

Plymouth Public Schools' Science and Technology/Engineering Program High School Medical Interventions Course Learning Standards

STE1052 Medical Interventions Honors

Project Lead the Way Standards and Objectives Alignment

The project-based aspects of this program give students a chance to apply what they know, identify a problem, find unique solutions, and lead their own learning. This program was developed collaboratively with evidence-based best practices and problem-based learning experiences. It is aligned with Common Core State Standards in Math and English Language Arts, Next Generation Science Standards, Standards for Technological Literacy, and the National Consortium for Health Science Education Standards. The program is flexible and customizable so that the Plymouth Public Schools can meet local curricular and community needs as well. All Project Lead the Way courses are also designed to complement math and science courses offered by our schools. Included below are the appropriately aligned Next Generation Science Standards. (Excerpts from Project Lead the Way Standards Alignment documentation and Next Generation Science Standards)

LS1. From Molecules to Organisms: Structures and Processes

HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

LS3. Heredity: Inheritance and Variation of Traits

HS-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.

HS-LS3-2. Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

LS4. Biological Evolution: Unity and Diversity

HS-LS4-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

HS-LS4-4. Research and communicate information about key features of viruses and bacteria to explain their ability to adapt and reproduce in a wide variety of environments.

HS-LS4-5. Evaluate models that demonstrate how changes in an environment may result in the evolution of a population of a given species, the emergence of new species over generations, or the extinction of other species due to the processes of genetic drift, gene flow, mutation, and natural selection.

PS2. Motion and Stability: Forces and Interactions

HS-PS2-6. Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

PS4. Waves and Their Applications in Technologies for Information Transfer

HS-PS4-1. Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling within various media. Recognize that electromagnetic waves can travel through empty space (without a medium) as compared to mechanical waves that require a medium.

ETS1. Engineering Design

HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

HS-ETS1-3. Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.