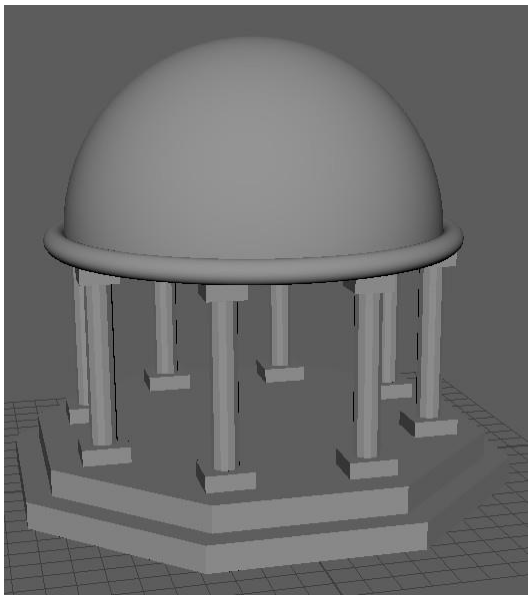
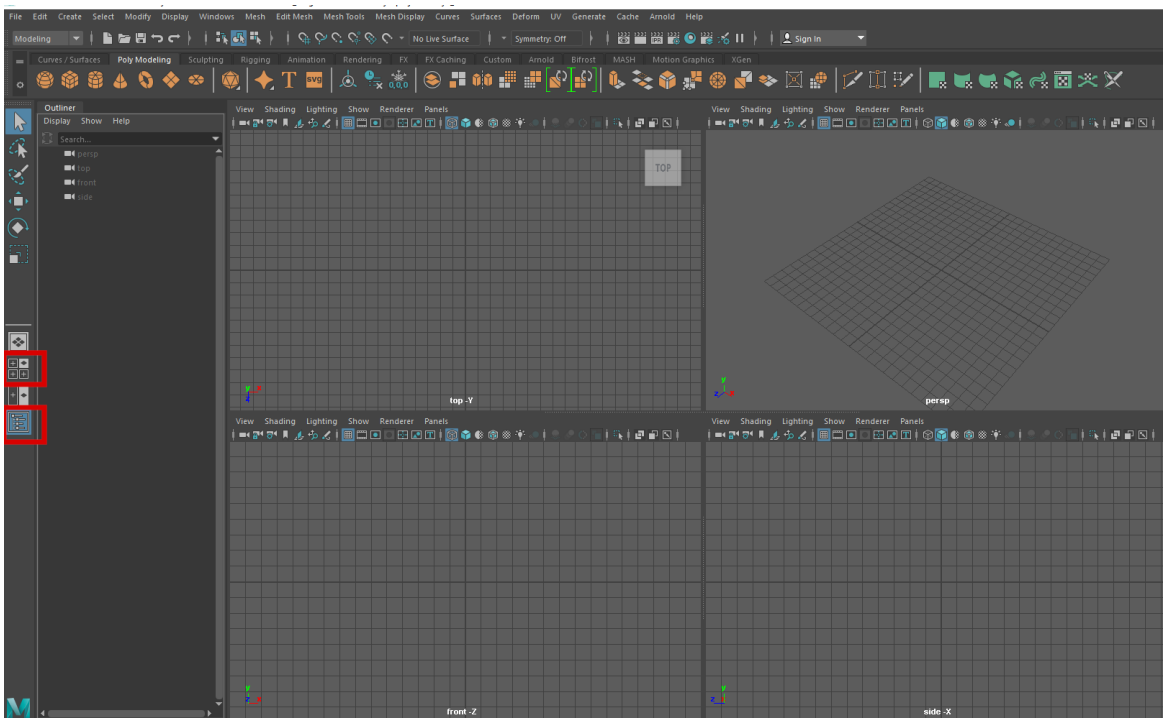
Modeling with Primitives: EXERCISE 1

In this exercise, primitives are used to create a simple temple structure. This will give you a chance to use some of the basic tools in Maya: the transform tools, grouping, and duplicating.



Creating the Base

1. File > New Scene.
2. Click on the 4-panel view and the Outliner icons along the left-hand side:

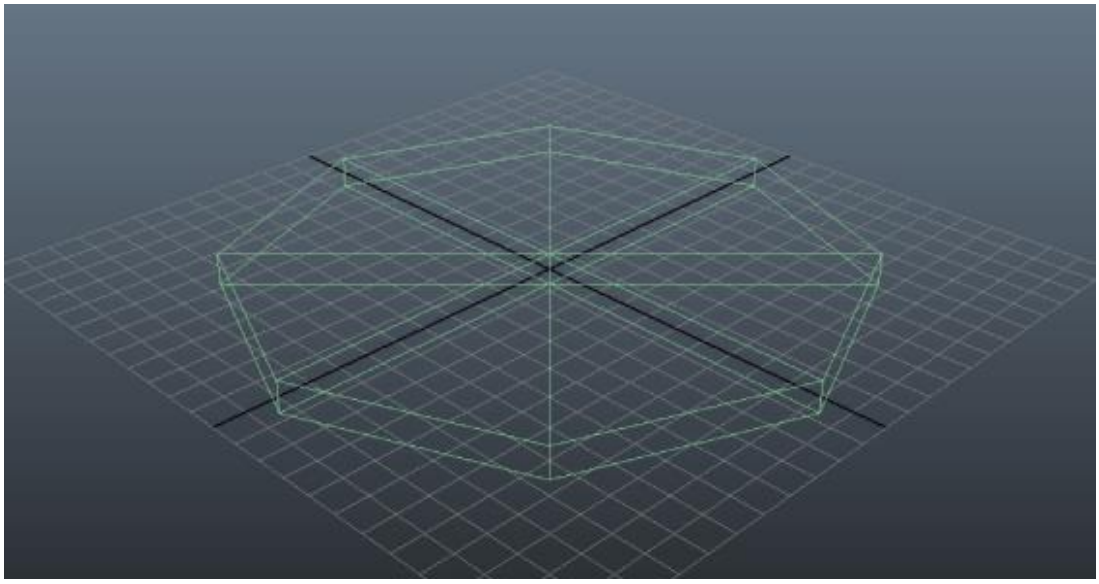


3.You will create a base for the columns. From the main menu, select **Create > Polygon Primitives > cylinder** and open the option box. The option window will appear.

5.In the option window choose **Edit > Reset Settings** from the upper left corner. This will set everything back to its default. Set the following options:

- **Radius: 10**
- **Height: 1**
- **Axis divisions: 8**
- **Height divisions: 1**
- **Cap divisions: 1**
- **Axis Y**
- **Click Create.**

Maya has created an object that is octagonal in shape and positioned at the center/origin in the UI:



Note: If you'd like to see this in **Shaded mode**, hit **5** on your keyboard. **4** is wireframe.

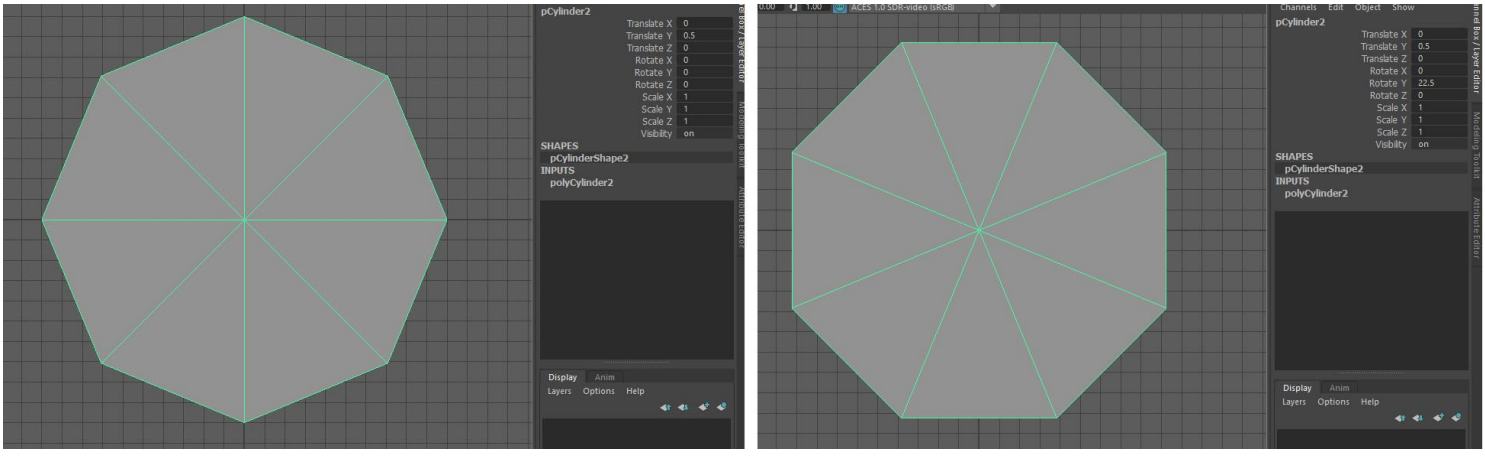
6. The octagon is sitting below the grid line and needs to be moved up. In the Channel Box, type:

- **Translate Y: .5**

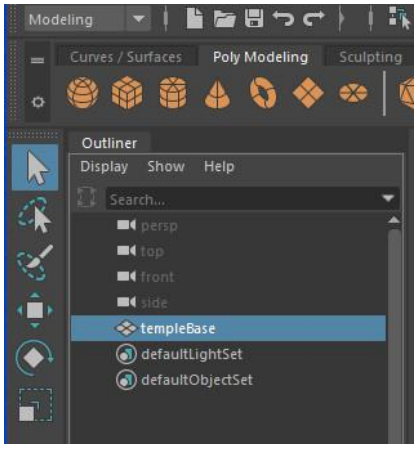
This will move the octagon up, so it is level with the grid.

10. The base needs to be rotated so the front is parallel to a grid light. Since each facet of the octagon is 45 degrees, it will be needed to rotate around half of that = **22.5** degrees.
Tap the spacebar to the 4 – view and put your cursor in the Top view and tap the spacebar again. The Top – view is now full-screen.

11. In the Channel Box, change the **Rotate Y** channel to **22.5** (degrees). The front of the octagon is now aligned with the grid:



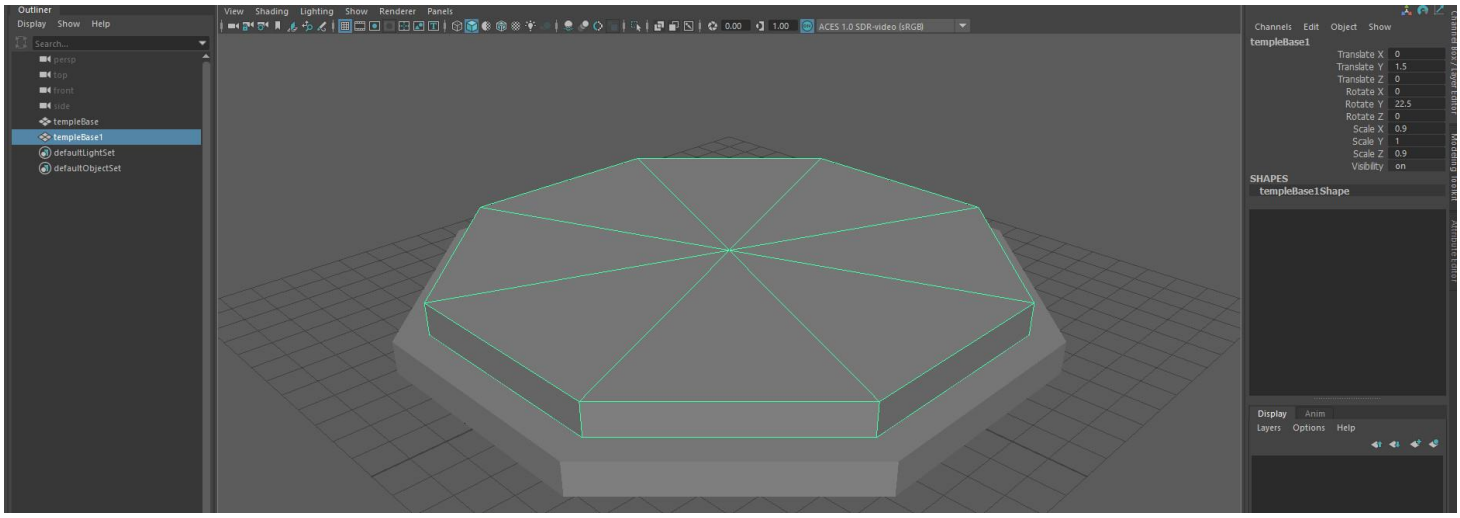
12. Rename pCylinder2 by double-clicking the name in the Outliner and typing in ***templeBase.***



13. To create a stepped temple, you'll duplicate the temple base you already have and scale and move it. With it selected, go to **Edit -> Duplicate Special -> Options**. In the option box set:

- **Translate: 0 1 0**
- **Scale .9 1 .9**

Click Duplicate Special. Maya creates a duplicate of the geometry and has scaled it .9 in X & Y, and moved it 1 unit up along the Y. Check it out in the **Persp** view:



Creating the Columns

The columns are made up of two primitives: a cube for the base and top of the column and a cylinder for the column.

1. Select **Create > Polygon Primitives > Cube -> Options** and set the following:

- **Width: 1.75**
- **Height: 0.6**
- **Depth: 1.75**
- **Click Create**

It has been created around the origin, so you won't be able to see the cube if you are in Shaded mode. Go to Wireframe mode **3** on the keyboard.

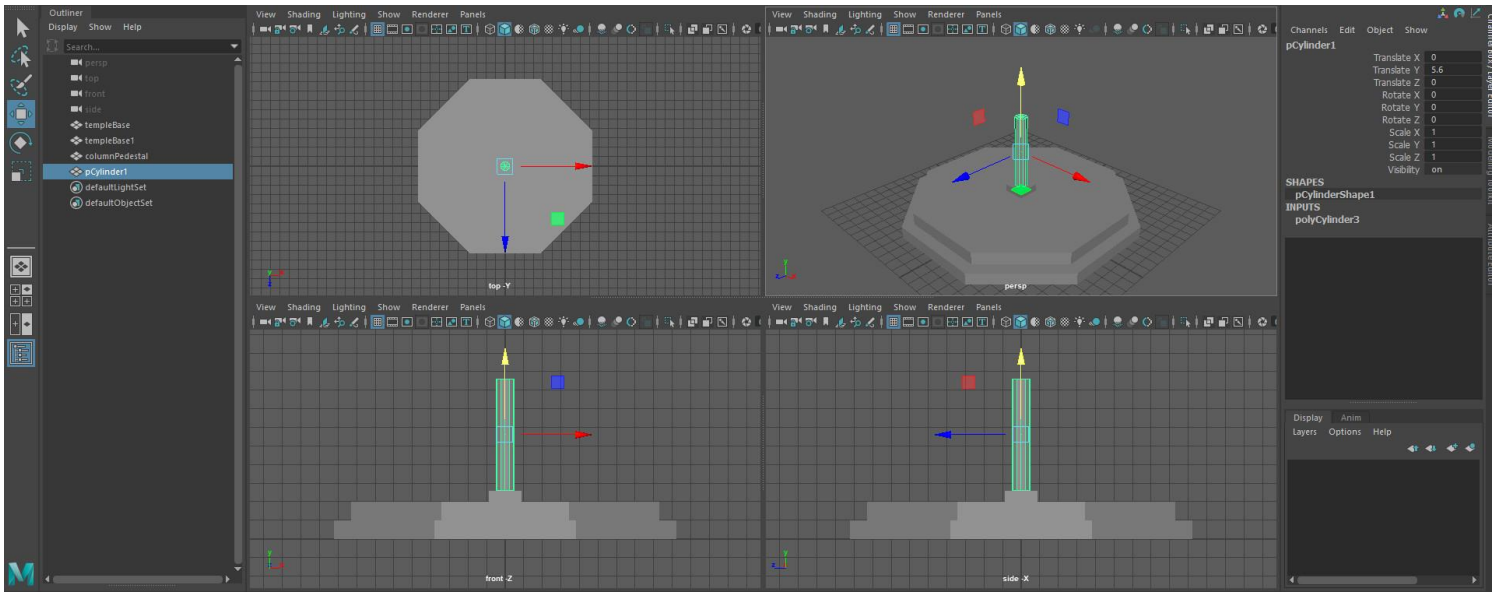
2. Move the cube on top of the 2nd *templeBase1* by typing in **2.3** for **Translate Y** (of pCube1).
3. Rename pCube1 to ***columnPedestal*** by double-clicking in the Outliner.

4. To create the column, go to **Create > Polygon Primitives > Cylinder** and set:

- **Radius: 0.5**
- **Height: 6**
- **Axis divisions: 12**
- **Click create**

The cylinder is created at the origin.

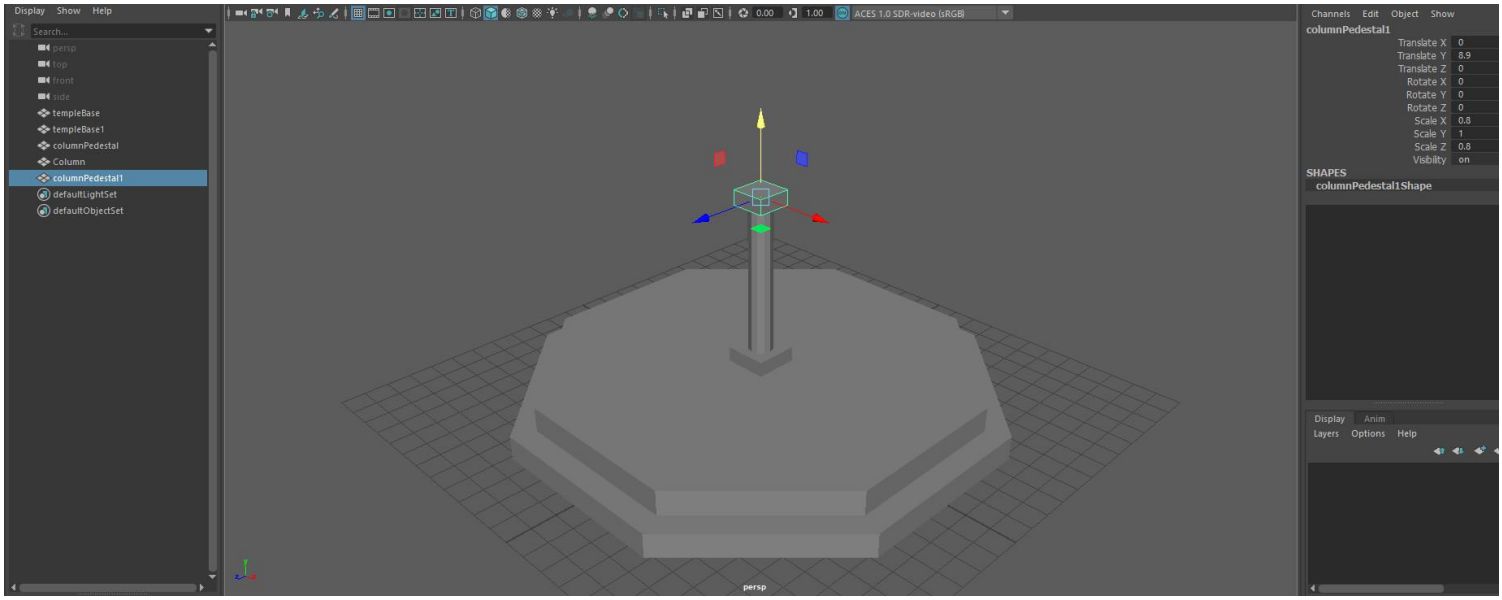
5. From the **Channel Box**, with the cylinder selected, change the **Translate Y** to **5.6**:



6. In the Channel Box, double-click on *pCylinder1* and rename the cylinder to ***column***.

7. To add the top of the column (the capital), you'll duplicate the bottom and move it up along the Y axis. Select *columnPedestal*. Go to **Edit > Duplicate Special > Options** and go to **Edit -> Reset Settings**. Then set:

- **Translate: 0, 6.6, 0**
- **Scale: 0.8, 1, 0.8**
- **Click Duplicate Special**

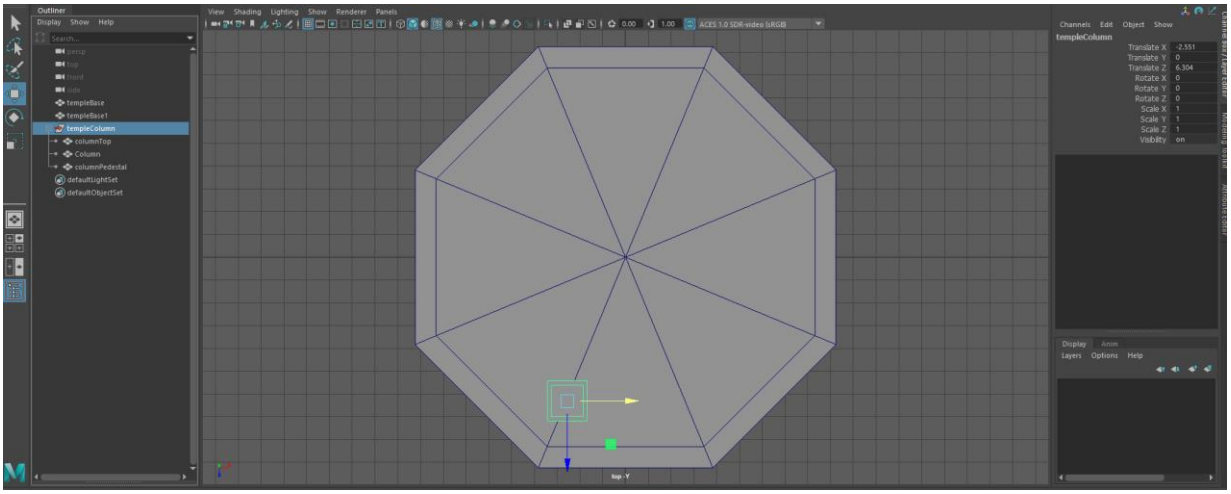


8. We need to move the 3 elements that make up the column and duplicate them around to create the temple as per below:

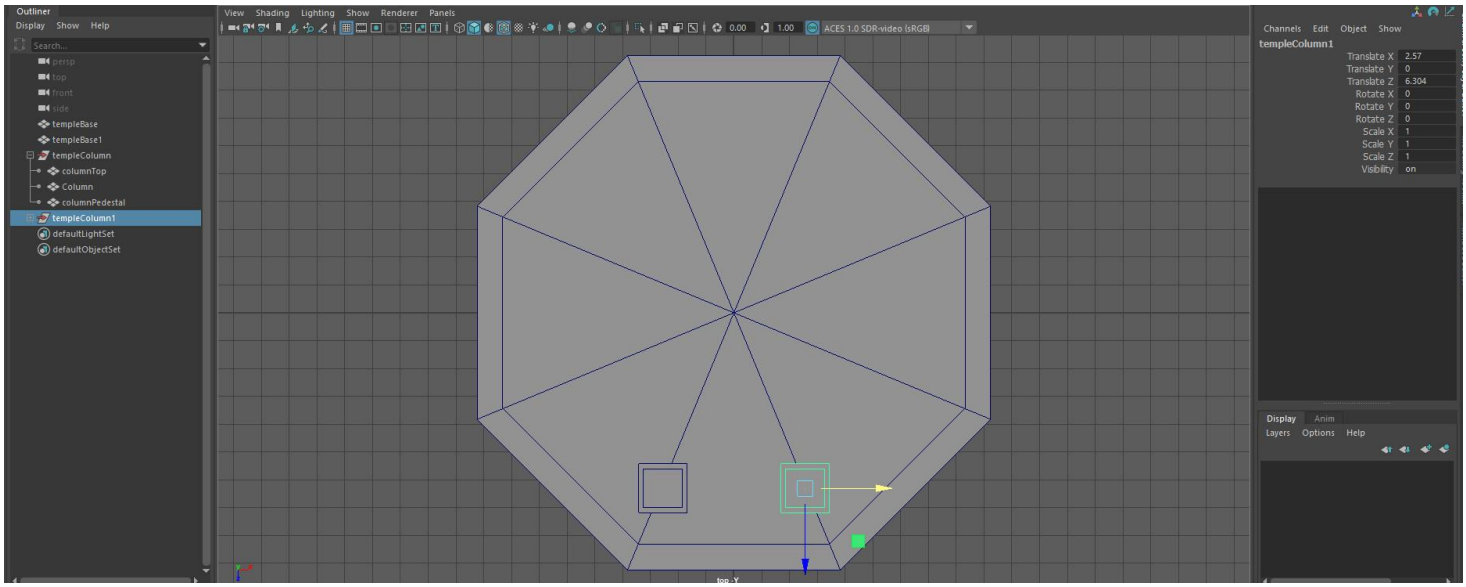
To do that, you will need to group those 3 elements together -> so they all move together as a unit. Select the column and its 2 pedestals. Go to **Edit -> Group.** (hotkey Ctrl + G).

9. Rename group1 *templeColumn*.

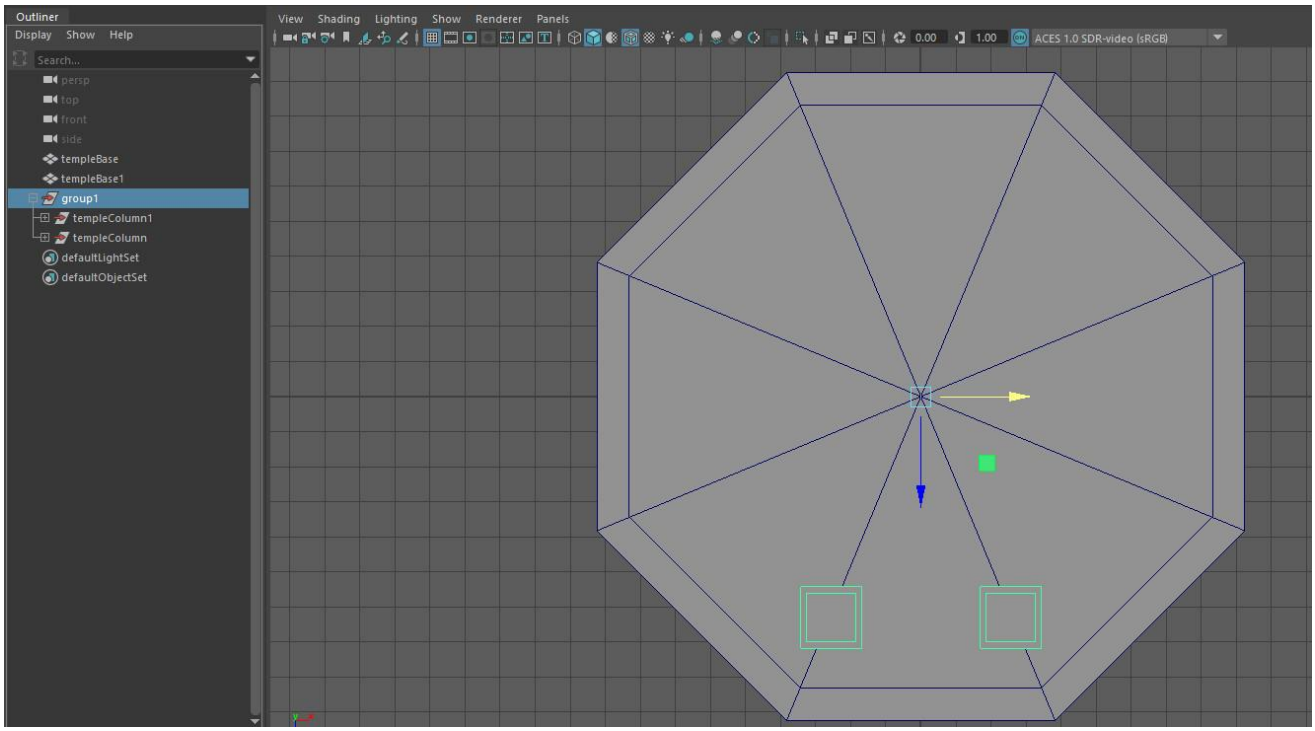
10. Go to the Top view and select *templeColumn*. Note you may need to go into Wireframe mode (4) or Wireframe on Shaded (Alt + 5) in order to see and position the *templeColumn*. Move it to the front corner of the templeBase1:



11. Select *templeColumn* and use **Ctrl + d** to duplicate the group. Move the new group to the right edge:



12. Instead of moving each individual *templeColumn* around the *templeBase*, it's easier to group them and then duplicate and rotate them. Select *templeColumn* and *templeColumn1* and **Ctrl + g** to group them together:

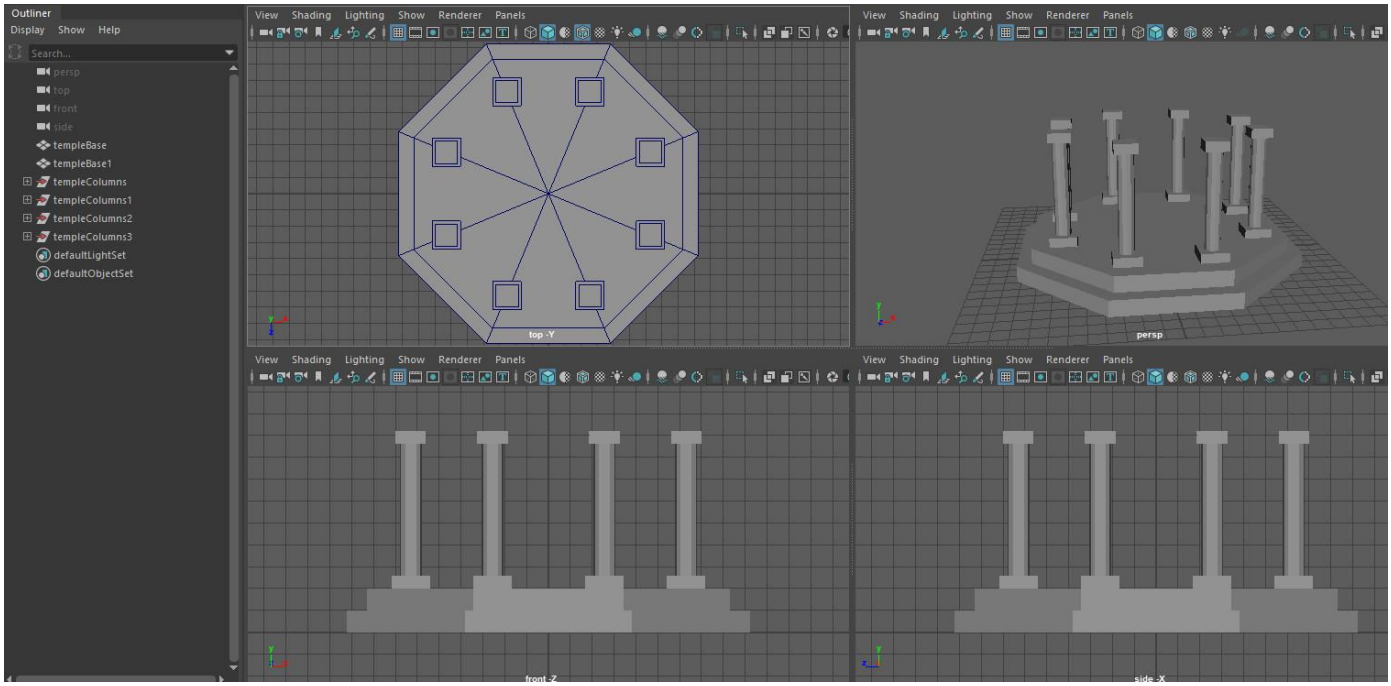


13. Rename group1 ***templeColumns.***

14. With *templeColumns* select, go to **Edit > Duplicate Special -> options**. Go to **Edit -> Reset Settings**. Set:

- **Rotate Y: 90**
- **Number of copies: 3**
- **Click Duplicate Special**

The grouped columns are duplicated and rotated around the Y axis:



Create the Temple Roof

1. Go to **Create > NURBS Primitives > Torus** and open the option box. Set:

- **Radius: 8.5**
- **Minor Radius: 0.5**
- **Number of Sections: 24**
- **Click Create**

2. Move the Torus **9.6** units up the Y axis (Trans Y: 9.6) and **Scale X, Y, Z** to **.885**.

3. In the Channel Box, rename the Torus to ***templeTop.***

4. To add a roof to the structure, you'll use a NURBs Sphere. Go to **Create -> Nurbs Primitives -> Sphere-> Options** and set:

- **Radius: 7.2**
- **End Sweep angle: 180**
- **Number of spans: 8**
- **Click Create**

By setting the End Sweep Angle to 180, you got ½ a NURBs sphere.

5. Select the nurbsSphere1 and rename it *templeRoof*.

6. Select *templeRoof* and in its Channel Box set:

- **Rotate X: -90**
- **Translate Y: 9.8**

It should sit on top of the *templeTop*. If you wanted, you could group all the elements together and give it a name, but for now, you'll just leave it as is.
Congratulations, you just made your first Maya model: