

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 creating 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.
Earth History	Formation, properties, identification of sedimentary rocks Principles of uniformitarianism and original horizontality Weathering and erosion Geological time and the fossil record The rock cycle Earthquakes, volcanoes, and plate tectonics	Correlate rock columns Construct a three-dimensional view of the sequence of sedimentary rocks Infer depositional environment based on sand observations Examine erosion using a stream table model Construct a timeline to demonstrate understanding of Earth's history Predict the age of rocks based on index fossils Reconstruct a rock cycle diagram Predict areas for earthquakes and volcanoes based on tectonic plate movement	Several types of mid-summative assessments - Projects, presentations, labs, etc. Final Notebook Assessment

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<p>Engineering Design: Creative Building and Coding</p>	<p>Utilizing the engineering design process</p> <p>Use block coding to create programs that perform a predetermined task.</p> <p>Constraints affect the scope of an engineering project</p> <p>How to evaluate engineering design based on a set of criteria 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>