Lesson: Create and Shell a Drafted Part

In this lesson, you’ll create and modify an extrusion which will eventually be shelled.

Learning Objectives

- Create an extrude.
- Use Shell to create a thin wall part.
- Modify feature properties to produce draft.

The completed exercise

1. Upload and open the supplied file “Pencil Holder.f3d”.

2. Expand the Browser’s Sketches folder and notice Sketch1 has a red lock icon to indicate it is a fully defined sketch.
3. Click Create > Extrude.

4. For the Profile Selection, choose all three regions inside the sketch.

5. Use the on-screen manipulator's up arrow to extrude the selection upwards.

6. Enter a value of 3 inches into the Distance field next to the on-screen manipulator or in the Extrude control panel's Distance field. Click the OK button in the control panel. The selected region is now extruded upwards 3 inches.
7. Click Modify > Shell. This tool is used to create a thin wall version of the model.

8. Select the top face of the extrusion as the control panel’s Faces/Body selection. Enter a value of 0.1 into the control panel’s Inside Thickness field, then press the Enter key to Shell the model.

9. Rotate the model and inspect the new geometry. The thin-walled body has a solid bottom but an open top. The walls are all 0.1 inches thick.
10. The original extrude feature can still be modified. Right-click on the timeline’s Extrude1 feature and choose the Edit Feature option.

11. The extruded body’s taper angle needs to be modified. This can be done either in the control panel’s Taper Angle field or by adjusting the on-screen manipulator. Enter a draft angle of 15° then click the OK button in the control panel.

12. After the draft is added to the extrusion, the Shell feature updates to adjust to the new geometry.
13. Navigate to a home view of the part by clicking the house icon next to the view cube. Save the file and continue to the next module.