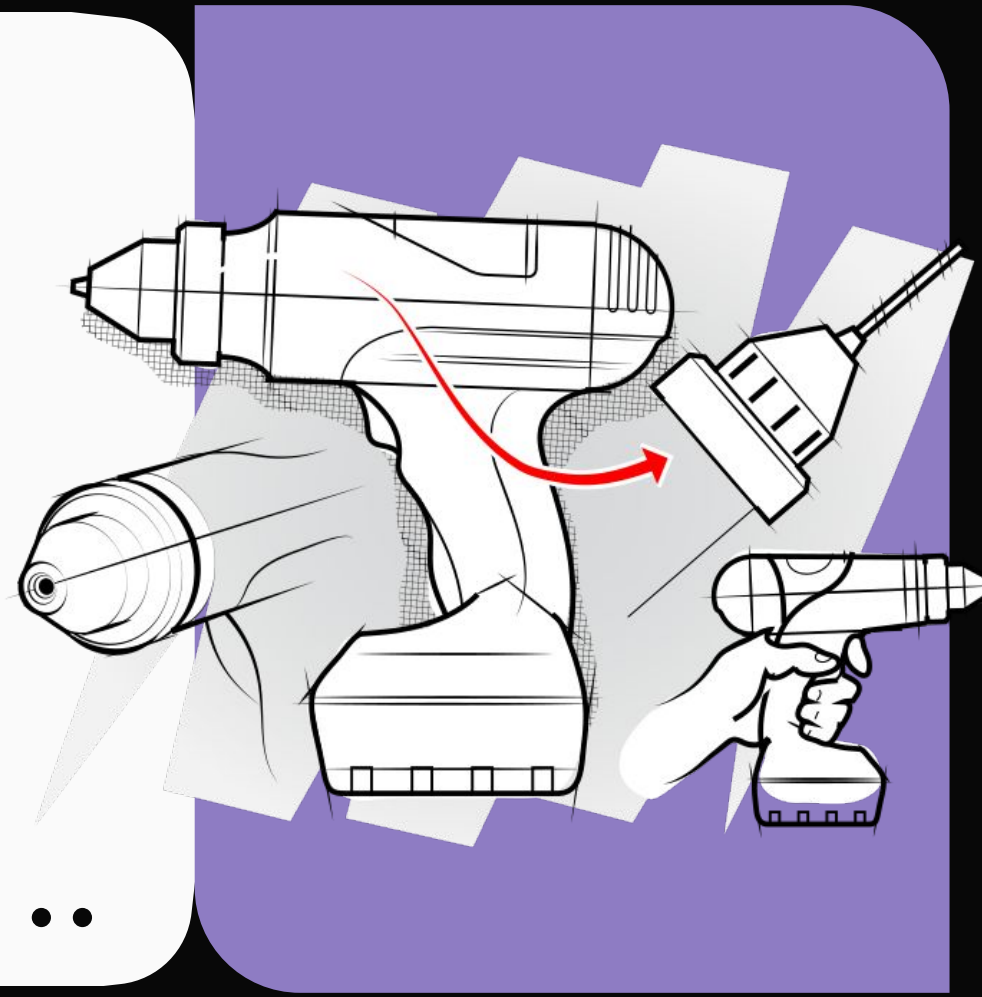
# 3D Modelling Tips

Fab Academy 2026



# Hi, I’m Silvia!

Industrial Designer • Maker • Art Production Coordinator **@Voldex games**

*I make things. I teach things. I coordinate things. I occasionally misplace things.*

- Fab Academy 2019
- Fabricademy 2022–23
- Fab Academy Instructor (Paraguay - not Uruguay)


DRIVING
EMPIRE


DRIVING
EMPIRE
LEGO

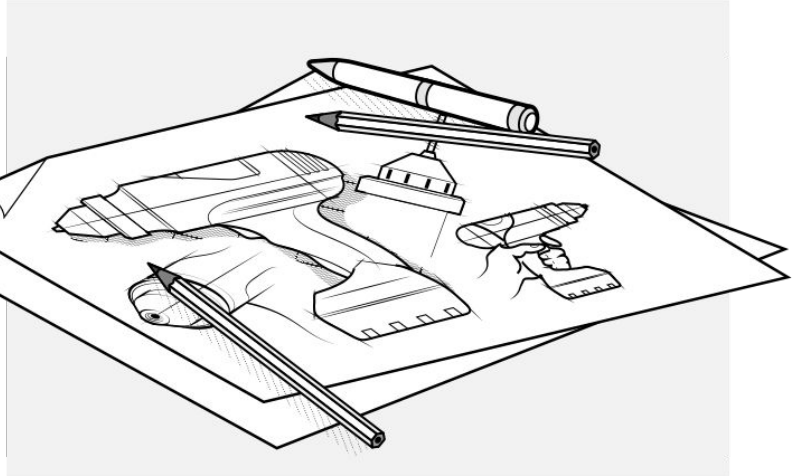
# CAD

## Computer Aided Design, also called 3D modeling

**Assignment**

Model (raster, vector, 2D, 3D, render, animate, simulate, ...) a possible **final project.**

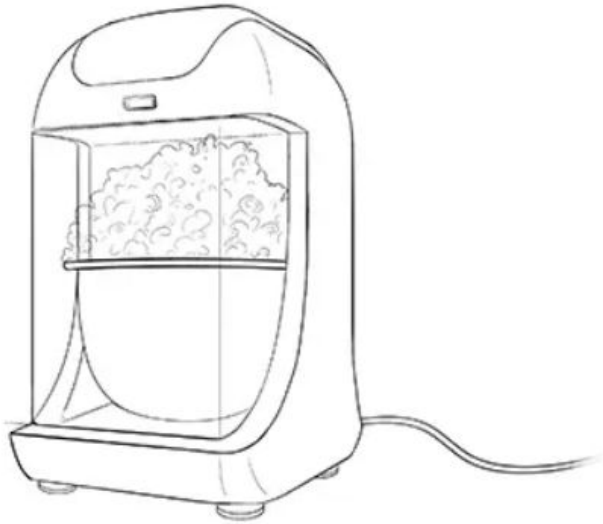
# 1. Sketch



**Drawing helps you see your subject.**

Sketching will help you keep future details in mind and allow you to fix issues before they arise.

Moreover, drawing has the added benefit of building your mental library faster, so that in the future, you need much less reference and are able to concept in 3D much more effectively.



1. What basic shape will the object have? (cube, cylinder, organic, etc.)

**Focus on building these specific forms rather than experimenting in the software.**

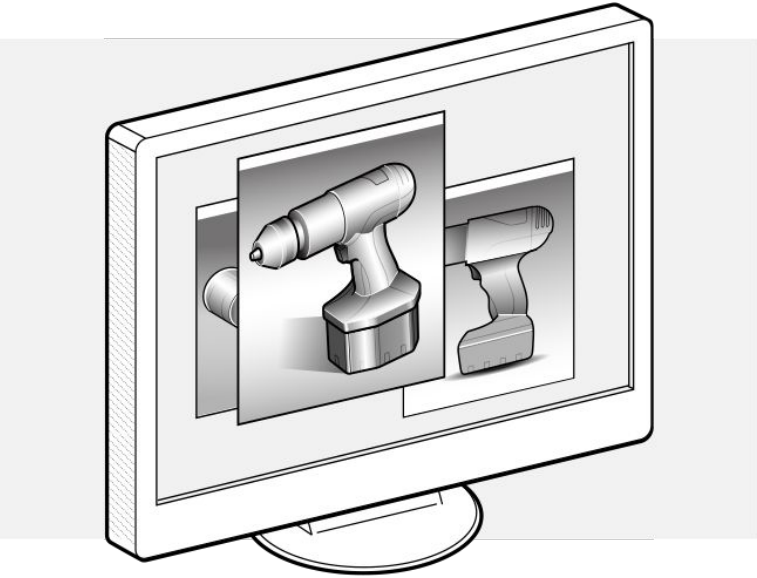
2. How much space will it occupy in the environment where it will be used?

**Avoid wasting time creating a model that's too big or small.**

3. What are the main parts that compose it?

**Allows you to break the model into manageable sections.**

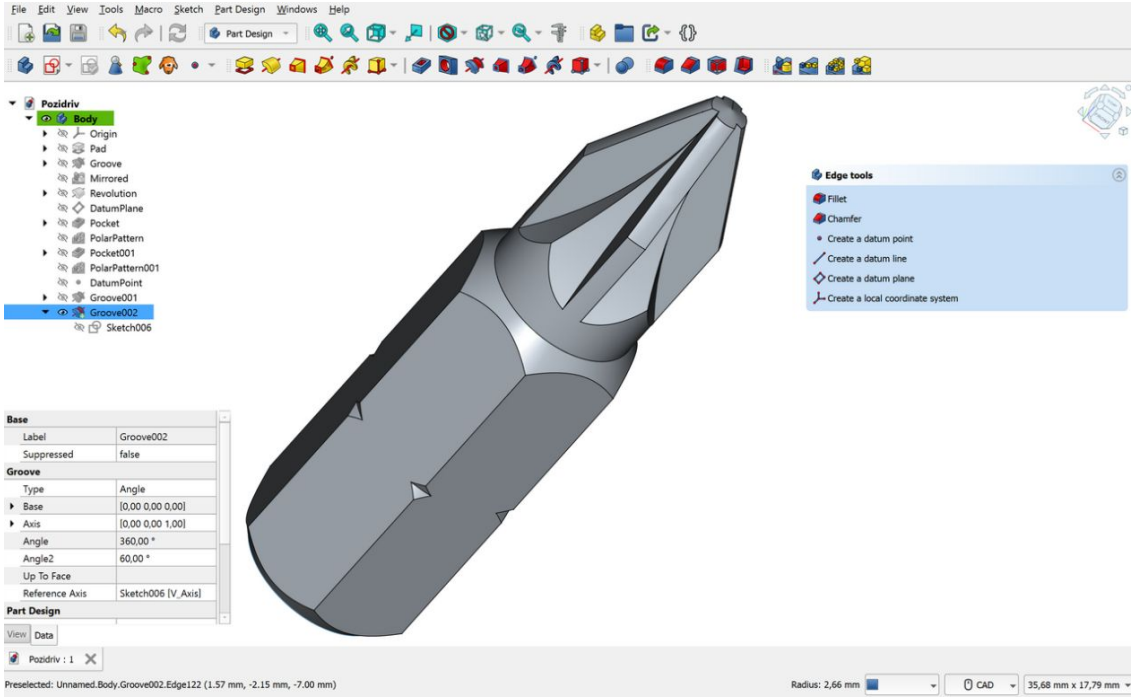
# 2. Software



There are many CAD programs to choose from, each with its own advantages and industry niches.

# FreeCAD

**Best For:** No strings attached, free and open-source design through a locally installed program.

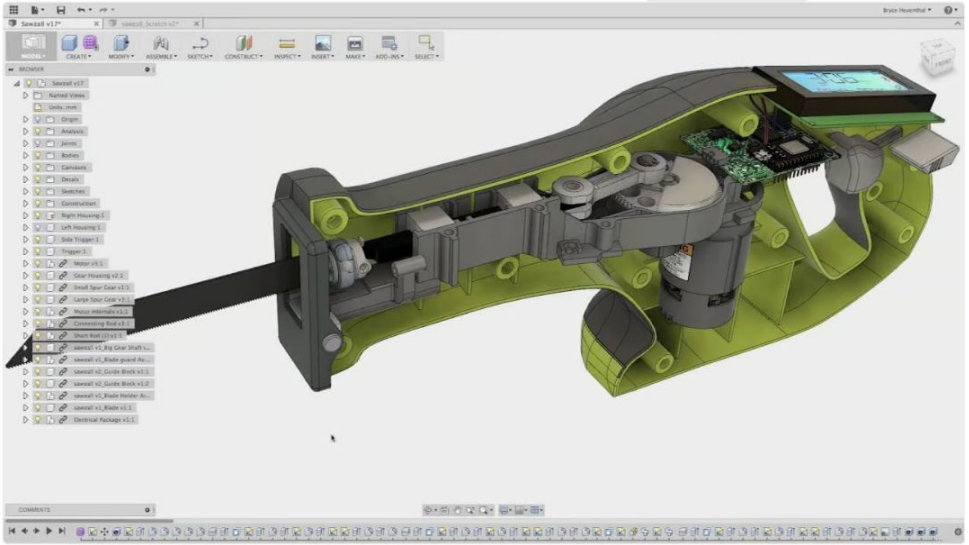



## OVERVIEW

| | | | |
|---|---|---|---|
| CAD Software | FreeCAD | What's Free | Everything |
| Platform | Windows, macOS, Linux | Upgrade Cost | $0 |

# Fusion 360

**Best For:** Non-commercial projects from simple tools to complex machines.

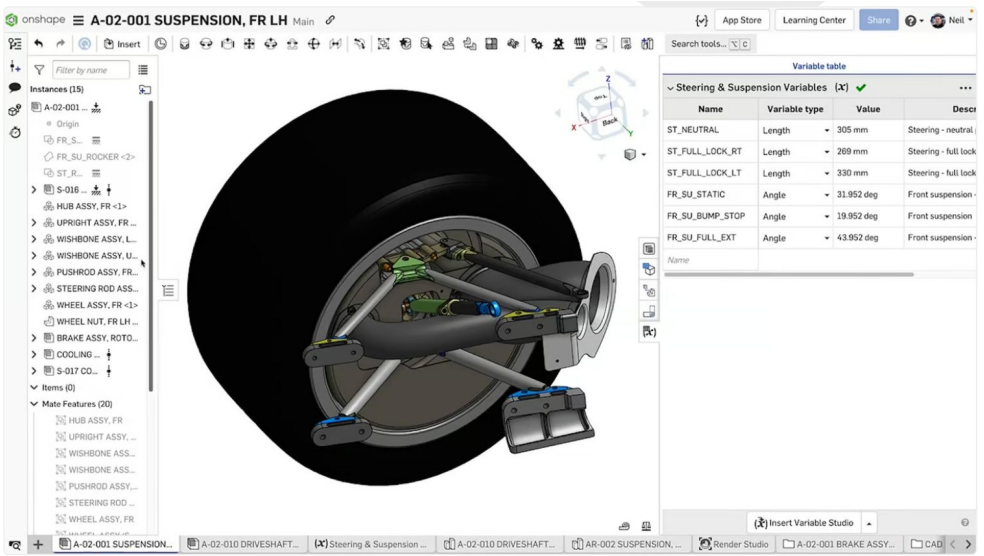


## OVERVIEW

| | | | |
|---|---|---|---|
| CAD Software | Fusion | What's Free | Free for students and educators. Free feature-limited version f personal, noncommercial use. |
| Platform | Windows, macOS | | |
| | | Upgrade Cost | $85/M, $680/Y |

# Onshape

**Best For:** Designing mechanical parts and complex objects via a powerful, browser-based parametric design program.

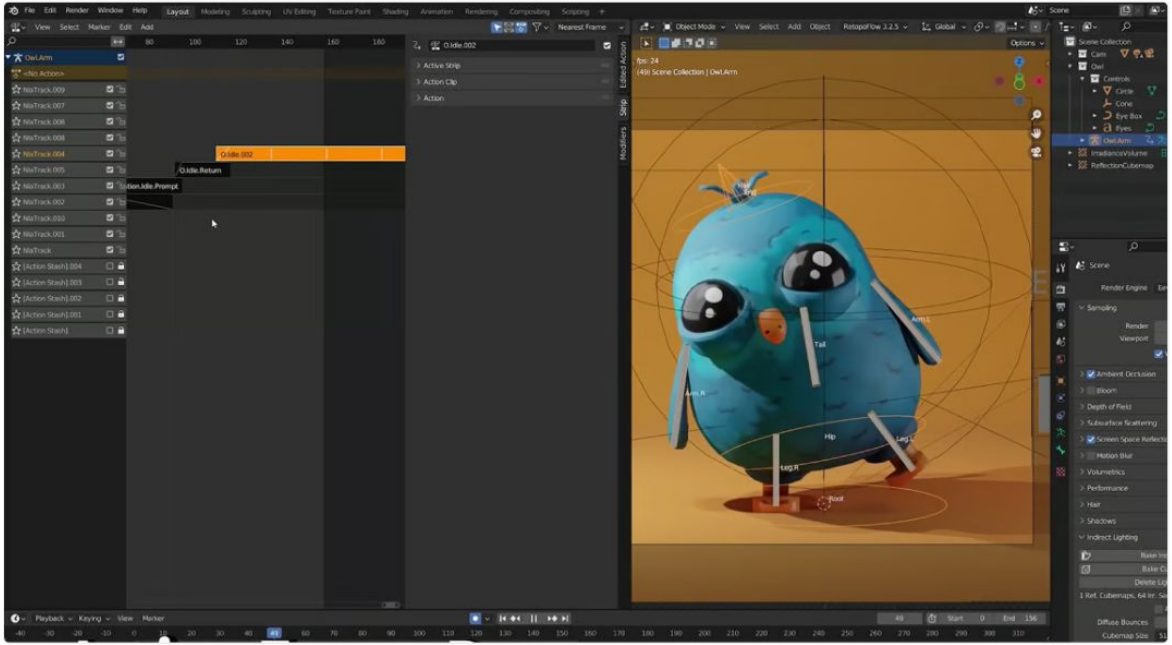



## OVERVIEW

| | | | |
|---|---|---|---|
| CAD Software | Onshape | What's Free | Free for qualifying start-ups, students, educators, content creators. Free limited-feature version for non-commercial use. |
| Platform | Browser | | |
| | | Upgrade Cost | from $1,500/Y |

# Blender

**Best For:** Professional 3D modelers, 3D designers, and game developers. Also hobbyists interested in artistic design with some flexibility.



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# Best Practices for 3D Modeling

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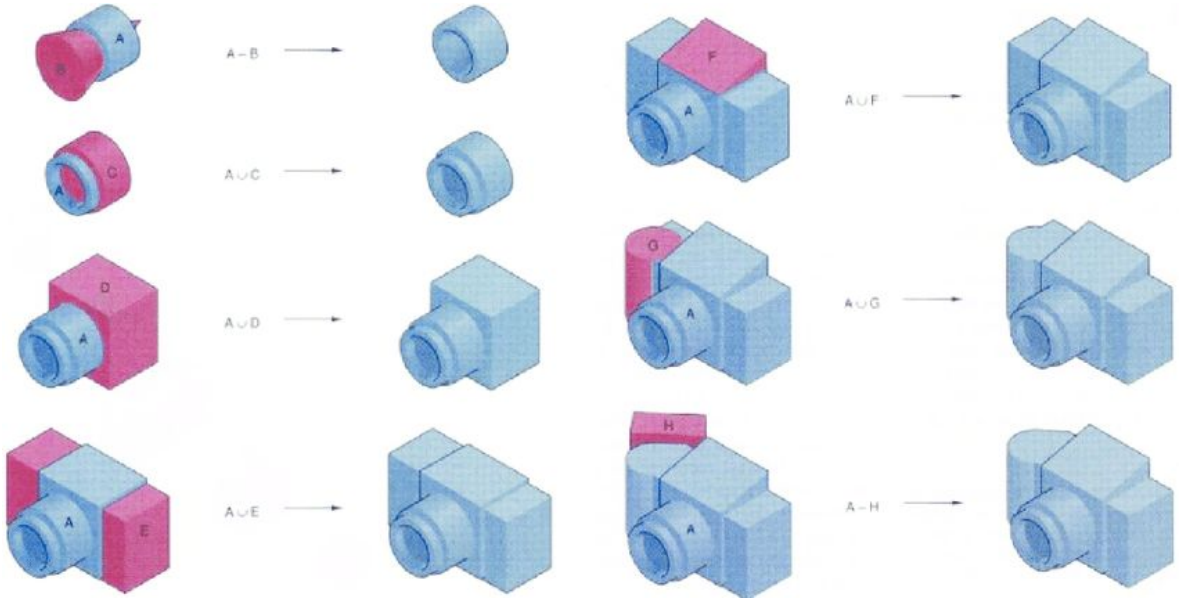

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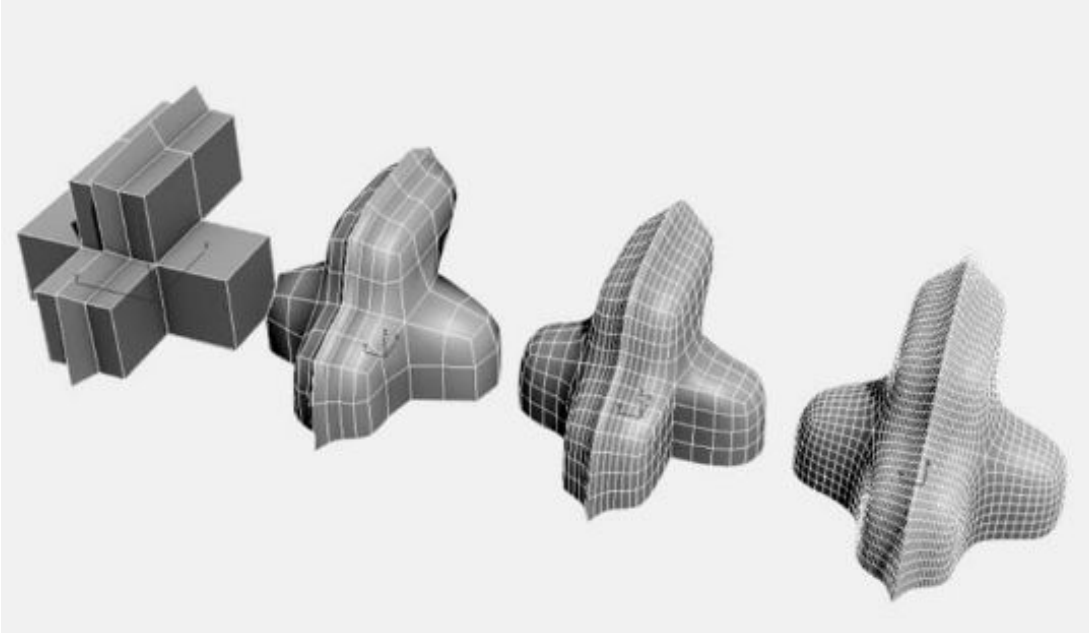

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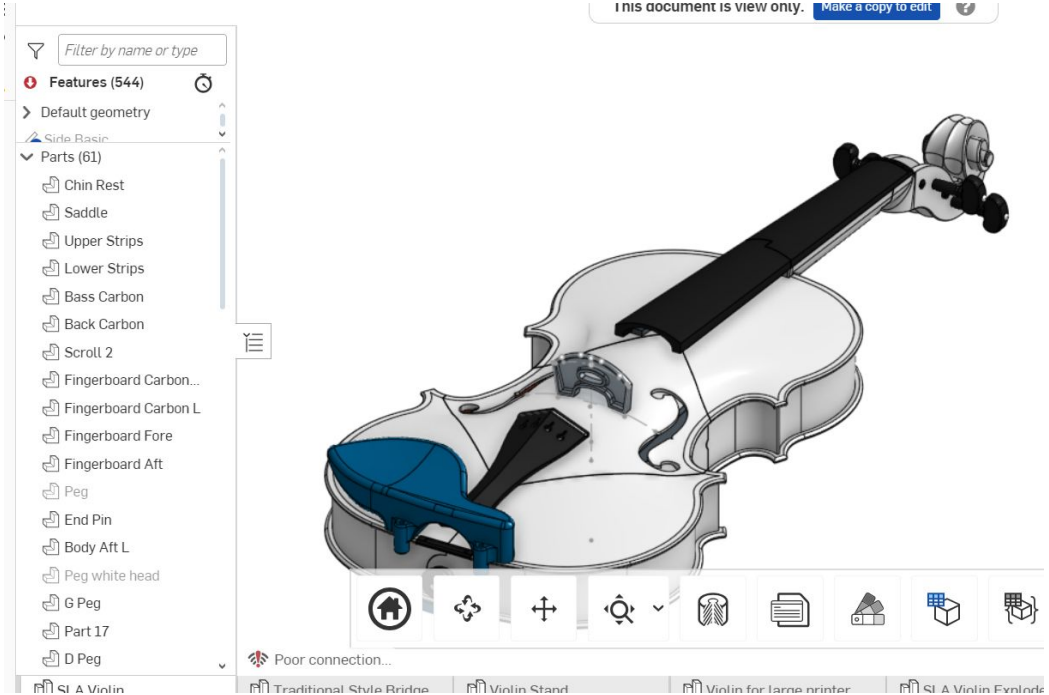
3. **Divide Your 3D Model into Sections**



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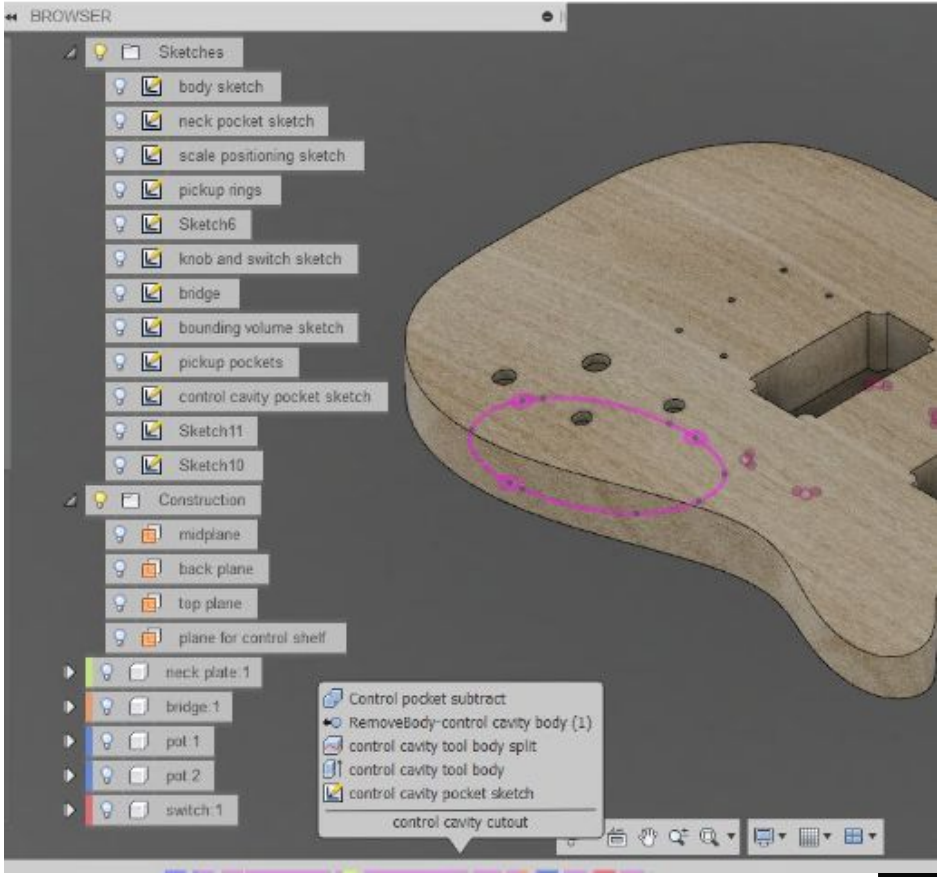
4. **Use Layers or Groups and use Proper Naming Conventions**



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6. **Iterate and Review**

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5. **Regularly Save and Version Your Work**
6. **Keep an Eye on Geometry**
7. **Document the Process**


**CAD = Source of Truth:** dimensions, constraints, tolerances, and manufacturability (what you can actually fabricate).

**AI ≠ CAD:** most “AI 3D” outputs are **meshes** (fast shape), not **parametric, measurable, constraint-driven models**.

# Practical Exercise: The Coffee Mug

1. **Select an Object:** A coffee mug is simple yet involves key features: a hollow body, a handle, and precise dimensions for usability.
2. **Take Measurements**
3. **Model It in Different Software**
4. **Compare Results:**
    a. Which software was faster?
    b. Which workflow felt more intuitive?
    c. Which software produced the most accurate or visually appealing model?