

# Computer Aided Design

Technology  
Not NCAA Approved

Grade(s) 10th - 12th, Duration 1 Semester, 1  
Credit  
Elective Course

## Description

Computer Aided Design (CAD) is an advanced computer class that focuses on the use of software designed to aid in the design and creation of 3D objects. CAD software is used by engineers and architects for the design and development of actual products in the real world.

## Scope And Sequence Instructional Topics

Timeframe	Unit
5 Day(s)	X, Y, Z Coordinate Plane
Ongoing	Vinyl Sticker Designs
10 Day(s)	Dream Home Project in CAD

## Materials and Resources

We will use several design software packages including DraftIt, Google SketchUp, Rhino, and SolidWorks.

## Prerequisite (What do you need to take before this)

Computer 1 and Geometry.

## Location

Large Computer Lab - Room 120

## Course Details

**Unit:** X, Y, Z Coordinate Plane

**Duration:** 5 Day(s)

### Description

Students will gain familiarity with the X, Y, Z coordinate plane. 2 dimensional (2D) cad programs utilize an X, Y plane for the workstation which allows for height and width. 3 dimensional (3D) cad programs use the X and Y planes, as well as the Z plane which allows for depth. We will use the introductory lessons in Rhino and SolidWorks to gain familiarity and practice working in a 3D environment on the 2D computer screen.

### Essential Questions


Working in 3D on a 2D screen can be disorienting. Can our students gain proficiency at working with 3 dimensional objects and designs within cad programs?

### Assessments

The students will complete lessons 1 thru 4 in Rhino and 1 thru 3 in SolidWorks. The students will show their work to Mr. Arnold when completed. We will create an additional assignment in class that will require the use of the tools and applications introduced with the introductory lessons.

### Resources

We will use the computers in the large computer lab (room 120) to complete the assignments. These computers have InDesign, SketchUp, Rhino3D, and SolidWorks software.

Knowledge Skills linked to Power Standard = 

**Unit:** Vinyl Sticker Designs

**Duration:** Ongoing

### Description

Students will use CAD programs to create unique 2 dimensional designs and print the designs on vinyl media.

### Essential Questions


Can students create both unique and requirement based designs and logos with CAD software?

### Assessments

The students will be asked to create a school logo vinyl sticker design. The initial design will need to fit in a 5 inch circle and include the school name and mascot. Subsequent assignments will allow the students to create unique designs and print them on vinyl media.

### Resources

We will use the computers, CAD software, and vinyl printer in the Large Computer Lab (Room 120)

Knowledge Skills linked to Power Standard = 

**Unit:** Dream Home Project in CAD

**Duration:** 10 Day(s)

### Description

The students will use the CAD software to create a floorplan for a home that the students design.

### Essential Questions

Can the students design and display a custom home design with CAD software?

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## Assessments

We will decide on the requirements for this assessment as a class. We usually include the following: the home must include multiple levels with stairs, at least 6 separate rooms and all rooms must have at least one door and window. Each class had the opportunity to add to or modify the requirements.

## Resources

We will use graphing paper, computers, and CAD software in the Large Computer Lab (Room 120).

Knowledge Skills linked to Power Standard = 