Unit 03: Measurement in Architecture

Content Area: **Science**
Course(s): **CAD Architect**
Time Period: **Semester 1**
Length: **3 weeks**
Status: **Published**

Modifications

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

Standards

MA.12.4.2.12 D.1	Understand and use the concept of significant digits.
MA.12.4.2.12 D.2	Choose appropriate tools and techniques to achieve the specified degree of precision and error needed in a situation.
MA.12.4.2.12 E.2	Use a variety of strategies to determine perimeter and area of plane figures and surface area and volume of 3D figures.
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.

Enduring Understandings

- Units of measurement exist to convey information about the physical size of an object.
- Standard and scaled measurement are necessary for documenting pertinent information on a technical drawing.
- Calculating square footage gives a numeric value to space and can be used to describe an area or estimate the amount of materails needed for specific tasks.
- The needed precision of measurement will change because material properties and use will chance depending on the application.

Assessments

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

Essential Questions

- Why is the ability to convey information in different forms of measurement necessary in and outside of the field of Architecture?

- What forms of measurement have been developed to aid in the process of technical drawing?
- What is the purpose of finding the area of a floor plan?
- Why would the required precision of a measurement change for different applications?

Knowledge and Skills

Students will be able to:

- Complete a pre-test to assess theirt understanding of measuremen in architecture.
- Create a model inch following specific instructions and a guided discussion to be referenced in future exercises.
- Use a ruler to provide the correct measurements of 2 dimensional objects.
- Use a ruler to provide the correct measurements of 3 dimensional objects.
- Demonstrate the ability to measure to the accuracy of 1/16 of an inch.
- Participate in an Internet based measurement game to practice and hone their measurement skills.
- Demonstrate the ability to correctly dimension an architectural floor plan.
- Calculate the square footage of individual rooms and for an entire floor plan.
- Measure using various architectural scales, provided a detailed example and explanation.
- Dimension a scaled drawing using an architectural scale.
- Calculate the square footage of different areas of a scaled floor plan without provided dimensions.
- Defend the value of measurement, specifically with its use in architecture.
- Test their skills in architectural measurement by completing a quiz covering measurement in architecture.

Resources

- Measurement Pre-Assessment
- "Model Inch" presentation
- Practice exercise on measurement - Measuring 2-D Objects
- Practice exercise on measurement - Measuring 3-D Objects
- Measurement Quiz - Post Assessment
- Reading Floor Plans/ Calculating Square Footage PowerPoint
- Calculating Square Footage - Practice
- Calculating Square Footage - Practice II
- Measurement using an Architect's Scale - PowerPoint
- Reading an Architect's Scale - Practice Sheet I
- Reading an Architect's Scale - Practice Sheet II
- Use the Internet based measurement game
- Architectural Measurement Quiz