

## BCPS High School Science Curriculum Design - Unit Titles and Culminating Events

<b>Earth Systems</b>	<p><b>Unit 1: Space</b> Students develop an argument to answer the question, “Why should we continue to invest money in space research and travel?”</p>	<p><b>Unit 2: Our Complex Crust</b> Students conduct a cost-benefit analysis to support an argument explaining how Maryland will reach 50% renewable energy by 2030.</p>	<p><b>Unit 3: Climate Change</b> Students analyze data to design or refine a technological solution to reduce their school’s carbon dioxide emissions.</p>	<p><b>Unit 4: Maryland’s Changing Hydrosphere</b> Students apply their knowledge of watershed science to develop an evaluation plan that can be used to measure the effectiveness of a proposed student action project.</p>	<p><b>Capstone Project: Human Sustainability</b> Students design, implement, and evaluate a solution to a local environmental issue that promotes responsible management of Earth’s natural resources and improves human sustainability.</p>	
<b>Living Systems</b>	<p><b>Unit 1: Building the Ultimate You</b> Students develop and revise a model to show the impact of a specific drug on two or more interacting body systems.</p>	<p><b>Unit 2: You Are What You Eat</b> Students create a brochure to educate the public about the roles of sugar in a healthy diet and to communicate the pros and cons about two popular specialized diets.</p>	<p><b>Unit 3: Decoding Your Future</b> Students write a letter to a family friend who is considering genetic testing for herself and her unborn child. The letter shares accurate scientific information about the role of DNA in determining traits and the sources of genetic variation that may or may not be passed from parent to offspring.</p>	<p><b>Unit 4: Superbugs</b> Students construct an infographic or short infomercial for the waiting room of a doctor’s office that explains the scientific concepts related to formation of antibiotic resistant bacteria and why antibiotics must be used properly</p>	<p><b>Unit 5: Top Predators</b> Students apply scientific reasoning to construct an argument on whether the reintroduction of cougars into the Eastern U.S. is a feasible mitigation strategy for addressing the overpopulation of white-tailed deer.</p>	<p><b>Capstone Project: Rescue Plan</b> Students create a publication describing historical and current threats to a declining species and both an ecological solution and a solution based on DNA technology to aid in its recovery.</p>

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<b>Integrated Physics and Chemistry</b>	<p><b>Unit 1: Fireworks</b> Students create a design for the annual Fourth of July fireworks spectacular at the Inner Harbor.</p>	<p><b>Unit 2: Disasters</b> Students analyze data related to forces, momentum, energy, and polarity.</p>	<p><b>Unit 3: Powering the World</b> Students design solutions for generating enough electrical energy to power a home in the event of a disaster.</p>	<p><b>Unit 4: Innovations</b> Students will explain the functionality and technological innovations of a smart phone using the concepts of electromagnetic radiation and digital transmission and storage.</p>	<p><b>Capstone Project: Technological Innovation</b> Students will develop a presentation that traces the evolution of the science knowledge necessary for the creation and improvement of a technological innovation that has changed the way humans interact with others and/or their environment.</p>	
<b>NGSS Chemistry</b>	<p><b>Unit 1: Nuclear Chemistry</b> Students construct a scientific explanation in the form of a persuasive presentation, to support oppose the continued production of nuclear energy.</p>	<p><b>Unit 2: Forensic Chemistry</b> Students communicate scientific information about the procedures and data analysis used to identify the composition of unknown substances as part of their testimony for a criminal trial.</p>	<p><b>Unit 3: Culinary Chemistry</b> Students compare calculated and expected calorie values to determine if the FDA's 20% margin of error is reasonable.</p>	<p><b>Unit 4: The Chemistry of Medicine</b> Students synthesize aspirin to calculate percent yield, error and purity, and analyze their results in order to compare to peers and industry standards for medicine production.</p>	<p><b>Unit 5: The Art of Chemistry</b> Students create a work of art or develop a personal care product using and explaining the chemical principals behind their concept.</p>	<p><b>Capstone Project: Innovations in Chemistry</b> Students choose a local, regional, or global challenge that can be addressed using applications of chemistry. They research and share information about an innovation that has been or could be developed within the chemical sciences to address the challenge.</p>