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## Digital Literacy III: The Internet & Beyond

### Unit 3 Computer Aided Drafting

#### LAB 1 Creating 3-D Models

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#### OBJECTIVES

The goal of this lab is to create three-dimensional digital models using SketchUp Make, and to demonstrate the models using camera and movement tools.

#### EQUIPMENT REQUIRED

- Notebook computer
- Web browser and Internet connection

#### INTRODUCTION

Computer Aided Drafting (CAD) is an advanced computer-skill that is utilized in a wide range of industrial applications including engineering, manufacturing, and architecture. After learning basic computer skills, you should also pursue a specialty skill such as CAD to open doors for greater career opportunities.

In this lab, you will demonstrate your CAD skills by creating, navigating, and exhibiting three-dimensional digital models using the program SketchUp Make.

In order to complete the lab Procedure, you will need to perform the following tasks in SketchUp:

- Utilize the drawing, edit, construction, and camera tools
- Create and edit 2D and 3D digital objects
- Draw models to scale and display dimension lines
- Orbit, pan, and zoom-in or out of the drawing stage

#### PROCEDURE

##### BASIC 3D OBJECTS

1. Create a new SketchUp project and save it to your Documents folder as “basic\_objects.skp”
2. Draw the three dimensional objects in Diagram 1

##### ADVANCED DRAWING TECHNIQUES

3. Draw the sphere and cone in Diagram 2
4. Draw the curved pipe in Diagram 3

##### 3D ASSEMBLIES

5. Draw the bolt and washer assembly and display dimension lines as shown in Diagram 4  
NOTE: the bolt head and shaft should be constructed or grouped as one object; the washer should be made as a separate object and then moved onto the bolt
6. Navigate the model (orbit, pan, and zoom ) to demonstrate that it is a complete 3D object
7. Rotate the bolt independently of the washer; the bolt should spin while the washer remains stationary

End Procedure





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DIAGRAM 1

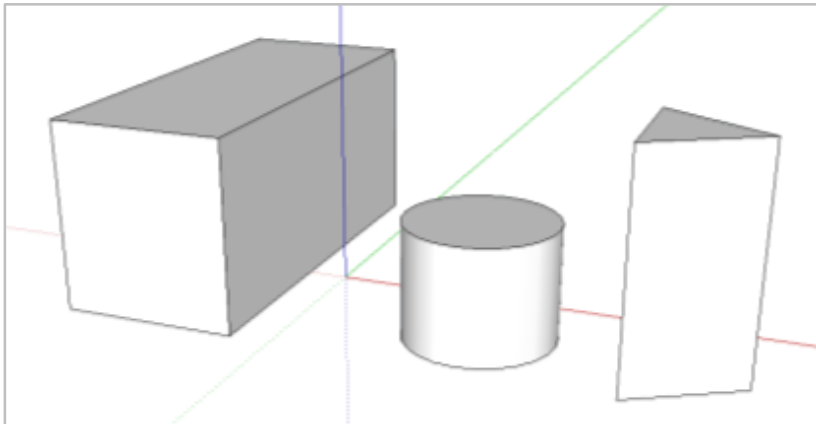
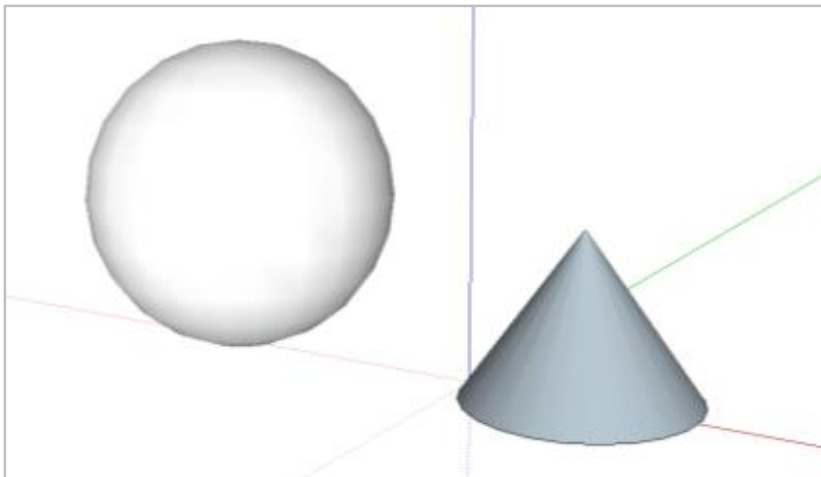


DIAGRAM 2





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DIAGRAM 3

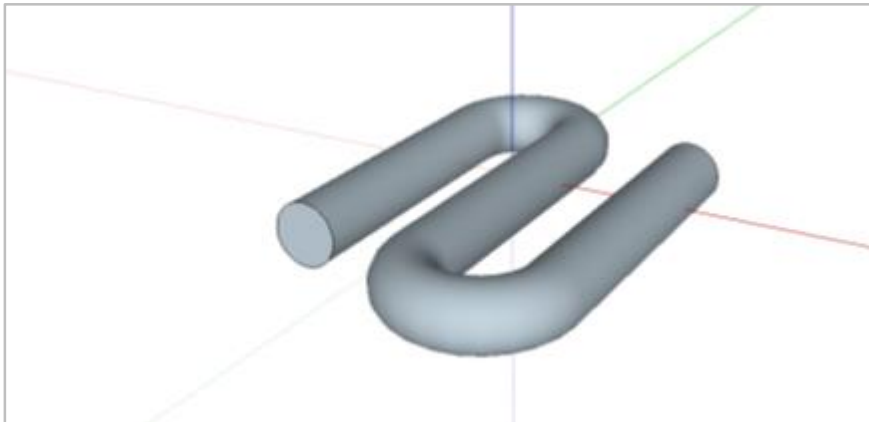
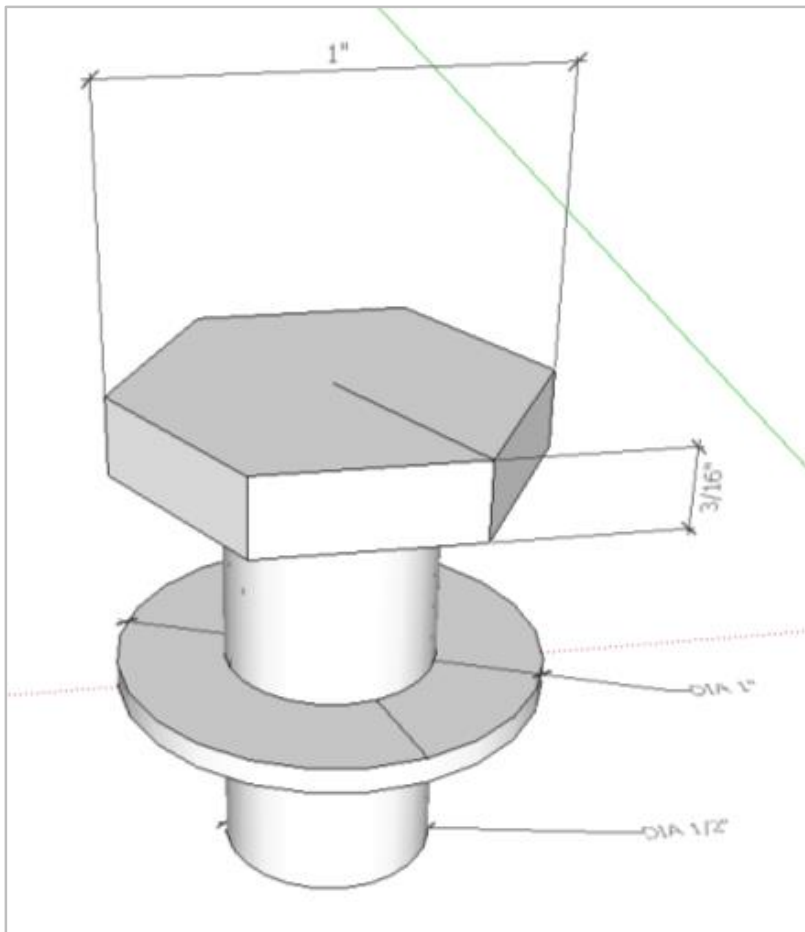


DIAGRAM 4





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