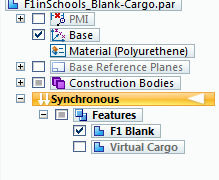
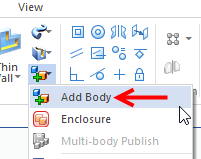
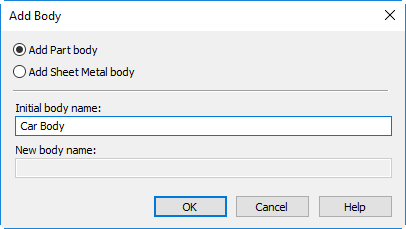
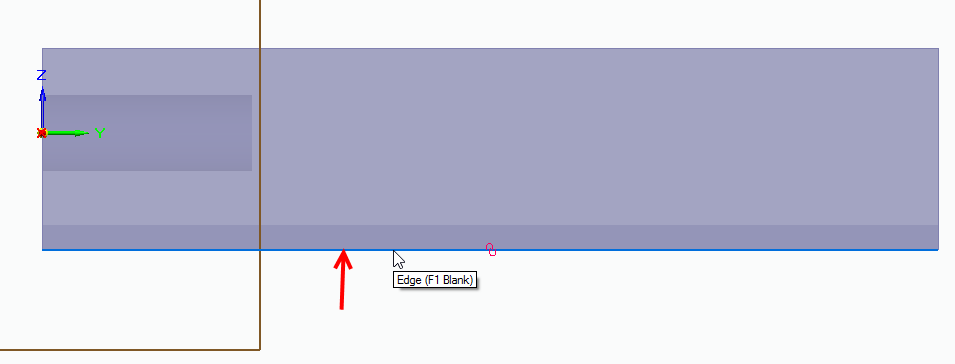
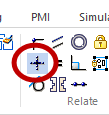
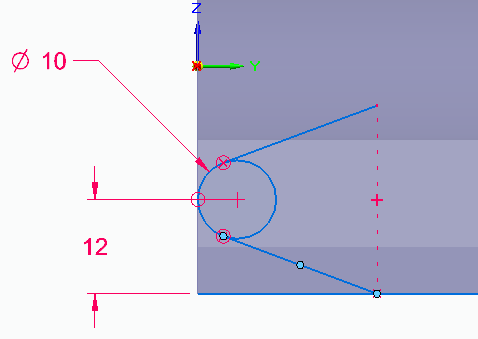
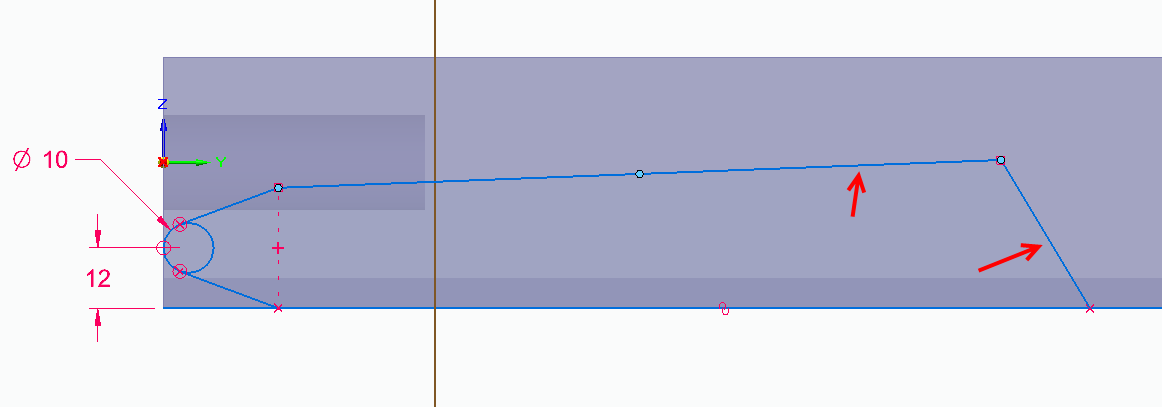
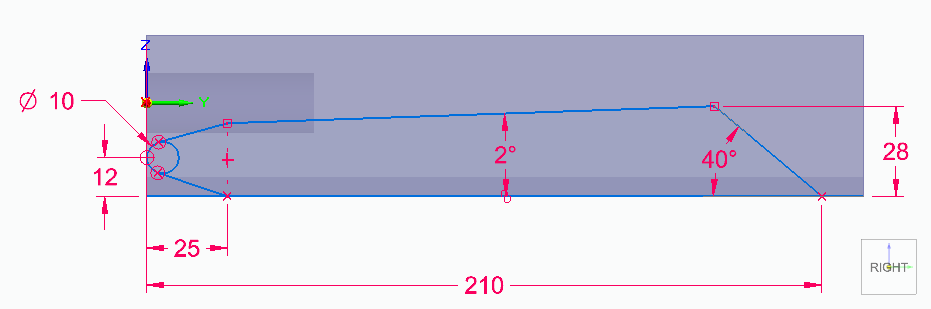
**F1 in Schools Tutorial Script – 01 Body**

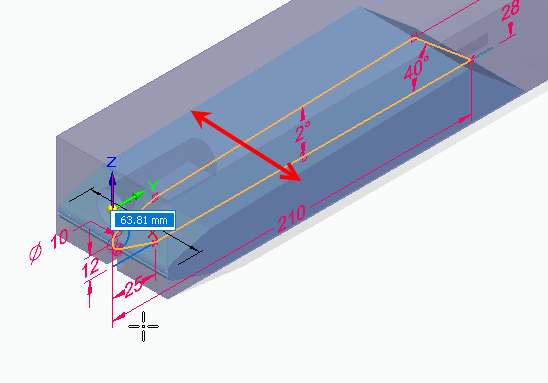
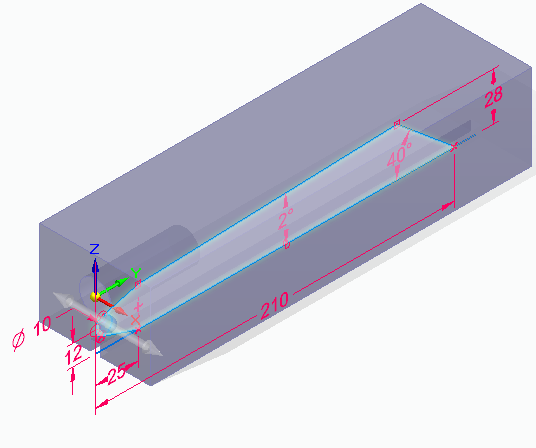
* Start your design using the F1 Model Block and the Virtual Cargo body template.  
  (*F1inSchools\_Blank-Cargo.par*)
  + Uncheck the feature in PathFinder to hide the Virtual Cargo body.
* Add a new body to create actual Car Body design.
  +  Add Part body and name it “Car Body”.
* Click on the Project to Sketch command.
  + Using the orientation cube in the lower right corner,   
    click on the Right view.
  + Press F3 to lock to the Right plane.
  + Select the bottom edge of the F1 blank to project   
    to the plane.

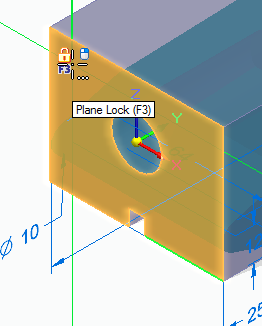


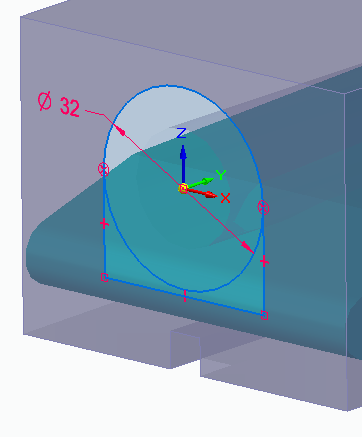
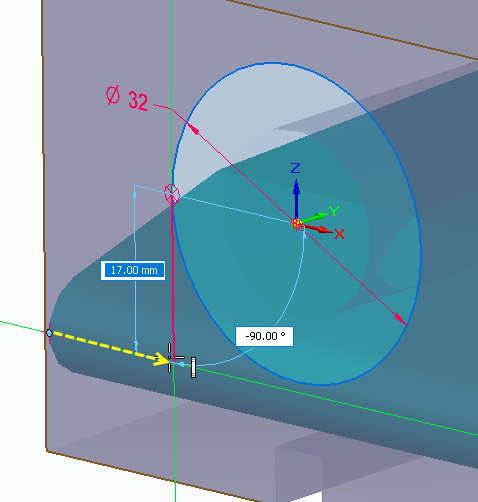
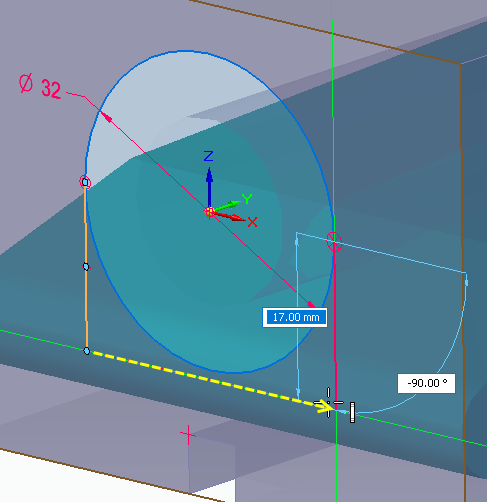
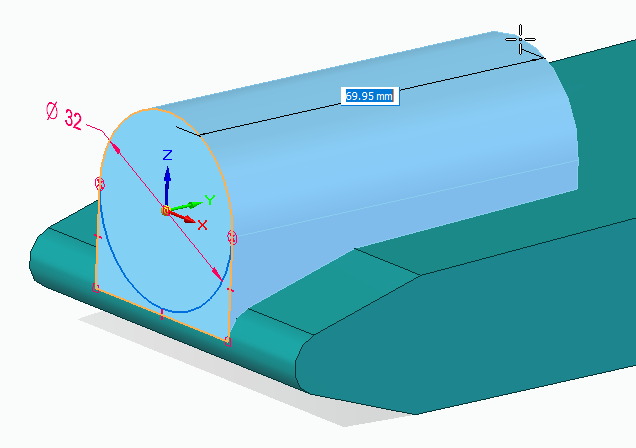
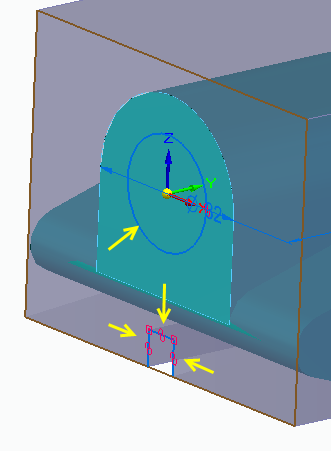


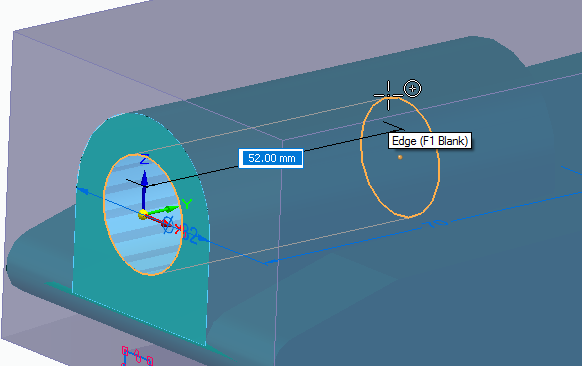
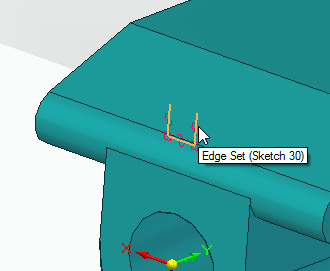
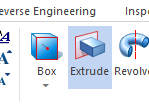
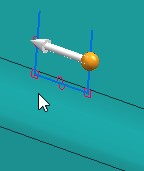
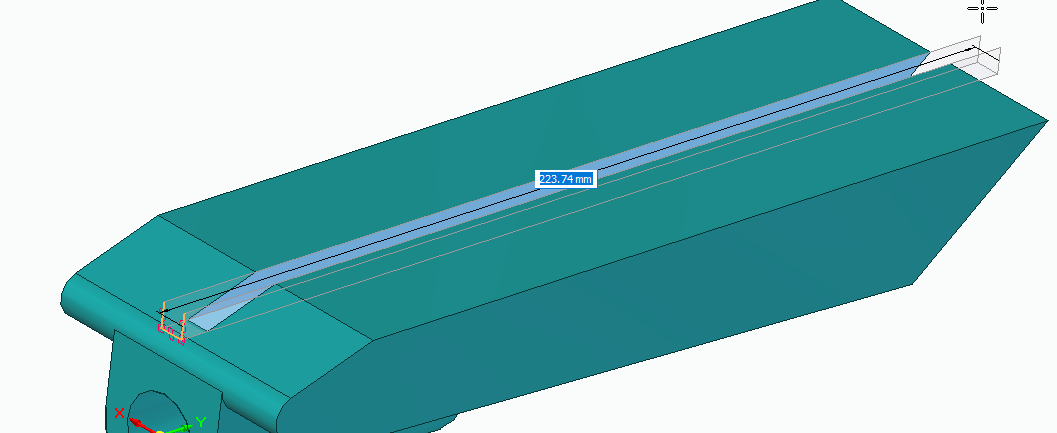
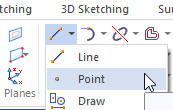
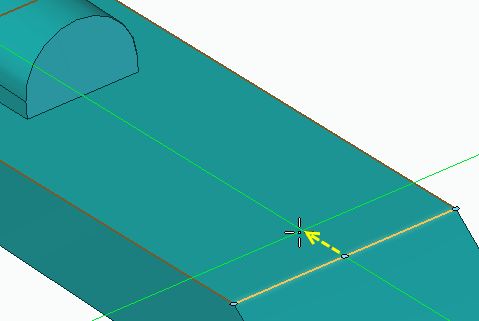
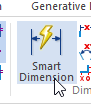
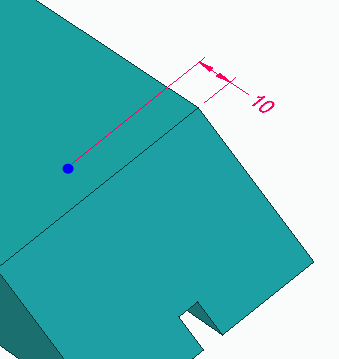
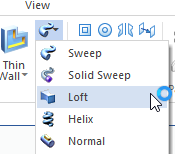
* Draw a 10 mm diameter circle tangent to the left edge of the F1 blank  
  and 12 mm from the bottom edge.
* Add angled lines tangent to the circle on the top and bottom as shown.
  + Add a vertical alignment between their endpoints.
* Sketch 2 more lines approximately as shown.
* Add dimensions using the Smart dimensioning tools to get the desired shape and size.

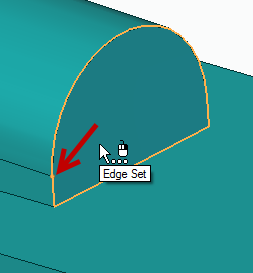


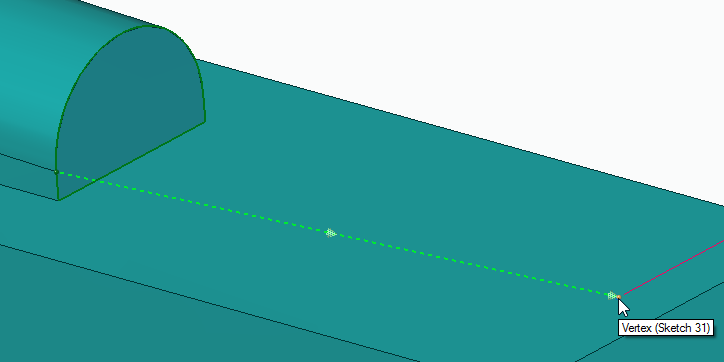
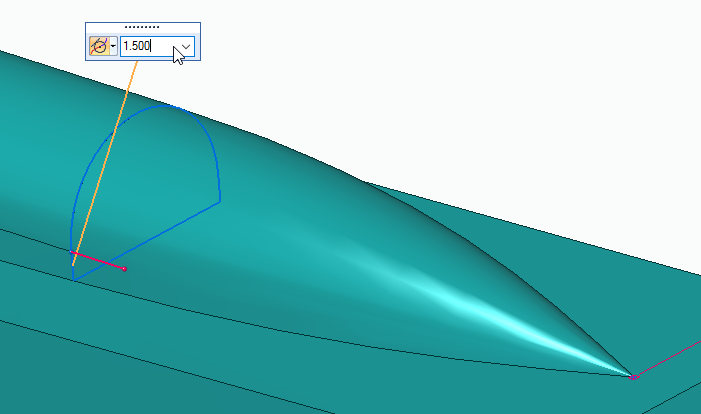
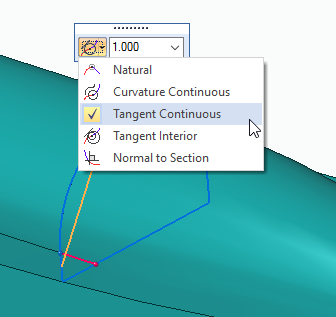
* Press CTL+I to orient to an isometric view.
* Select the closed regions formed by the sketches and begin to drag into 3D.
  + Press the Shift key to toggle on symmetry to drag in both directions.
  + Drag the 3D body 64 mm.

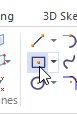


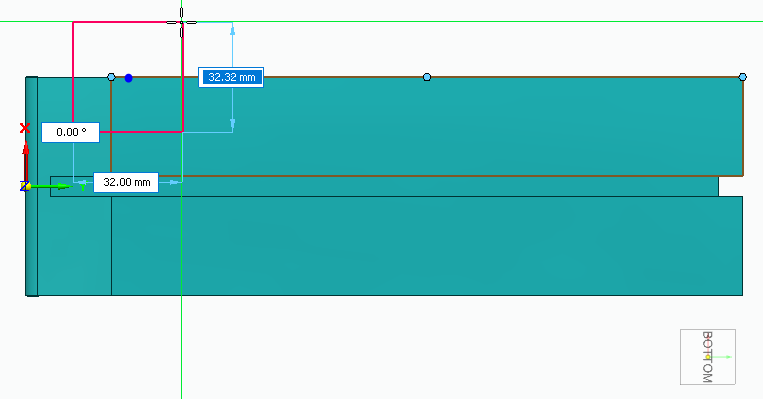
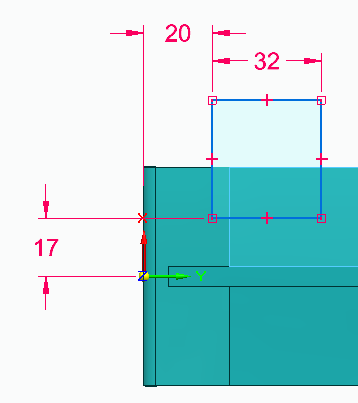
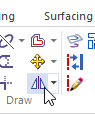
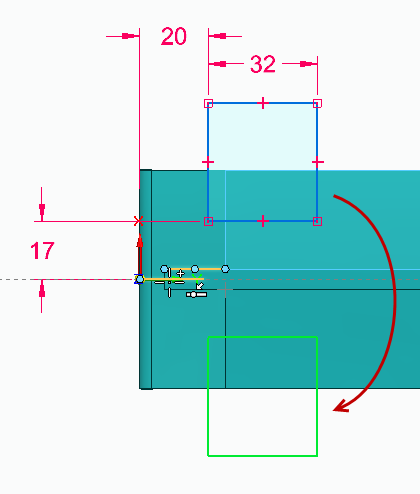
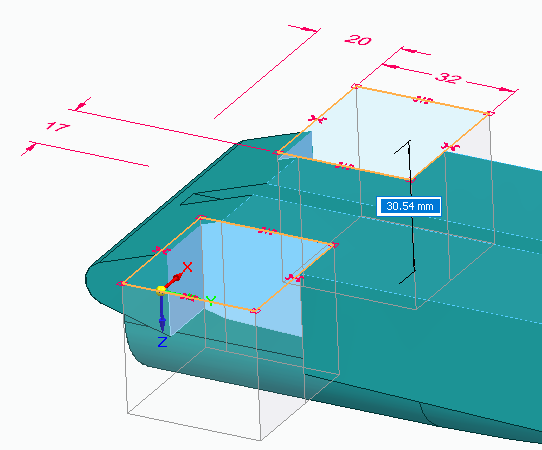
* Select the circle command and use F3 to lock to the   
  end face of the stock body with the hole.
  + Sketch a 32 mm diameter circle concentric with the hole in the   
    stock body (This is also the origin of the base coordinate system).
* Sketch 2 lines **tangent** to circle and extending **vertically** to silhouette   
  edge of the end cylindrical face of the first extrusion.
  + Touch the edge arc of the extrusion to align to the silhouette point.
  + Close the sketch.
* Uncheck the F1 blank feature to hide the stock body
* Select both regions formed by the sketches extrude   
  into the body 70 mm.
  + Use the Shift key to toggle symmetry off and   
    the Space Bar to toggle Adding material.
* Turn on the display of the F1 Blank feature.
* Using the Project to Sketch command again, lock  
  to the end face of the F1 Blank.
  + Select the circular edge of the bore in the F1 blank.
  + Select 3 edge of the slot.

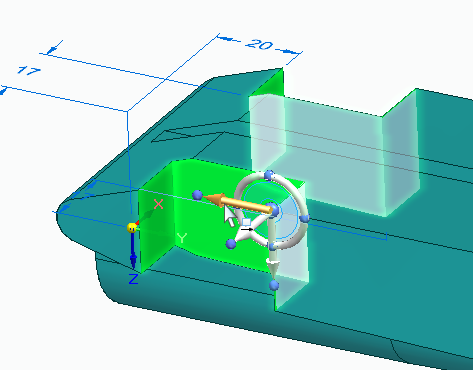
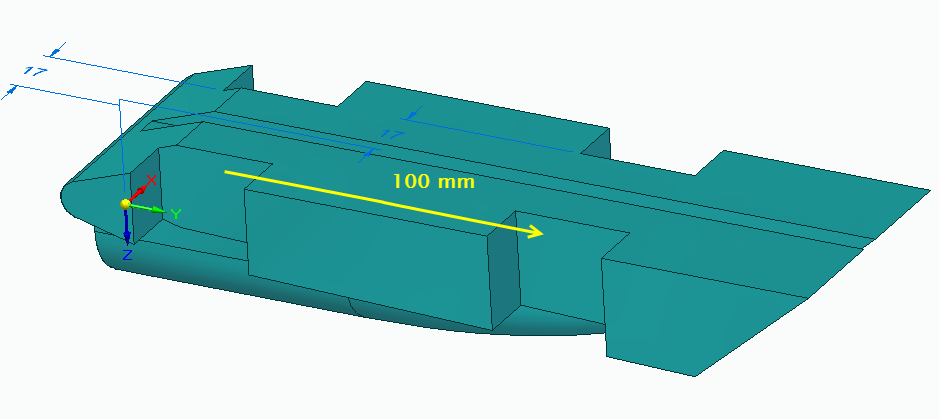
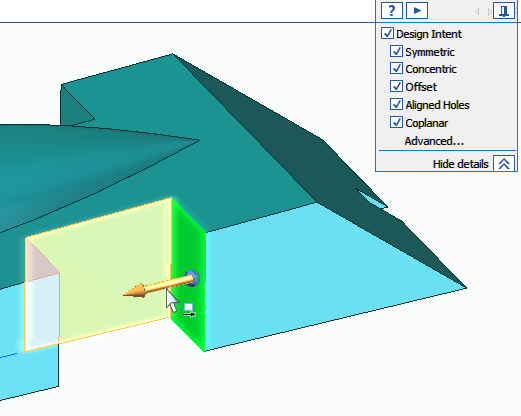
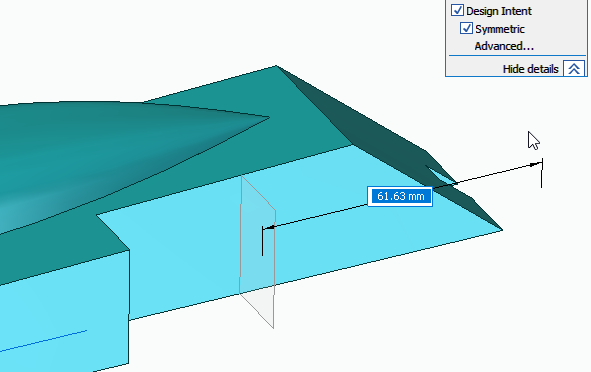
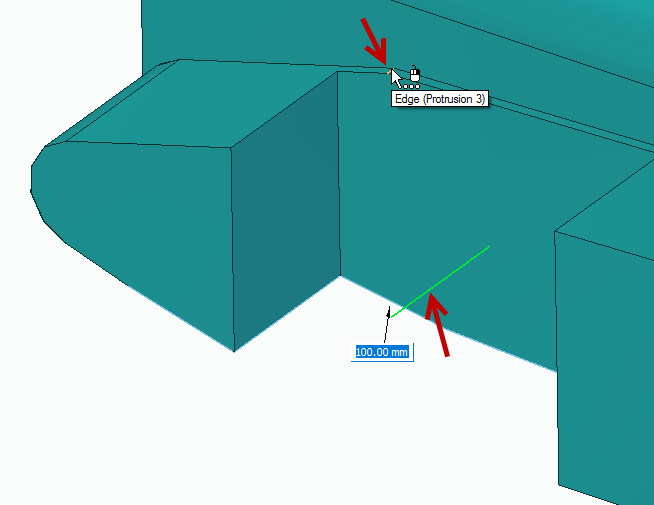
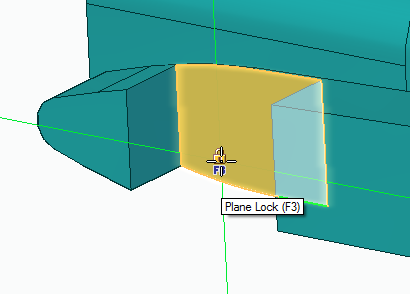
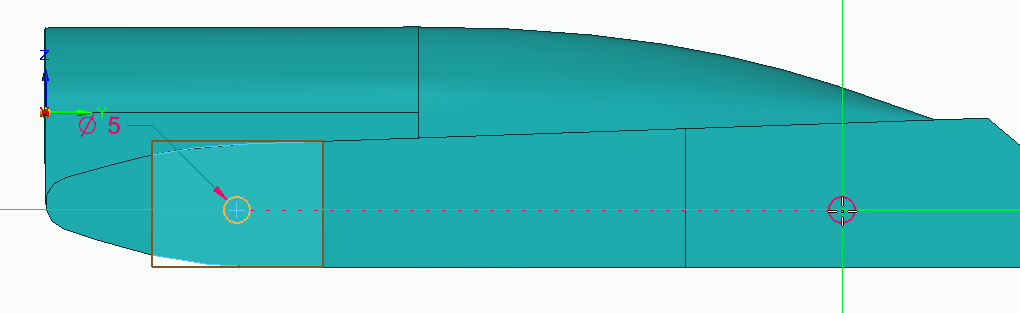
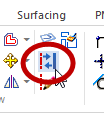
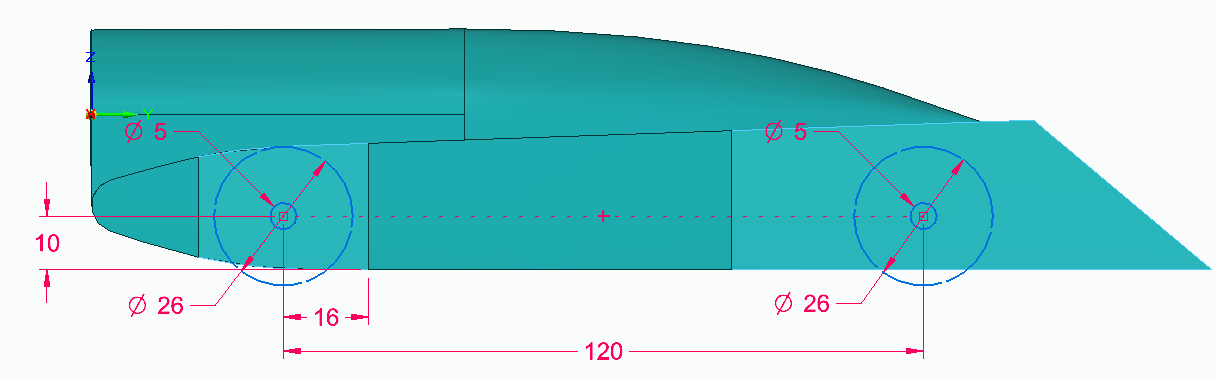
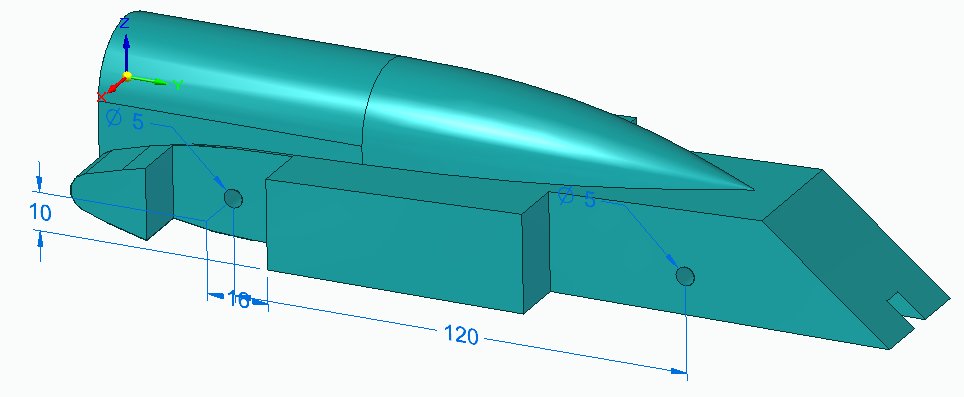
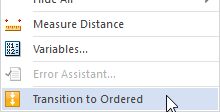
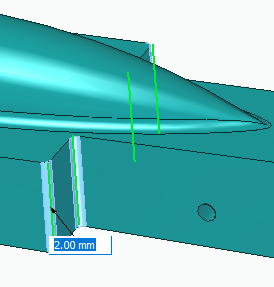
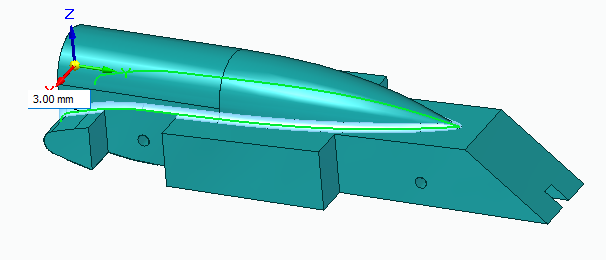
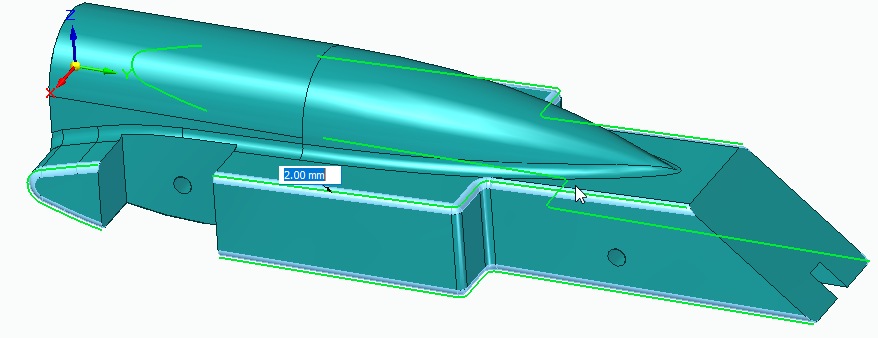
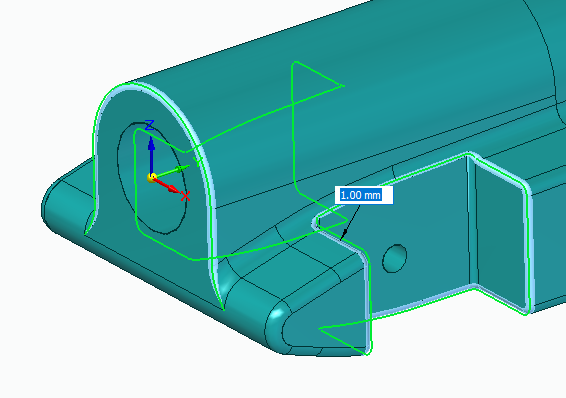
* Use the region of the circle to cut a hole in the Car Body   
  that is 52 mm deep.
* Hide the stock body and rotate the model so you are looking at the bottom of the part.
* Select the extrude command and change the selection option   
  to **chain** in the command bar.
  + C:\Users\stainbro\AppData\Local\Temp\SNAGHTML60653f.PNGSelect one line from the slot profile to chain will  
    select all 3 lines.
  + Right click to accept the selection and then move your cursor to  
    point the arrow to the inside of the U-shape as the side of the open   
    profile to remove and click to set this option.
  + Press the spacebar to toggle removing material and drag the   
    profile completely through the part and finish the cutout.
* Next we want to create a lofted extrude to add aerodynamic features to the car.
  + Select the Point command and lock to the   
    top face of the car body using F3.
  + Touch the right edge of the locked face to find its midpoint  
    to align with and click to create a point on the face.
  + Add a Smart dimension to the Point and make it 10 mm   
    from the edge.
* Select the Loft command.
  + C:\Users\stainbro\AppData\Local\Temp\SNAGHTML73705e.PNGSelect Face option in dropdown menu to select front face   
    of cartridge housing.

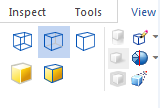
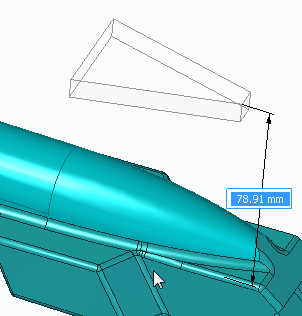
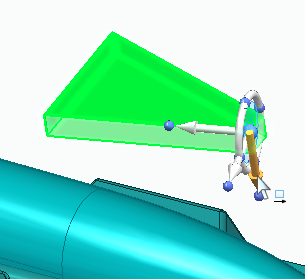
HINT: be sure the point   
appears at the end of the tangent line  
as indicated by the red arrow.

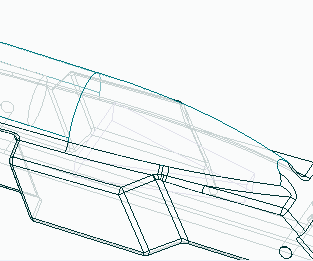
* + C:\Users\stainbro\AppData\Local\Temp\SNAGHTML7721dd.PNGChange the selection option to Point from dropdown and select the sketch point.
  + Click the Preview in the command bar or right mouse click to preview the Loft.
  + From the tangency control drop down, select Tangent Continuous.
    - Set to 1.500
  + Click Finish.

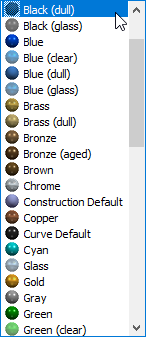
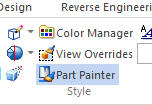
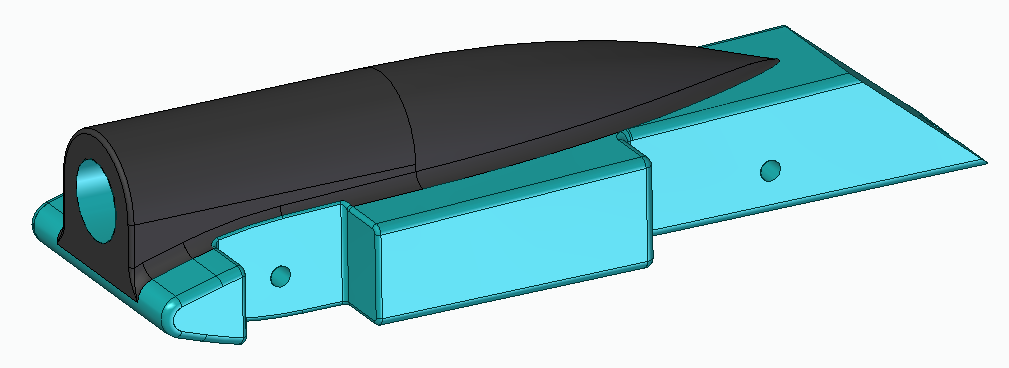


* Rotate the model to see the bottom face (slot side).
* Select the Rectangle by Center command and lock to the bottom face of the car body using F3.
  + Select “Bottom” on the view orientation cube in the lower right.
* Sketch a rectangle centered on the edge of the body.
* Add dimensions to size and   
  locate the rectangle.
* Mirror the rectangle about   
  the Y axis.
* Use the regions created by the rectangles to cut   
  wheel well slots in the car body.

* Select the wheel well cutout features from the PathFinder (last Cutout feature).
  + C:\Users\stainbro\AppData\Local\Temp\SNAGHTML8d137a.PNGIn the command bar select the option to move with copy.
  + Select the arrow on the steering wheel to initiate a synchronous copy/move.
  + Copy the cutout 100 mm to the front of the car body.
* Select the front face of the last cutout and select the arrow to start a synchronous edit.
  + NOTE: symmetry automatically selects the face on the opposite side.
  + Drag through the end of the part.
* Add 100 mm radius rounds on the top and bottom edges between the top face of the body and the rear angled faces.
  + Add to both sides of the car
* Select the Circle command and lock to the inside face   
  of the rear wheel well.
  + Select the Right orientation using the view cube.
  + Sketch two 5 mm diameter circles approximately as shown; be  
    sure that they are in horizontally aligned.
  + Add concentric 26 mm circles to represent the size of the wheels and set these 2 circles to construction.
* Add dimensions shown to fine tune their locations.
* Add holes for wheels using extrude cut
  + Using the regions created by the inner circles, drag holes completely through the part.
* Right click in the graphics window to bring up the   
  shortcut menu and select the option to   
  Transitioned to Ordered at the bottom of the menu.
* Add rounds to the following area:
  + Add 3mm rounds along cylindrical cockpit.
  + Add 2 mm rounds to the front 4 corners of the fuel tank   
    area and then to the top and bottom edges.
  + Add 1 mm rounds to the rear wheel wells   
    and back of the cockpit housing.

* Click on the check box next to Virtual Cargo in the Pathfinder to bring the part into view.
  + Select the virtual cargo by clicking on the part or selecting from the pathfinder.
  + Click on the bottom arrow to drag the part downward.
  + Drag the part into the car body such that it is completely inside.
  + Check by switching the view to wired view under the view tab.



* Return to the normal view and uncheck the virtual cargo from the Pathfinder.
* From the view tab, use Part Painter feature to paint the cockpit   
  are to your the desired color’.
* Save part **with a new name** to avoid overwriting original template.