

# Unit 04: Introduction to AutoCAD

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

## Standards

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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

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- Computer aided design software allows for an efficient and timely work flow, because of its flexibility with editing, ability to perform calculations, and duplication/sharing capabilities.
- The use of mathematical 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 a problem inspires a logical and refined path to a solution.
- Communicating proper information via a technical 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

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- 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

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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 using 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

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[https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9\\_BiAmONWbTcI/edit](https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit)

## Modifications

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<https://docs.google.com/document/d/1ODqaPP69YkcFiyG72ftT8XsUIe3K1VSG7nxuc4CpCec/edit>

## Resources

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

- Example files for demonstration