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Basic transformations

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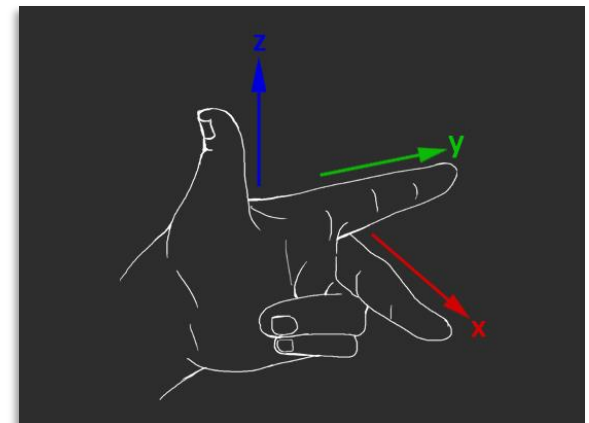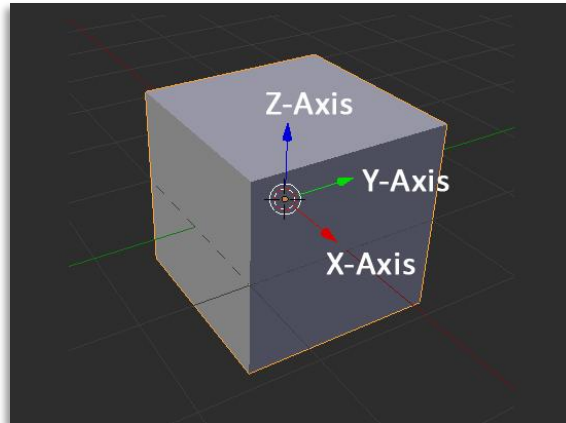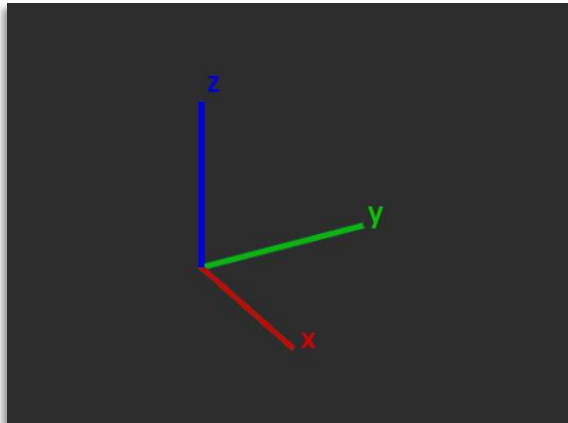
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Outline

- 3D axis

- Shortcuts to interact with 3D object

- Widget for 3D manipulator

3D axis

Axis	Color code	Dimension	Direction
X	Red	Width	Right/Left
Y	Green	Length	Forward/Back
Z	Blue	Height	Upward/Downward

Grab
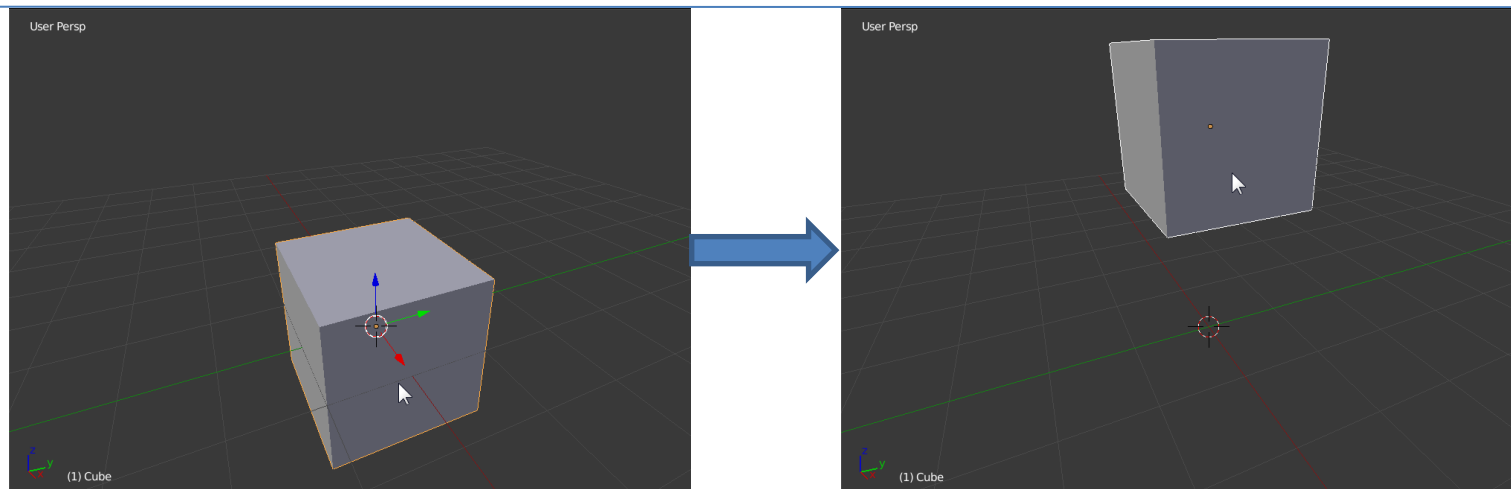
Keyboard ⌨	Mouse 🖱	Actions	Transformation	
			Accept	Cancel
G	Move mouse	Grab	Left click	Right click/Esc

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Object has a (default) yellow outline when selected, it changes to white when a transformation (grab, rotate or scale) is applied
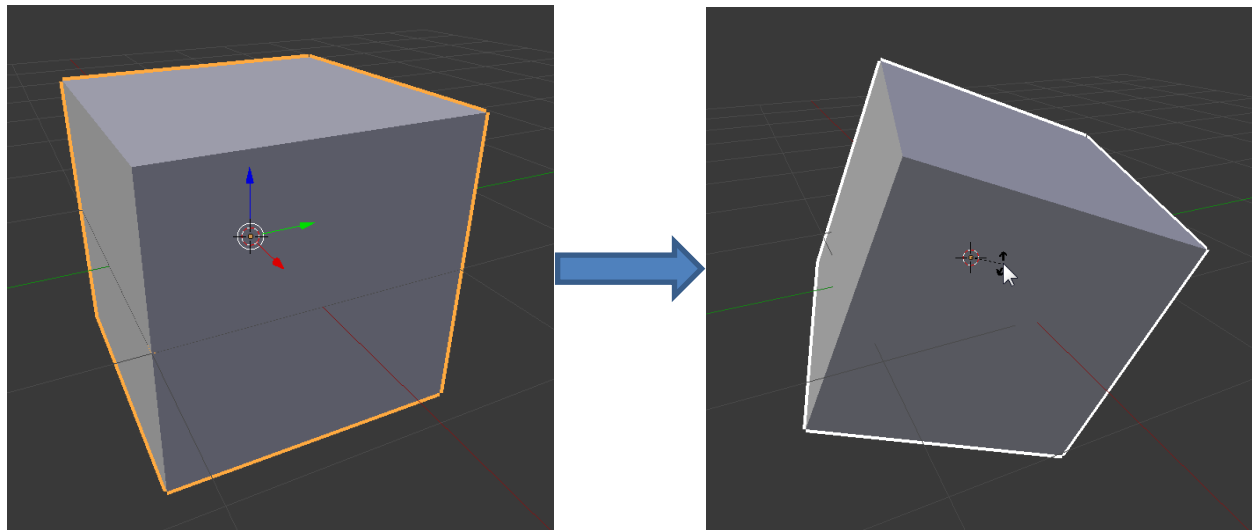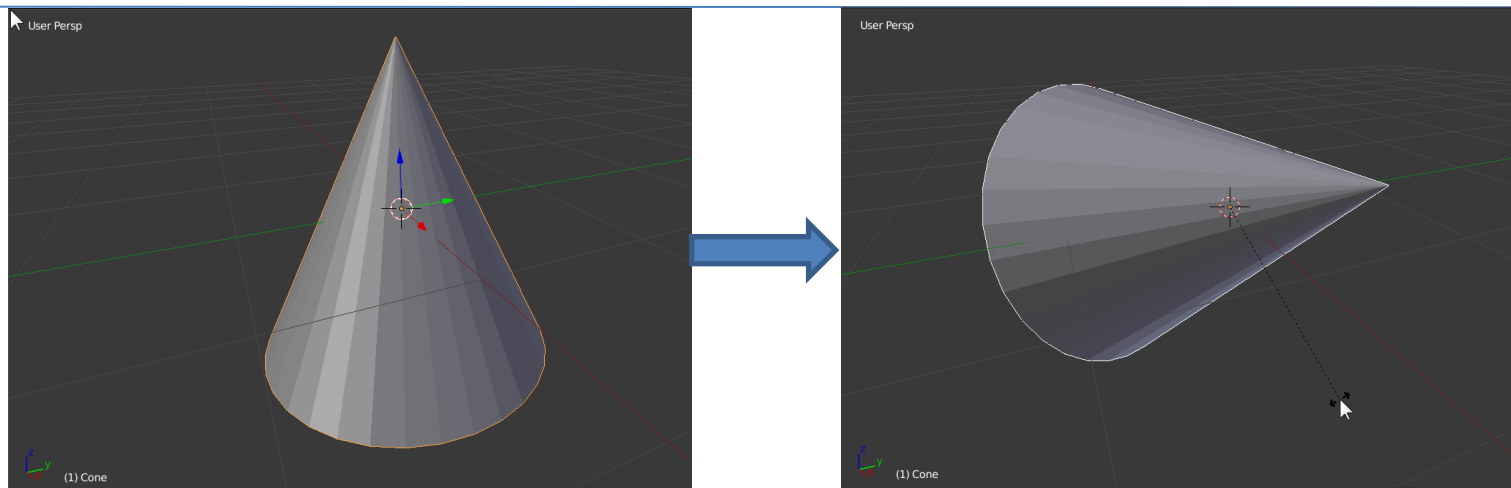
Grab along X, Y or Z axis

Keyboard ⌨	Mouse 🖱	Actions	Transformation	
			Accept	Cancel
G + X/Y/Z	Move mouse	Move object along X, Y or Z axis	Left click	Right click/Esc

Rotate

Keyboard ⌨	Mouse 🖱	Actions	Transformation	
			Accept	Cancel
R	Move mouse	Rotate	Left click	Right click/Esc

Rotate along X, Y or Z axis

Keyboard ⌨	Mouse 🖱	Actions	Transformation	
			Accept	Cancel
R + X/Y/Z	Move mouse	Rotate object along X, Y or Z axis	Left click	Right click/Esc

Scale
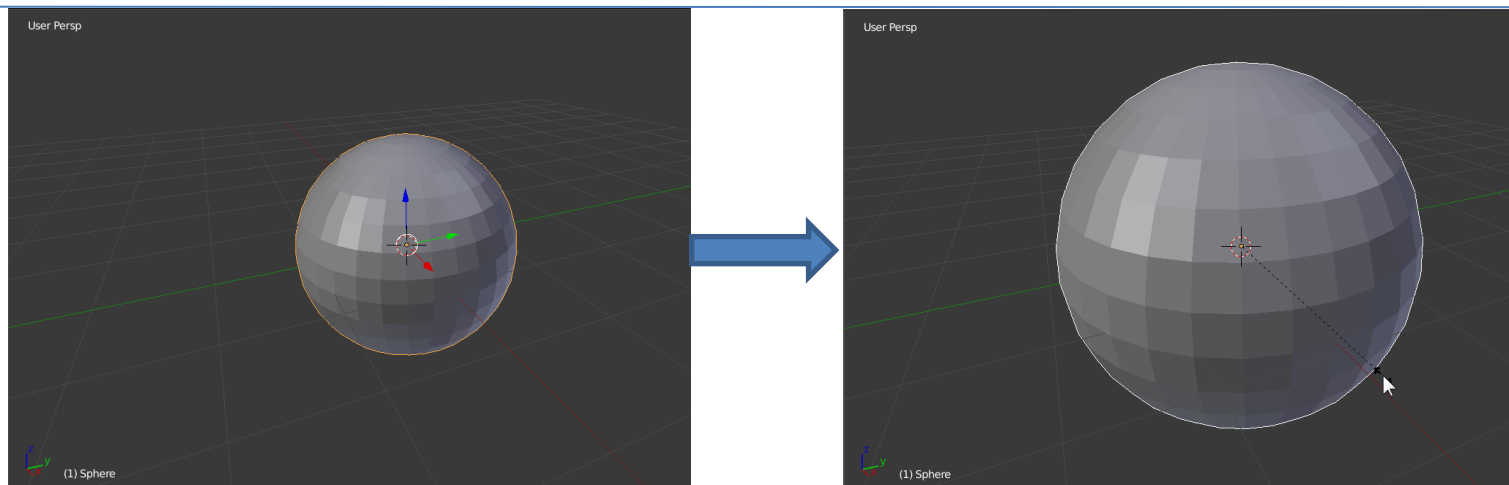
Keyboard ⌨	Mouse 🖱	Actions	Transformation	
			Accept	Cancel
S	Move mouse	Scale	Left click	Right click/Esc

Scale along X, Y or Z axis

| Keyboard ⌨	Mouse 🖱	Actions	Transformation	
			Accept	Cancel
S + X/Y/Z	Move mouse	Rotate object along X, Y or Z axis	Left click	Right click/Esc

Transformations

- Grab- select and move the object
- Rotate- change angle of the object
- Scale- change size of the object

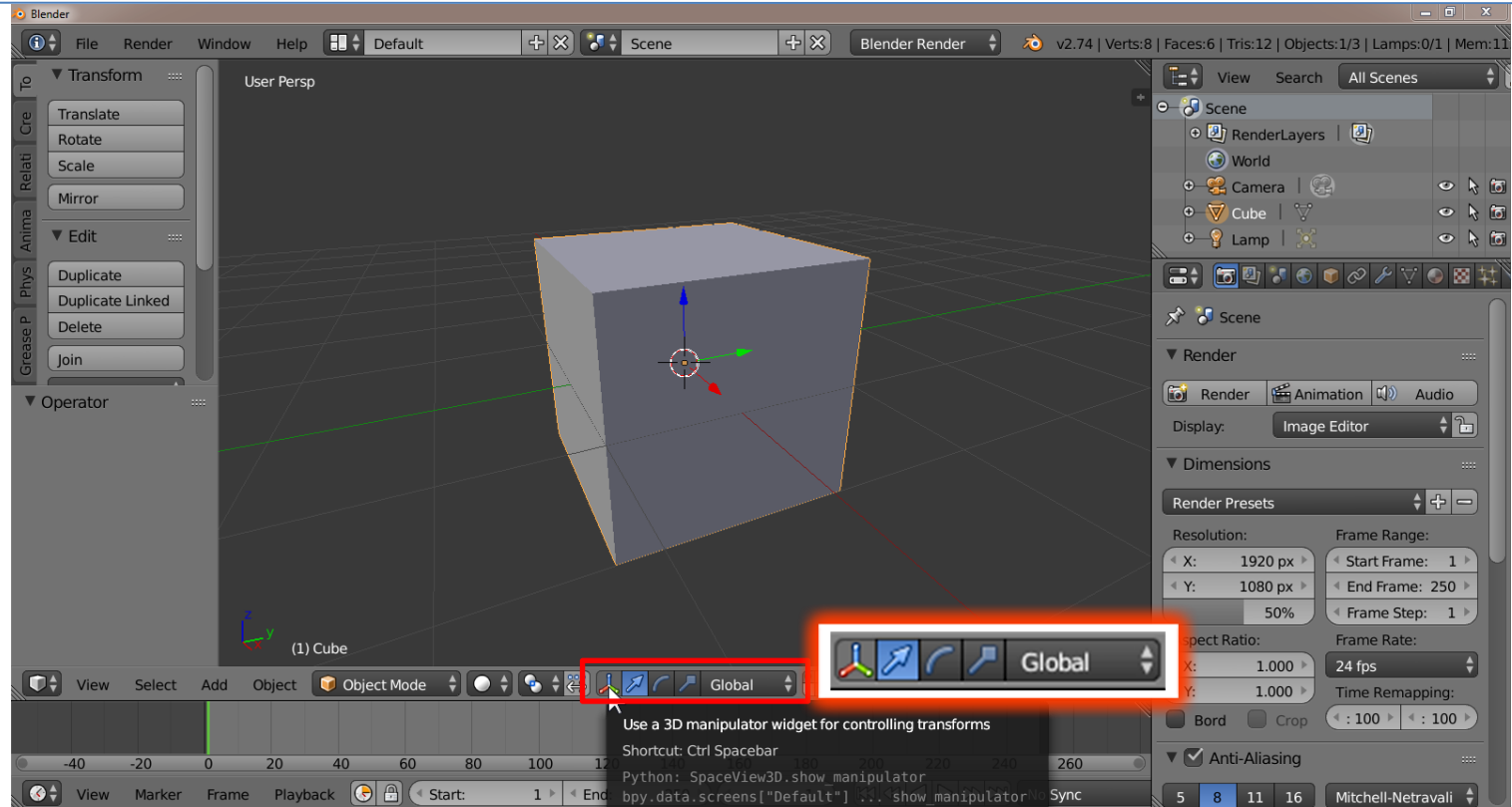| Grab		Rotate		Scale	
Keys	Actions	Keys	Actions	Keys	Actions
G	Grab	R	Rotate	S	Scale
G+X/Y/Z	**Move** object along X,Y or Z axis	R+X/Y/Z	**Rotate** object along X,Y or Z axis	S+X/Y/Z	**Scale** object along X,Y or Z axis

3D manipulator

Transform manipulators provide a visual representation of the transform options and allow movement, rotation and scaling along any axis, mode and orientation of the 3D view
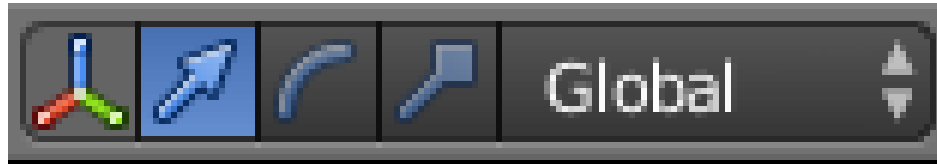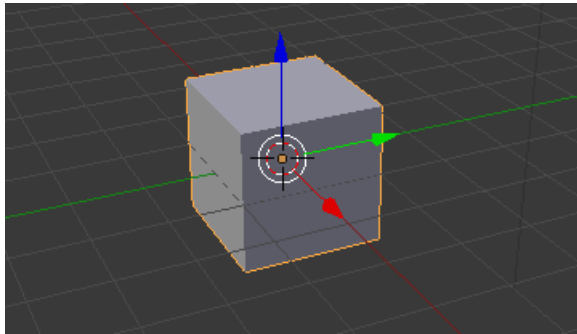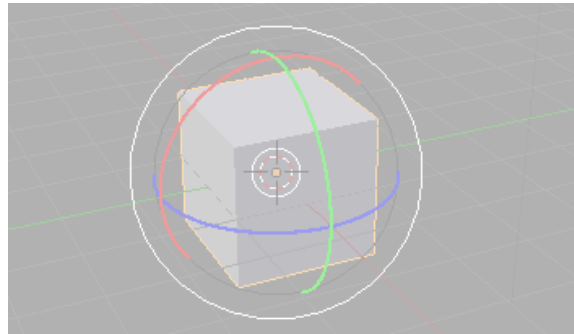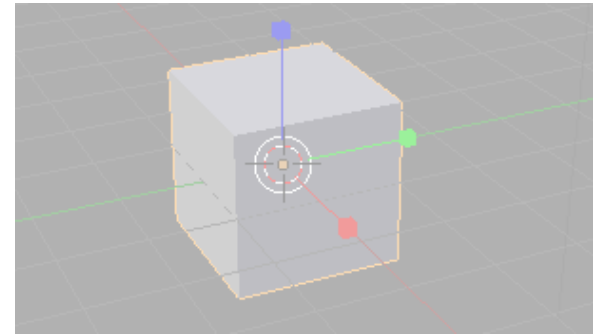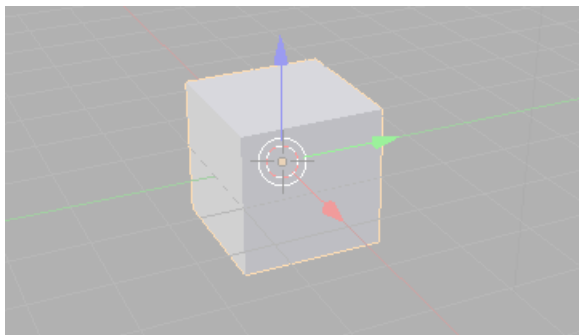
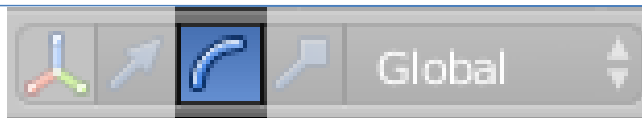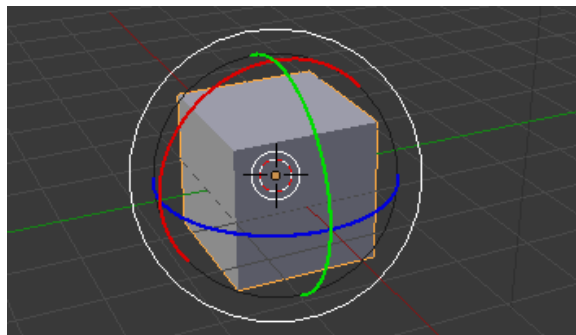# 3D manipulator

3D manipulator
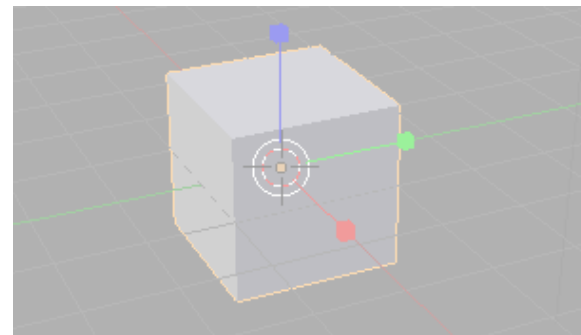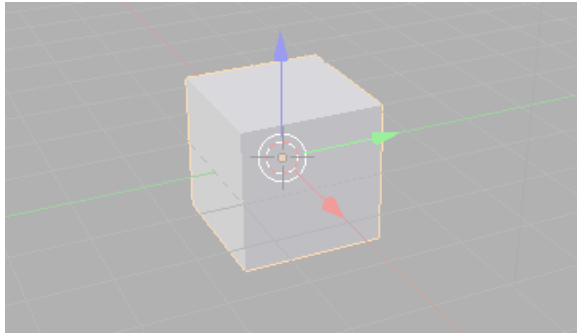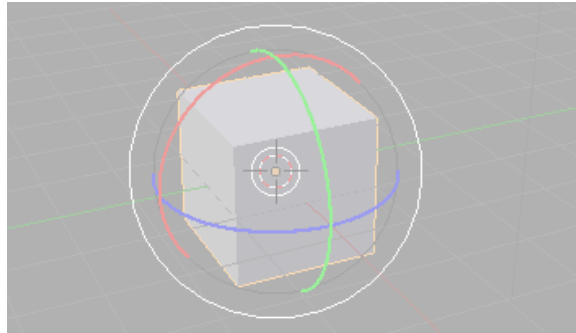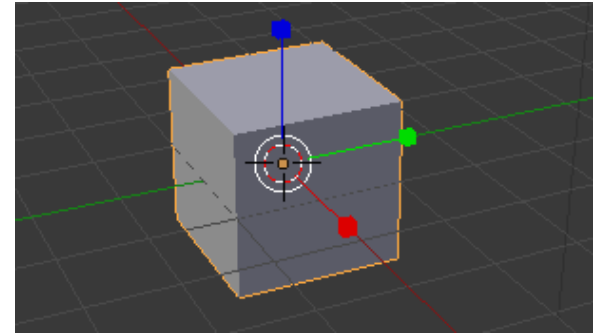

Default

Default

Grab

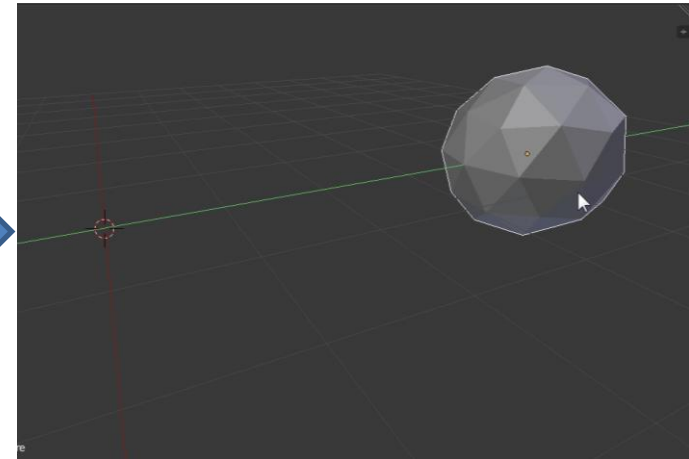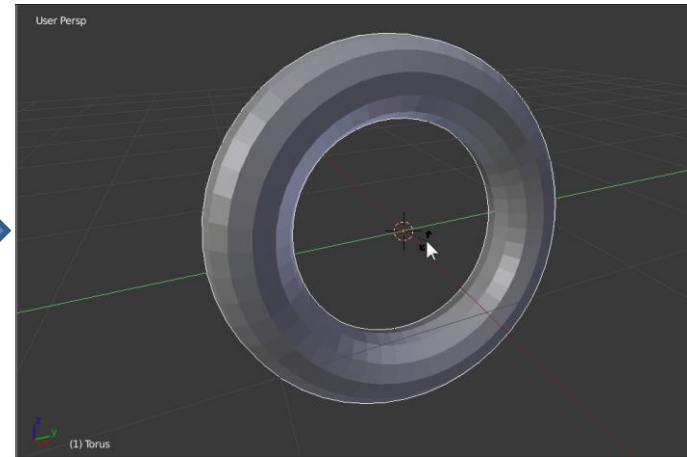Rotate

Scale

3D manipulator

Grab

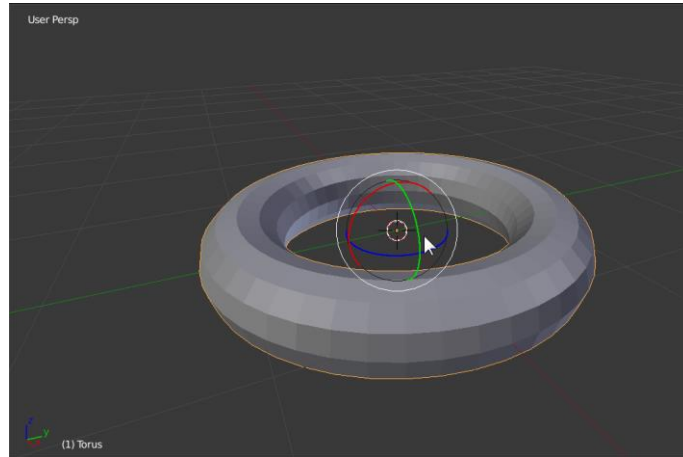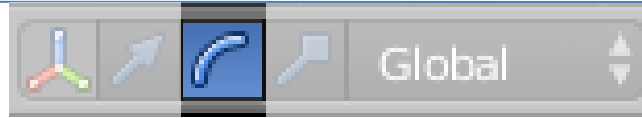Rotate

Scale

3D manipulator

Grab

Rotate

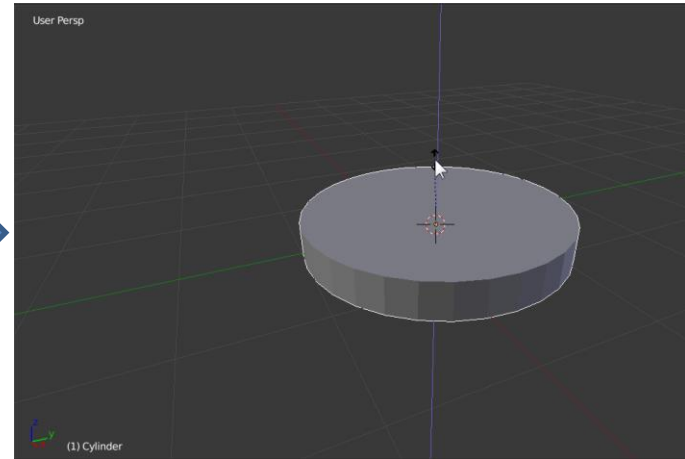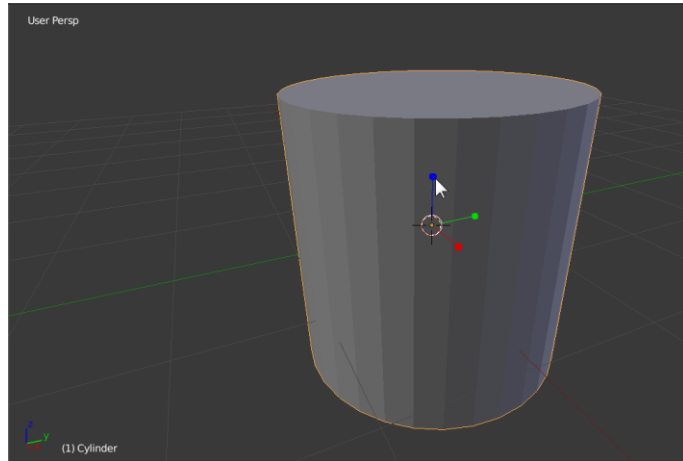**Scale**

Grab using 3D manipulator
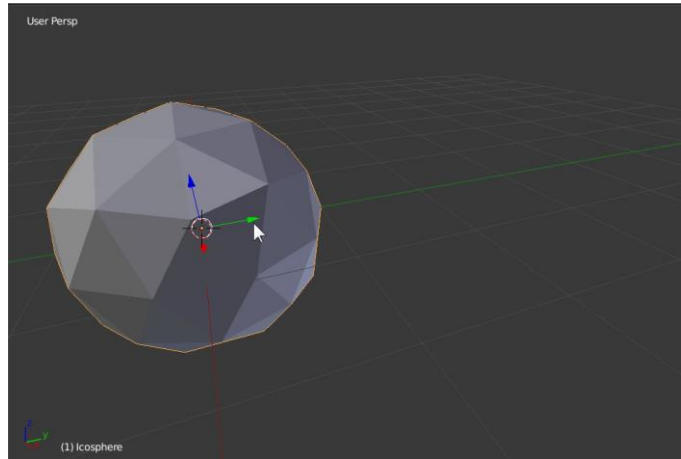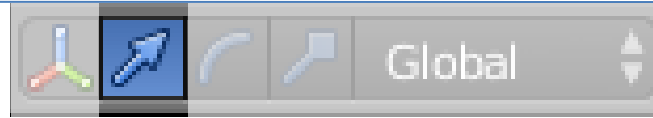
Left click and drag any of the 3D manipulator handle to grab the object in X, Y or Z axis

Rotate using 3D manipulator

Left click and drag any of the 3D manipulator handle to rotate the object in X, Y or Z axis

Scale using 3D manipulator

Left click and drag any of the 3D manipulator handle to scale the object in X, Y or Z axis

Next session

Camera setup