Modeling a Rook

In this lesson, you will model a rook for the chess set. You'll build the rook the same way as in the previous lessons, where you created a pawn and a bishop, except for the top part with the battlement. If you were making a wooden chess set, you wouldn't be able to use a lathe for this part of the piece, and so it is with the 3D model: Although the basic structure of the rook is a

lathed spline, like the pawn and the bishop, its top requires a different modeling technique.

Features and techniques covered in this lesson:

- Using face extrusion to change geometry.
- Adjusting smoothing groups for better results.

Time to complete: 15 minutes

Set up the lesson:

1  On the Quick Access toolbar, click the Open File button, navigate to *\scenes\modeling\intro_to_modeling* and open *rook_outline_edited.max*.

This file contains the basic shape of the rook. If you prefer to build the rook from scratch, delete the profile and recreate it as you did in the previous lessons with the pawn and the bishop. Make sure, however, that you do not take into account the battlement at the top of the rook, as you will create it later using polygon extrusions.

The Front viewport should contain a reference image. If you cannot see the image, perform the following steps:

2 Make sure the Front viewport is active and then press Alt+B to open the Viewport Background dialog.

3 On the dialog, click the Files button.

4 Locate the *ref-chess.jpg* image in the *\sceneassets\images* folder and double-click it.

5 Click OK to exit the Viewport Background dialog.

Lathe the basic shape:

1  On the main toolbar, choose the Select tool. In any viewport, select the spline representing the rook's profile.

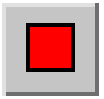
2  With the spline selected, go to the Modify panel. From the Modifier List, choose Lathe.

3 On the Parameters rollout, click the Min button in the Align group.

4 Set Segments to **36** and turn on Weld Core.

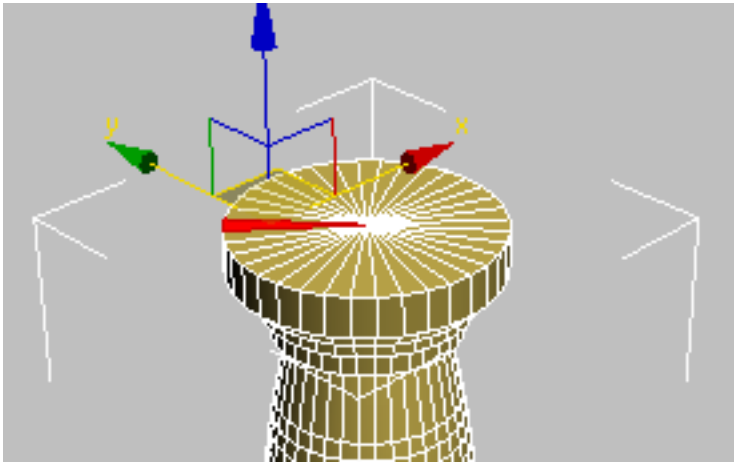
Prepare the top for the battlement:

1 With the rook still selected, make sure you are still in the Modify panel. From the Modifier List, choose Edit Poly.

2  On the Selection rollout, click the Polygon button.

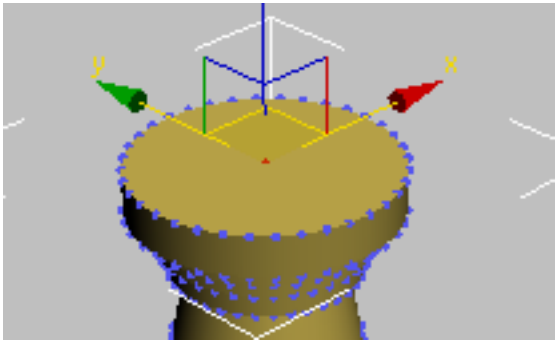
3 Try selecting the top of the rook.

You can only select a fraction of the area; 1/36th of the top area, to be exact.



4  On the Selection rollout, click the Vertex button.

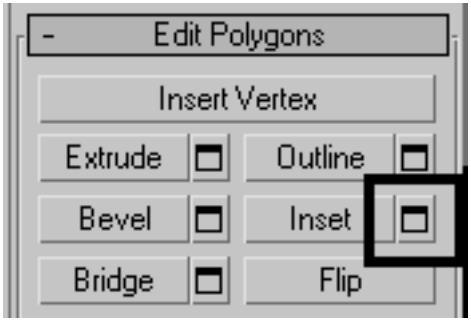
5 Select the vertex in the top-center area of the rook.



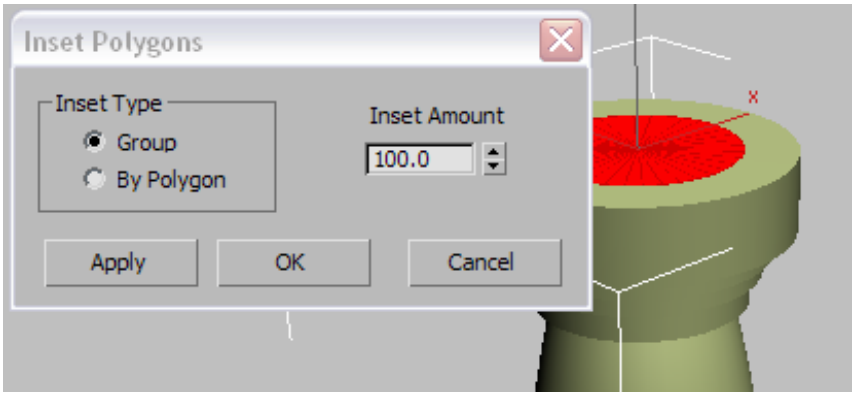
6 Hold the Ctrl key down and click the Polygon button again on the Selection rollout. All polygons connected to the selected vertex are automatically selected.

7 Press F4 to turn on Edged Faces display, if necessary. This allows you to see the shaded object and its underlying geometry.

8 On the Edit Polygons rollout, click the Settings button next to Inset.



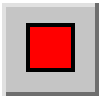
9 In the dialog that appears, set Inset Amount to **100.0**.



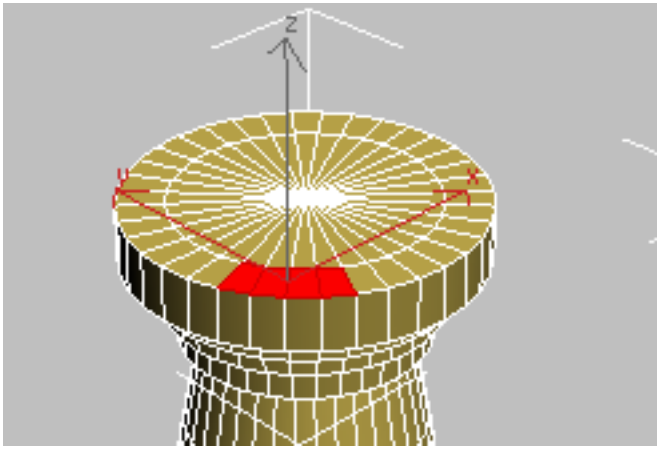
10 Click OK to close the dialog and save the inset.

Create the battlement:

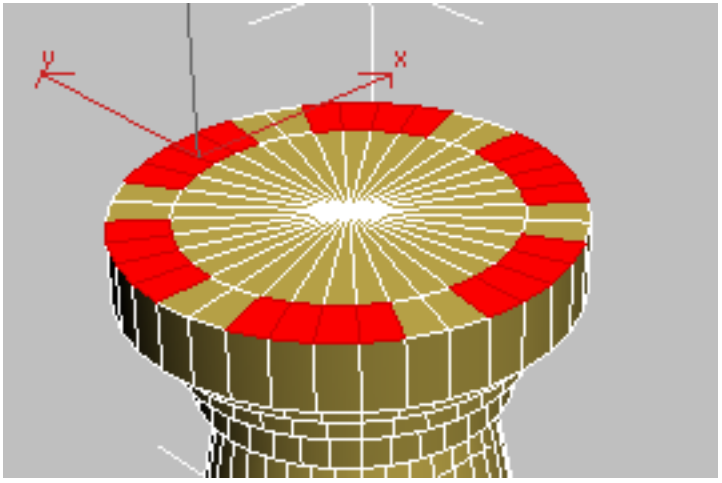
1  Open the Modify panel, if necessary.

2  On the Selection rollout, make sure you're at the Polygon sub-object level.

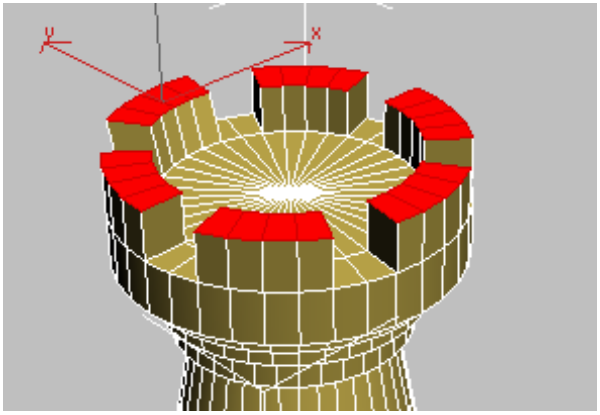
3  Use the Select tool to select four adjacent polygons in the outer ring.



4 Skip the next two polys and then select the four after those. Repeat the procedure around the circumference until the selection resembles the following illustration:



5 On the Edit Polygons rollout, click the Settings button next to Extrude. On the dialog that appears, set the Extrusion Height value to **40.0** to match the height of the battlement in the reference image in the Front viewport (change the value if necessary). When you are finished, click OK to save the extrusion and exit the dialog.



6 On the Selection rollout, click the Polygon button to exit this level.

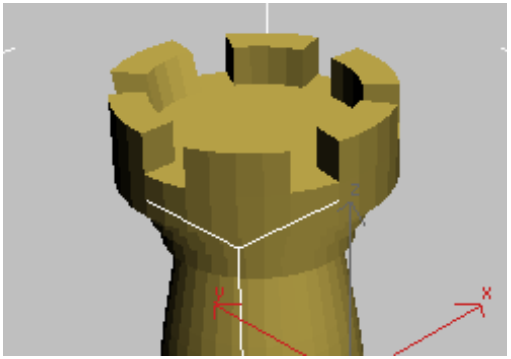
7 Press F4 to exit Edged Faces display.

Note the faceted effect on the battlement. You will fix that in a moment.

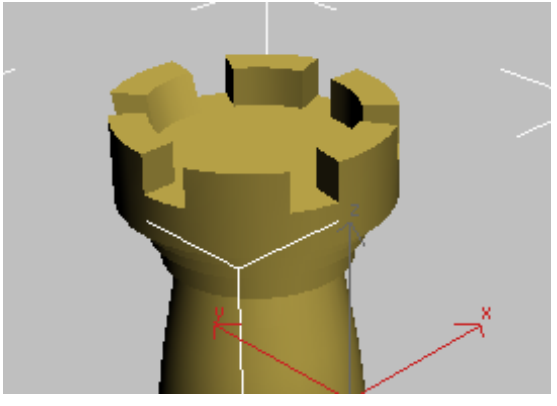
Adjust smoothing groups:

1 Make sure the rook object is still selected and that you are still at the Modify panel.

2 From the Modifier list, choose Smooth. The entire rook now appears faceted.



3 In the Parameters rollout, turn Auto Smooth on and leave Threshold at the default value of 30.0. Any two adjoining faces that meet at an angle less than that value will be made part of the same smoothing group and no edge will appear between them.



The rook appears smoother now.

Summary

In this lesson you learned to create new geometry using face extrusion. You also learned how to use smoothing groups to give your objects a smoother look.