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Physical Science				
2016 Indiana Academic Standards	**Clarifying Statements**	**Vocabulary**	**Crosscutting Concept**	**Disciplinary Core Idea**
6.PS.1 Distinguish between the terms position, distance, and displacement, as well as, the terms speed and velocity.	1) Displacement and velocity include the direction the object has moved relative to the origin (distance). 2) Define and discuss the difference between speed and velocity.	***Position** **-Distance** **-Displacement** **-Speed** **-Velocity**		PS2.A: Forces and Motion
6.PS.2 Describe the motion of an object graphically showing the relationship between time and position.	1) Given a graph of position vs. time, be able to rank the velocity of an object based on the slope of the graph. 2) Identify when an object is in motion or at rest.	***Time** ***Position**		PS2.A: Forces and Motion
6.PS.3 Describe how potential and kinetic energy can be transferred from one form to another.	1) Define and discuss the law of conservation of energy. 2) Provide real-world examples of how energy is transformed in a system. Examples = car engines, light switches, a toaster, roller coasters etc.	*Law of conservation of energy *Potential energy *Kinetic energy		PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer

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6.PS.4 Investigate the properties of light, sound, and other energy waves and how they are reflected, absorbed, and transmitted through materials and space.	1) Explain what determines the color of an object. 2) Discuss sound waves as it relates to the Doppler effect	*Reflection -Refraction -Absorption -Wavelength -Frequency		PS3.A: Definitions of Energy PS4.A: Wave Properties

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Earth and Space Science				
2016 Indiana Academic Standards	**Clarifying Statements**	**Vocabulary**	**Crosscutting Concepts**	**Disciplinary Core Idea**
6.ESS.1 Describe the role of gravity and inertia in maintaining the regular and predictable motion of celestial bodies.	1) Understand that both gravity and inertia are the reason that celestial bodies do not fly off into space- many labs to do here (i.e. string with washers tied to end and spin around head or videos/PBS interactives.)	*gravity -mass - Distance (effect on gravity) -weight - Inertia - Law of universal gravitation		ESS1.A: The Universe and Its Stars ESS1.B: Earth and the Solar System
6.ESS.2 Design models to describe how Earth's rotation, revolution, tilt, and interaction with the sun and moon cause seasons, tides, changes in daylight hours, eclipses, and phases of the moon.	1) Explore through simulations and manipulatives 2) Model rotation and revolution 3) Understand that Earth's tilt and indirect/direct sunlight are the main cause of seasons (ex; Mars has seasons b/c of tilt)	*rotation - orbit -revolution -seasons -tides (neap & spring) -eclipses -moon phases -daylight savings		ESS1.B: Earth and the Solar System

6.ESS.3 Compare and contrast the Earth, its moon, and other planets in the solar system, including comets and asteroids. (Comparisons should be made in regard to size, surface features, atmospheric characteristics, and the ability to support life.)	1) Create a data table that identifies each of these characteristics, after completing research for each quality (surface features, etc.) 2) Discuss the scale factor in regard to the planets and solar systems. 3) Create venn diagrams or other to compare/contrast these features.	*Composition *Celestial body		ESS1.B: Earth and the Solar System ESS1.C: The History of Planet Earth

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Life Science				
2016 Indiana Academic Standards	**Clarifying Statements**	**Vocabulary**	**Crosscutting Concepts**	**Disciplinary Core Ideas**
6.LS.1 Investigate and describe how homeostasis is maintained as living things seek out their basic needs of food, water, shelter, space, and air.	1) Discuss how energy taken in by organisms drives homeostasis in the body. 2)Provide opportunities for students to measure homeostasis in their own bodies (exercise heart rate lab)	*Homeostasis		LS1.B: Growth and Development of Organisms
6.LS.2 Describe the role of photosynthesis in the flow of energy in food chains, energy pyramids, and food webs. Create diagrams to show how the energy in animals' food used for bodily processes was once energy from the sun.	1) Understand and identify what is required in order for photosynthesis to take place, as well as the byproducts. 2) Understand that organisms use energy for bodily processes such as growth, body repair, motion, maintaining body warmth, respiration, etc.	*Food web -Food chain -Energy pyramid -Photosynthesis		LS2.A: Interdependent Relationships in Ecosystems LS2.B: Cycles of Matter and Energy Transfer in Ecosystems LS2.C: Ecosystem Dynamics, Functioning, and Resilience

6.LS.3 Describe specific relationships (predator/prey, consumer/producer, parasite/host) and symbiotic relationships between organisms. Construct an explanation that predicts why patterns of interactions develop between organisms in an ecosystem.	1) Show students actual pictures/interactions of these relationships 2) Activities/games from Project Wild- 'OH Deer!' - once students play these games, collect data and graph and evaluate to see relationship between predator/prey, etc.	*Predator -Prey -Consumer -Producer -Parasite -Host -Symbiotic relationships - parasitism, mutualism, commensalism		LS2.A: Interdependent Relationships in Ecosystems LS2.B: Cycles of Matter and Energy Transfer in Ecosystems LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS2.D: Social Interactions and Group Behavior
6.LS.4 Investigate and use data to explain how changes in biotic and abiotic components in a given habitat can be beneficial or detrimental to native plants and animals.	1) Give students a scenario and have them explain how changes are beneficial/detrimental to native plants 2) Research Indiana's invasive species (plants and animals)- group students to present a sample of this research	*Abiotic -Biotic -Native species -Habitat -detrimental		

6.LS.5 Research invasive species and discuss their impact on ecosystems.	1) Use a socratic seminar to discuss research invasive species with class 2) Students should be able to defend their research with support/evidence	*Invasive species *socratic seminar		

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Engineering				
2016 Indiana Academic Standards	**Clarifying Statements**	**Vocabulary**	**Crosscutting Concepts**	**Disciplinary Core Ideas**
6-8.E.1 Identify the criteria and constraints of a design to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.				ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing the Possible Solutions ETS1.C: Optimizing the Design Solution

6-8.E.2 Evaluate competing design solutions using a systematic process to identify how well they meet the criteria and constraints of the problem.				ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing the Possible Solutions ETS1.C: Optimizing the Design Solution
6-8.E.3 Analyze data from investigations to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.				ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing the Possible Solutions ETS1.C: Optimizing the Design Solution

6-8.E.4 Develop a prototype to generate data for repeated investigations and modify a proposed object, tool, or process such that an optimal design can be achieved.				ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing the Possible Solutions ETS1.C: Optimizing the Design Solution