

Science 7 Course Overview

Unit	Major Concepts	Skills	Summative Assessments
Engineering Design with Rubber band cars	The engineering design process and how to utilize it in the creation of a device to perform a given task.	Design and optimize a 3D printed car using CAD and rapid prototyping Conduct controlled experiments to explore and evaluate design changes Communicate design journey	Engineering notebook Video presentation discussing key points of car design Car rally
Populations & Ecosystems	Organism life cycles Identify and differentiate populations, communities, and ecosystems. How energy transfers through trophic levels. Reproductive potential. Mendelian genetics Selective pressure. Natural selection.	Build and maintain a habitat suitable for milkweed bugs Classify organisms based on feeding relationships Construct food webs to explain feeding relationships in an ecosystem Articulate effects of human interactions on an ecosystem Use Punnett squares to predict offspring genotype/phenotype	Several types of mid-summative assessments - Projects, presentations, labs, website creation, etc.
Electronics	How to create complete circuits How resistors influence the performance of lamps in electrical circuits. Understand the concepts of voltage, current and resistance, and use that understanding to solve circuit problems. Predicting and calculating the total resistance imposed by multiple resistors placed in series and/or parallel.	<ul style="list-style-type: none"> ● Identify series, parallel, and short circuits. ● Predict lamp intensity based on circuit type and current flow. ● Read schematics and construct the circuits they represent. ● Measure current, resistance and voltage with a multimeter. ● Construct electrical circuits that will perform a specific task. ● Calculate circuit problems using percent resistance and percent voltage. ● Calculate circuit problems using ohm's law and the three great truths of series circuits. 	Several types of mid-summative assessments - Projects, presentations, labs, etc. Final Notebook Assessment

Science 7 Course Overview

<p>Engineering Design: Creative Building and Coding</p>	<p>Utilizing the engineering design process</p> <p>How to use block coding to logically create programs that perform a predetermined task.</p> <p>That design constraints affect the scope of an engineering project</p> <p>How to evaluate engineering design base on a set of criterion and constraints</p>	<p>Create a series of increasingly complex electronic devices to perform stated tasks.</p> <p>Assemble complex circuits using schematics</p> <p>Program their devices to perform autonomously</p> <p>Evaluate their own and other's devices based on the stated design criterion</p> <p>Create a website to capture their design process journey</p>	<p>Final device project Portfolio website creation</p>
<p>Weather & Water</p>	<p>The processes that produce weather, including heat transfer, atmospheric pressure, and the water cycle.</p> <p>Principles that govern temperature, wind, humidity, precipitation, and severe weather.</p> <p>Overarching scientific principles including:</p> <ul style="list-style-type: none"> ● What is Heat ● Density ● Phase change 	<p>Acquire vocabulary concerning these concepts: heat, radiation, conduction, convection, density, pressure, Condensation,</p> <p>Classify materials by their density.</p> <p>Compare earth materials based on heat capacity.</p> <p>Interpret an air pressure / weather map</p>	<p>Several types of mid-summative assessments - Projects, presentations, labs, Movies, etc.</p>