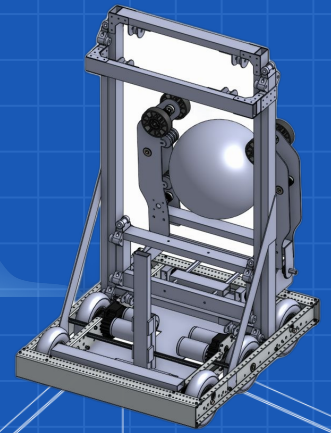
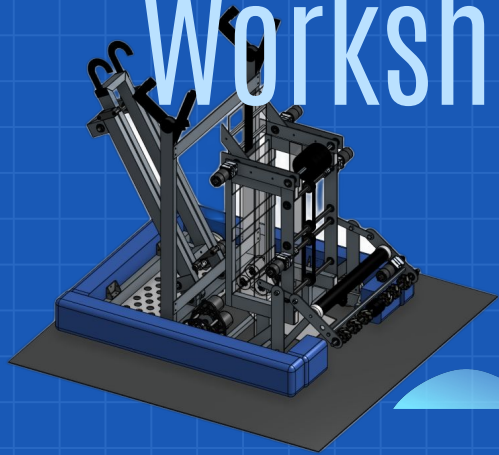


//Bryan Nguyen and Armando Rodriguez

3D Design Workshop



Register your Email

If you don't have an onshape account already



Onshape Site

<https://cteincsd.onshape.com/c/activity>



The purpose of 3D Designing



Planning it out

In the process of creating a FRC robot for competition it is important to first plan things out. And what better way to plan things out is through 3D designing where we can visualize the robot. For instance we can see the measurements for certain parts. Making it easier for mechanical teams and what not to make the physical robot as it is already all planned out.



Goals for Today



Basic Drawings

Learn how to read basic drawings.



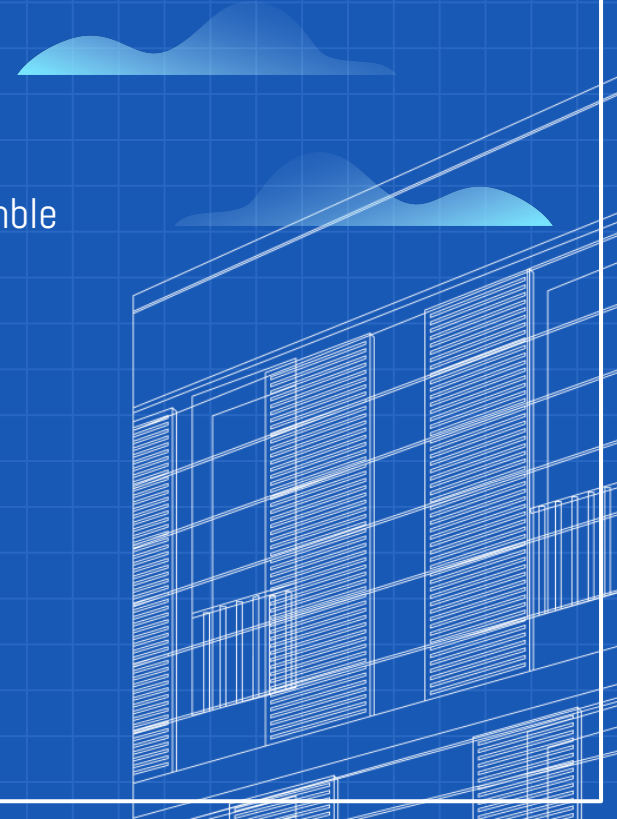
Basic Assembly

Learn how to assemble the parts together

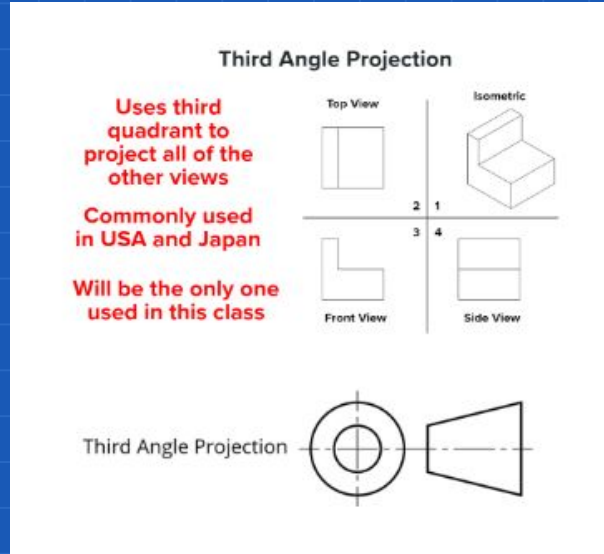


Basic Parts

Learn how to extrude and sketch out parts.

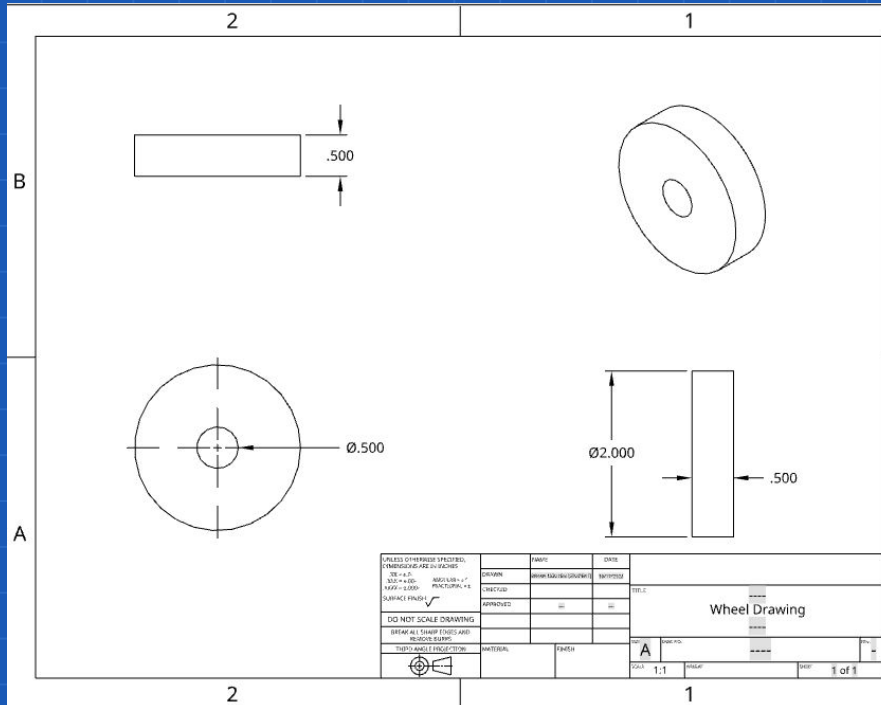


Making Parts - Drawings

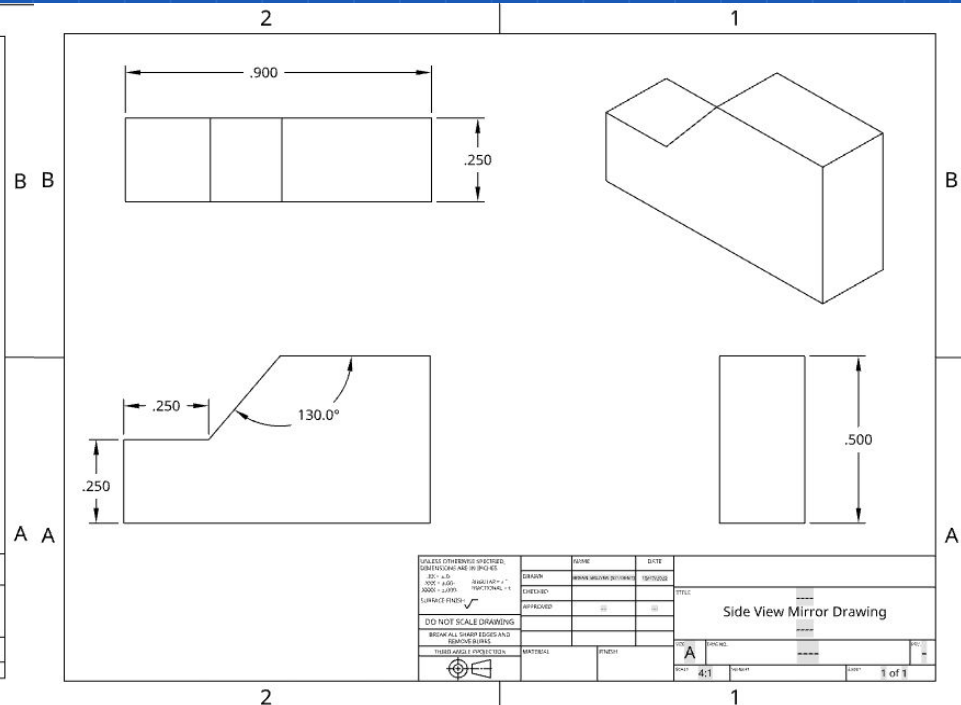


How we read drawings, to create parts. These drawings will usually contain the three dimensional part projected in the various views.

Making Part - Car Parts Drawings

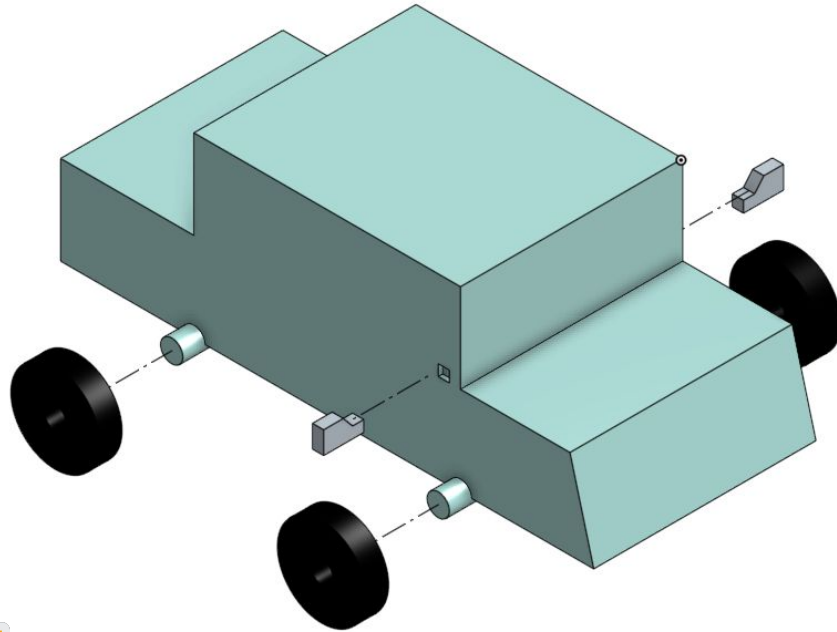


Wheel Drawing



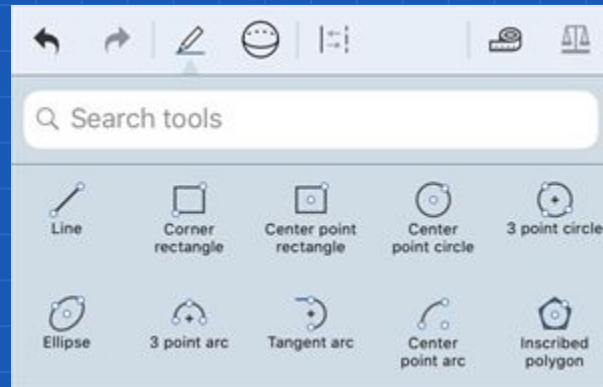
Side View Mirror Drawing

Making Part - Car Assembly



Making Parts - Sketches

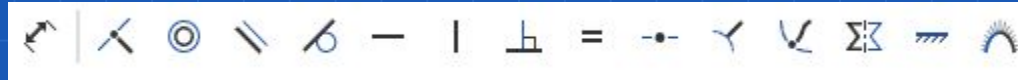
Sketch Tools



We use these tools to create basic and complex sketches.

Making Parts - Constraining Sketches

Constraint Tools



The point of using constraints is to fully control the size and shape of your sketches. Leaving it blue (unconstrained) can make it subject to change and make the part fully defined.

Making Parts - Extruding Sketches

Extrude Tools



This is where you make the 2D drawings, 3D!

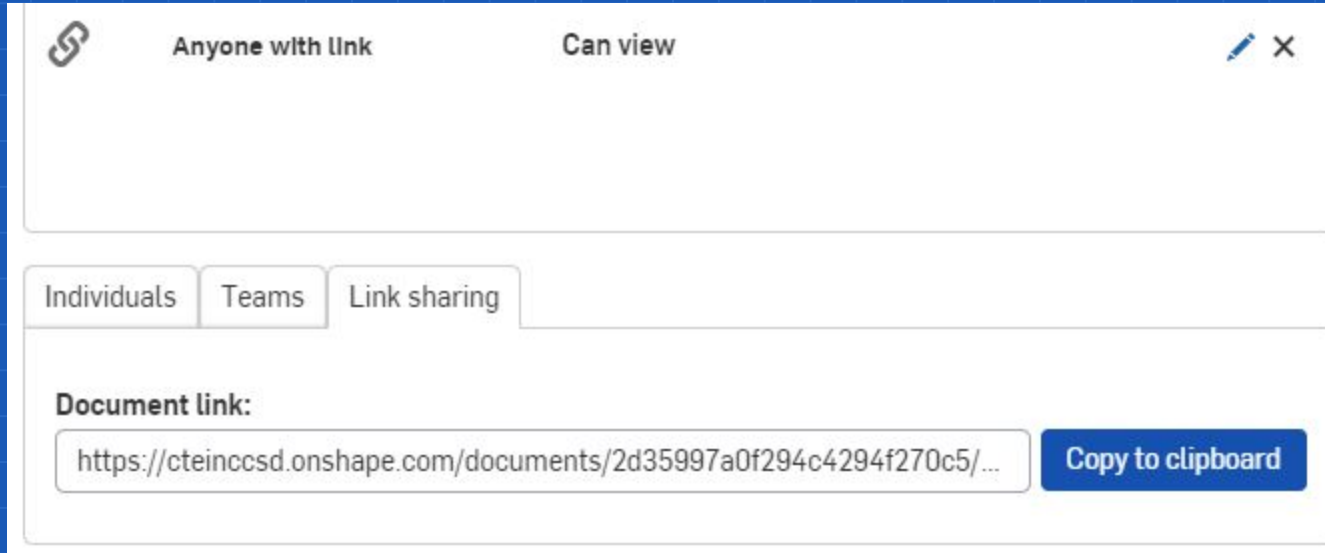
Making Parts - Assembling them together

Assemble Tools



We use these tools to put them together in various ways. For instance: you can just glue them together using a fasten or make them rotate around each other using a revolute.

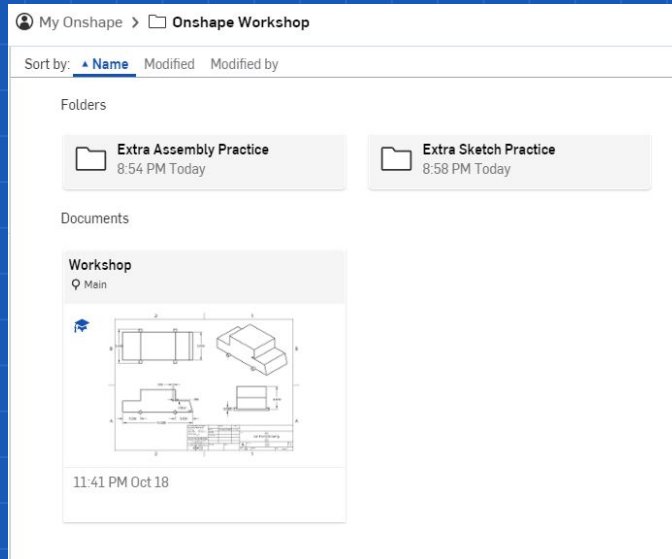
Sharing a Document



The screenshot shows a document sharing interface. At the top, there is a link icon, the text "Anyone with link", and "Can view". To the right, there is a pencil icon and a close icon (X). Below this, there are three tabs: "Individuals", "Teams", and "Link sharing", with "Link sharing" being the active tab. Underneath the tabs, the text "Document link:" is followed by a text input field containing the URL "https://cteincsd.onshape.com/documents/2d35997a0f294c4294f270c5/..." and a blue button labeled "Copy to clipboard".

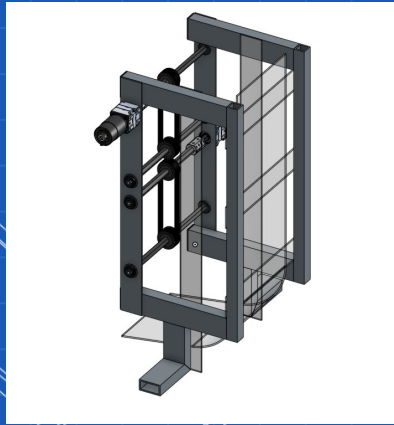
Try to make the rest of the parts yourself! (ask for help if needed)

Additional Practice

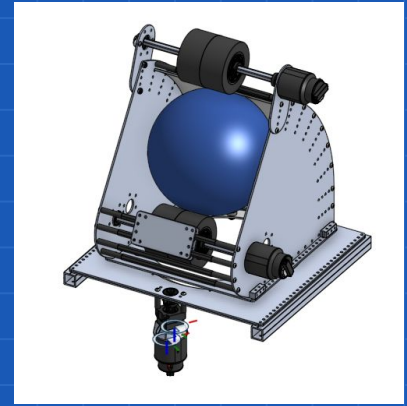


I will add you guys to a folder there I will try to keep on adding additional practice for you guys to try out. When you finish one make sure to share it with me so I can look over your work :)

3D Design Team Usual Work for the Future



Most of the work is usually done in assemblies as the parts are usually already made in various sites providing 3D models. But at times sketches are used when we need to make custom parts for the FRC robot, since not all parts are made by 3rd parties.



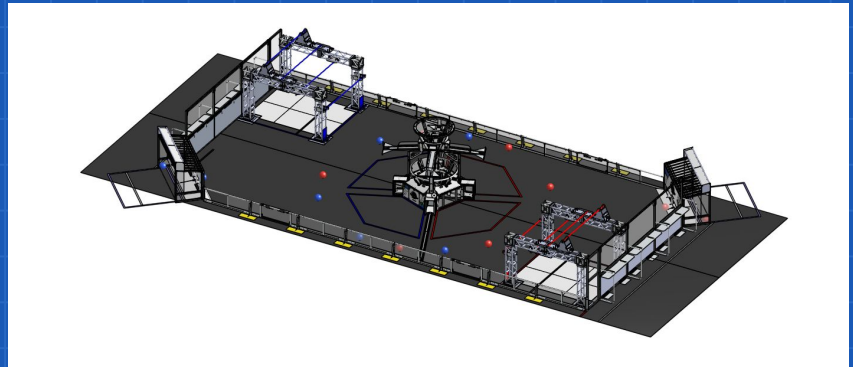
//Bryan Nguyen and Armando Rodriguez

Thanks!

Do you have any questions?

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CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon** and infographics & images by **Freepik**