



Stockton Unified School District

**EDISON HIGH SCHOOL**  
Home of the Vikings



## Essential Outcomes Chart: What is it we expect students to learn?

Grade:	<b>9-12</b>	Subject:	<b>IED</b>	Semester	<b>1 and 2</b>	Team Members:	<b>Hill</b>			
Standard Description		Example Rigor		Prerequisite Skills		Common Assessment		When Taught?		Extension Standards
What is the essential standard to be learned? Describe in student-friendly vocabulary.		What does proficient student work look like? Provide an example and/or description.		What prior knowledge, skills, and/or vocabulary is/are needed for a student to master this standard?		What assessment(s) will be used to measure student mastery?		When will this standard be taught?		What will we do when students have learned the essential standard(s)?
B6.1 Students will be able to understand the steps of the design process.		Repetitions are evident in the student's focused notes. Correct headings (define problem, generate concepts, develop a solution, construct/test prototype, evaluate solution, present solution) are evident in Engineering Notebook and content within each heading is evidence of student understanding.		Students will need to know proper note taking strategies.		Students will conduct and document the steps of the design process in their Engineering Notebook for the Aerodynamic Design Challenge.		August and revisited all year		Students will be able to apply the design process to design a toy train.

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<p>B2.1 Students will be able to understand how to produce 2D and 3D sketches.</p>	<p>Repetitions are evident in the student's focused notes. Students will produce detailed sketches with features that are proportional to the real life models, including two-dimensional front view sketches and three-dimensional isometric, oblique and perspective sketches.</p>	<p>Students will need good observation skills, know how to select the appropriate front view of an object and be able to differentiate between the terms isometric, oblique and perspective.</p>	<p>Students will create an isometric, oblique and perspective sketch of an object.</p>	<p>September</p>	<p>Students will be able to create multi-view drawings for their puzzle design.</p>
<p>B5.5 Students will solve problems by using appropriate units applied in engineering systems.</p>	<p>Repetitions are evident in the student's focused notes. Students will be able to correctly apply unit conversions to various values.</p>	<p>Students will need to differentiate between SI and US Customary units, and be able to choose appropriate conversion factors.</p>	<p>Quiz on Conversions</p>	<p>October</p>	<p>Students will be able to apply dimensional analysis to solve problems relating to density and other properties of solids.</p>
<p>B1.4 Students will complete an assembly drawing using information collected from detailed drawings.</p>	<p>Repetitions are evident in the student's focused notes. Students will create a CAD part model with correct dimensions and assemble a set of parts using correct constraints.</p>	<p>Students must be able to select the appropriate CAD tools to create a 3D part model, including: sketch, extrude, dimension, assemble, and constraints.</p>	<p>Complete set of working drawings for their puzzle design.</p>	<p>November/ December and revisited rest of year</p>	<p>Students will be able to create part models and assemblies for their toy train design.</p>
<p>B11.1 Students will develop a digital portfolio</p>	<p>Repetitions are evident in the student's focused notes. Student will create</p>	<p>Students must be able to use Google docs to create a written</p>	<p>Completed online digital portfolio for their puzzle cube design project.</p>	<p>December/April/May</p>	<p>Students will be able to create a digital portfolio for their toy train design,</p>

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representative of their work.	a digital portfolio with all steps of the design process thoroughly documented.	document, including knowing how to insert and edit images and write a summary.			including all appropriate sections.
B6.4 Students will be able to translate word problems into mathematical statements.	Repetitions are evident in the student's focused notes. Students will be able to calculate area, surface area and volume of various geometric and composite shapes.	Students must be able to differentiate between various shapes and solids, including selecting the appropriate formula and recognizing the required variable to be substituted in.	Quiz on area, surface area and volume.	January	Students will be able to interpret the physical properties of solids given in the CAD model analysis.
B6.5 Demonstrate the process of developing multiple details. Within design constraints, into a single solution.	Repetitions are evident in the student's focused notes. Students will be able to complete a functional analysis of a product and documentation of the constituent parts, its properties, and operation.	Students must be able to differentiate between the elements and principles of design.	A completed visual, functional and structural analysis for an Automoblox vehicle.	Feb/March	Students will be able to apply the elements and principles of design to create an enhancement and/or accessory to their Automoblox vehicle.
B7.5 Students will be able to apply appropriate geometric dimensioning and tolerancing practices.	Repetitions are evident in the student's focused notes. Students will create part drawings with appropriate orthographic projections, and all necessary dimensions, tolerances and views.	Students must be able to list and explain the various dimensioning ANSI guidelines.	Dimensioned multi-view CAD drawings including section, detail and auxiliary views for the Automoblox vehicle.	April	Students will be able to create accurate working drawings for their toy train design.

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