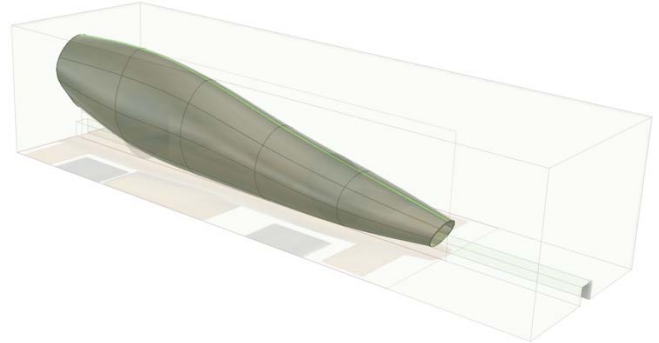


## Lesson: Quick start activity

In this lesson, you use freeform modeling to quickly develop a car body based on images of a car concept. The model will be developed with the F1 Model Block as an overlay, so you can refer to it to make sure you don't model outside of the material that needs to be cut.



The completed exercise

### Learning Objectives:

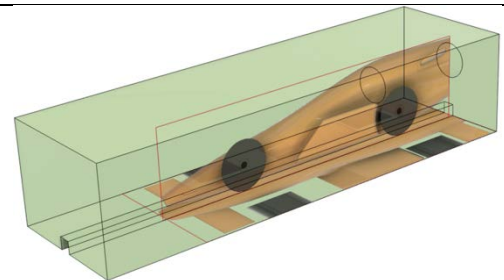
- Open an existing Fusion 360 design file.
- Create a freeform body using a primitive.
- Edit a freeform body.

1. Use New Design from file to open the *F1 Car – Quick start.f3d* file.

2. The design includes two attached canvases and a model of the standard foam block to guide your work.

Review the attached canvases in the browser.

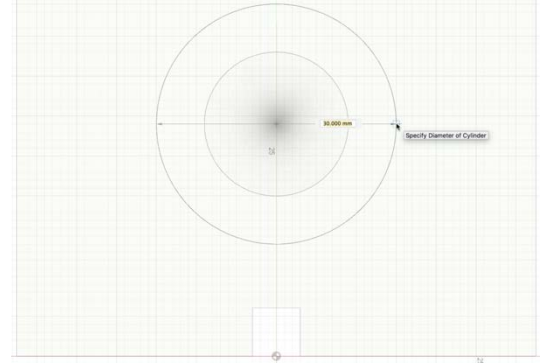
Expand the features in the timeline that make up the block and represent the attached canvases.



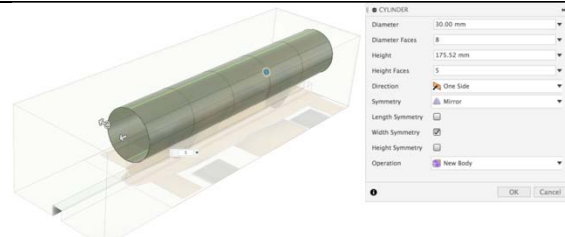
3. Select Create Form from the Create pull-down and click OK in the Sculpt Environment notice dialog.



4. From the Create pull-down, select the Cylinder tool, pick the YZ plane and then create the **~30mm** diameter circle centered on the hole for the CO2 gas cartridge hole in the foam block.



5. Rotate your view of the model and use the arrow manipulator to extend the height of the cylinder to **~175mm**. Set the Diameter faces to **8** and the Height faces to **5**. Engage Symmetry and switch on Width symmetry



6. Start the Edit Form tool from the Modify pull-down and double click on any face of the cylinder. This will highlight the entire body.

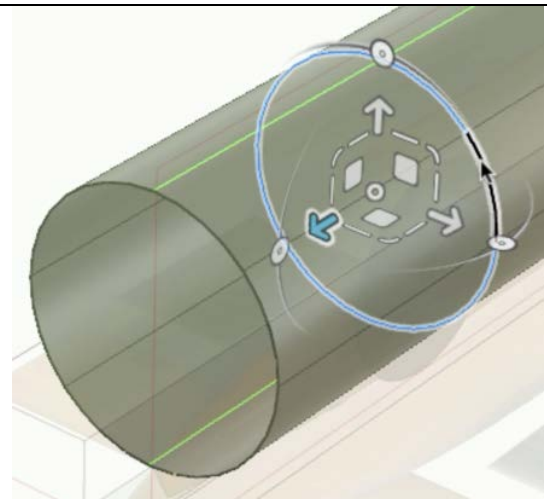
Select the Right face on the ViewCube to see the side of the car.

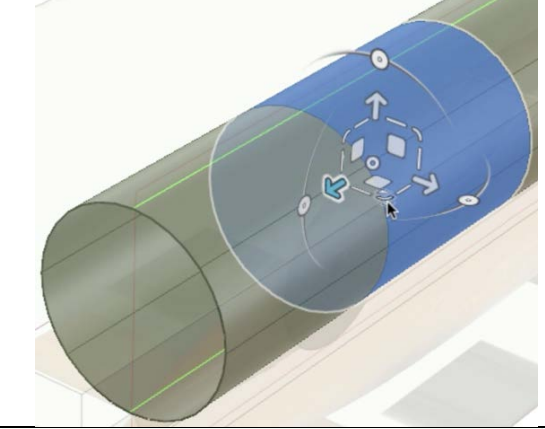
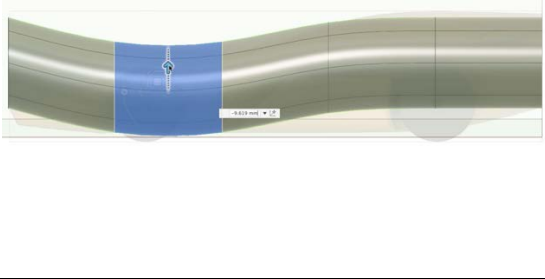
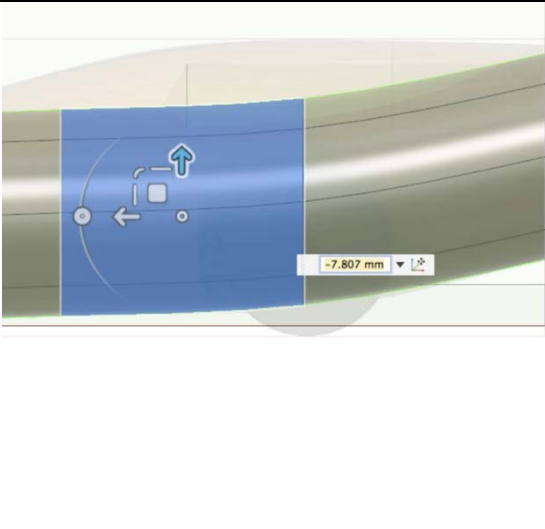
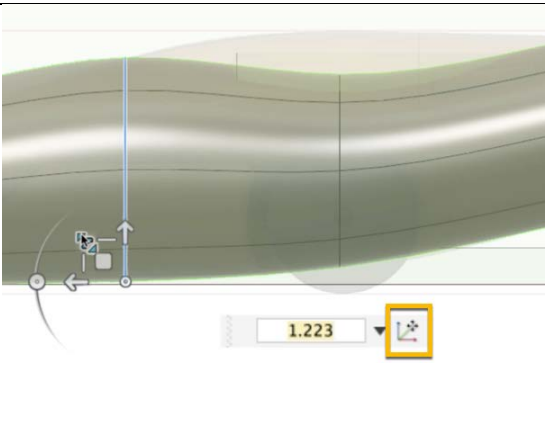
Use the arrow pointing up to move the body down until the bottom at the back aligns with the bottom corner of the back on the attached canvas.

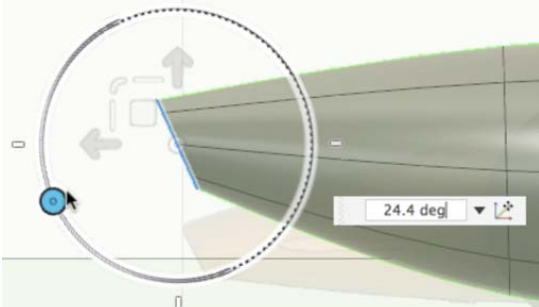
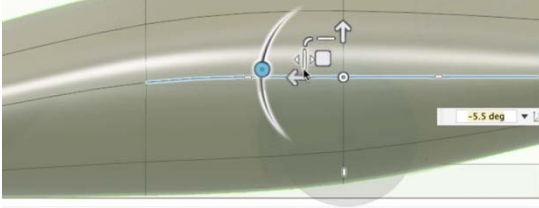
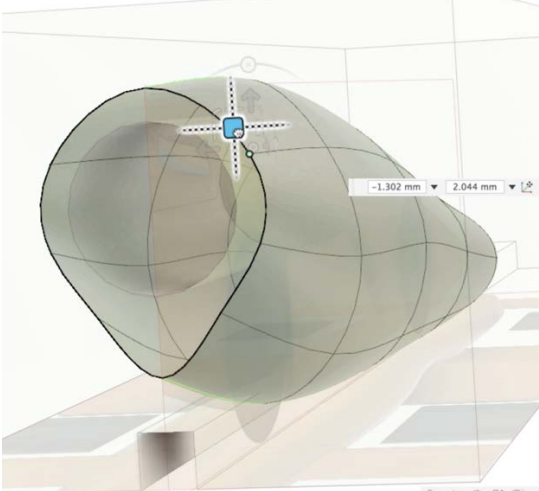


7. A double-click on an edge will select all tangent edges. Double click on a set of edges to try it.

Clear your selection by clicking on an open part of the canvas



<p>8. Click a face, then holding shift double-click an adjacent face. This will follow tangency and make it possible to easily select a band around the cylinder.</p>	
<p>9. Return to looking at the right face of the ViewCube if you rotated your view. Select the second band of faces from the front and move it down until the bottom of the cylinder aligns with the bottom of the side view canvas.</p>	
<p>10. Clear the previous selection, and select the band of faces second from the rear of the car and align it to the bottom of the image.</p> <p>11. Clear the selection set, double click the front edge of the body and move the front down to align it</p> <p>Now the bottom is aligned, it's time to scale the profiles to match the top of the body to the top of the image profile.</p>	
<p>12. Double-click to select an edge set. Then choose the Set Pivot icon on the mini-toolbar that appears when you've made a selection. Click the bottom point of the selected profile as the pivot point for any operation. Then click the Done icon (green checkmark) on the mini-dialog.</p> <p>Now use the 2 axis scale (corner arc icon) to scale the selection to align to the top profile</p>	

<p><b>13.</b> Repeat the process to align other edge sets to the profile. Then select the front edge and rotate it to match the angle on the front of the car.</p>	
<p><b>14.</b> Use Edit form to select edges that run along the sides of the car to create a “waist” and add contours to the body sides.</p> <p>You can also select top edges to adjust the top of the body.</p>	
<p><b>15.</b> Adjust profiles based on the top view in relation to the canvas. Also look at the how the profiles look as they transition in the front and back to refine the shape.</p>	
<p><b>16.</b> When you are satisfied with the shape of the body, click Finish form on the toolbar to return to the Model workspace.</p>	