

<Intro to Engineering>

Summer Assignment

Briarcliff High School

2026 – 2027 School Year

To: Future Intro to Engineering and Design Students

Welcome to Engineering! As we eagerly anticipate a great year, there are a couple of required items you need to do to be prepared for the course. We will be using a 3D modeling software called **Autodesk Fusion 360** to create models, CAD drawings, and prints for 3D printing throughout the year

I have prepared a summer assignment list that reviews basic functionality for using Fusion 360. It is highly recommended that you spread out the summer assignments and not try to complete them all in the first week of August. Fusion 360 takes time to process and grasp at a technical level necessary for success in Intro to Engineering. However, there are elements where you can be creative.

Have a great summer and enjoy the summer assignment!

The Summer Assignment: Details

The summer assignment consists of two parts, all completed electronically. You are required to complete and submit all the parts:

- 1) Downloading Autodesk Fusion 360
- 2) 3D Modeling Fundamentals
 - a. Study Guide
 - b. 3D Modeling/Sketching Samples

Due date: August 24th, 2026. No exceptions.

By completing all parts successfully, you will begin class with a **test grade of 100**. Incomplete assignments are graded on a scale; if your assignment is severely incomplete, you will not receive a grade.

The Summer Assignment: Downloading Autodesk Fusion 360

Because you will not have your school computer, please download and install a 30-day trial of the Autodesk Fusion 360 software package to your **home computer** (*your Briarcliff laptop given in September will have Fusion360 in the self-service app for you to download*). If you are asked to create an account, please use your **personal e-mail address** (**NOT** your school address). **This account will be temporary and when we use Fusion 360 in class we will then migrate to your school account.** (<https://www.autodesk.com/products/fusion-360/free-trial>)

To complete this portion, open Autodesk Fusion 360 on your computer and **take a screenshot of your entire screen with the Fusion 360 window open**. Send the picture to Mr. Lo (clo@briarcliffschools.org) **using the e-mail address you used for Fusion 360**. Mr. Lo will use this e-mail address to add you to the project group. The e-mail subject must be in the following style: **"IED SUMMER ASSIGNMENT - SETUP – [First Name] [Last Name]"**

The Summer Assignment: 3D Modeling Fundamentals

You will learn the fundamentals of 3D Modeling by watching instructional videos and creating samples that you will submit to Mr. Lo. Submit your **completed Study Guide and ONE Fusion360 file (.f3d file) of your models/sketches** as attachments to my e-mail (clo@briarcliffschools.org) using the e-mail address you used for Fusion 360. The e-mail subject must be in the following style: "IED SUMMER ASSIGNMENT – MODELING & GUIDE – [First Name] [Last Name]"

You are required to submit the following:

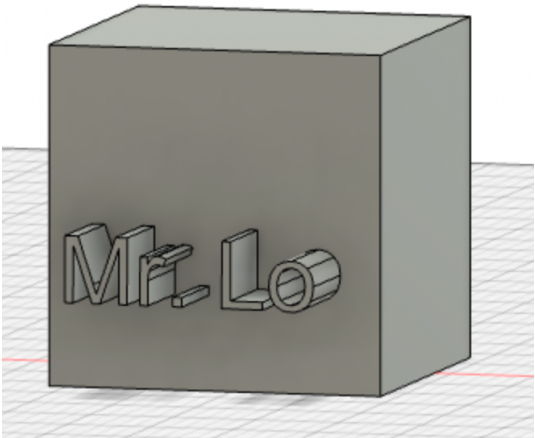
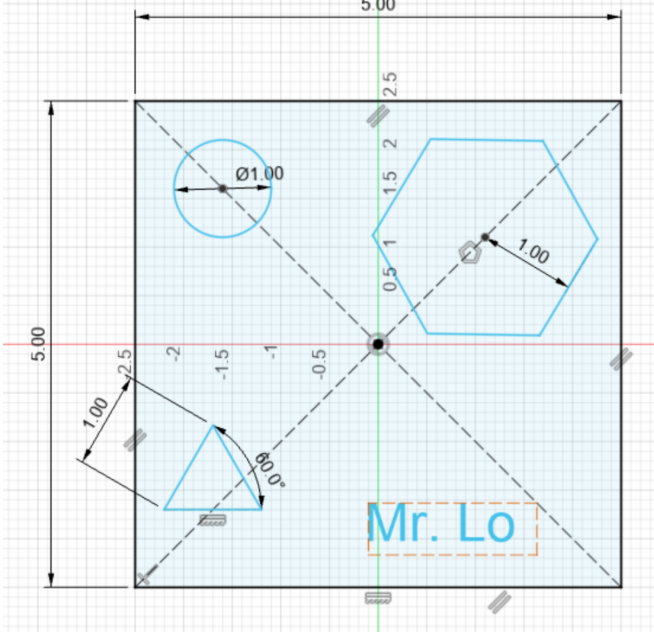
1) Study Guide for how to use Fusion 360

- a. You may either write on paper or create digitally a study guide with notes on the following topics below. Relevant video links are given for each topic, please watch the videos and follow along while creating your study guide. It is recommended to try out the steps on your own as well.
- b. Minimum 1 page (single sided). Use of images and neatness are preferred. All topics are required, but you do not need to give notes on every video.

<u>Topic(s)</u>	<u>Related Video/Resource link(s)</u>
The User Interface (How to navigate Fusion 360)	1) Introduction to Fusion 360 a. Video 1 b. Video 2 2) User Interface Overview 3) Creating a New Project, upload, and save a 3D Model 4) Open, Close, Export, Upload, and Save Designs 5) Using Fusion Team 6) Marking Menu 7) Changing Units
3D Modeling Basics	1) Components and Bodies 2) Extruding Solid Bodies a. Video 1 b. Video 2
Sketching Basics	1) Sketching Basics Overview 2) Sketch Fundamentals 3) The Sketch Environment 4) Create and Modify Sketch Geometry 5) Constrain Sketch Geometry 6) Dimensioning Sketch Geometry 7) Adding text to your sketch/model

2) **The following 3D models/sketches created by you:**

- a. Create the following sketch/3D models in Fusion 360. Save all of your work in **one file**, titled: **[FirstName] [LastName] – Summer Assignment.**

3D Model/Sketch Description & Requirements	Exemplar Sample
Create a 2 in. x 2 in. cube with your name (<i>Initials are OK</i>) extruded on one side of the cube. Size and placement of text is up to you, as long as it is readable.	
Create a single sketch with the following shapes: 1) One 5 in. x 5 in. Centered Rectangle, centered at the origin (0, 0) 2) One 1 in. diameter circle 3) One 1 in. radius circumscribed hexagon (polygon with 6 sides) 4) One 1 in. equilateral triangle (using the line tool) 5) Your name using the text tool	
Create any 3D Model of your choice that is not a cube. Include your name on the model (<i>Initials are OK</i>).	

