

# Worksheet 1 - Navigation and Creating Polygons

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**worksheet length - 1 hour**

Before you start

- All the machines in the lab have Maya installed, if you want you use your own machine follow the installation guide.

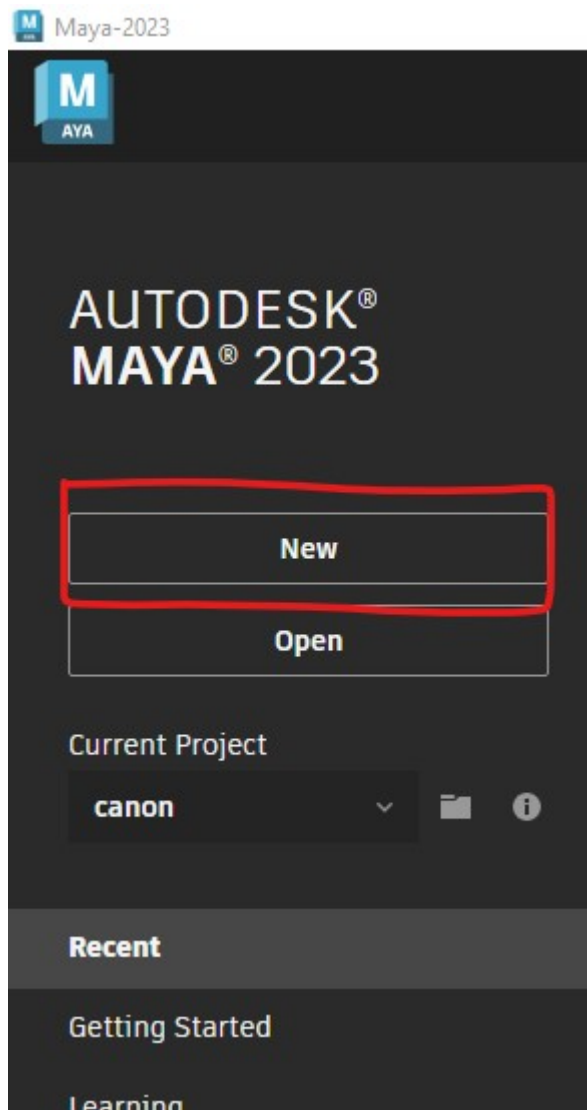
[https://www.uwe.ac.uk/study/it-services/software/specialist-software#autodesk\\_maya](https://www.uwe.ac.uk/study/it-services/software/specialist-software#autodesk_maya)

- Make sure you have a mouse.

## 1. Getting to know Maya

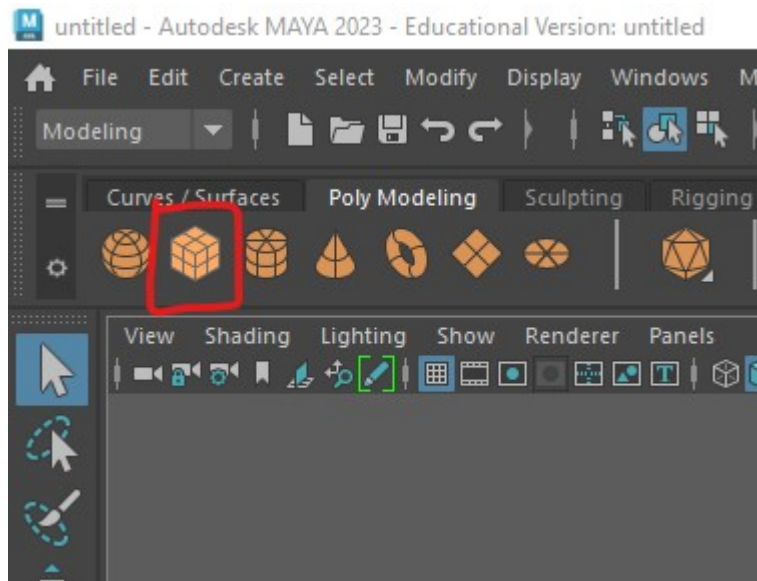
Create a new scene

- Open up Maya
- Create a new Scene

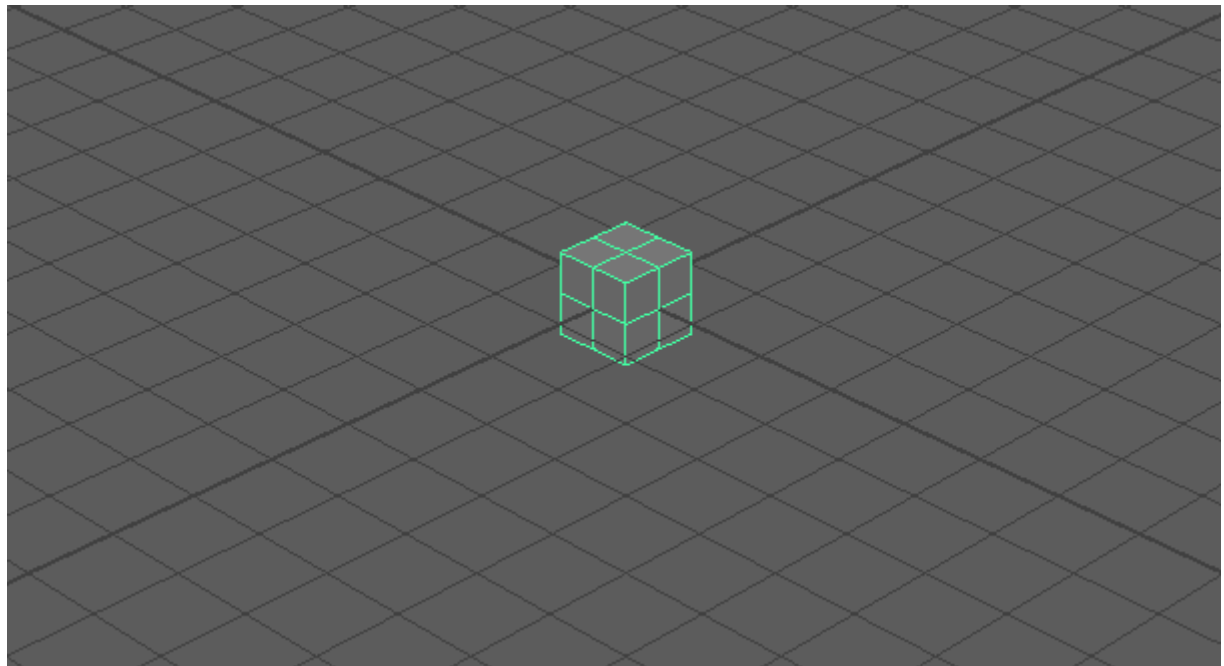


## Add a polygon

- Create a polygon cube



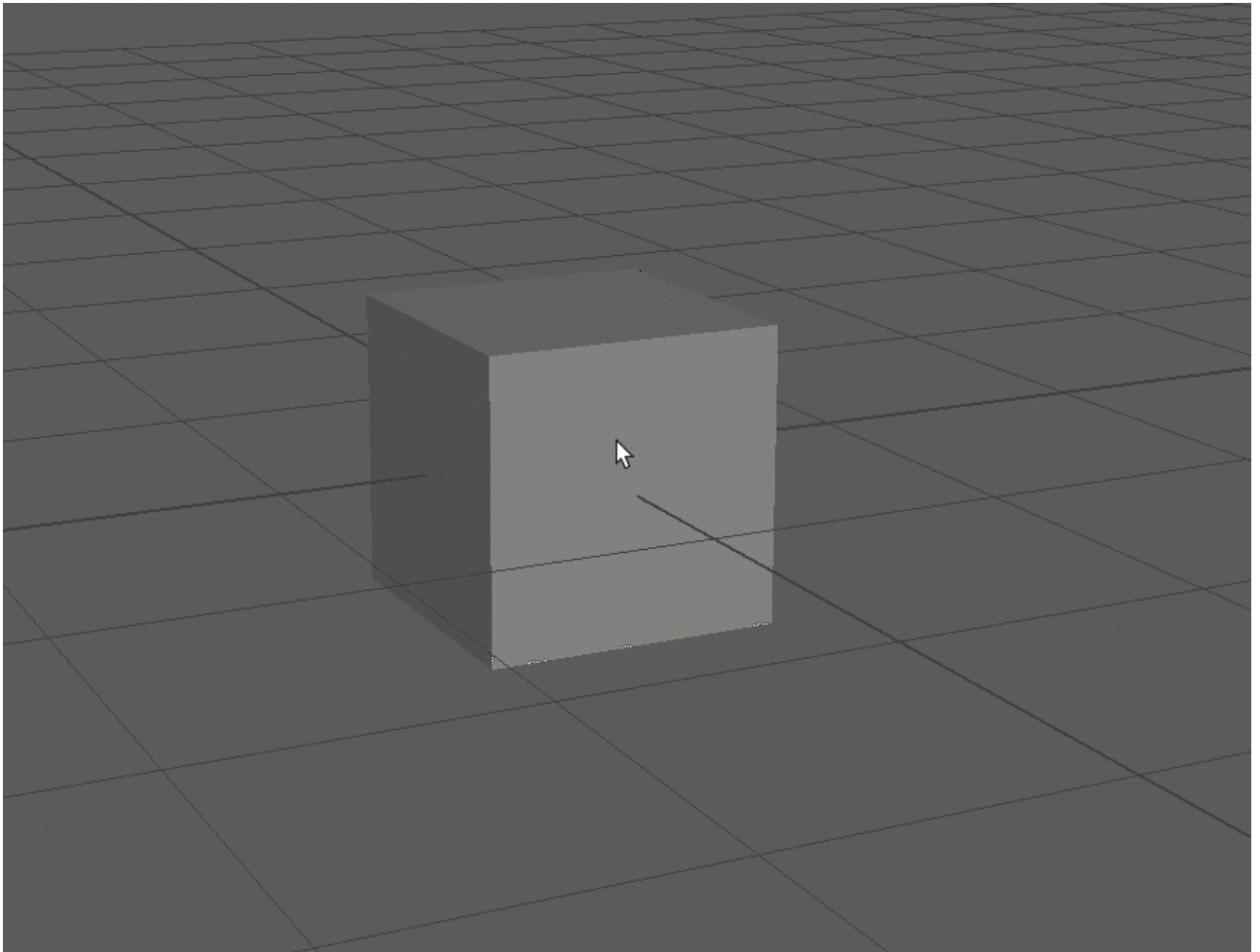
- This will create a new polygon cube in the middle of your scene.



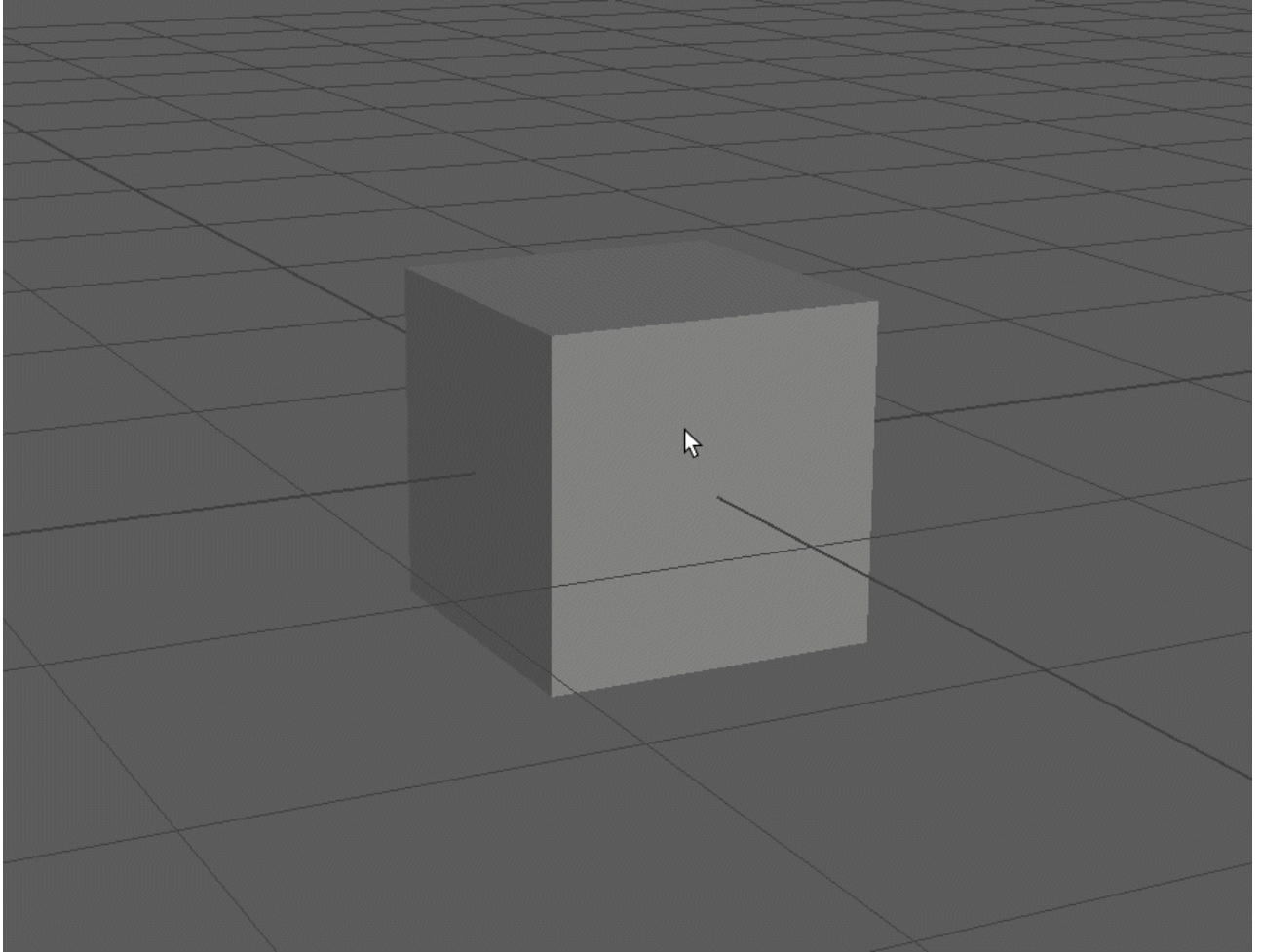
## Navigate around the scene

### On Windows

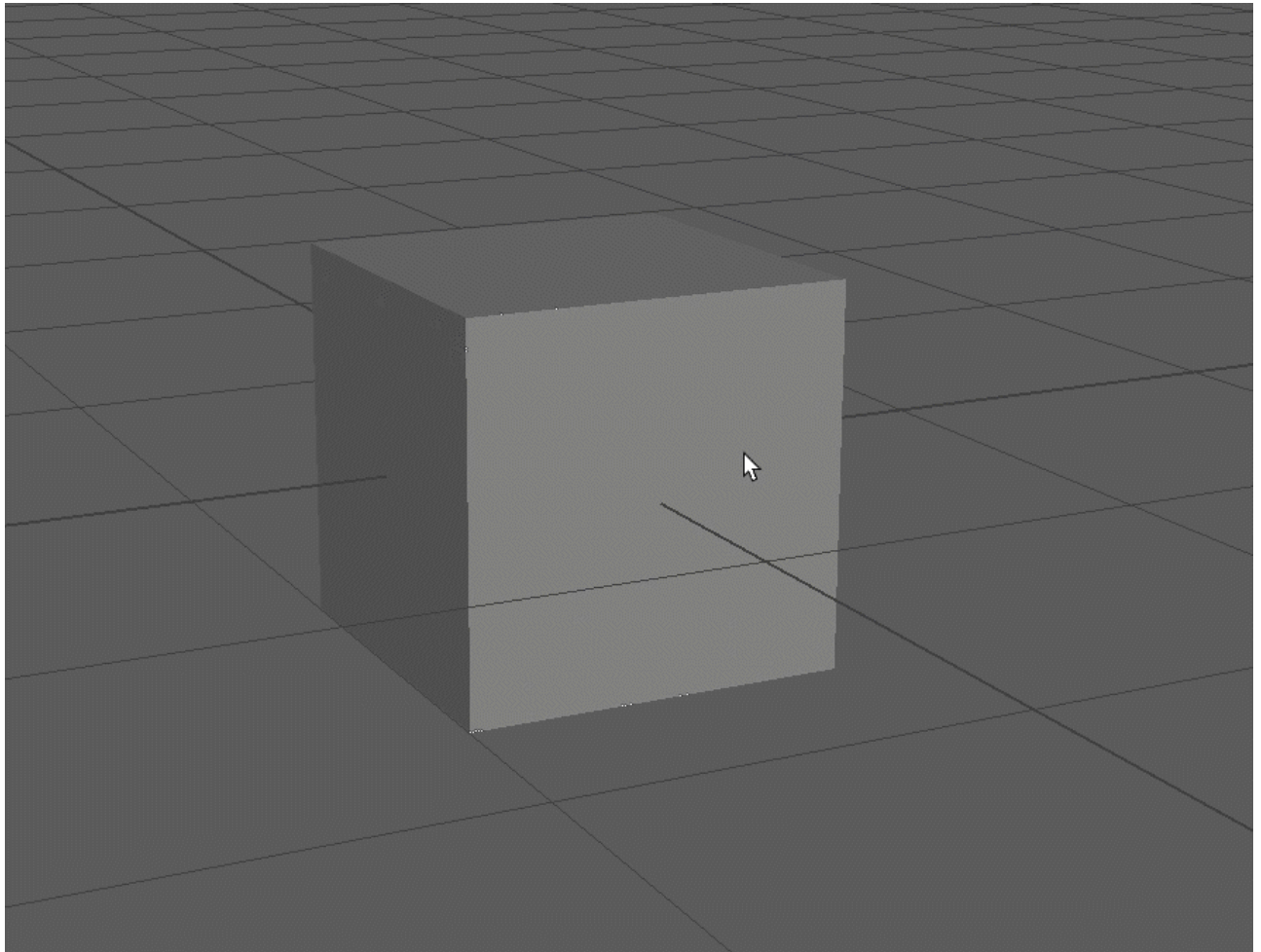
- The **Mouse wheel** zooms in and out



- Hold down **alt or cmd** and **left mouse button** to orbit



- Hold **alt** or **cmd** and **press the scroll wheel** to pan

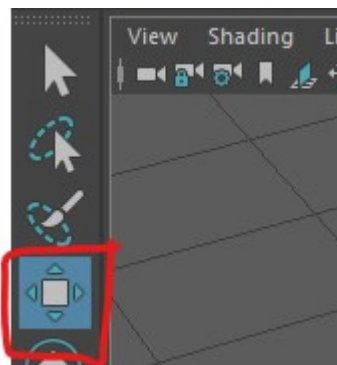


## Manipulate the cube

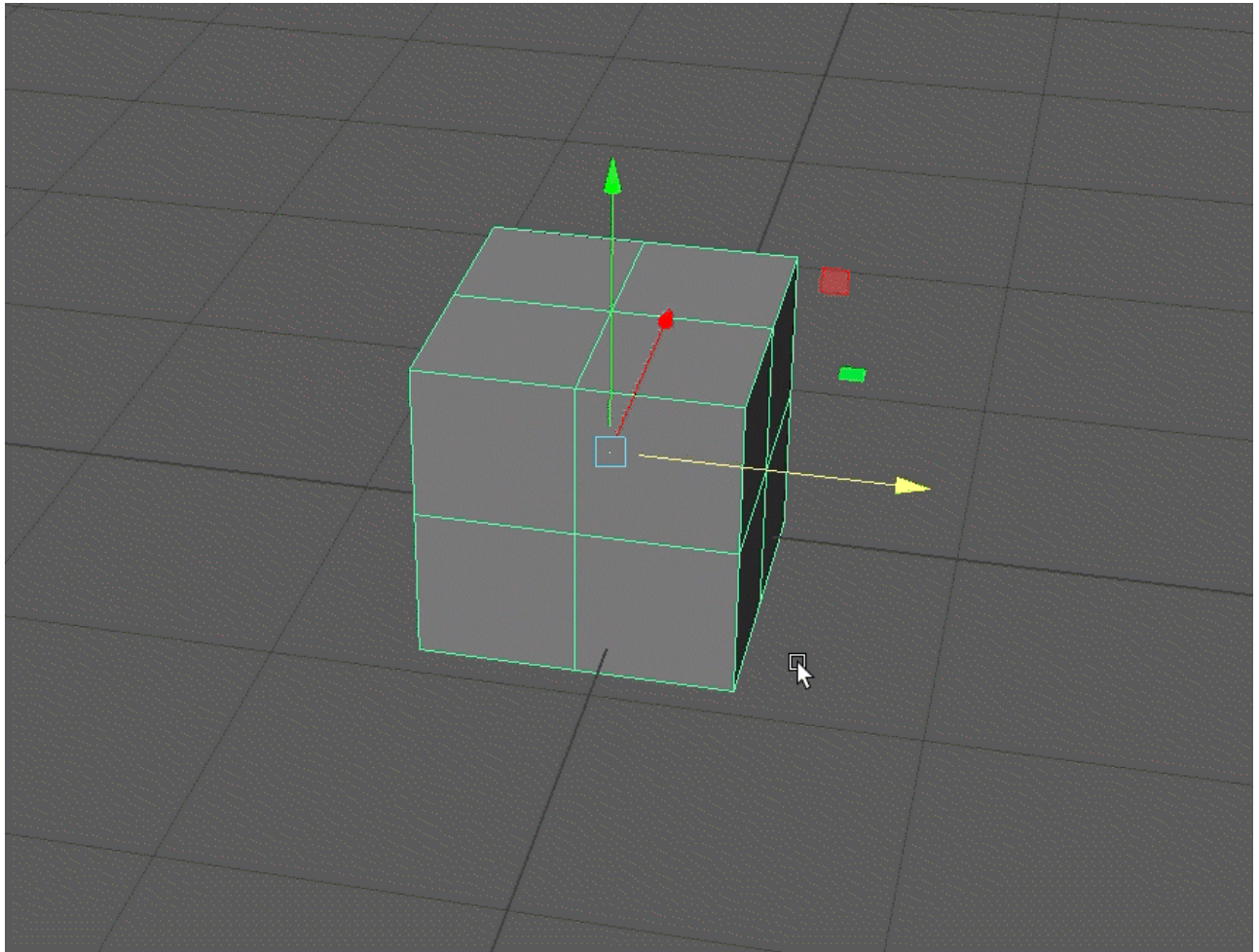
- Click on the cube to select it

### Move

- Click on the move button on the left side of the screen, or press **w** on the keyboard.



- Click and drag on the arrows to move the cube in the x, y or z direction.



- You should generally stick to the 3 coloured arrow never use the middle yellow square as this will move the cube relative to the camera.

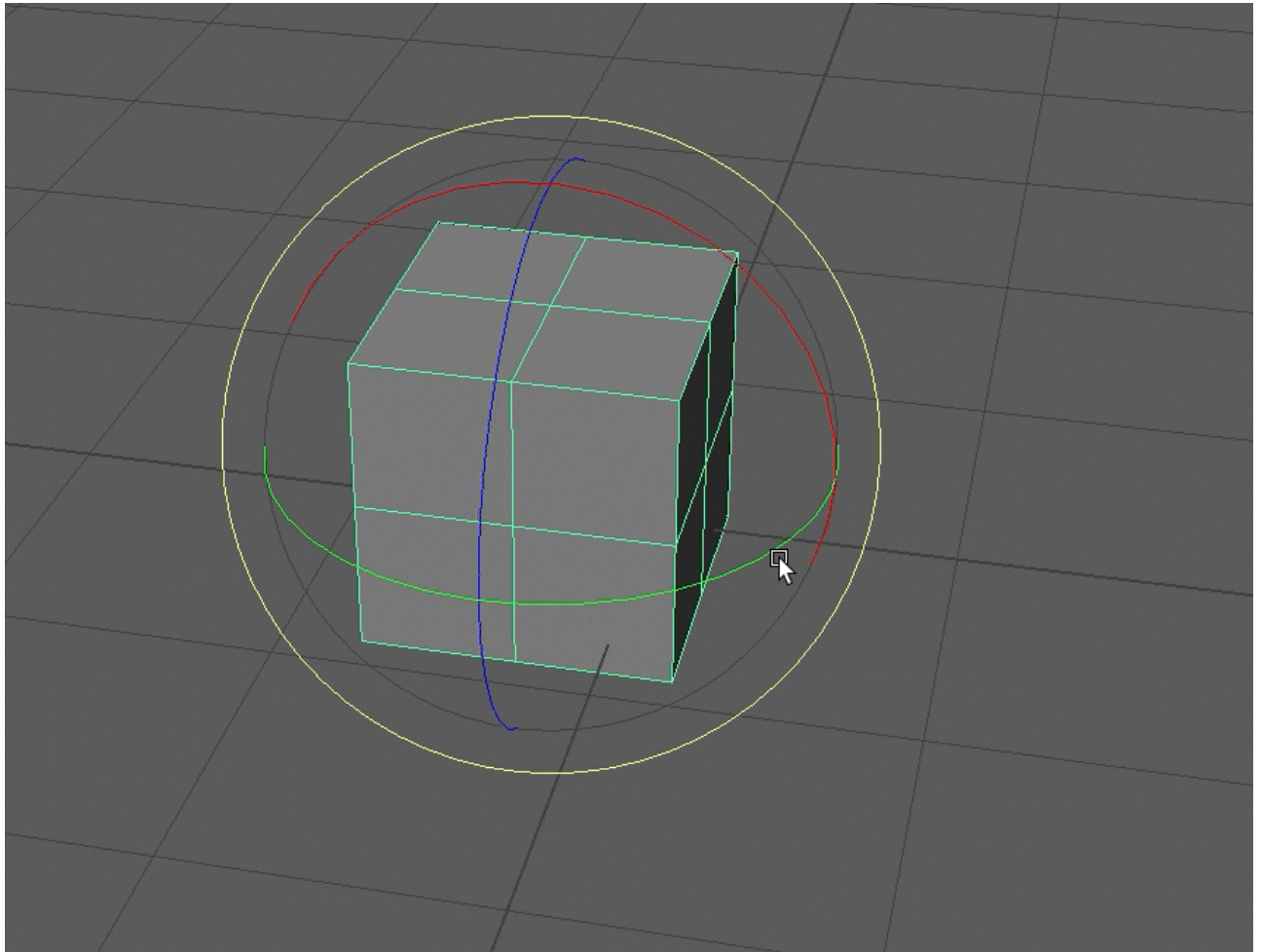
## Rotate

- Click on the rotate button, or press **e** on the keyboard



- Use the red, green and blue rings to rotate the cube in x, y and z planes.





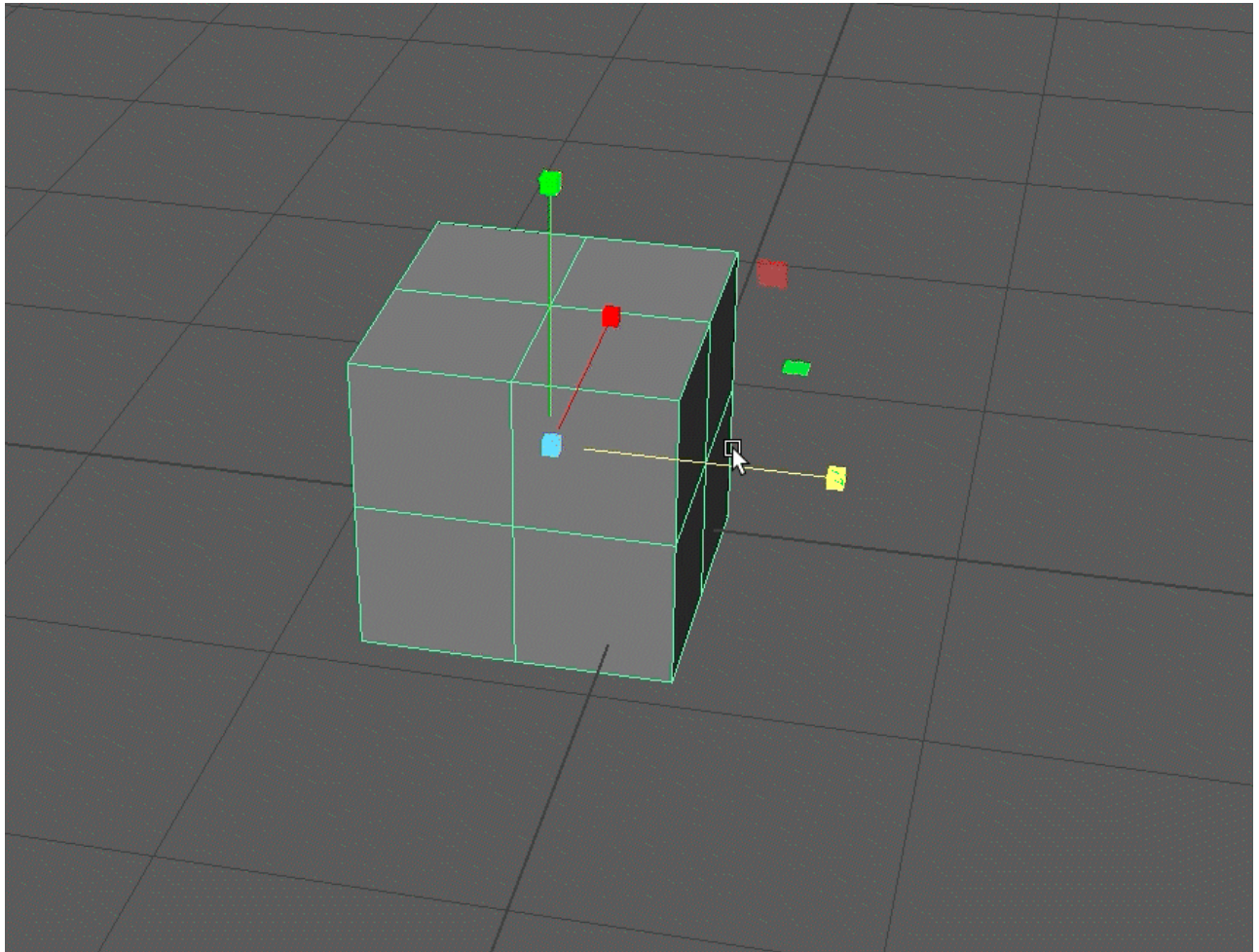
- Never use the outer light blue ring as this will rotate the object relative to the camera.

## Scale

- Click on the scale button, or press **r** on the keyboard



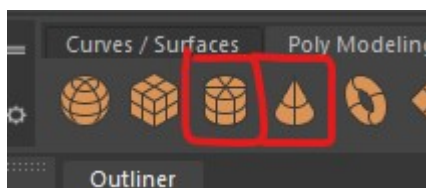
- Use the centre square to evenly scale the cube.



- Use the red, green and blue squares to scale the cube in the x, y and z directions only.

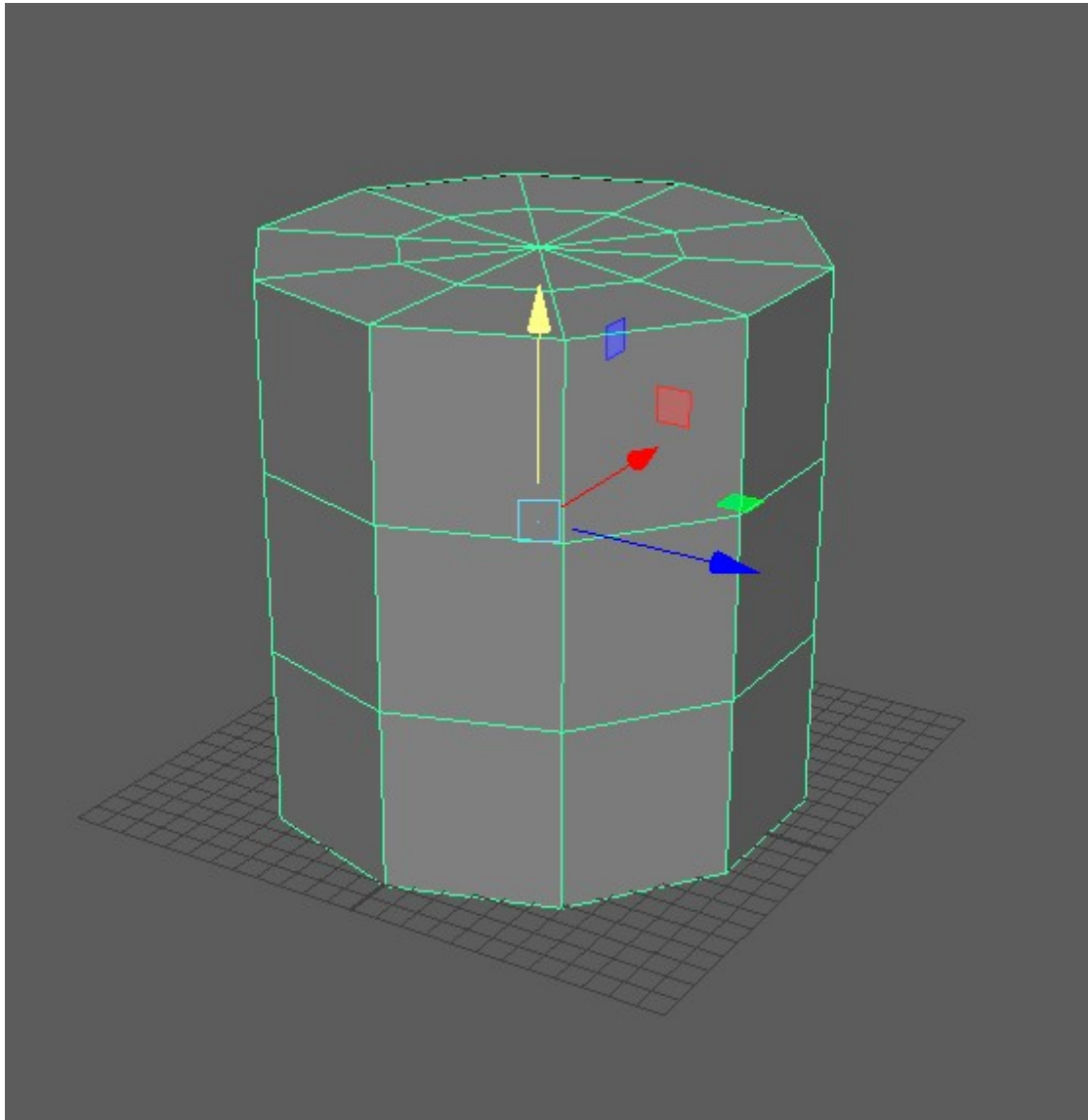
## More shapes

- Create a **cylinder** and a **cone**



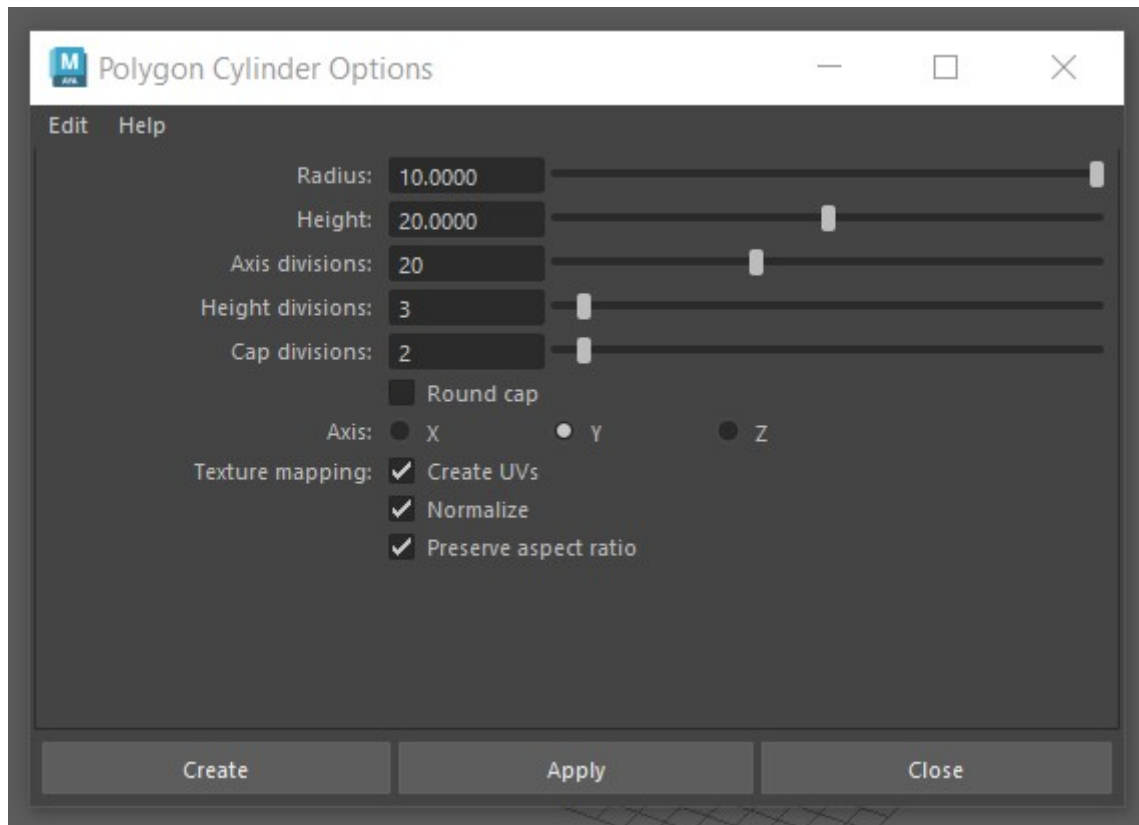
- By default the shapes have a low polygon count, you can see this clearly on the cylinder which doesn't look very round.





- Delete the cylinder shape by selecting it and pressing **delete** on the keyboard.
- Double click on the create cylinder button, this opens up the cylinder options.





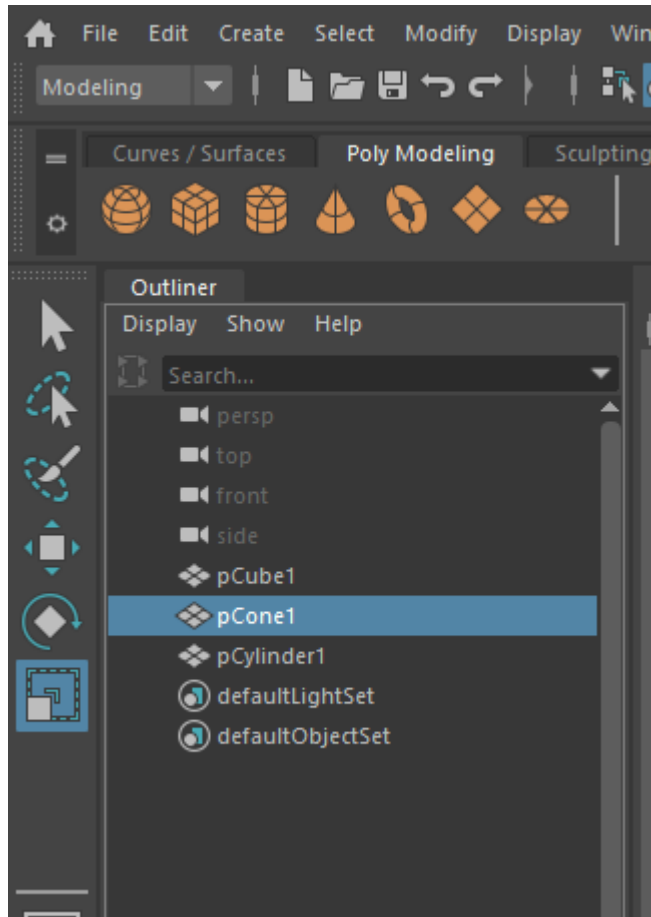
- Increase the axis divisions to 20 and make sure the rest of the numbers match mine.
- Press **Create** to add the cylinder to the scene.

## Outliner

- At the bottom of the left panel click the outliner button



- This will open the outliner panel which shows all the object in your scene.



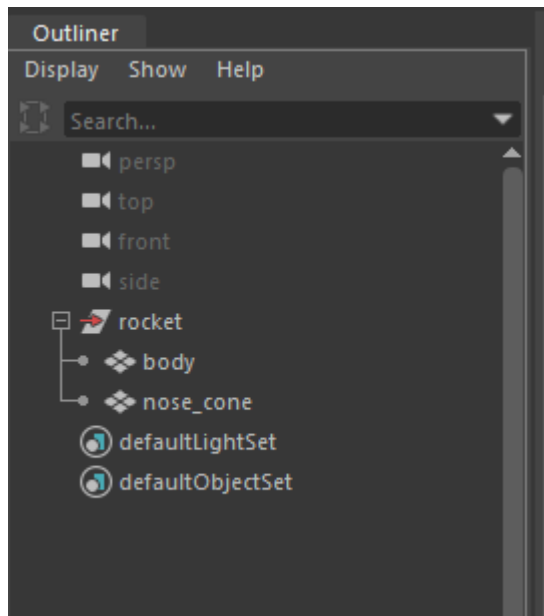
- Double click pCylinder and rename it to "body"
- Double click pCone and rename it to "nose cone"
- Rename or delete the other shapes as you want.

## Saving

- When using Maya save regularly to avoid losing work.
- Choose \*\*File > Save scene As.."
- Create a folder on your network drive called "principles\_of\_3D"
- Save the scene "worksheet\_1\_rocket" and save it.

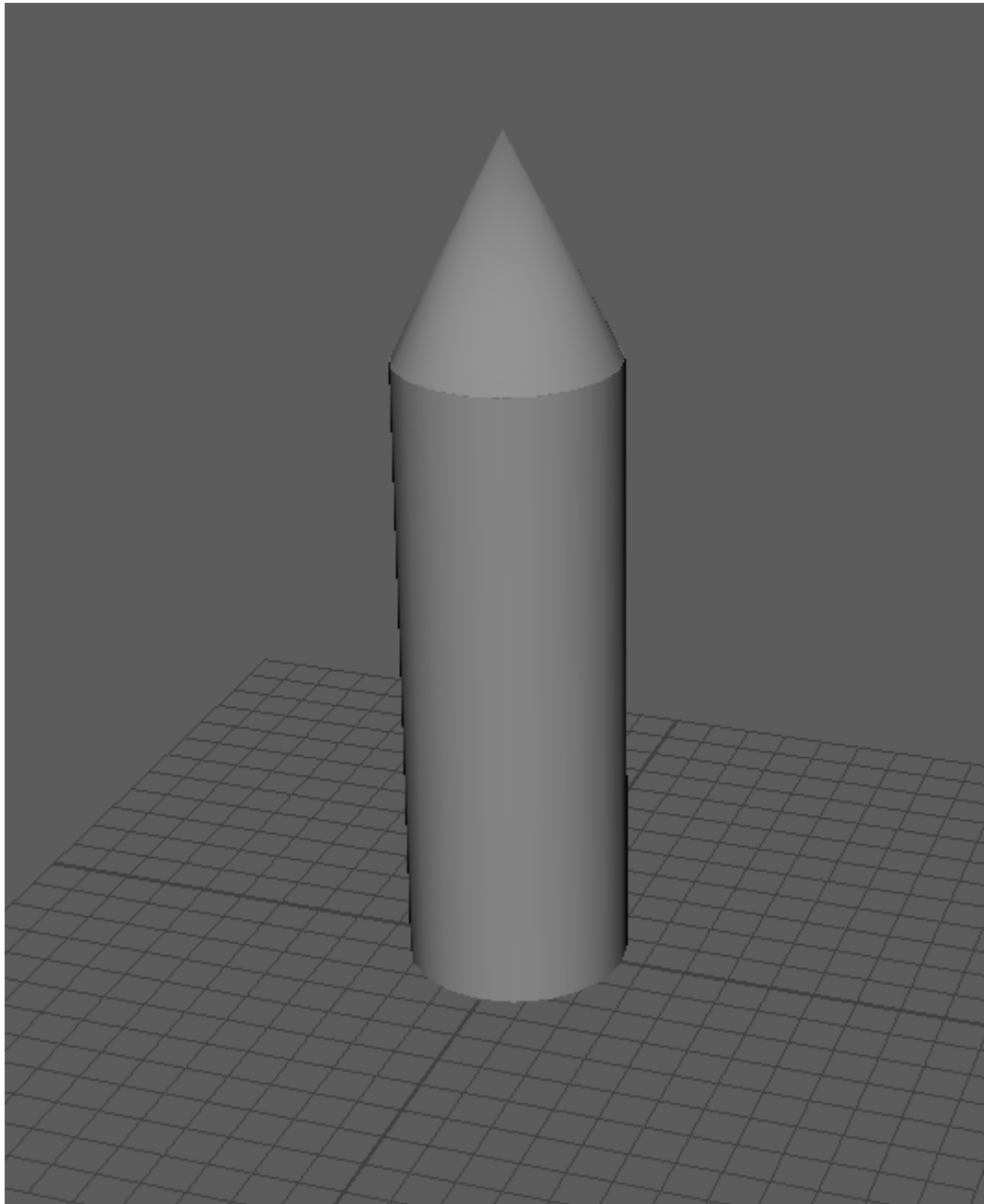
## Grouping

- Hold down shift and click the body and nose cone in the outliner.
- Press ctrl + G to create a group
- Double click the group and rename it "rocket"



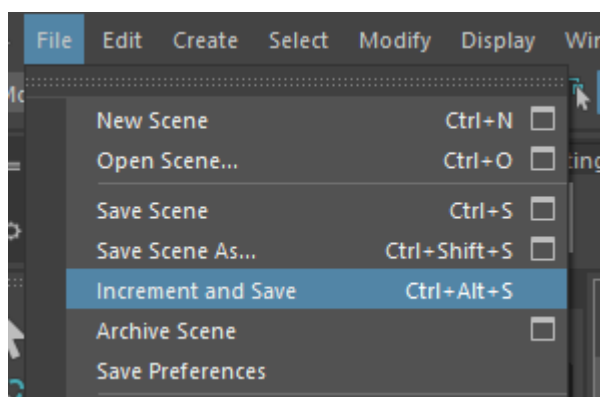
- You can use the outline to select items that may be hard to select in the scene.
- Position the nose cone and body appropriately in the scene, scale and rotate them as needed.





## Increment and save

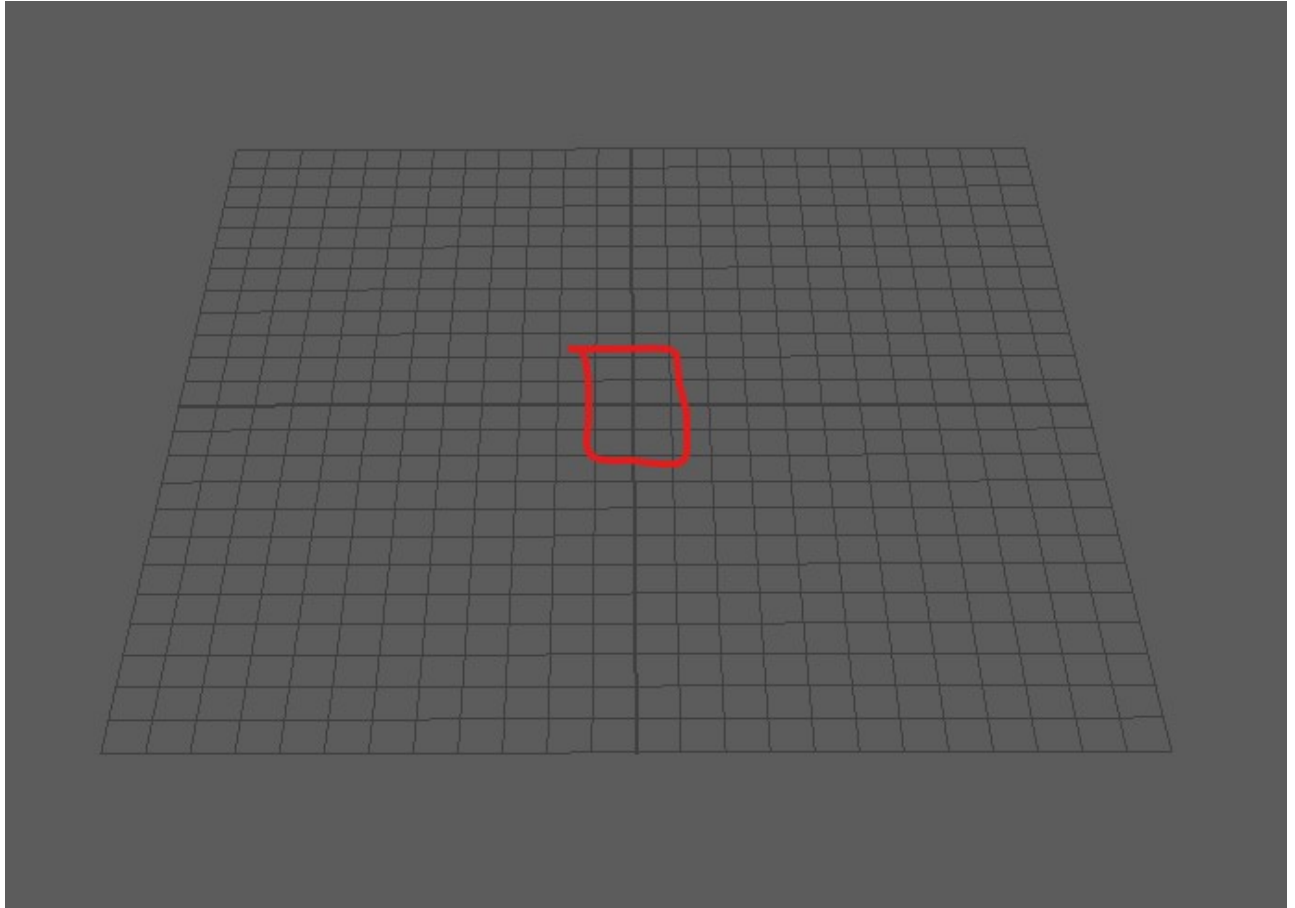
- go to File > Increment and save
- As you have already saved, you should now use Increment and save. This will create a new save file with a number at the end of the file name.



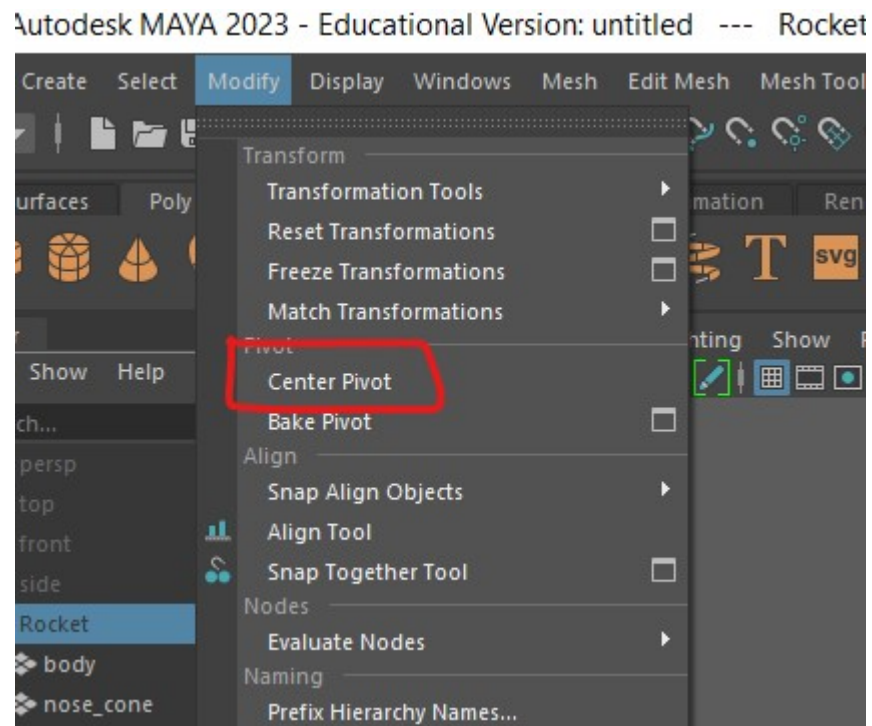
- Increment and save it very helpful as it allows you to go back to previous versions of your model.

## Centering

- It is important that you centre your final object so that it appears where expected when imported into other programs.
- The centre of your scene is called the origin, and is in the middle of the grid.

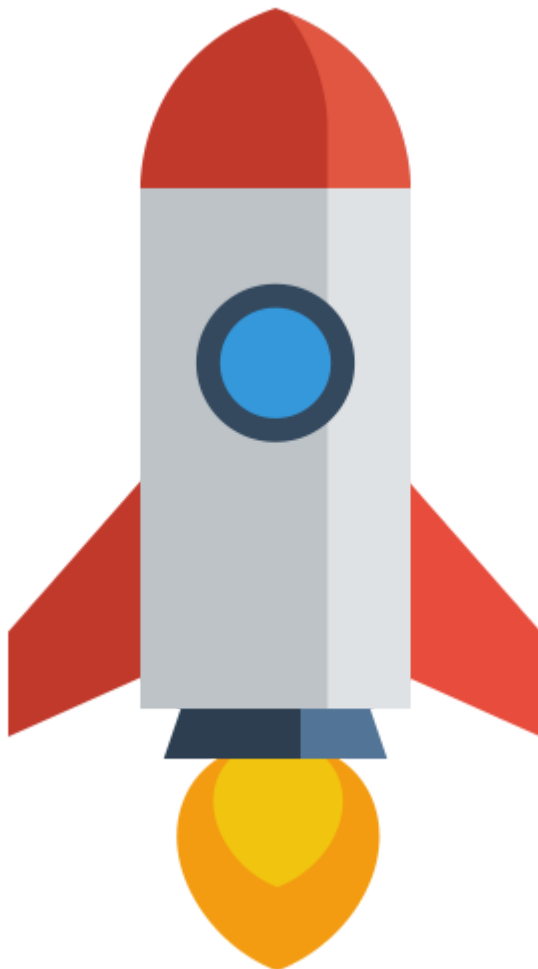


- To centre your group, first reset the pivot by selecting the group in the outliner and selecting **Modify > centre pivot**



- Then move your object so that it is in the middle of the grid.

## Final Challenge - Finish your rocket



- Your Maya skills will improve the more you practice, for this challenge practice the skill you have learnt so far.
- Use cubes, cylinders and cones, and experiment with other primitive shapes to create a simple retro rocket.
- Name all the parts in the outliner.
- Group them all appropriately.
- You should be regularly moving the camera around your object to check it looks good from all angles.
- Get in the habit of saving regularly.





In this worksheet you have learnt how to

- Create a new scene
- Navigate your camera around the scene
- Create polygons
- Manipulate polygons
- Save
- The outliner
- Grouping
- Increment and save
- Centring