Unit 04: Introduction to AutoCAD

Content Area: **Science**
Course(s): **CAD Architect**
Time Period: **Semester 1**
Length: **2 weeks**
Status: **Published**

Standards

MA.12.4.2	All students will develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena.
MA.12.4.2.12 A.1	Use geometric models to represent real-world situations and objects and to solve problems using those models (e.g., use Pythagorean Theorem to decide whether an object can fit through a doorway).
MA.12.4.2.12 A.3	Apply the properties of geometric shapes.
MA.12.4.2.12 C.1	Use coordinate geometry to represent and verify properties of lines and line segments.
TEC.9-12.8.1.12	All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.
TEC.9-12.8.1.12.A.1	Construct a spreadsheet, enter data, and use mathematical or logical functions to manipulate data, generate charts and graphs and interpret the results.
TEC.9-12.8.1.12.A.3	Participate in online courses, learning communities, social networks or a virtual world as resources for lifelong learning.
TEC.9-12.8.2.12.F.3	Select and utilize resources that have been modified by digital tools in the creation of a technological product or system (CNC equipment, CAD software).

Enduring Understandings

- Computer aided design software allows for an efficient and timely work flow, because of its flexability with editing, ability to preform calculations, and duplication/sharing capabilities.
- The use of mathimatical principles in CAD software allow for exact information to be specified within a design and are needed to create a technical drawing.
- Brainstorming multiple ways to approach to a problem inspires a logical and refined path to a solution.
- Communicating proper information via a tecnical drawing requires accurate information to ensure the creation of the desired product.
- Information communicated on a technical drawing is conveyed through various annotations, each comprised of a specific procedure to guarantee clarity and cohesion.

Essential Questions

- How can computer based applications aid in the design process?
- How are various mathematical principles manifested in design/CAD software?
- How can changing the methods or tools used to approach a problem help reduce the time it takes to arrive at a solution?

- Why are accurate and proper notations in technical drawings important?
- How does a technical drawing convey information to its viewer?

Knowledge and Skills

SWBAT:

- Use online tutorials to learn input systems and basic terminology for AutoCAD.
- Identify different techniques for entering data into AutoCAD.
- Calculate the correct angles to use for Polar Coordinate Input.
- Utilize common modifying commands to alter drawings in AutoCAD. (Trim/Extend/Offset)
- Activate object snaps to aid in the drawing process.
- Practice accurate input and learned commands in AutoCAD using precise coordinates and dimensions given.
- Select objects in drawings using a variety of selection commands.
- Apply advanced modifying commands in AutoCAD. (Move/Copy/Stretch/Mirror)
- Apply the final set of modifying commands in AutoCAD. (Rotate/Fillet/Chamfer/Array)
- Organize and annotate drawings by useing layers, dimensions and multi line text.
- Modify object properties related to different parts of AutoCAD drawings.
- Navigate around a drawing using AutoCAD English specific perspective tools.
- Apply all knowledge obtained in AutoCAD thus far by complementing a drawing quiz.

Assessments

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit

Modifications

https://docs.google.com/document/d/1ODqaPP69YkcFiyG72fIT8XsUIe3K1VSG7nxuc4CpCec/edit

Resources

- PowerPoint for digital notebook
- AutoCAD online and video tutorials
- AutoCAD terminology reference sheet

- Example files for demonstration