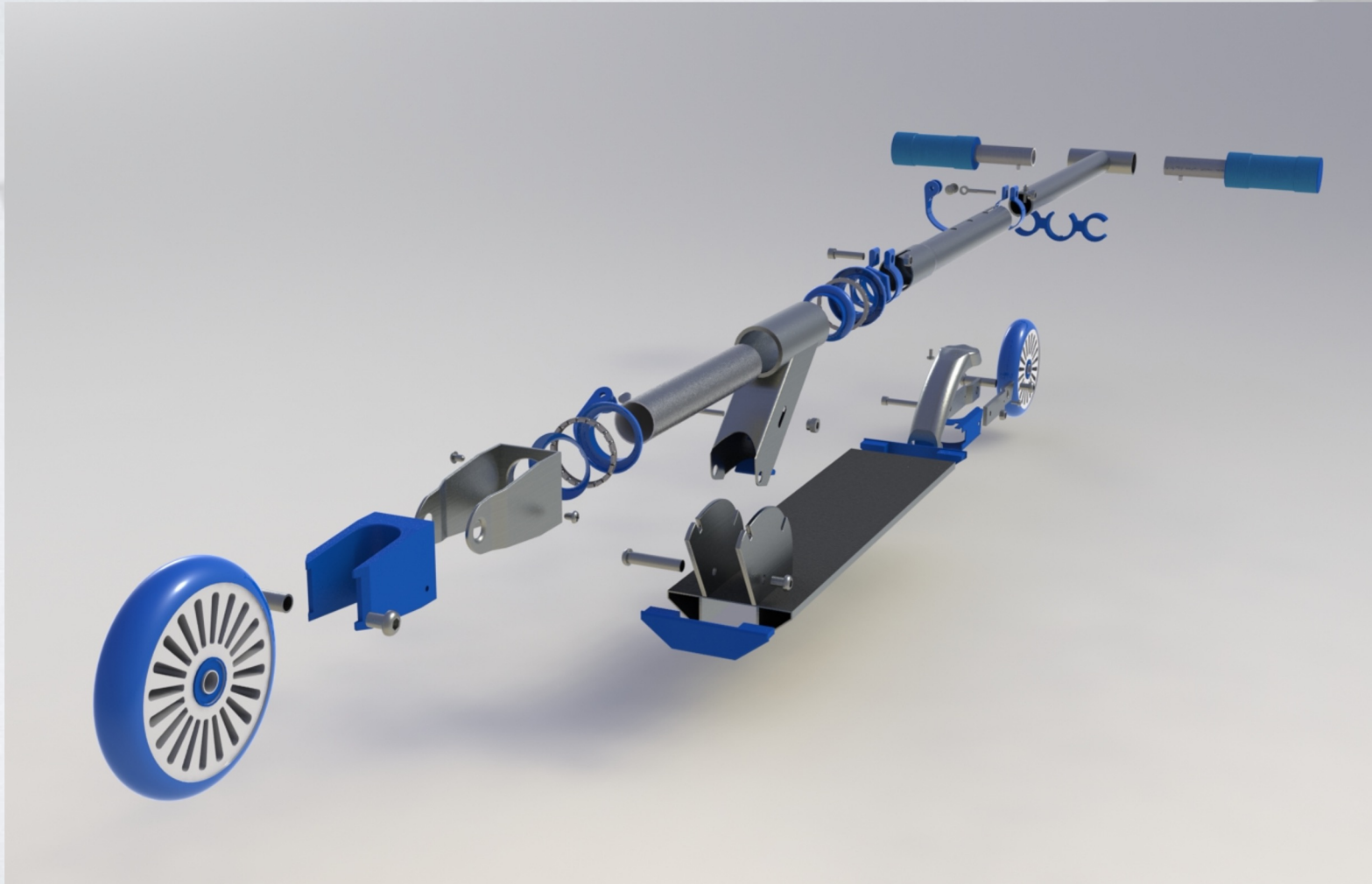
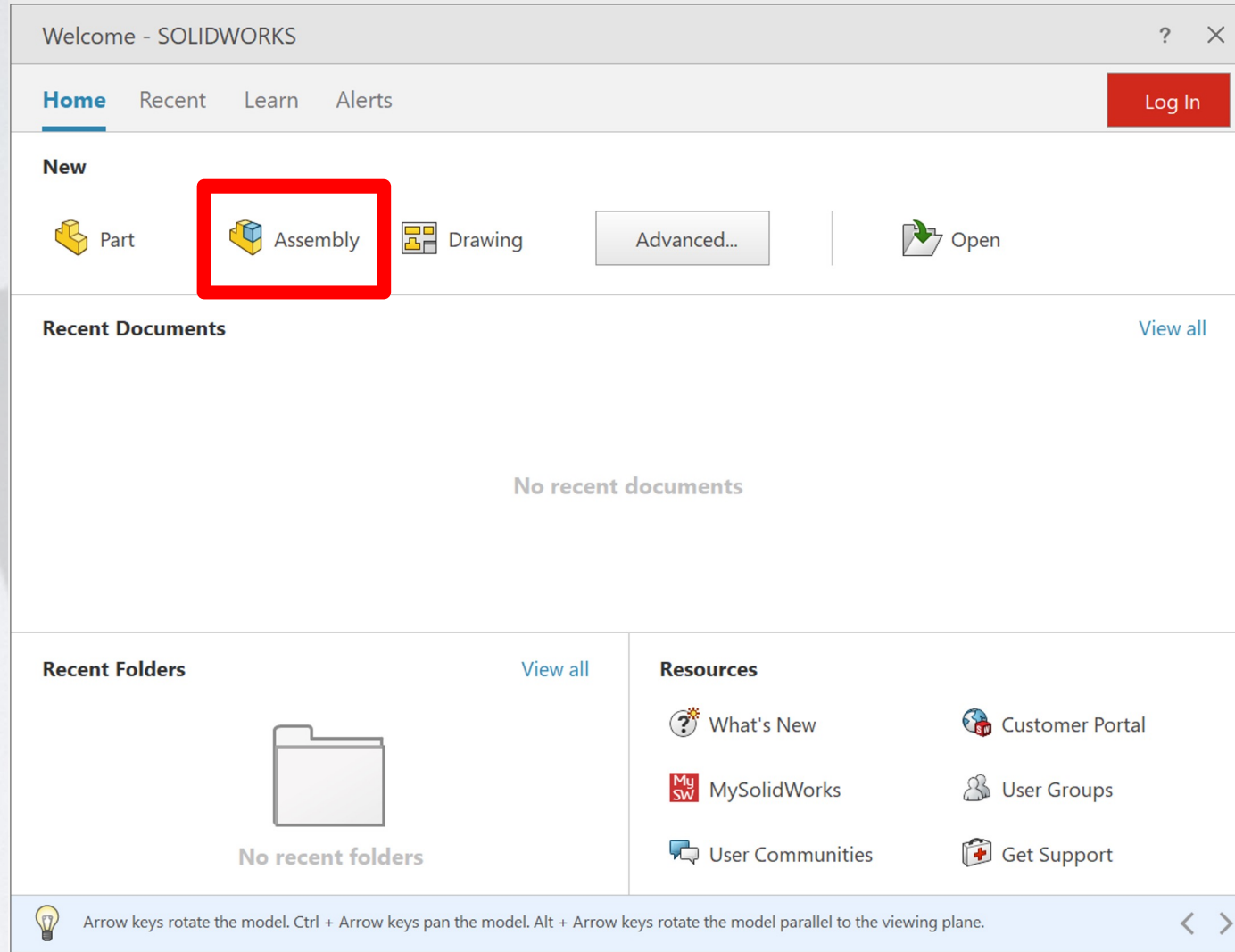


Assembly in Solidworks

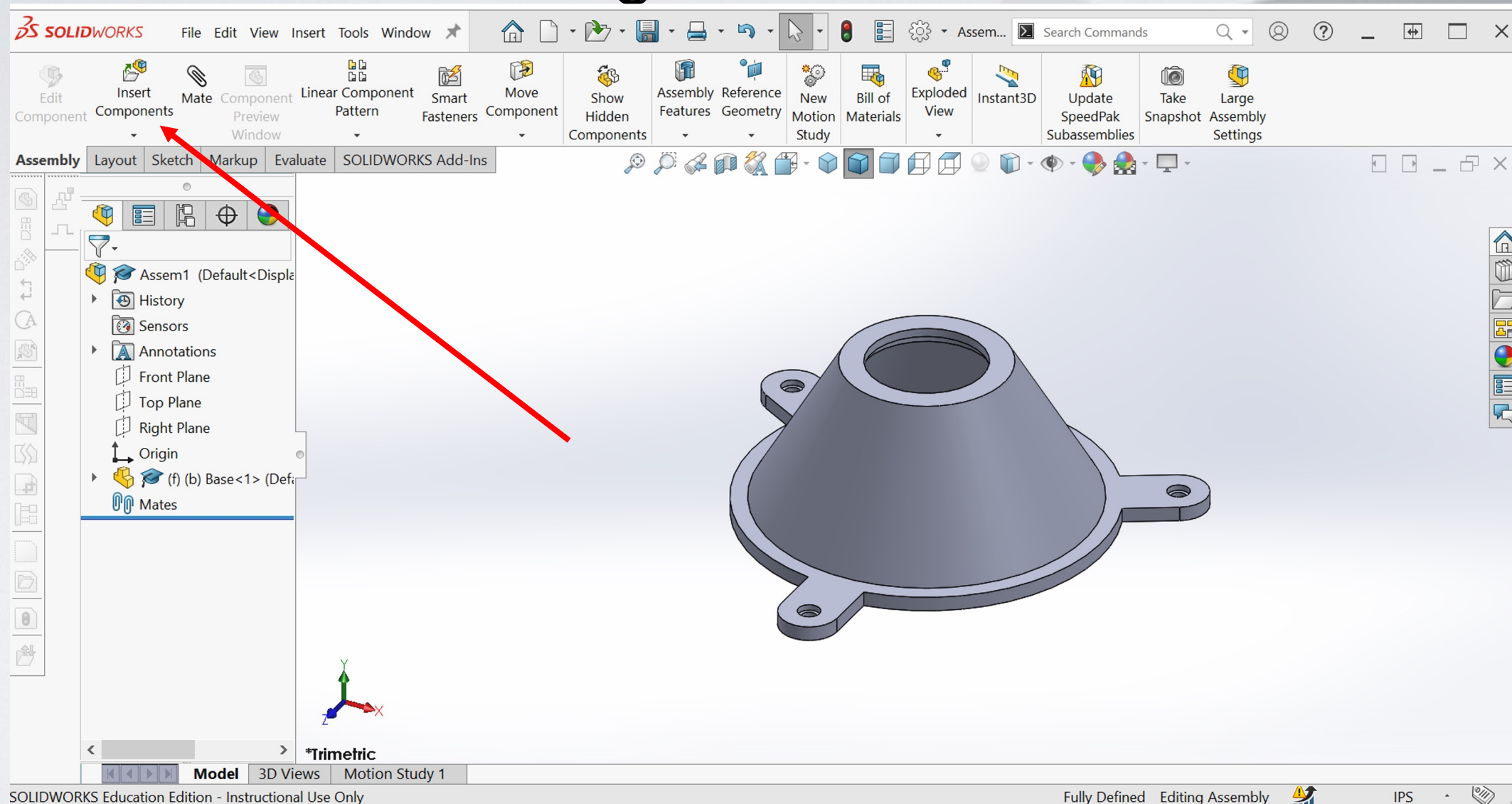


Creating an Assembly



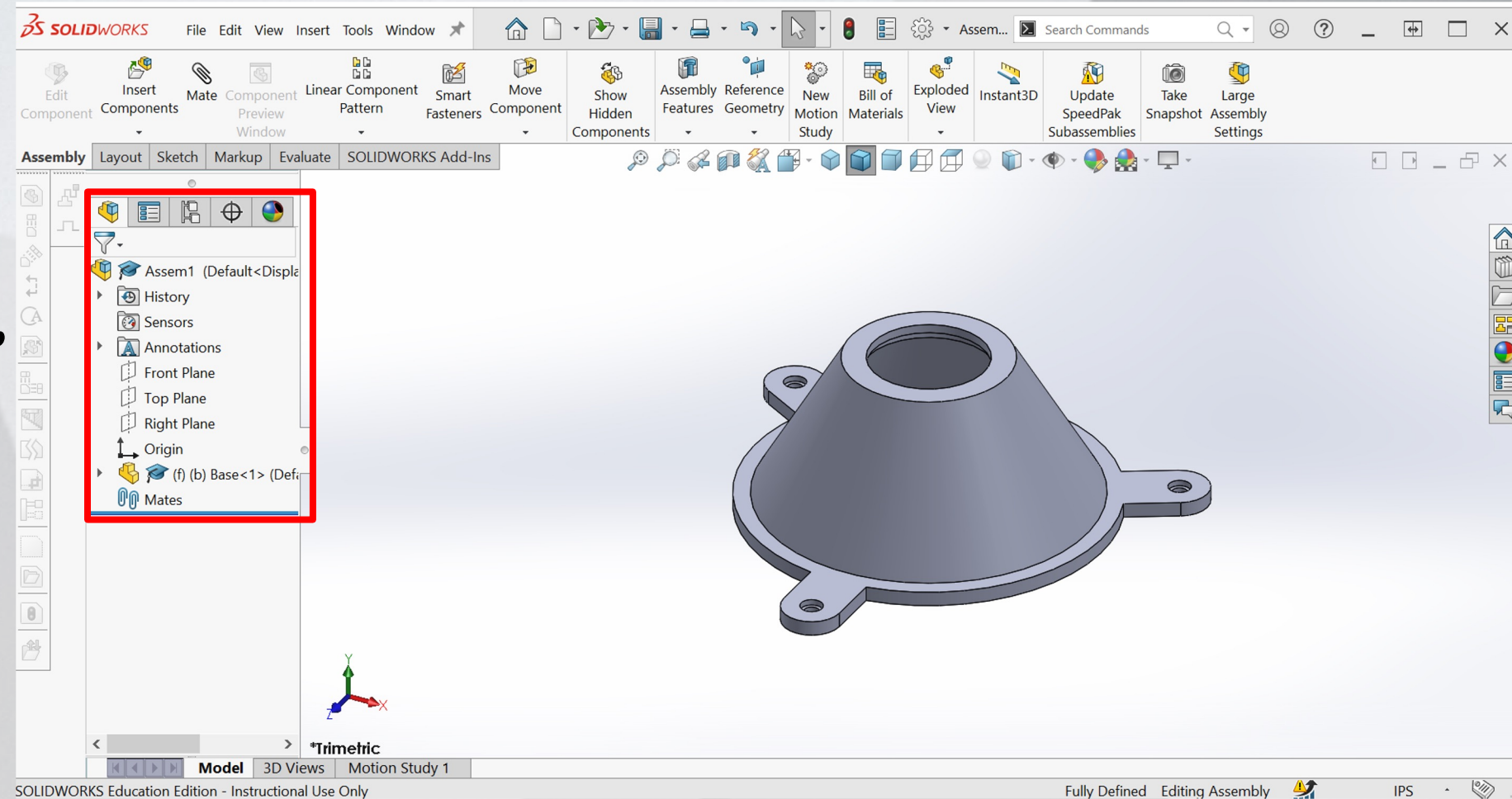
Inserting Parts

Click
“Browse
if parts
do not
show in
dialog
box

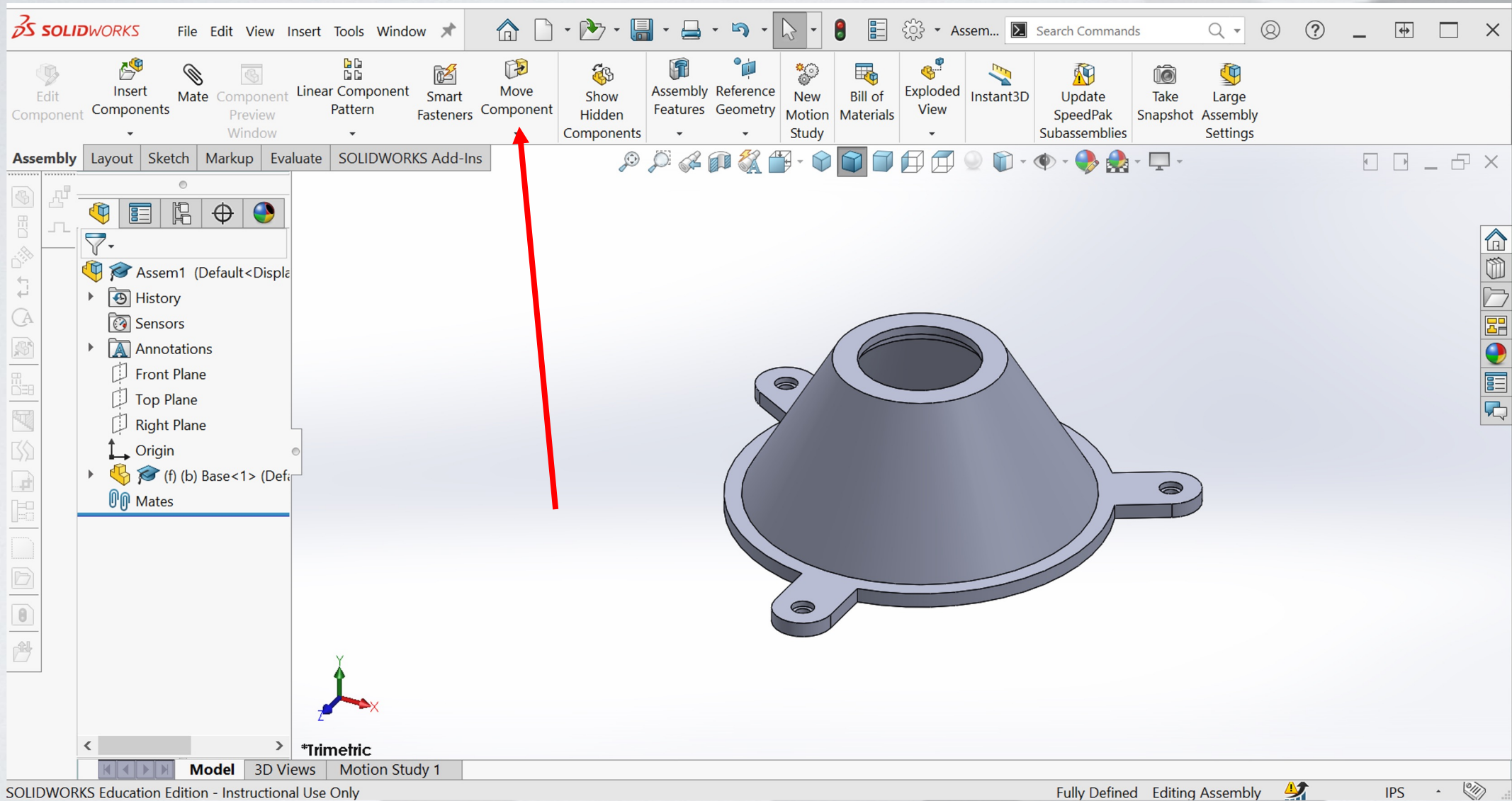


The Assembly Tree

- The design tree stores all information regarding the parts, mates, materials, and history of the assembly
- Very useful for manipulating parts



Move Component

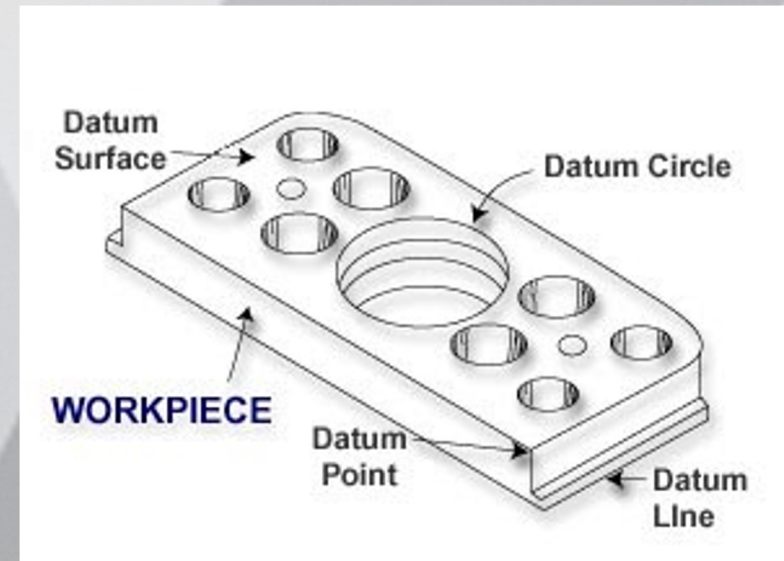


Design for Manufacturing

- Tolerances
- Manifold vs Non-manifold
- Part Influence on Assembly
- Assembly Steps

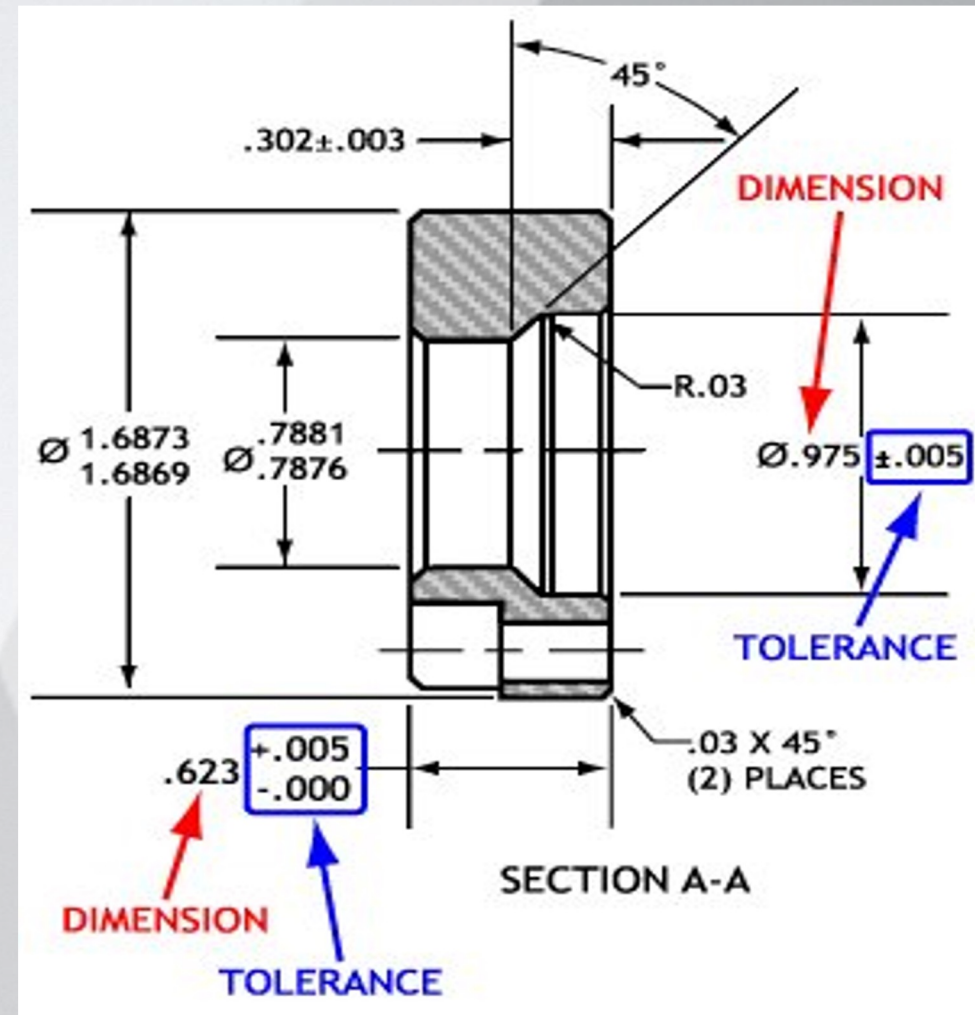
Geometric Dimensioning and Tolerancing

- Tolerances in a design tell the inspector how much variance or imperfection is allowable before the part must be considered unfit for use.
- Tolerance is the difference between the maximum and minimum limits on the dimensions of the part.
- Since parts are never perfect, a **datum feature** is used during inspection, to substitute for the perfect datum of the drawing.
- Datum features are simply referred to as datums



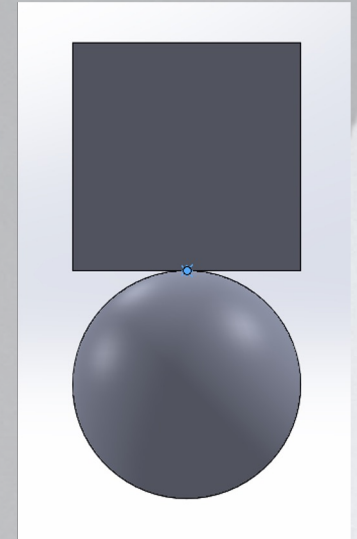
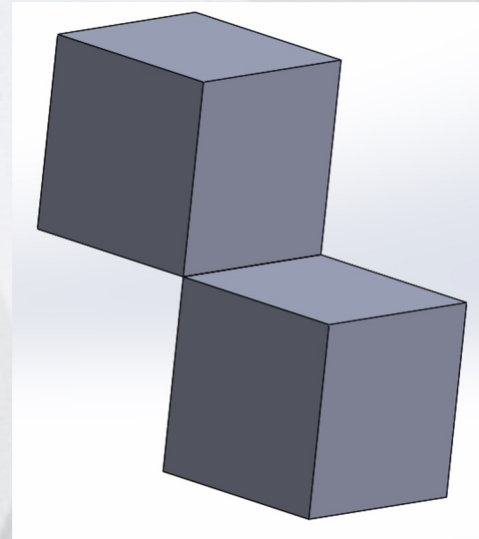
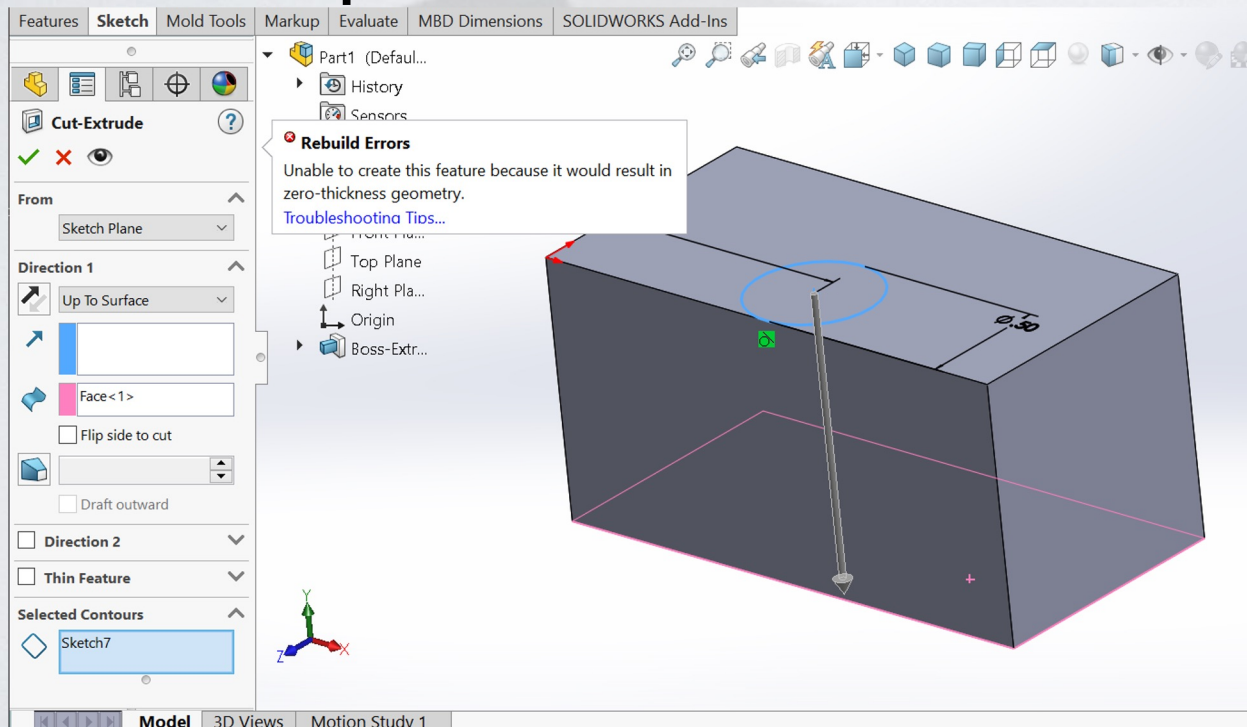
Plus / Minus Tolerancing

- When the part is produced in a manufacturing process, there will be errors.
- Even though most errors are undetectable to our eye, the variations can be picked up using precise measurements such as a CMM.



Manifold vs. Non-Manifold

- Think of it as “Manufacturable” vs “Non-Manufacturable”
- Can this part be manufactured?



Part Influence on Assembly

- Minimize total parts
- Use as many standard components as possible
- Custom parts increase manufacturing cost
- Design parts in a modular fashion
- Integrate common parts across product lines

Assembly Design

○ Bottom-up Design

- Traditional method
- Parts are designed first then inserted assembly and mated into position
- Ideal for previously constructed and standard parts

○ Top-down Design

- Referred as “in context design”
- Parts’ shapes, sizes, and locations designed can be designed in assembly

Activity

- Complete the **Lesson 2: Assemblies** tutorial
- Assemble the **Vise**
 - If your parts do not fit correctly, use the parts that are shared with you to make the assembly

Vice Assembly

