

Advanced Computer Aided Drafting, (CAD)		Grades 9-12
Standards	Benchmarks	Activities/Examples
3. Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study	J Technological progress promotes the advancement of science and mathematics.	Student will draw a multiview/orthographic drawing using the computer program “Inventor.”
		Student will design and draw a bridge to scale using the computer program “Inventor.”
8. Students will develop an understanding of the attributes of design.	H The design process includes defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, developing a design proposal, making a model of prototype, testing and evaluating the design using specifications, refining the design, creating or making it, and communicating processes and results.	Design Process will be reviewed and students will perform it on each project in class.
	I Design problems are seldom presented in a clearly defined form.	Student will draw a multiview/orthographic drawing using the computer program “Inventor.”
	K Requirements of a design, such as criteria, constraints, and efficiency, sometimes compete with each other.	Student will build and test scaled bridge.
9. Students will develop an understanding of engineering design.	J Engineering design is influenced by personal characteristics, such as creativity, resourcefulness, and the ability to visualize and think abstractly.	Student will draw a multiview/orthographic drawing using the computer program “Inventor.”
	K A prototype is a working model used to test a design concept by making actual observations and necessary adjustments.	Student will build and test scaled bridge.

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11. Students will develop the abilities to apply the design process.	N	Identify criteria and constraints and determine how these will affect the design process.	Design Process will be reviewed and students will perform it on each project in class. Student will design and draw a bridge to scale using the computer program "Inventor."
	O	Refine a design by using prototypes and modeling to ensure quality, efficiency, and productivity of the final product.	Student will design and draw a bridge to scale using the computer program "Inventor."
	P	Evaluate the design solution using conceptual, physical, and mathematical models at various intervals of the design process in order to check for proper design and to note areas where improvements are needed.	Student will design and draw a bridge to scale using the computer program "Inventor."
	Q	Identify criteria and constraints and determine how these will affect the design process.	Student will design and draw a bridge to scale using the computer program "Inventor."
			Student will build and test scaled bridge.
			Student will design, draw, and construct a commercial product on the computer program "Inventor."
	R	Evaluate final solutions and communicate observation, processes, and results of the entire design process, using verbal, graphic, quantitative, virtual, and written means, in addition to three-dimensional models.	Student will draw a multiview/orthographic drawing using the computer program "Inventor." Student will design and draw a bridge to scale using the computer program "Inventor." Student will design, draw, and construct a commercial product on the computer program "Inventor."
	17. Students will develop an understanding of and be able to select and use information and communication technologies.	P	There are many ways to communicate information, such as graphic and electronic means.
Q		Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory, and tactile stimuli.	Students will apply knowledge and processes that communicate measurements, symbols, and graphic images. All of the assignments in CAD will have these elements in them. Student will design a brochure that displays their commercial product.

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18. Students will develop an understanding of and be able to select and use transportation technologies.	K	Intermodalism is the use of different modes of transportation, such as highways, railways, and waterways as part of an interconnected system that can move people and goods easily from one mode to another.	Student will design and draw a bridge to scale using the computer program "Inventor."
	M	The design of intelligent and non-intelligent transportation systems depends on many processes and innovative techniques.	Student will design and draw a bridge to scale using the computer program "Inventor."