SCIENCE LONG TERM TRANSFER GOALS

Students will be able to independently use their learning to:

1. Approach science as a reliable and tentative way of knowing and explaining the natural world.
2. Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions.
3. Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions.
4. Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system.
5. Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences.

INQUIRY AND DESIGN BIG IDEAS AND ESSENTIAL QUESTIONS

Big Ideas	Essential Questions
Big Idea 1: Asking questions **and defining problems are** ~~is~~ essential to developing scientific habits of mind.	*What kinds of questions do scientists and engineers ask?*
Big Idea 2: Scientists construct mental and conceptual models of phenomena to represent current understandings, aid in developing questions and experiments, and to communicate ideas to others.	*How do scientists and engineers develop and use models?*
Big Idea 3: Scientists and engineers **plan and** investigate ~~and observe~~ the world to systematically describe it and to develop and test theories and explanations about how the world works.	*What do scientists and engineers do to find out more about our world and how it functions?*
Big Idea 4: Data must be presented in a form that can reveal any patterns and relationships and that allows results to be communicated to others.	*In what ways are data analyzed, interpreted, and communicated?*
Big Idea 5: Mathematics enables numerical representation of variables, symbolic representation of relationships between physical entities, and prediction of outcomes.	*How is mathematics utilized in doing science?*
Big Idea 6: Scientific theories are developed to provide explanations about the nature of particular phenomena, predict~~ing~~ future events, or make~~ing~~ inferences about past events.	*Why are theories valuable constructs in helping scientists understand and explain our world?*
Big Idea 7: Scientists and engineers use reasoning and argumentation to make a justified claim about the world.	*How do scientists and engineers communicate to others in order to advance science and engineering?*
Big Idea 8: Science and engineering are ways of knowing that are represented and communicated by words, diagrams, charts, graphs, images, symbols, and mathematics.	*In what ways do scientists and engineers communicate their knowledge?*