Developed by the Museum of Science, Boston

EiE Units Per Grade Level

Kindergarten	1. Insects: The Best of Bugs: Designing Hand Pollinators *
1st	1. Balance and Forces: To Get to the Other Side: Designing Bridges* 2. Sound: Sounds Like Fun: Seeing Animal Sounds*
2nd	1. Solids & Liquids A Work in Progress: Improving a Play Dough Process * 2. Earth Materials: A Sticky Situation: Designing Walls 3. Floating and Sinking: Taking the Plunge: Designing Submersibles
3rd	1. Magnetism: The Attraction is Obvious: Designing Maglev Systems* 2. Organisms: Just Passing Through: Designing Model Membranes* 3. Ecosystems: A Slick Solution: Cleaning An Oil Spill
4th	1. Electricity: An Alarming Idea: Designing Alarm Systems 2. Landforms: A Stick in the Mud: Evaluation a Landscape* 3. Human Body: No Bones About It: Designing Knee Braces* 4. Wind & Weather: Catching the Wind: Designing Windmills
5th	1. Plants: Thinking Inside the Box: Designing Plant Packages * 2. Astronomy: A Long Way Down: Designing Parachutes* 3. Simple Machines: Marvelous Machines: Making Work Easier 4. Light: Lighten Up: Designing Lighting Systems
6th	1. Energy: Now You're Cooking: Designing Solar Ovens* 2. Rocks: Solid as a Rock: Replicating an Artifact 3. Water: Water, Water Everywhere: Designing Water Filters

PLTW Grade Level Kits

Kindergarten	1. Structure and Function: Exploring Design Students discover the design process, identify products around them designed by engineers, and use what they've learned to design their own paintbrushes. 2. Pushes and Pulls Students investigate different pushes and pulls and apply what they know to a swing set–installation project. 3. Structure and Function: Human Body Students explore the relationship between structure and function in the human body and design a cast. 4. Animals and Algorithms Students explore the ways people control and use technology, as well as program their own digital animations.
1st	1. Light and Sound Students investigate light and sound and design a tool to communicate over a distance. 2. Light: Observing the Sun, Moon, and Stars Students build upon their knowledge of light and design a playground structure that protects students from UV radiation. 3. Animal Adaptions Students learn about animal adaptations and apply what they've learned to design a shoe made for desert exploration. 4. Animated Storytelling Students build computational–thinking skills by creating animations based on their own short stories.
2nd	1. Materials Science: Properties of Matter Students explore materials science and devise a way to keep popsicles cold – without a cooler. 2. Materials Science: Form and Function

	Students research the variety of ways animals disperse seeds and pollinate plants and use what they know to design a gardening device. 3. The Changing Earth Students explore how the surface of the Earth is always changing and design solutions for a fictional community threatened by a landslide. 4. Grids and Game Students learn about the sequence and structure required in computer programs and work in teams to build tablet games.
3rd	1. Stability and Motion: Science of Flight Students learn about the forces involved in flight and design a solution to deliver aid supplies via an aircraft. 2. Stability and Motion: Forces and Interactions Students explore simple machines such as wheel and axles, levers, the inclined plane, and more and then use what they know to rescue a trapped zoo animal. 3. Variation of Traits Students investigate the differences between inherited genetic traits and traits that are learned or influenced by the environment and then model how the gene for a plant's stem color is passed on. 4. Programming Patterns Students discover the power of modularity and abstraction and then use what they know to create a video game for a tablet.
4th	1. Energy: Collisions Students investigate how mechanisms change energy by transferring direction, speed, type of movement, and force and then use what they know to design a car safety belt. 2. Energy: Conversion Students learn how energy can be converted to meet a human need or want and then develop solutions to move donated food from a truck to a food pantry. 3. Input/Output: Computer Systems Students explore how computers work and create a reaction–time computer program to assess a baseline before a concussion occurs.

	4. Input/Output: Human Brain Students learn about stimuli and responses and then use what they know to create a video to teach children about concussions.
5th	1. Robotics and Automation Students explore the ways robots are used in today's world and then design a mobile robot that can remove hazardous materials from a disaster site. 2. Infection: Detection Students explore the transmission of infection and run an experiment to help find ways to prevent the spread of illness.
6th	1. Robotics and Automation: Challenge Students explore mechanical design and computer programming and design an automatic–guided vehicle to deliver supplies in a hospital. 2. Infection: Modeling and Simulation Students investigate models and simulations and apply their knowledge to program a model that simulates the spread of infections.