

# Science Curriculum

## Morris County USD #417

### Grade 11 – Physics

*\*Understand: “understand” does not mandate “belief.” While students may be required to understand some concepts that researchers use to conduct research and solve practical problems, they may accept or reject the scientific concepts presented. This applies particularly where students’ and/or parents’ beliefs may be at odds with current scientific theories or concepts. (KS Science Standards, February 14, 2001, p. 76)*

Indicator	Description	Date(s)			
12KS1.1.1	Develop understanding/curiosity of the natural world through experience.				
12KS1.1.2	Develop questions/identify concepts to guide scientific investigations.				
12KS1.1.3	Design and conduct scientific investigations.				
12KS1.1.4	Use technology/mathematics to improve investigations and communications.				
12KS1.1.5	Formulate/revise scientific explanations and models using logic and evidence.				
12KS1.1.6	Recognize/analyze alternative explanations.				
12KS1.1.7	Communicate/defend a scientific argument.				
12KS2B.1.1	The motion of an object can be described in terms of its displacement, velocity, and acceleration.				
12KS2B.1.2	Objects change their motion only when a net force is applied.				
12KS2B.1.3	Whenever a system applies force to an object, that object applies a related force to the system that is equal in magnitude and opposite in direction.				
12KS2B.1.4	Gravitation is a relatively weak, attractive force that acts upon and between any two masses.				
12KS2B.1.5	Electric force is the attraction or repulsion that exists between two charged particles. Its magnitude is vastly greater than that due to gravity.				
12KS2B.1.6	Electricity and magnetism are two aspects of a single electromagnetic force.				
12KS2B.2.1	The energy of the universe is constant.				
12KS2B.2.2	Energy may be classified as kinetic, potential, or energy within a field.				
12KS2B.2.3	Heat is the transfer of energy from objects at higher temperature to objects at lower temperature.				
12KS2B.2.4	The universe tends to become less organized and more disordered with every chemical and physical change.				
12KS2B.3.1	Waves can transfer energy when they interact with matter.				
12KS2B.3.2	Electromagnetic waves result when a charged object is accelerated.				
12KS2B.3.3	Each kind of atom or molecule can gain or lose energy in unique, discrete amounts.				
12KS2B.3.4	Electrons flow easily in conductors. Semiconducting materials have intermediate behavior. At low temperatures, some materials become superconductors and offer little or no resistance to the flow of electrons.				

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