Exploring Phenomena or Engineering Problems - Asking Questions & Defining Problems

1.1.1 Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read.	
K	0E.1.1.1.1 Ask questions to obtain information from weather forecasts to prepare for and respond to severe weather.* Emphasis is on local forms of severe weather that may arise quickly and should include examples of engineered solutions to severe weather (such as clothing to wear or places to safely shelter).
K	0E.1.1.1.2 Ask questions about how a person may reduce the amount of natural resources the individual uses.* Examples of questions may include reusing paper to reduce the number of trees cut down and recycling cans and bottles to reduce the amount of plastic, glass, or metal used.
1	1L.1.1.1.1 Ask questions based on observations about the similarities and differences between young plants and animals and their parents. Examples of observations may include leaves from the same kind of plant are the same shape but can differ in size; and a particular breed of dog looks like its parents but is not exactly the same.
2	2P.1.1.1.1 Ask questions about an object's motion based on observation, that can be answered by an investigation. Examples of questions may include what is causing the motion, what type of motion (circular, bouncing, etc.) and what changes are happening in the motion.
3	3P.1.1.1.1 Ask questions based on observations about why objects in darkness can be seen only when illuminated. Emphasis should be on addressing the misconception that people can see in the dark if they wait long enough and on the way eyes receive light. Examples of observations may include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight.
4	4P.1.1.1.1 Ask questions to determine cause and effect relationships of electric and magnetic interactions between two objects not in contact with each other. Examples of an electric force may include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force may include the force between two permanent magnets, the force between an electromagnet and steel paper clips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships may include how the distance between objects affects the strength of the force and how the orientation of magnets affects the direction of the magnetic force.
4	4E.1.1.1.2 Ask questions about how water moves through the Earth system and identify the type of question. Emphasis is on the processes of evaporation, condensation, and precipitation. Examples of types of questions may include those that can be tested by an experiment, and questions that may be answered from a text.
5	5P.1.1.1.1 Ask investigatable questions and predict reasonable outcomes about the changes in energy, related to speed, that occur when objects interact. Emphasis is on the change in energy due to a change in speed, not on the forces, as objects interact. Example of a question: Where and how do marbles move after a collision?

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1.1.2 Students will be able to ask questions about a problem to be solved so they can define constraints and specifications for possible solutions.*	
4	4P.1.1.2.1 Define a simple design problem that can be solved by applying scientific ideas about magnets.* Examples of problems may include constructing a latch to keep the door shut and creating a device to keep two moving objects from touching each other.