



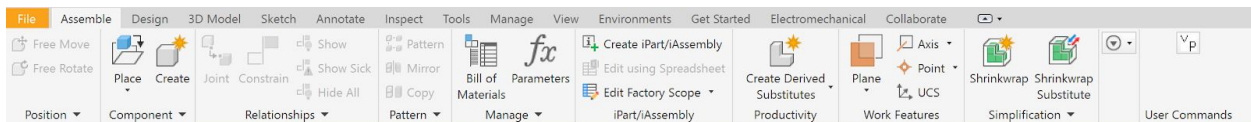
## ASSEMBLIES

CAD — Rohawks 3419 — Lili and Chris

When we want to model a more complex part—for example, an entire mechanism comprised of many different pieces of metal, 3D printed structure, nuts, and bolts—we use an **Assembly**. An assembly is an environment into which you can place many different parts and connect them within Inventor.

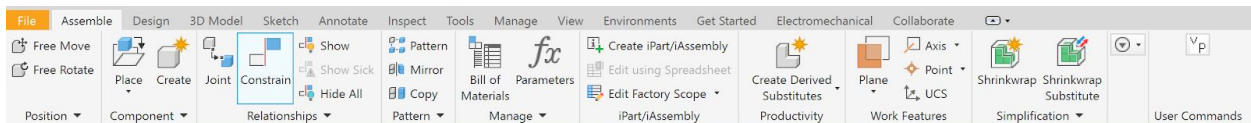
### PLACING A PART IN AN ASSEMBLY:

To make an assembly, on the opening screen of Inventor click the “assembly” button instead of the part button. This will create a new file (with the extension .iam, meaning inventor assembly, as opposed to .ipt, which means inventor part) and open up your workspace so you can start bringing your parts together.

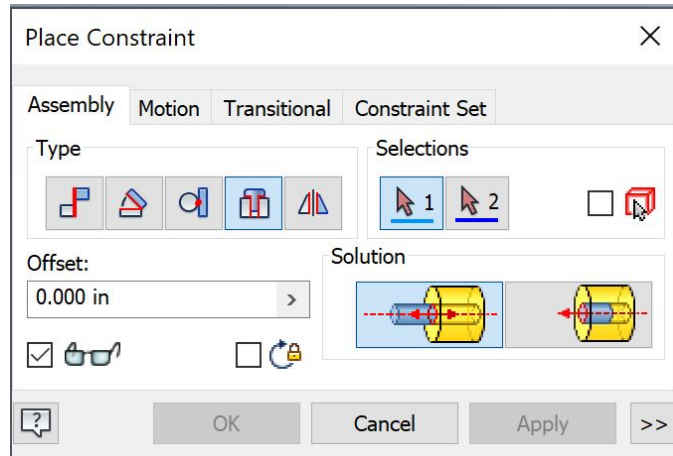


To place a part in an assembly, click “Place” on the left of the “Assemble” tab. A window will pop up, and you will have to locate the file for the part you want to place. After that, you can click in the environment to make a copy of your part (or multiple copies, by clicking multiple times).

### CONSTRAINING:



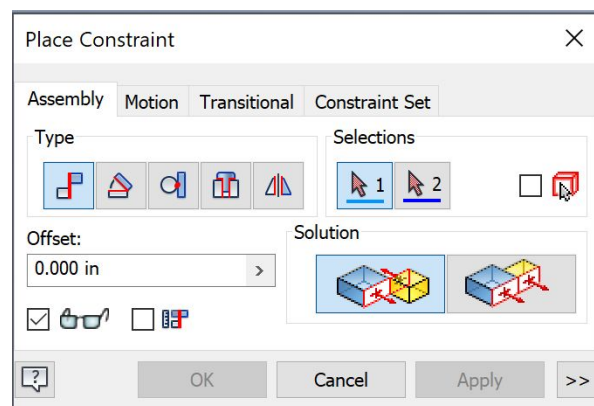
So, you have multiple parts in an assembly. Instead of lining them up so they look like they fit together, Inventor has a tool that will let you precisely connect the two parts and simulate the real-life interaction you would like them to have: **CONSTRAINTS** (different from sketch constraints)



*Insert*: Probably the most popular constraint within this team. After opening the constraint window, click the FOURTH BOX (highlighted in blue) to start an insert constraint. This is used to put one cylindrical object into another cylindrical opening (think bolt in a hole, gears on a shaft, etc). Click the diameter of the part you want to put inside, then click the diameter of the hole you want to put it in.

The “Solution” section just toggles the location of the constraint. You can toggle it until your cylinders are constrained appropriately.

“Offset” is used if you don’t want the faces to be flush with one another. Say you want two cylinders to have their centers aligned but you want them to be 3 inches apart, use this.



*Mate*: Second most popular constraint on the team. This simply makes two surfaces flush with one another. Click one surface and click the other and then will line up along the surfaces you click.

You can explore the other constraints by clicking on different boxes under the “Type” category but for the purposes of our team, mate and insert are the most useful.

**!! TIP:** If you want to make sure that one part does not move in the assembly when you click and drag it, right click on the object and set it to GROUNDED. This means that the object will not move!