



Sunway  
Robotics  
Club

01/14

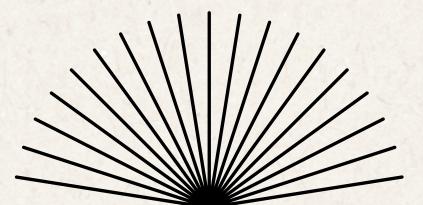
# FUSION 360 FUNDAMENTALS WORKSHOP

**Learn the essentials of 3D modeling  
through simple, real-world projects**

**NAME OF PROJECT:**  
DodgeBots

**PRESENTED BY:**  
Joe Tan Kai Meng

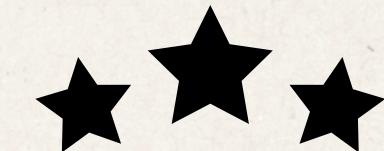
**PRESENTED TO:**  
DodgeBots Participants



# Agenda

03	<b>Why do 3D modelling?</b>
04	<b>Why use Fusion360?</b>
05	<b>Basic Movements</b>
06	<b>Sketching</b>
07	<b>Extruding</b>
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# Why do 3D modelling?



## 1. Turn ideas into tangible designs

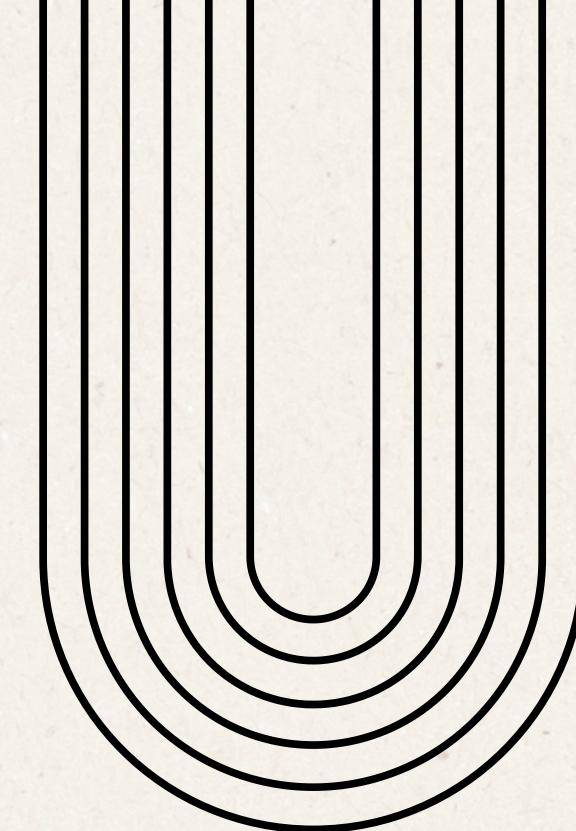
3D modeling lets you visualize concepts clearly before building anything physically

## 2. Detect problems early

You can test fit, dimensions, and functionality digitally, saving time, materials, and cost

## 3. 3D printing & fabrication

Your model becomes a real object through 3D printing, CNC machining, or laser cutting.



**01 Cloud Based:**

Your files are auto-backed up, accessible anywhere, and version-controlled.

**02 Easy to learn:**

Fusion 360's interface is clean and guided, making it student-friendly for workshops and competitions.

**03 Free for students:**

Fully functional free license for students, educators, and personal hobby use.

# Autodesk Fusion 360



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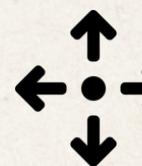
## Overview

Fusion 360 is a powerful 3D modeling software by Autodesk that lets you create precise, parametric designs for real-world use. It's beginner-friendly, widely used in engineering and product design, and perfect for creating models that can be exported for 3D printing.

# Basic Movements



**Zoom - Scrolling your middle mouse button**

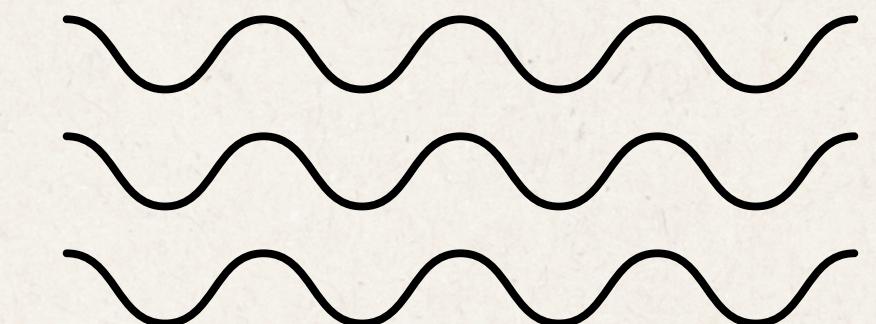


**Pan - Holding down the middle mouse button**

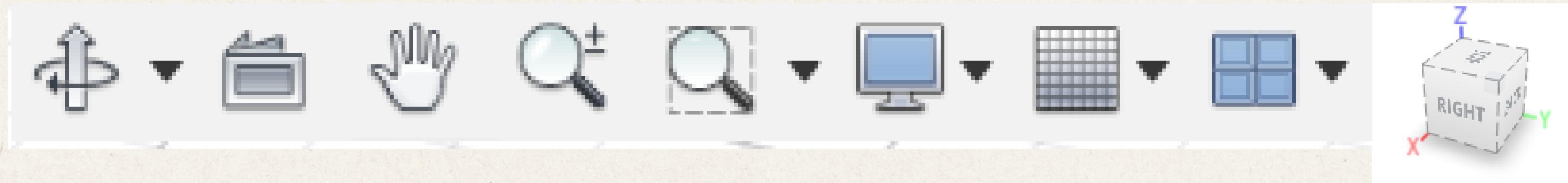


**Orbit - Shift + Holding down middle mouse button**

**View cube**

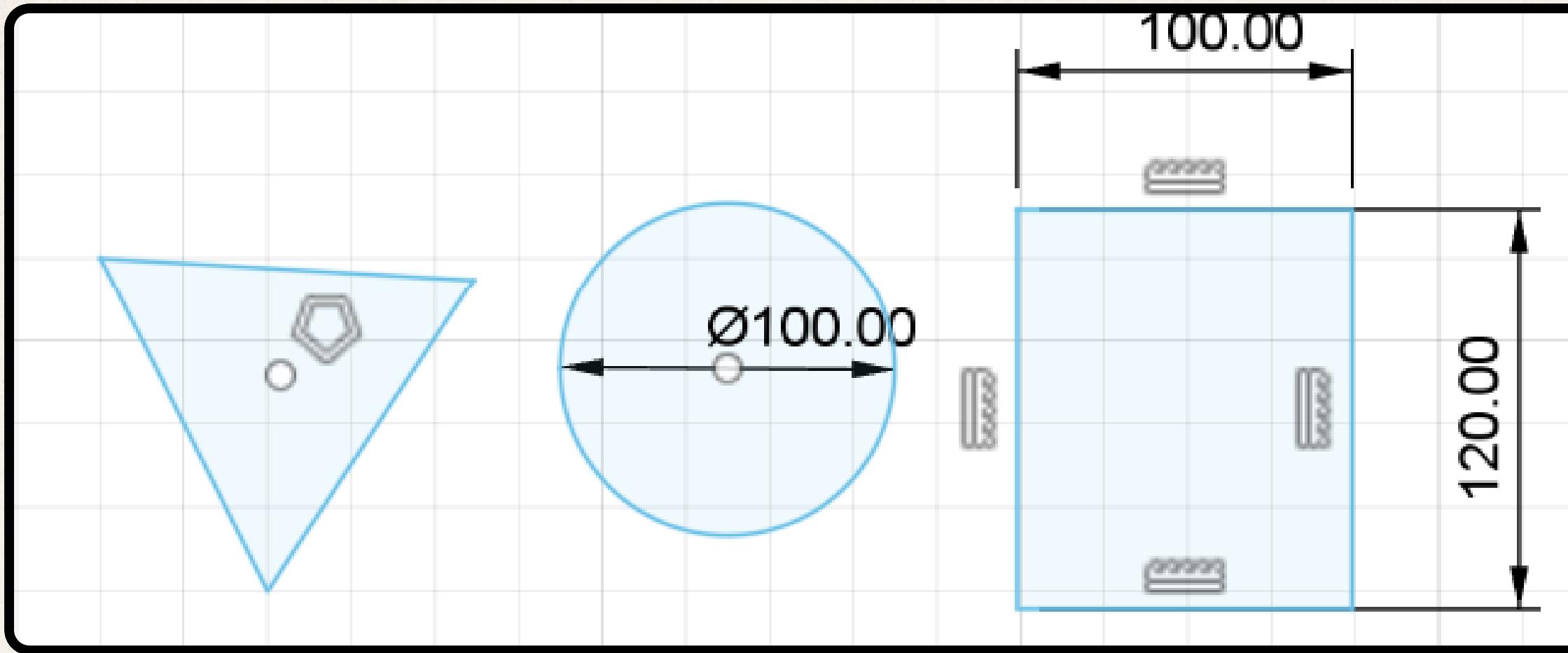
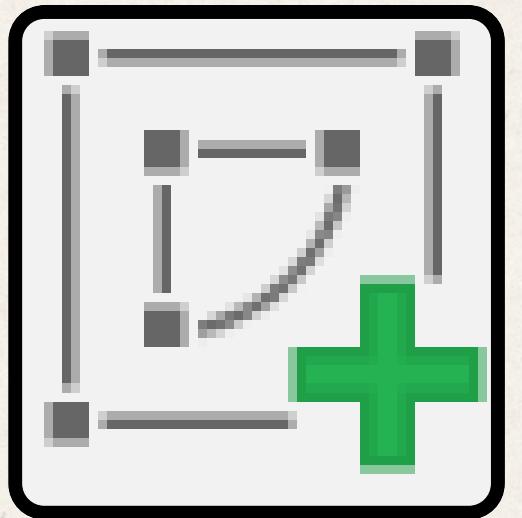


## Without Mouse



# Sketching

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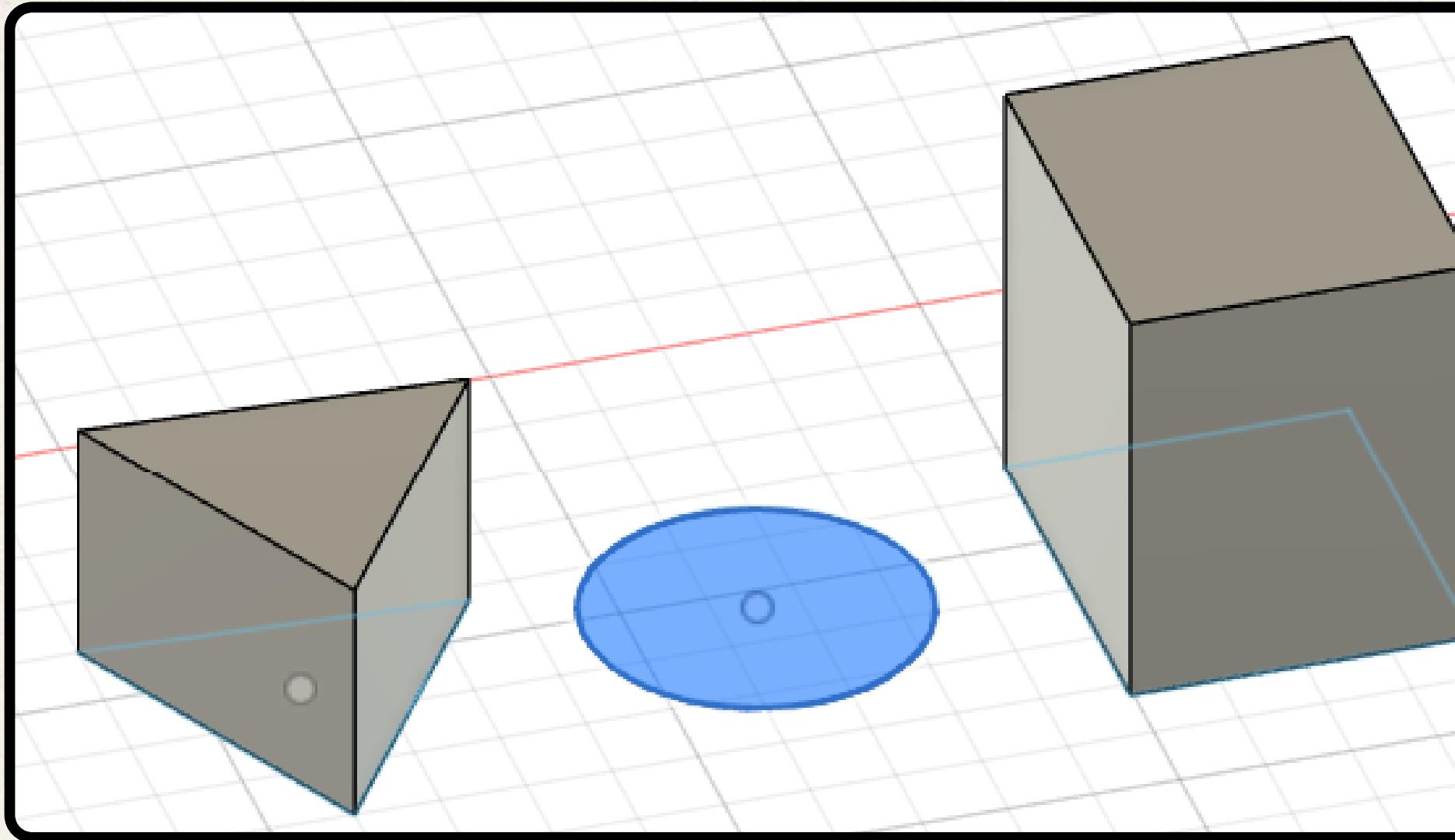
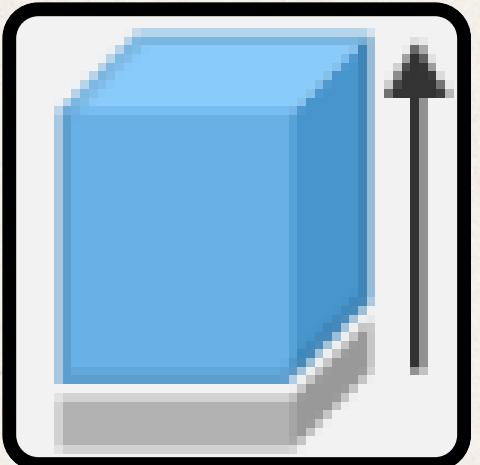
**Sketching is the first step of creating any 3D model:**

You draw 2D shapes like lines, circles, and rectangles on a plane, which act as the foundation for your 3D features. A good sketch makes the rest of your modeling easier and more accurate.

# Extruding

Note:  
Make 3D Shapes as “new  
Component”

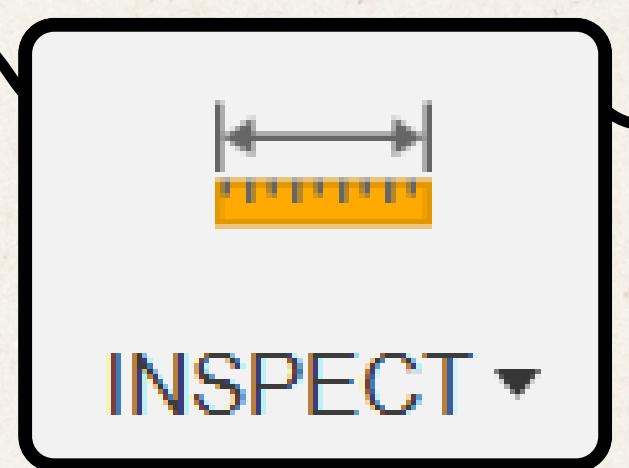
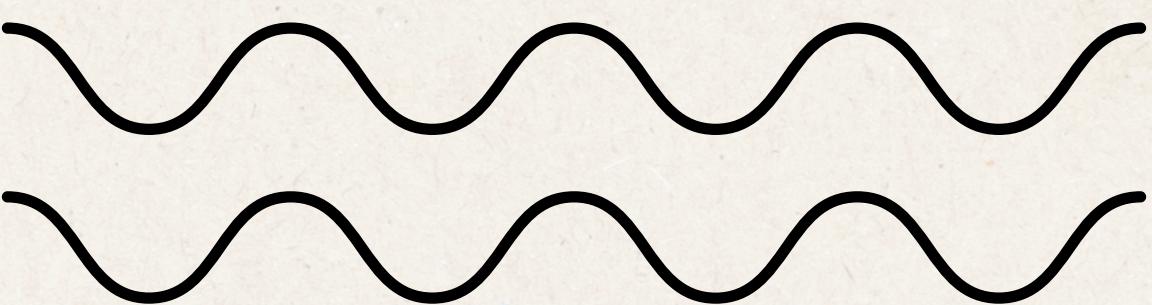
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**Extruding is the process of turning a 2D sketch into a 3D object:**

You take a flat shape and pull or push it to give it thickness, creating a solid form. A well-defined sketch ensures the extrusion produces the shape you want accurately.

# Additional Tools

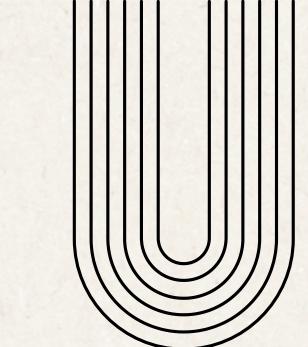


INSPECT ▾

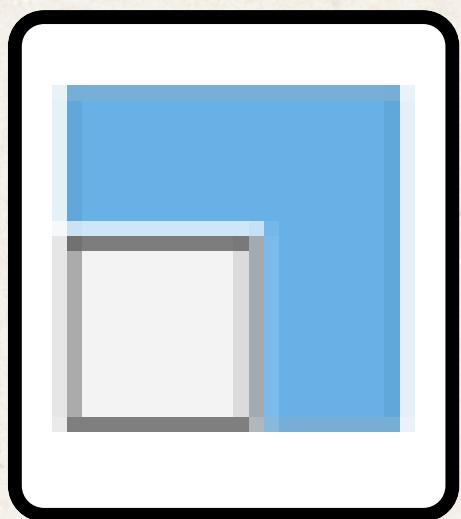
Inspect



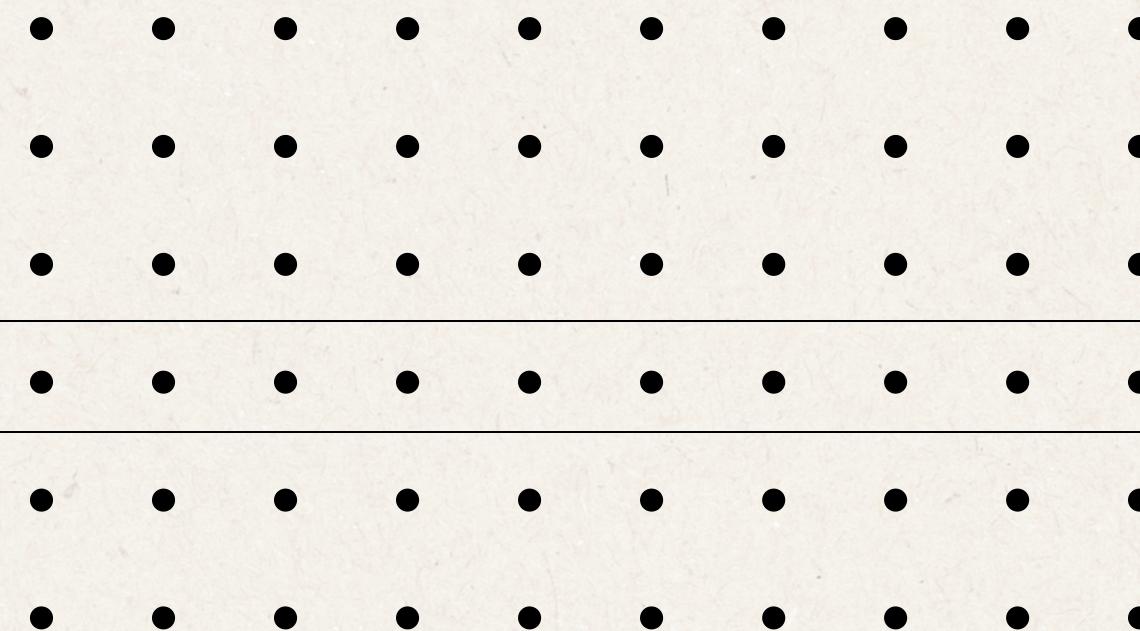
Visibility



Fillet

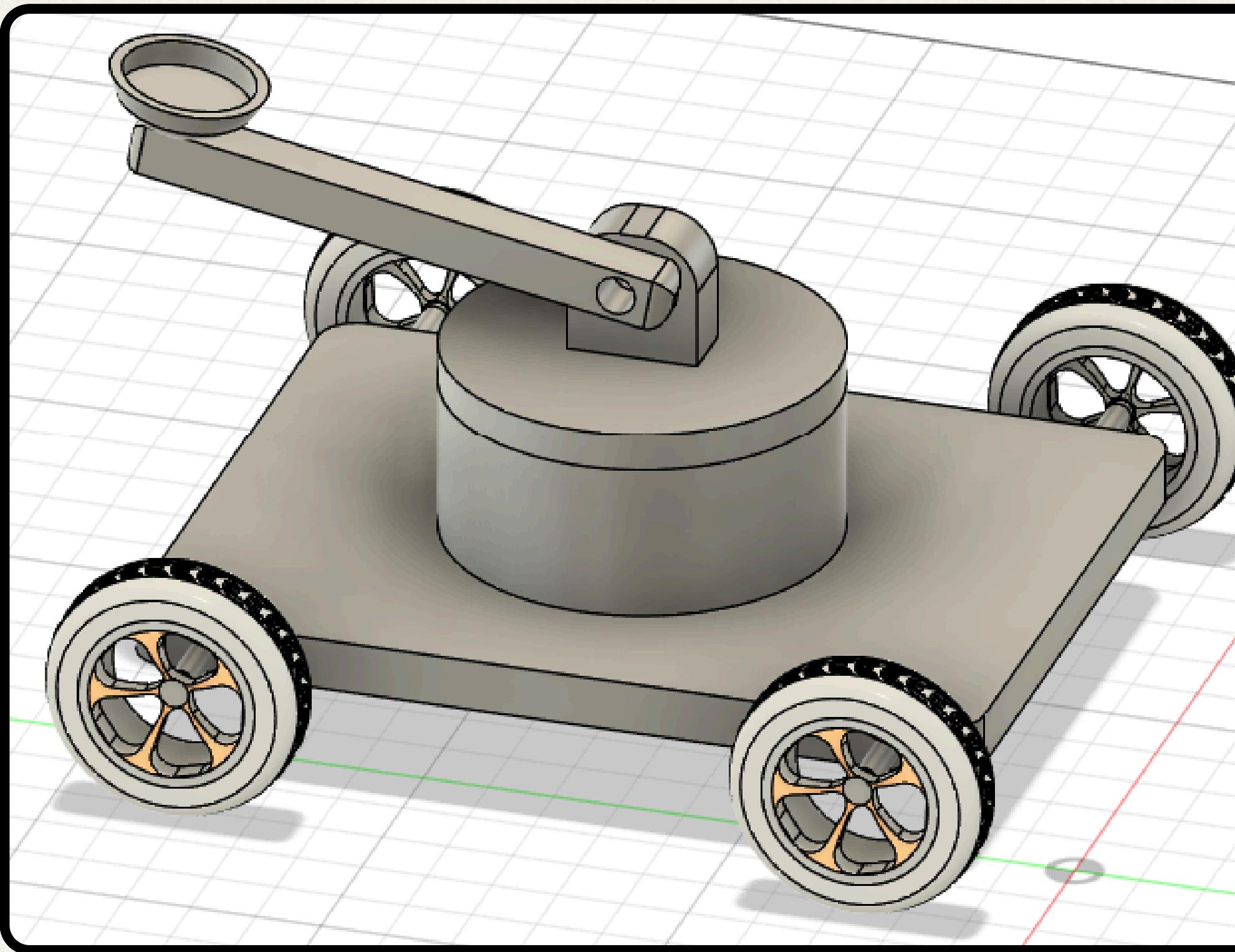


Scale



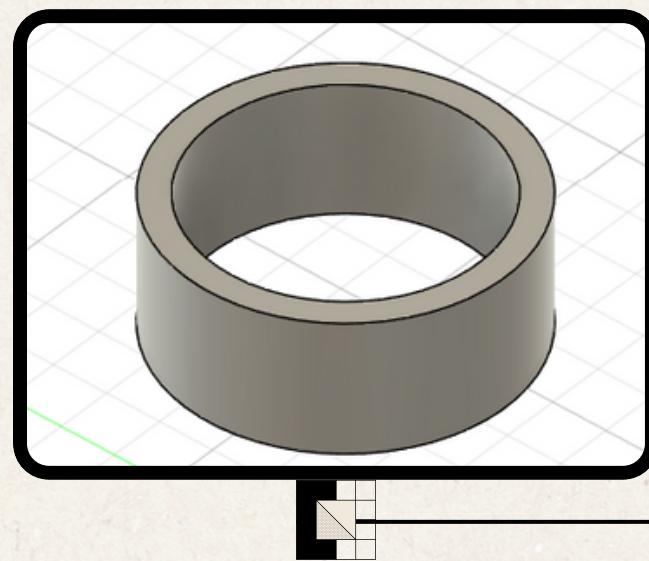
# Practical Time

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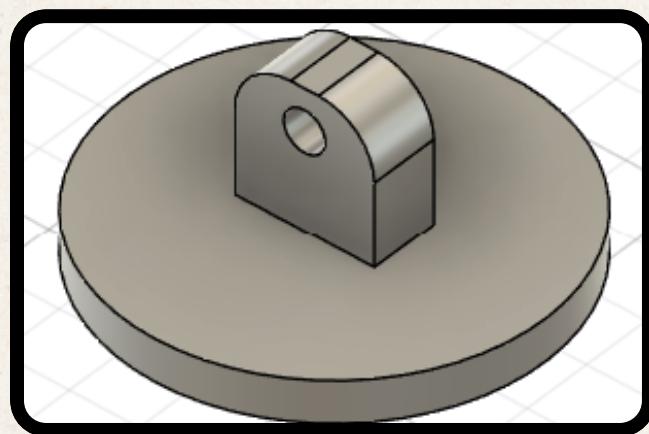


Simple car with catapult mounted on top

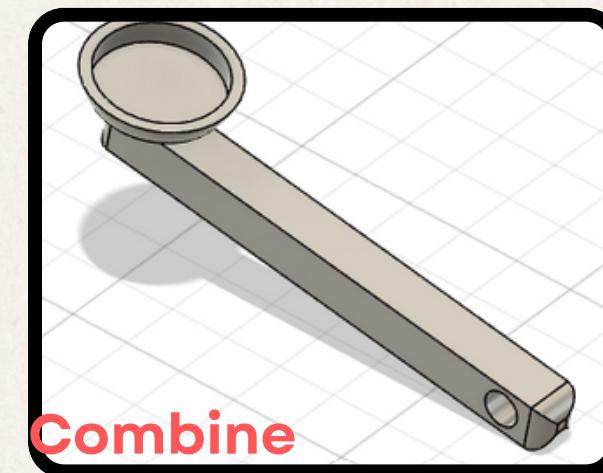
# Timeline

**Ring**

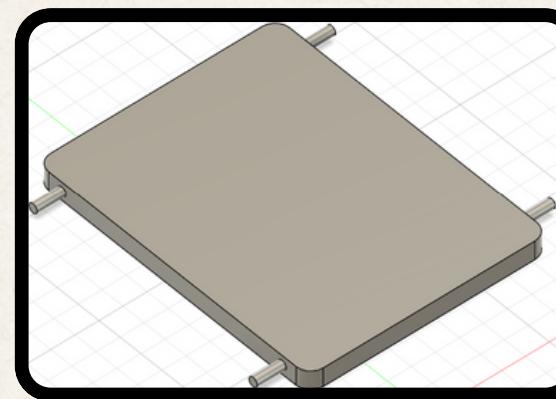
Base of  
catapult

**Cover**

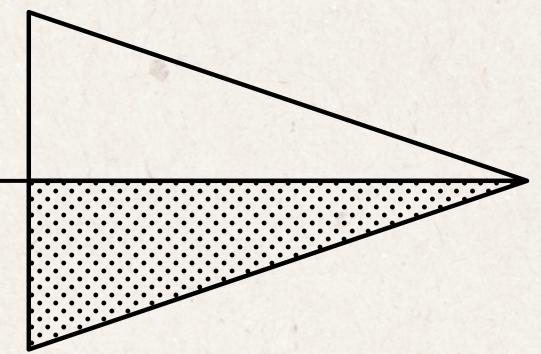
Cover for the  
base

**Catapult**

The holder with  
the handle

**Base**

Base of the car



# Importing

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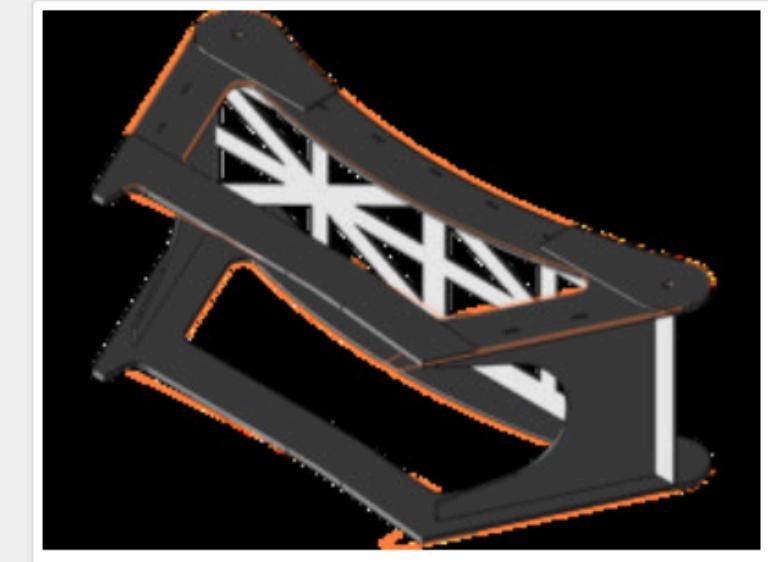
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STEP / IGES, Rendering



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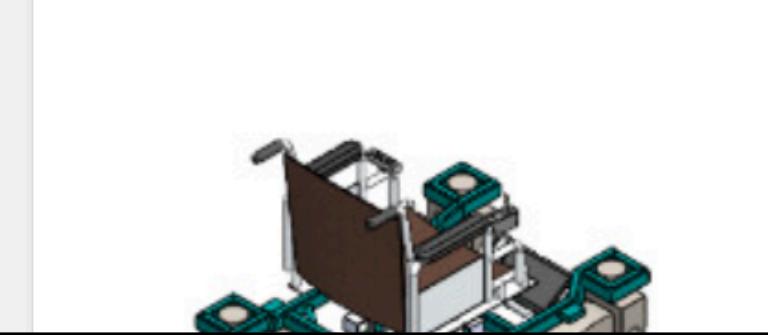


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Discover more





# Even More Tools

Rigid Groups

Align

Paste New

Timeline

Removing

# Exporting

## STEP File

A STEP file (.step or .stp) is a widely used 3D CAD file format that stores precise 3D geometry and design data. It's used to share models between different CAD software without losing design accuracy. STEP files are ideal for collaboration and professional manufacturing workflows.

## STL File

An STL file (.stl) is a 3D file format that stores a model as a mesh of triangles. It is commonly used for 3D printing, because slicer software can read it and generate printing instructions. Unlike STEP files, STL files do not store exact CAD data or dimensions.

**Thank you**