Integrated Science 1 (Physical Science)
Core Competencies

Topic Area	Core Competency
Thinking Like a Scientist	Know the Scientific Method and be able to design and conduct experiments using it. Make accurate measurements with appropriately selected instruments. Utilize mathematical concepts and tools (data tables, graphs and equations) to analyze observations.
Motion	Understand the relationships among and apply the concepts of inertia, velocity, acceleration, momentum and force to predict and explain situations involving forces and motion, including stationary objects and collisions.
Newton's Laws	Understand Newton's Laws of motion and be able to analyze, predict and explain the motion of objects.
Energy	Explain that all energy can be considered to be either kinetic energy, potential energy, or energy contained by a field. Provide examples of how kinetic and potential energy can be transformed from one to the other. Verify experimentally that energy is neither created nor destroyed.
World of Atoms	Understand the history of atomic theory. Model and explain the structure of an atom. Explain how atoms bond to one another to form compounds and explain the distinctions between the different types of bonds.
Matter	Explain how the chemical properties of materials are determined by the bonds which hold them together. Differentiate between the structures of solids, liquids, and gases in terms of particle arrangement and particle motion. Use physical and chemical properties as determined through an investigation to identify a substance.
Earth Science	Trace the development of the theory of plate tectonics. Understand current tectonic theory. Link tectonic theory to the geologic features and events observed on the Earth today.
Space Science	Explain how the Solar System formed from a giant cloud of gas and debris about 5 billion years ago. Provide scientific evidence that supports or refutes the “Big Bang” theory of how the universe was formed.

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