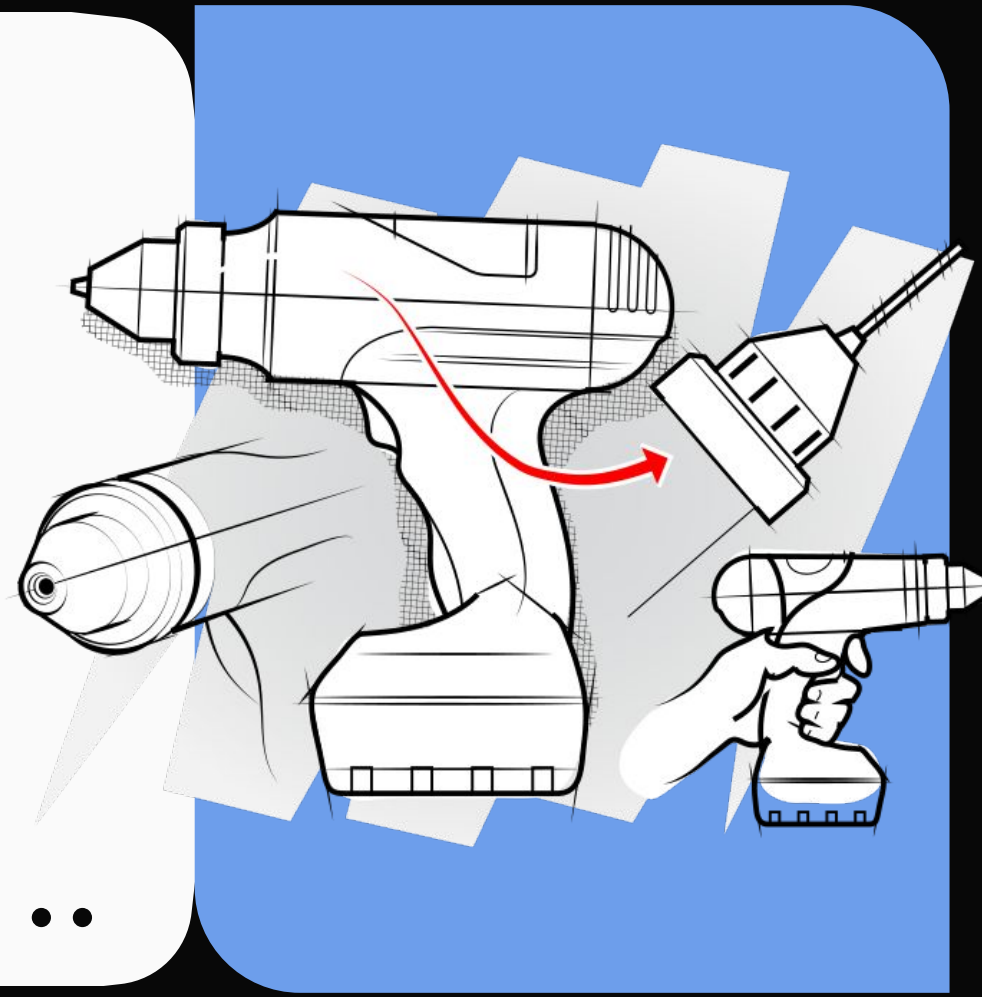
3D Modelling Tips

Fab Academy 2025



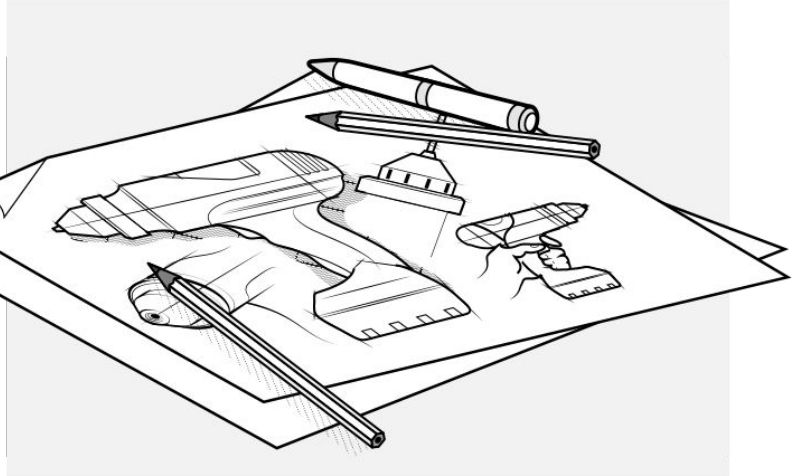
CAD

Computer Aided Design, also called 3D modeling

Assignment

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

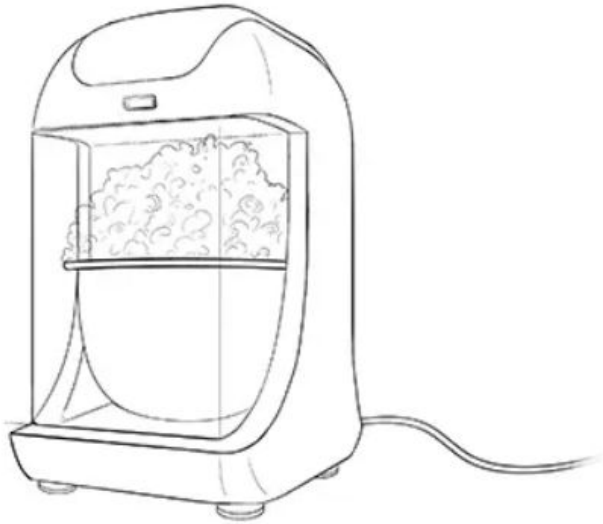
1. Sketch



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.

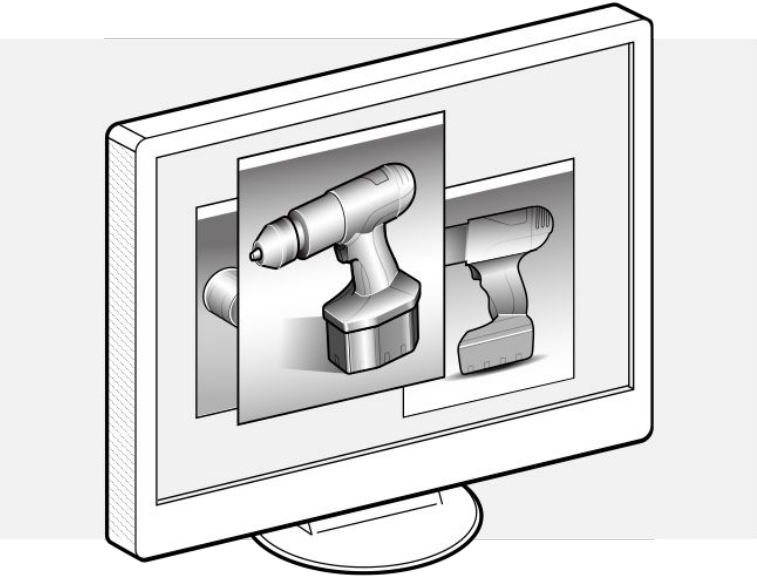
2. How much space will it occupy in the environment where it will be used?

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.

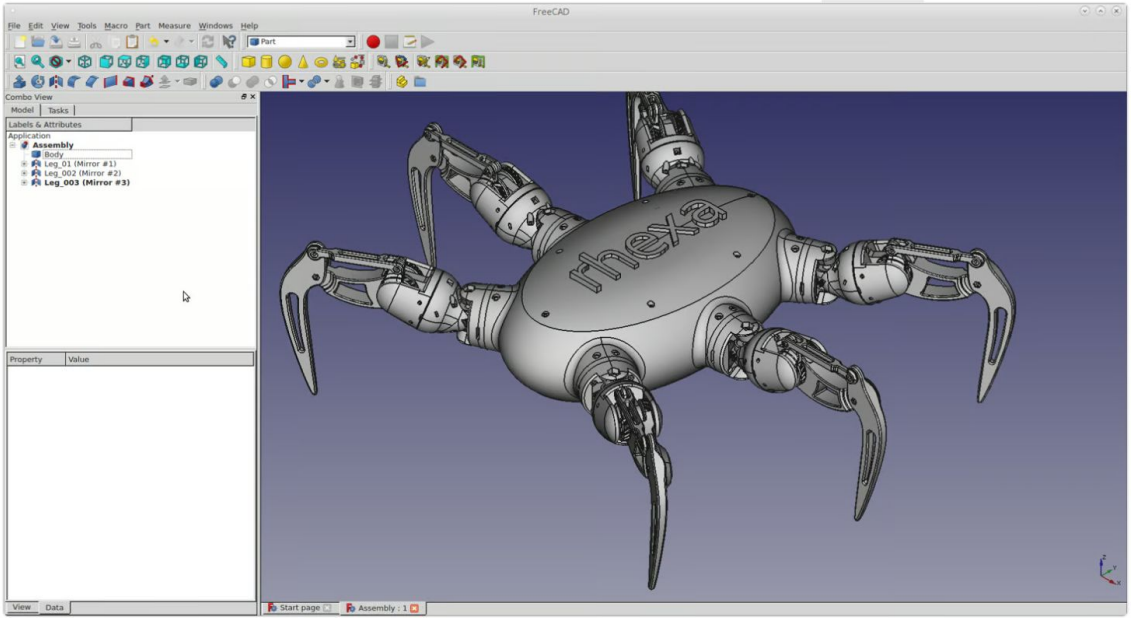
2. Software



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.

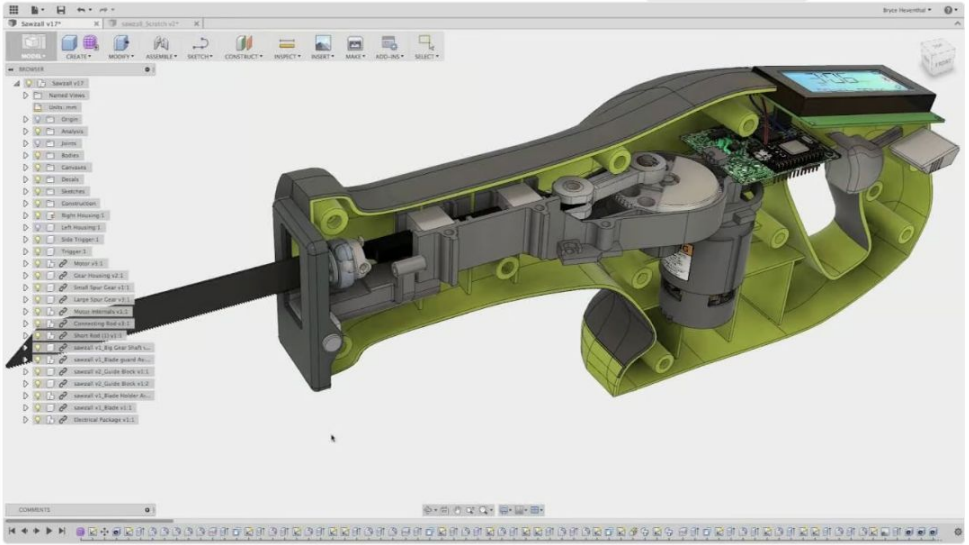


OVERVIEW

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.

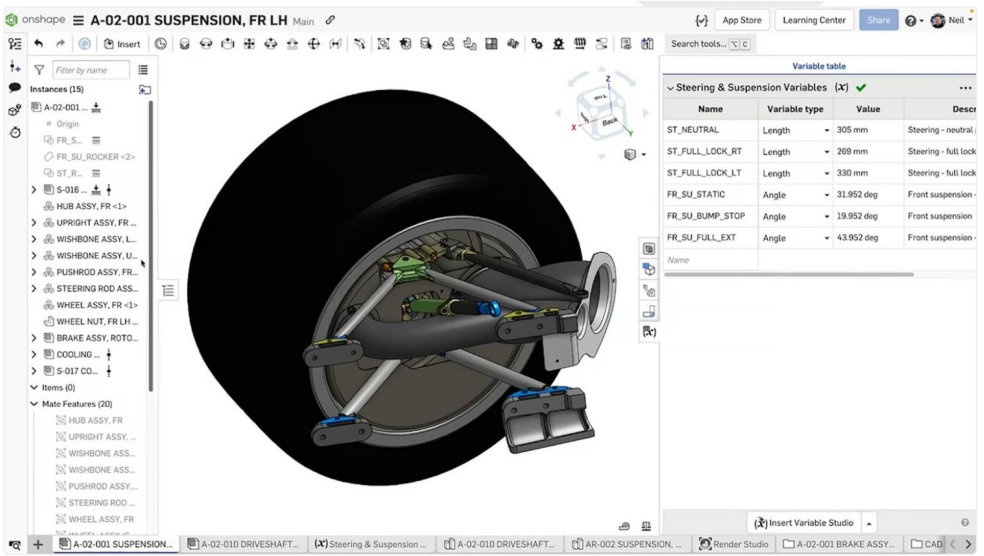


OVERVIEW

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.

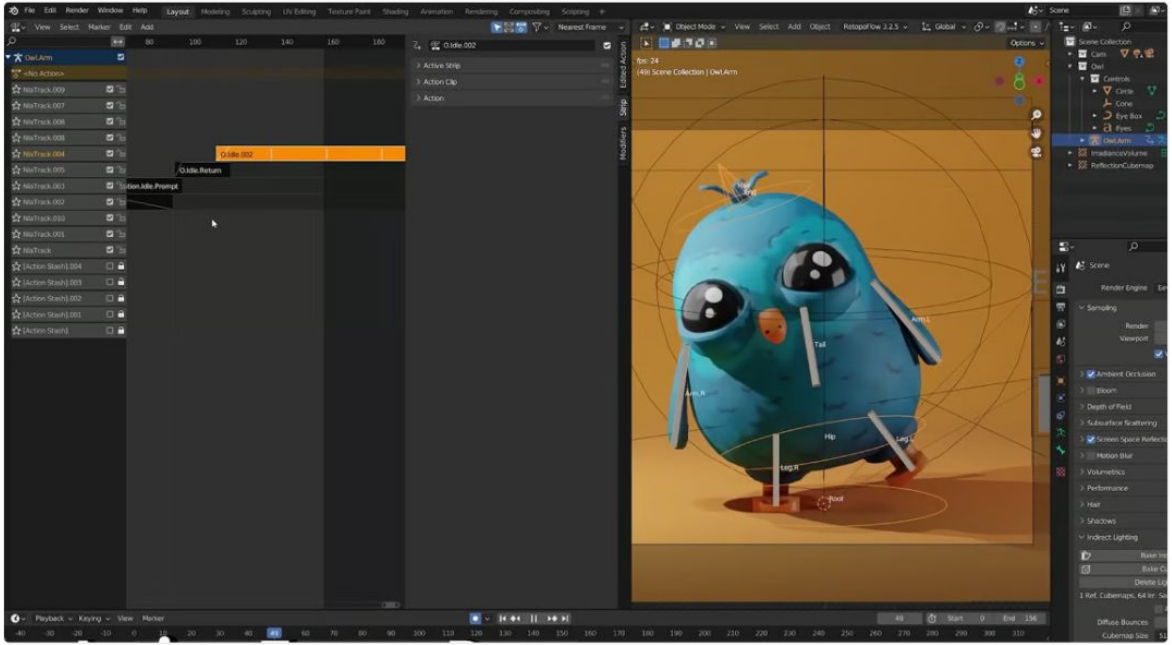


OVERVIEW

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

1. **Work with Real Measurements**

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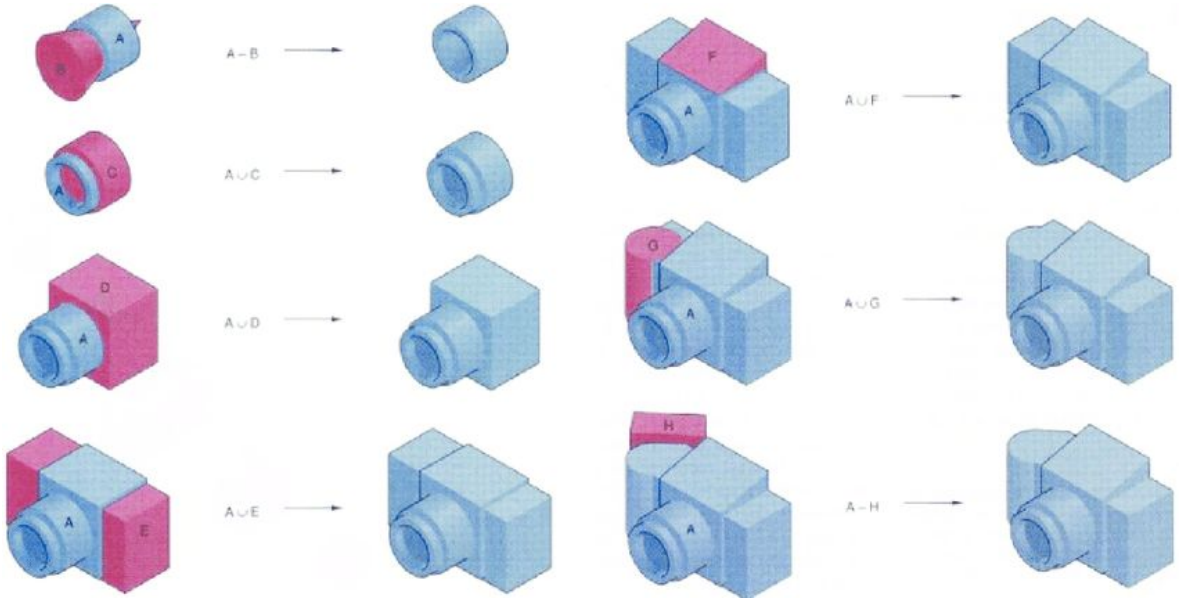
2. **Start with Simple Shapes**



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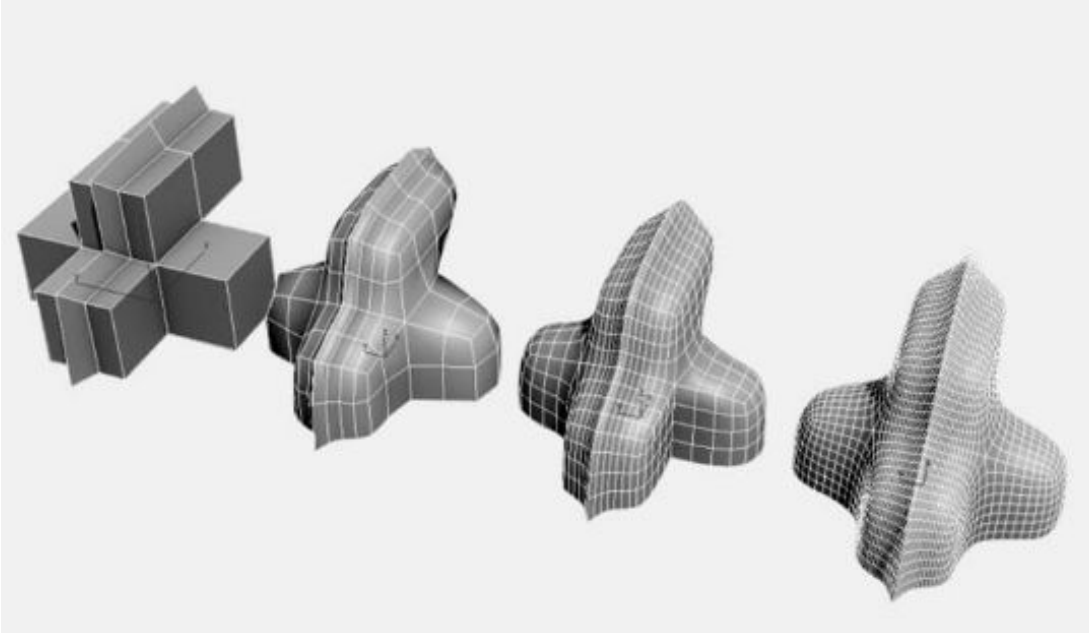

Best Practices for 3D Modeling

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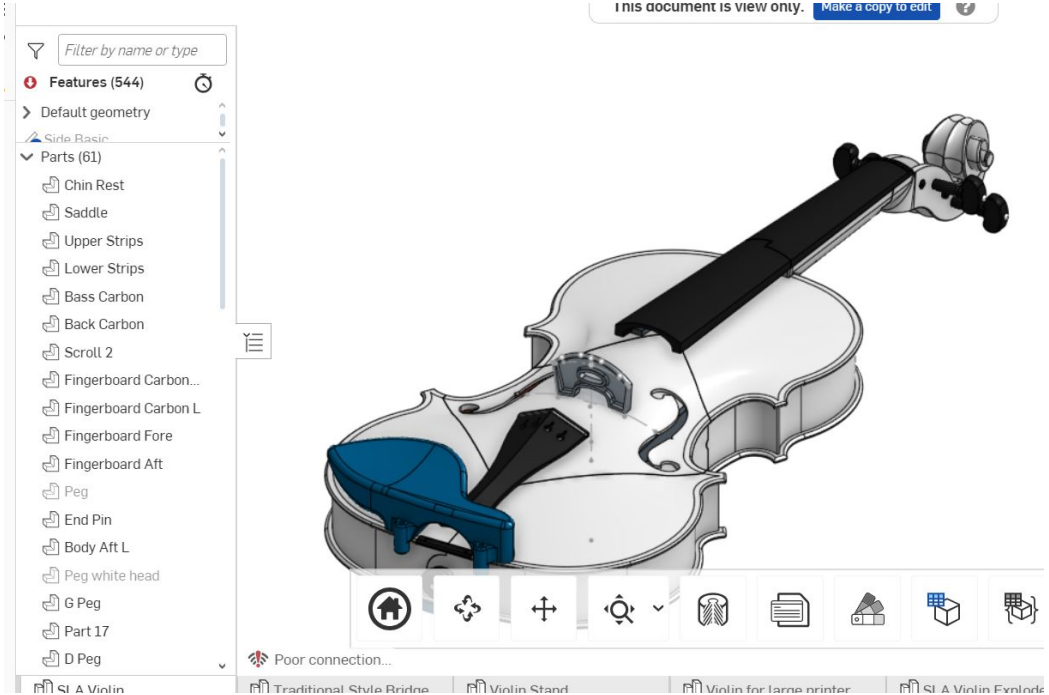
3. **Divide Your 3D Model into Sections**



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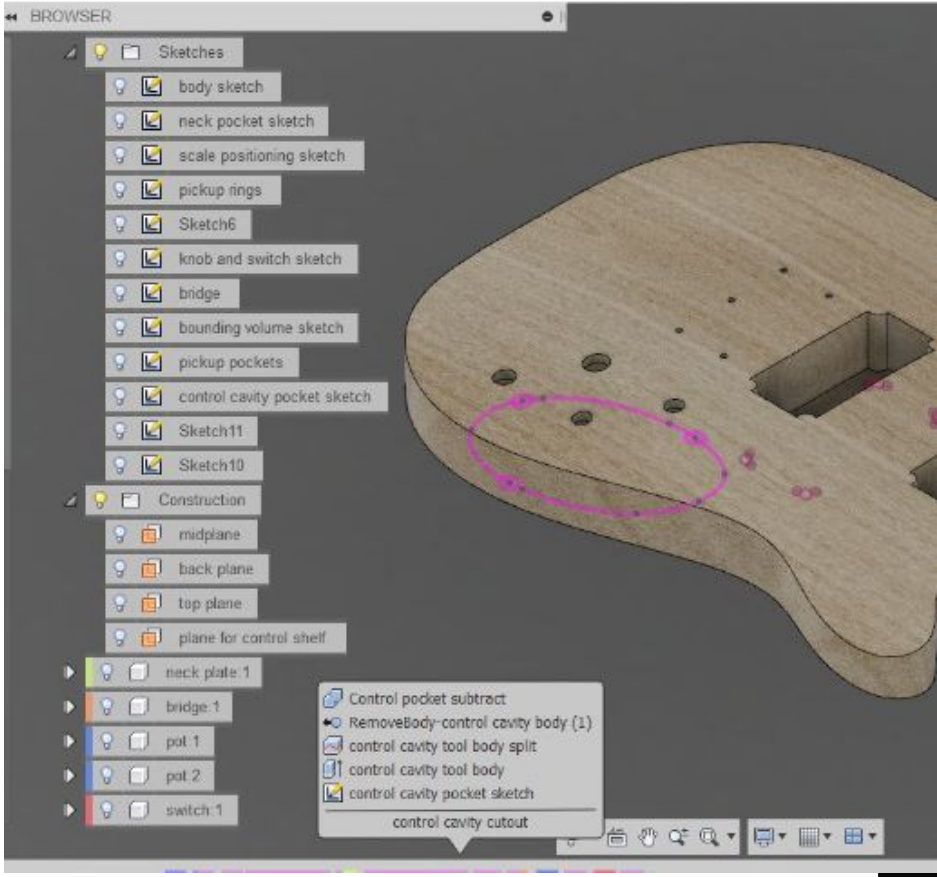

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6. **Iterate and Review**

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6. **Keep an Eye on Geometry**
7. **Document the Process**

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?