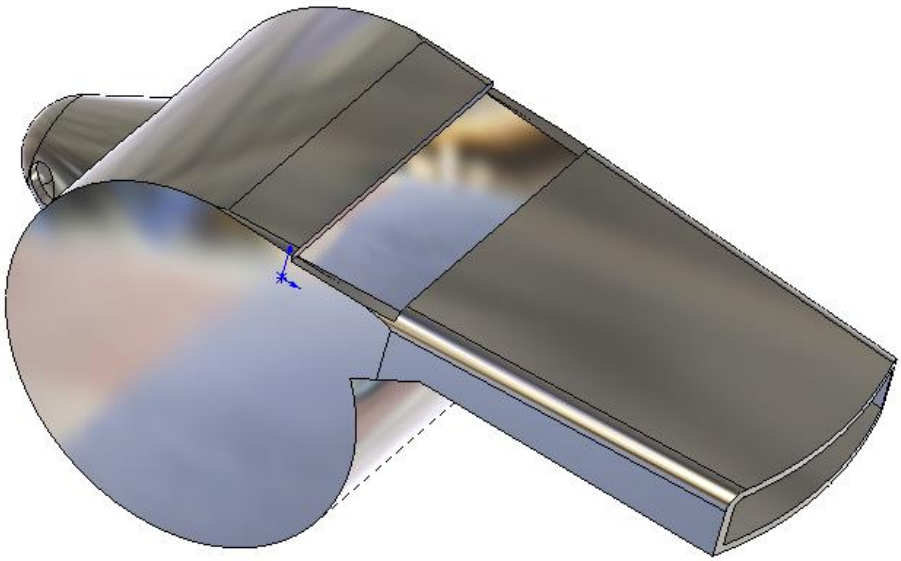
Whistle Exercise



Object Analysis sheet

NAME: _____ DATE: _____

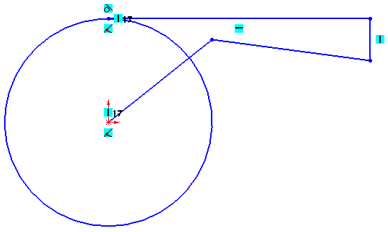
DESIGN & COMMUNICATION GRAPHICS

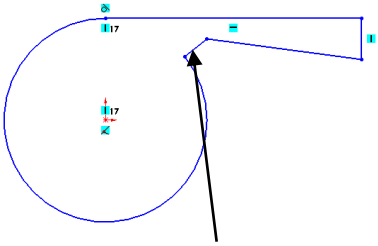
Commands used: **Sketch Circle, Line, Rectangle, Centre Arc, Trim, Add Relation, Mirror sketch, Smart dimension, Extruded Boss/Base, Cut Extrude, Revolved Boss/Boss, Fillet, Shell,** & **Edit Material**

Approach to Lesson:

Create sketch for the body of the whistle

Create the sketch on the **Front Plane** using the Circle and Line sketch commands.

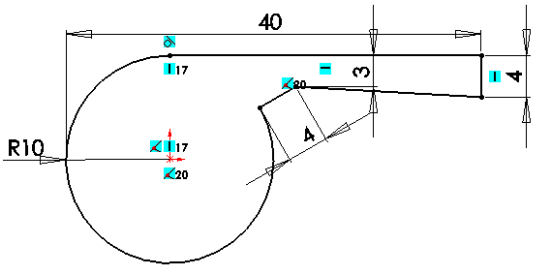




Use **Trim** to remove arc and line.

Make this line and the Origin **Coincident** by using **Add Relation**

Use **Smart Dimension** to dimension the sketch



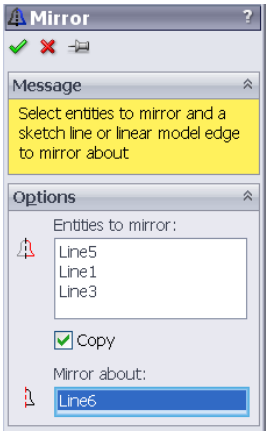
Whistle body

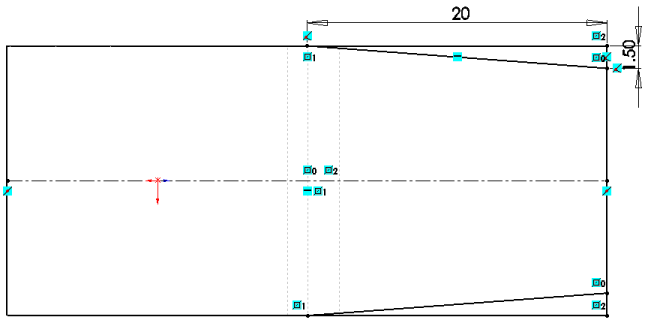
Extrude the sketch using **Extruded Boss/Base**
Select **Mid Plane** as the end condition and a distance of 18mm.

Rename the feature as 'Whistle Body'.

First cut to mouth of the whistle

Create one half of the sketch on the top surface of the whistle using the **Line** command. Sketch a **Centreline** and **Mirror** three lines about the centreline to create the other half. **Smart Dimension** the sketch.



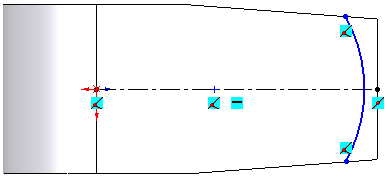


Cut Extrude

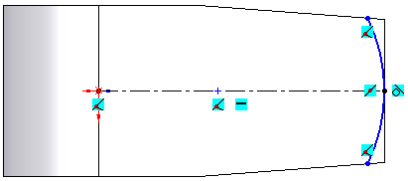
Cut Extrude using this sketch. Select **Up to Next** as the end condition. Rename the feature as 'First cut'

Second cut to mouth of whistle

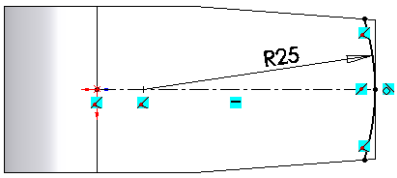
Create sketch on the top surface of the whistle using **Centreline** and **Centre Arc.**



Make the arc tangential to the right hand edge by using **Add Relation**



Smart Dimension.



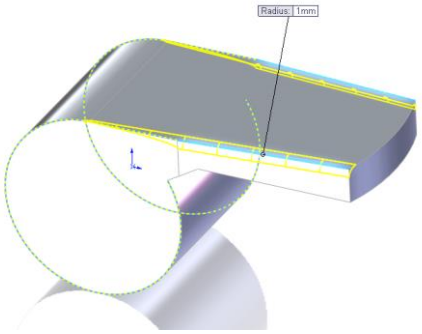
Cut Extrude

Cut Extrude using this sketch (line). **Through All** is the automatic end condition. Ensure the direction is pointing away from the body of the whistle

Rename the feature as 'Second cut'.

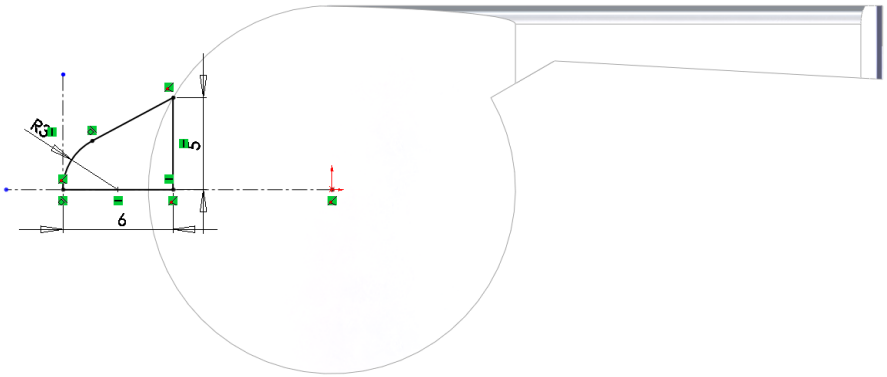
Apply fillet to top edges

Apply a 1mm fillet to the top edges of the whistle.
Rename the feature as 'Top fillet'



Raised area for ring attachment

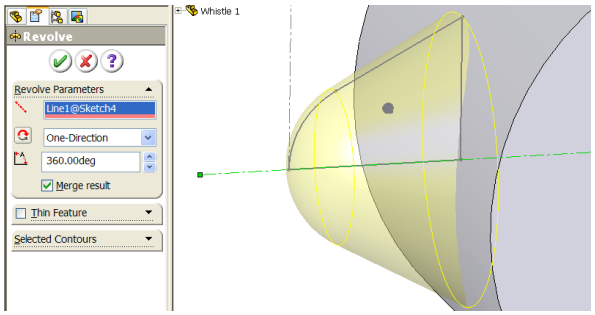
Create the sketch below on the **Front Plane** using **Line**, **Add Relation** and **Smart Dimension.**



Revolved Boss/Base to raised area

Use **Revolved Boss/Base** to create the area.

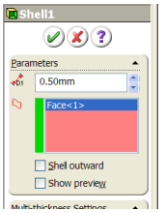
Rename the feature as 'Raised area'.

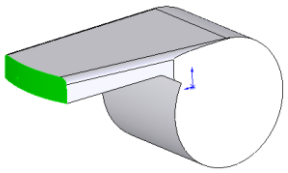


Shell

Shell the whistle with a wall thickness of .5mm. Remove one face.

Rename the feature as 'Shelling of whistle'.

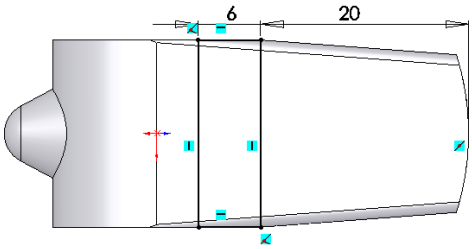




Opening

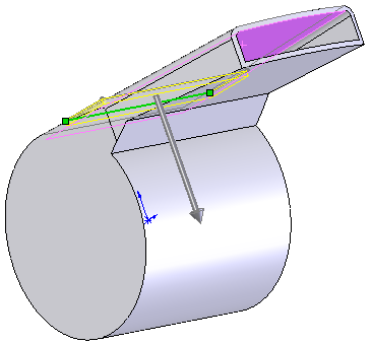
Create sketch on the top surface of the whistle using a **Rectangle**

Smart Dimension



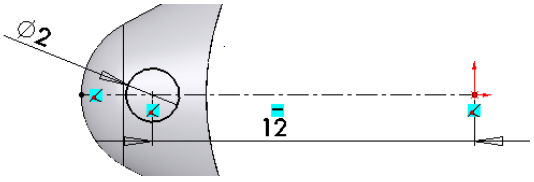
Extrude Cut with this sketch to create the opening. Select **Up to Surface** as the end condition and select the inside surface.

Rename the feature as 'Opening'.



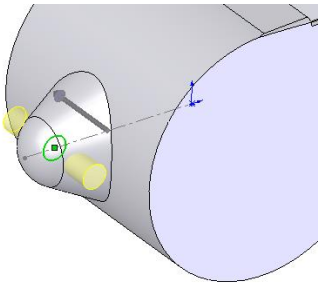
Hole

Create the sketch on the front plane



Extrude Cut with this sketch to create the hole. Select **Mid Plane** as the end condition and a distance of 10m

Rename as 'Hole'.

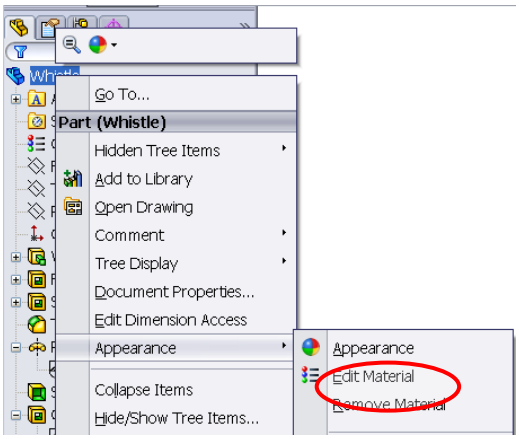


Edit Material

Apply a **Chrome Stainless Steel** finish

In the features manager tree right click on the whistle 

Select **appearance** and then **select edit material** as shown**.**



Select **Chrome stainless steel** as the material and **apply.**

Choose **OK** 

Add in notes on the properties of the whistle when the material is applied. Note the difference between appearance and material