



SCHOOL DISTRICT OF MONROE

Preparing for the Future, One Child at a Time

C.A.D.D.1 (Computer Modeling)

Course Description:

The curriculum for this course is developed in alignment with the [Wisconsin Standards for Technology and Engineering](#). This enhanced level elective course is a 1-trimester course in which students will learn the 3D computer modeling skills and software needed for industrial product design, in order to create their own product designs. Students will be provided with and be guided through self-directed learning; which will introduce students to a current, widely-used industry standard computer modeling software program. Students will demonstrate their learning through guided applications and projects. The information in this course overview outlines what students should understand and be able to do by the end of the trimester.

Mastery Standards:

Students will be able to analyze and use technological systems (BB1.a).

Students will analyze and demonstrate engineering design (ENG2.a).

Students will be able to analyze graphic communications in an ever-increasing technological world (ICT1.c).

Unit	Description of Unit and Learning Targets
<p>Unit Title: 1</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none">How can we know that using 3D computer modelling software is the most effective way of learning how to develop engineering designs from concept to a buildable reality?	<p>Students will...</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none">I can explain how computer solid modeling is useful for the design, visualization, and simulation of products.I can explain how the use of a parametric modeling program is useful for creating and changing the mathematical sizes and geometric shapes of objects.I can identify and correctly use all of the user interface components in a computer solid modeling program to create a simple object and prototype.
<p>Unit Title: 2</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none">How can you demonstrate that computer solid modeling is the most effective way to generate and communicate potential design solutions to engineering problems?	<p>Students will...</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none">I can identify and correctly use all of the features of a computer solid modeling program to create:<ul style="list-style-type: none">The individual parts of a productThe proper assembly of those parts to make a working prototype of a productThe presentation (videos and drawings) of the prototype assembly.I can identify and correct common mistakes made when using computer solid modeling programs.I can identify and use the geometric constraints to determine the proper relationships between the geometry of an object that I am creating with a computer solid modeling program.I can identify and use the general properties components of computer solid modeling software to determine the mass, surface area, volume and center of gravity of an object that I am creating.I can create, assemble, present, and prototype a product with complex parts that solves a real-life problem.