

2011-2012 Alabama Eighth Grade Course of Study

Alignment to Science Modules, GLOBE, SAT-10, and ARMT

1. Identify steps within the scientific process.	EMM-Lessons 2, 3, 4, 5, 6, 7, 8 9, 11, 12, 13, 14, 15, 18, 19, 21 POM-lessons 1-8, 11-18, 20-25		
<ul style="list-style-type: none"> Applying process skills to interpret data from graphs, tables, and charts 	EMM- Lessons 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 18, 19, 21 POM – Lessons 1-8, 11-18, 20-25		
<ul style="list-style-type: none"> Identifying controls and variables in a scientific Investigation 	EMM- Lessons 4, 5, 6, 7, 8, 9, 11 13, 14, 15, 18, 19, 21 POM – Lessons 1-8, 11-18, 20-25		
<ul style="list-style-type: none"> Measuring dimension, volume, and mass using SI units 	EMM- Lessons 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 18, 19, 21		
<ul style="list-style-type: none"> Identifying examples of hypotheses 	EMM- Lessons 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15, 18, 19, 21 POM- Lessons 1-8, 11-18, 20-25		
<ul style="list-style-type: none"> Identifying appropriate laboratory glassware, Balances, time measuring equipment, and optical instruments used to conduct an investigation. 	EMM- Lessons 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 18, 19, 21 POM- Lessons 1-8, 11-18, 20-25		
2. Describe the structure of atoms, including the location of protons, neutrons, and electrons.	POM- Extra Atomic Model of Matter		
<ul style="list-style-type: none"> Identifying the charge of each subatomic particle 	POM- Extra Atomic Model of Matter		
<ul style="list-style-type: none"> Identifying Democritus and Dalton as contributors to the atomic theory 	POM- Extra Atomic Model of Matter		
3. Determine the number of protons, neutrons, and electrons, and the mass of an element using the periodic table	POM- Extra Adopt an Element, Mr. and Miss Periodic Table		
Course of Study Objectives	Science Module, Lesson GLOBE, Lesson	SAT-10 (To Be Completed Fall, 2007)	ARMT (To Be Completed Fall, 2007)
<ul style="list-style-type: none"> Locating metals, nonmetals, and noble gases on the periodic table 	POM- Lesson 21, 22		

<ul style="list-style-type: none"> Using data about the number of electrons in the Outer shell of an atom to determine its reactivity 	POM- Extra Modeling electron Dot Diagrams		
4. State the law of conservation of matter	POM- Lessons 8, 14 POM- Extra Are You Ready for a Change?, Balancing Chemical Equations, Solid + Liquid = Gas		
<ul style="list-style-type: none"> Balancing chemical equations by adjusting Coefficients 	POM- Extra Balancing Chemical Equations		
5. Differentiate between ionic and covalent bonds	POM- Lessons 16, 22 POM- Extra Modeling Electron Dot Diagrams		
<ul style="list-style-type: none"> Illustrating the transfer or sharing of electrons Using electron dot diagrams 	POM- Extra Modeling Electron Dot Diagrams		
6. Define solution in terms of solute and solvent	POM- Lessons 12, 13, 15, 17, 18 POM- Extra What's in the bag?		
<ul style="list-style-type: none"> Defining diffusion and osmosis 	POM- Lesson 15, ext. 4 (also Lesson 6 with added vocab.) POM- Extra What's in the bag?		
<ul style="list-style-type: none"> Defining isotonic, hypertonic, and hypotonic Solutions 	POM- Lesson 6 (with added Vocab.) POM- Extra What's in the bag?		
<ul style="list-style-type: none"> Describing acids and bases based on their Hydrogen ion concentration 	POM- Extra In a Jam		
7. Describe states of matter based on kinetic energy of particles in matter.	POM- Lessons 5, 6, 7, 18 ext. 2 POM- Extra Molecular Matters Are You Ready for a Change?, B.B. Matter, Solid + Liquid = Gas		
<ul style="list-style-type: none"> Explaining effects of temperature, concentration, surface area, and catalysts on the rate of chemical reactions 	POM- Lessons 1, 23, 24, 25 POM- Extra chemical Kinetics		
Course of Study Objectives	Science Module, Lesson GLOBE, Lesson	SAT-10 (To Be Completed Fall, 2007)	ARMT (To Be Completed Fall, 2007)
8. Identify Newton's three laws of motion	EMM- Lessons 5, 6, 7, 8, 9, 11 12, 13, 14, 15, 17, 18, 19, 21		

<ul style="list-style-type: none"> Defining terminology such as <i>action and reaction forces, inertia, acceleration, momentum, and friction</i> 	EMM-Lessons 5, 6, 7, 8, 9, 11 12, 13, 14, 15, 17, 18, 19, 21		
<ul style="list-style-type: none"> Interpreting distance time graphs 	EMM0 Lessons 1, 18, 19, 21		
9. Describe how mechanical advantages of simple machines reduce the amount of force needed for work	EMM- Lessons 7, 11, 12, 13, 14, 15, 17, 21		
<ul style="list-style-type: none"> Describing the effect of force on pressure in Fluids Example: increasing force on fluid leading to Increase of pressure within a hydraulic cylinder 	POM- Lesson 7 ext. 2 POM- Extra Making a Cartesian Diver		
10. Differentiate between potential and kinetic energy Examples: potential- rock resting at the top of a hill, kinetic-rock rolling down a hill	EMM- Lessons 2, 3, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21		
11. Explain the law of conservation of energy and its relationship to energy transformation, including chemical to electrical, chemical to heat, electrical to light, electrical to mechanical, and electrical to sound	EMM- Lessons 2, 3, 4, 7, 8, 9, 17, 18, 19, 20, 21		
12. Classify waves as mechanical or electromagnetic Examples: mechanical-earthquake waves; electromagnetic-ultraviolet light waves, visible light waves			
<ul style="list-style-type: none"> Describing how earthquake waves, sound waves, water waves, and electromagnetic waves can be destructive or beneficial due to the transfer of energy 	EMM- Lesson 9 (Reading pg 89-91)		
<ul style="list-style-type: none"> Describing longitudinal and transverse waves 			
<ul style="list-style-type: none"> Describing how waves travel through different media 			
Course of Study Objectives	Science Module, Lesson GLOBE, Lesson	SAT-10 (To Be Completed Fall, 2007)	ARMT (To Be Completed Fall, 2007)
<ul style="list-style-type: none"> Relating wavelength, frequency, and amplitude to energy 			
<ul style="list-style-type: none"> Describing the electromagnetic spectrum in terms of frequencies Example: electromagnetic spectrum in increasing frequencies-microwaves, infrared light, visible light, ultraviolet light, X rays 			