

Plymouth Public Schools' Science and Technology/Engineering Program High School Biomedical Innovation Capstone Course Learning Standards

STE1062 Biomedical Innovation Capstone Course 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-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.

HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both body-wide feedback mechanisms and small-scale cellular processes.

LS2. Ecosystems: Interactions, Energy, and Dynamics

HS-LS2-7. Analyze direct and indirect effects of human activities on biodiversity and ecosystem health, specifically habitat fragmentation, introduction of non-native or invasive species, overharvesting, pollution, and climate change. Evaluate and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.

ETS1. Engineering Design

HS-ETS1-1. Analyze a major global challenge to specify a design problem that can be improved. Determine necessary qualitative and quantitative criteria and constraints for solutions, including any requirements set by society.

HS-ETS1-2. Break a complex real-world problem into smaller, more manageable problems that each can be solved using scientific and engineering principles.

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, aesthetics, and maintenance, as well as social, cultural, and environmental impacts.