-type: none"> Use a molecular model to compare a gas at standard pressure and a gas under increased pressure. Explain how experimental results provide evidence that air has mass. 	<p>Permanent Gases Variable Gases Greenhouse Effect</p>	<p>FOSS MODULE Investigation 2 Part 2 pgs. 76-80 Resource Books, pgs.8-11 CD: Atmospheric Data</p>