

# Viewing a Scene

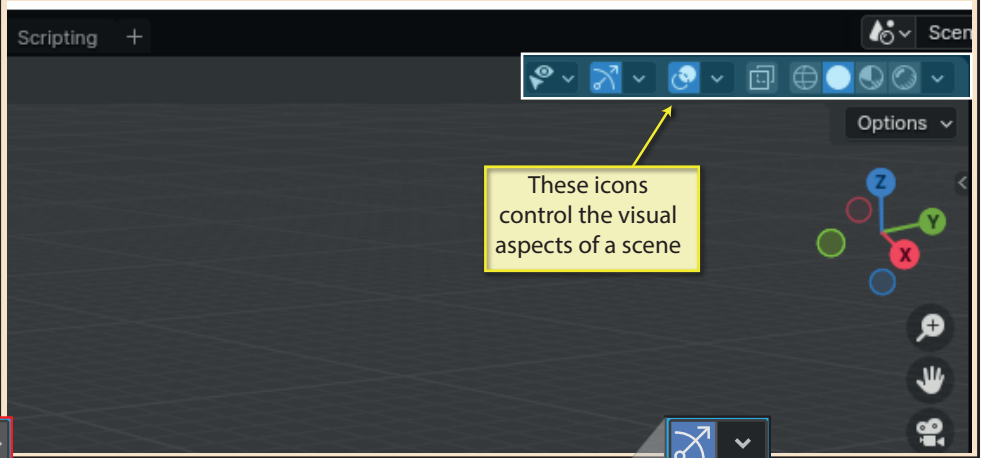
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When working in the **3D Viewport** there are several options available to us to control what elements are visible or selectable within our scene.

We can also control the colour of objects and the lighting of our scene.

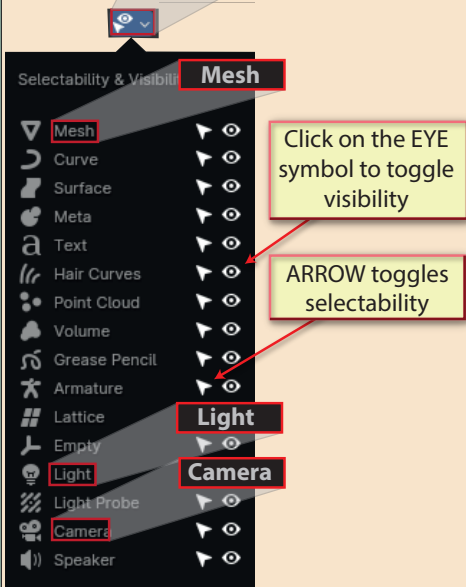
These colours and lighting effects can be set to be applied only while we are working on our scene or to be applied to the final render.

At the right of the **Header area** there are a set of icons that are responsible for controlling what and how we see the elements in our scene.



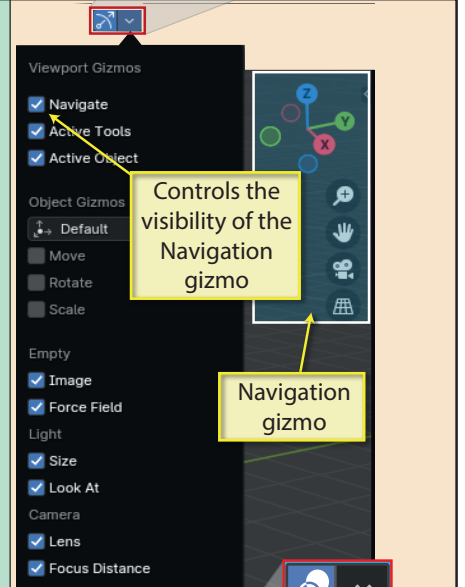
The first of these icons, is the **Selectability and Visibility** settings.

Clicking on its dropdown button displays a set of options which we can use to hide a whole class of objects with a single click or make that group of objects unselectable.



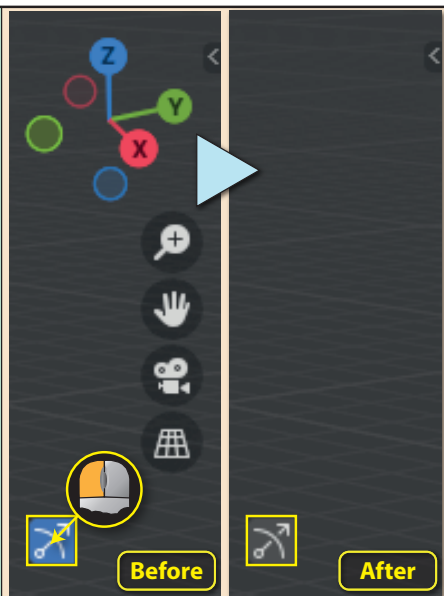
The second icon is named the **Gizmo Visibility** icon and affects the visibility of various controls that appear within the **3D Viewport**.

At this point we need only know that the first checkbox controls the visibility of the **Navigation Gizmo** icons.



Notice that the **Gizmo Visibility** icon has a blue background.

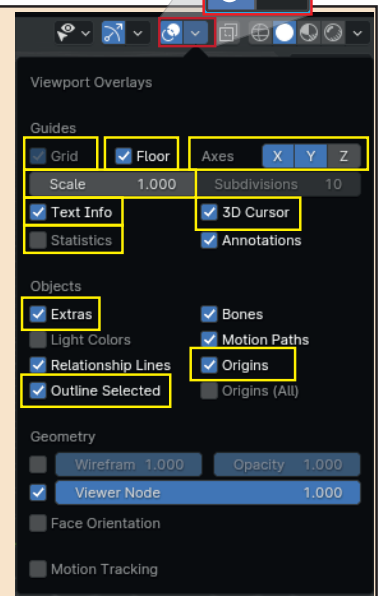
This indicates that the options selected within its panel are active. If we click on the icon itself, we can switch off all the options it contains as indicated by its now grey background.



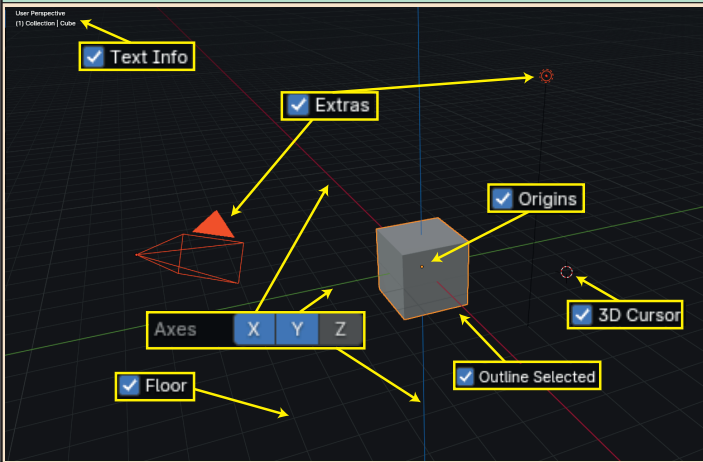
It's the third icon - **Viewport Overlays** - that supplies options which we are more likely to make use of.

Here we can show or hide items such as the grid floor, world axes, 3D cursor, object origins, and the orange outline around the currently selected item.

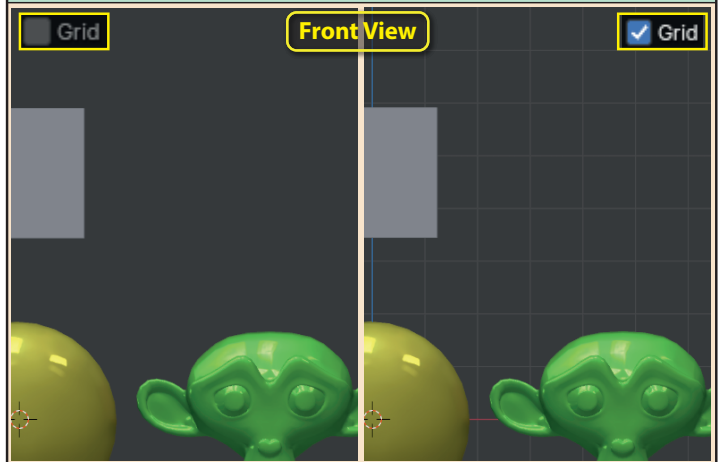
The checkboxes and buttons used to control these and other elements are outlined in yellow here.



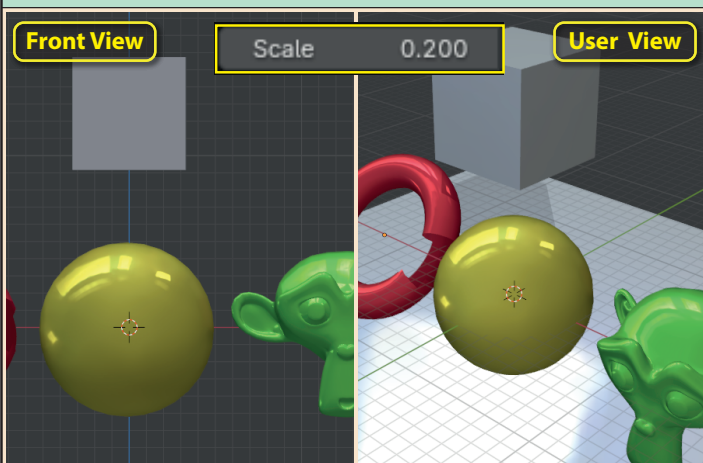
Below we can see the visibility controls matched to their various items.



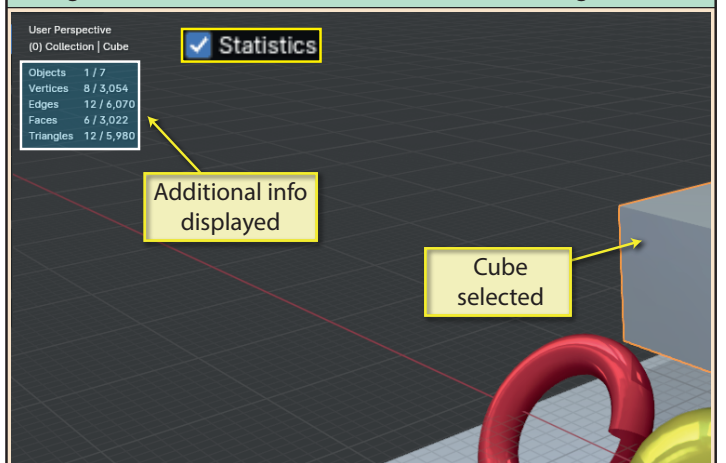
**Grid** controls the visibility of a grid which is available only when in a named viewpoint such as *Front*.



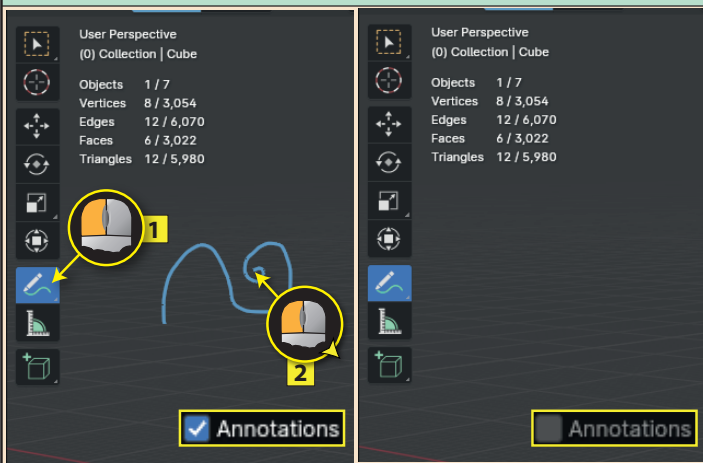
**Scale's** value determines the size of the squares on the *Grid* (if in a named view) or on the *Floor* (if in *User* view)



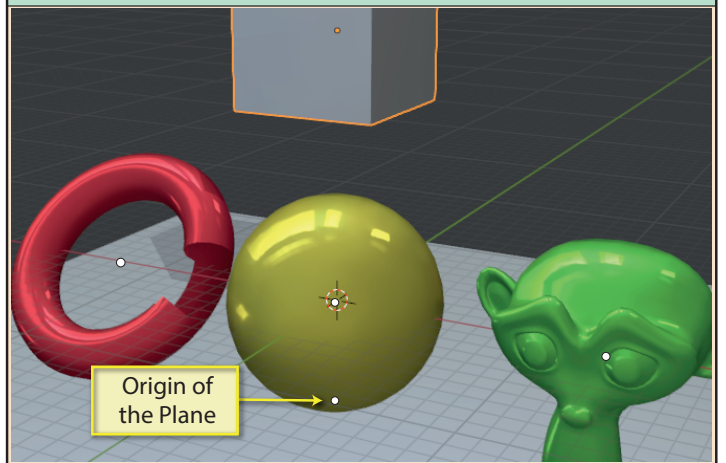
**Statistics**, if checked, displays additional information about the objects, vertices, edges and faces. The total values for the scene and the number currently selected are shown. The number of triangles are also shown since these are used in video games.



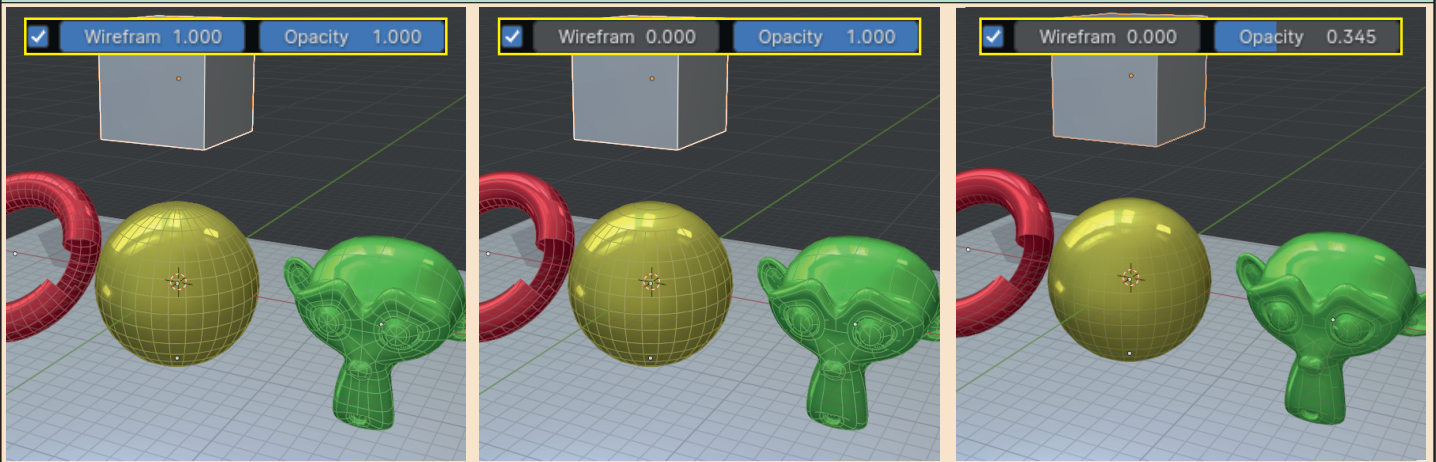
**Annotate**, when checked, displays any drawings created using the *Annotate tool* from the Toolbar.



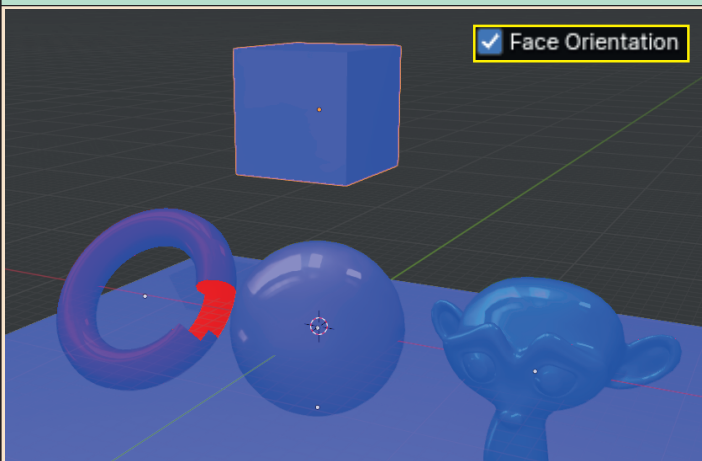
**Origins (All)**, when selected, shows the origin of every item in the scene - even those that are not currently selected. The origins of unselected items are shown in white.



**Wireframe**[sic] , when checked, displays the edges within a frame. Typically, when the edges are displayed in this way, we refer to the resulting display as *wireframe*. There are two parameters associated with this option. The **Wirefram** field adjusts how many edges are actually displayed. Lower values remove displayed edges that are common to faces that are at lower angles to each other. **Opacity** adjusts the visibility of all edges. Values close to zero make all edges disappear.



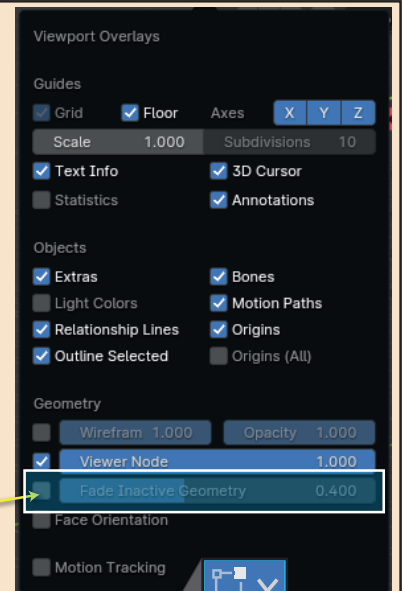
**Face Orientation**, when checked, displays front faces in blue and back faces in red. Normally, back faces are hidden, but below we can see that some back faces are exposed within the opening in the torus.



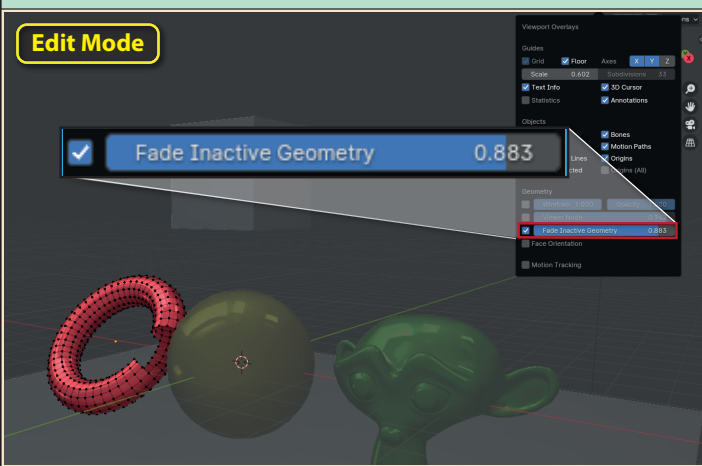
One more option is added to the **Viewport Overlays** panel when we enter **Edit Mode**.

The new **Fade Inactive Geometry** entry allows us to control the visibility of unselected objects. This can be useful if these objects obscure the one we are trying to work on.

New option available in **Edit Mode**



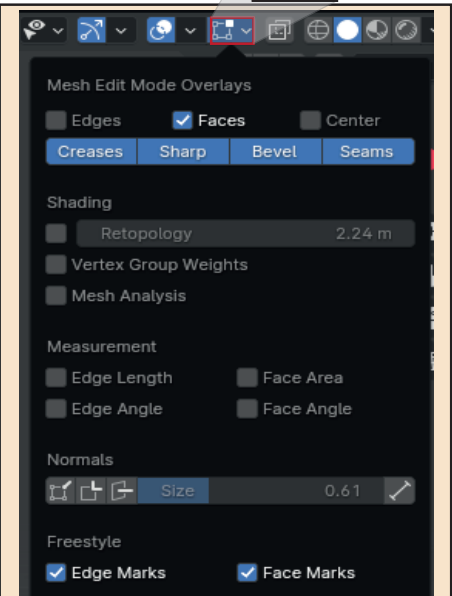
In the example below, the **Torus** has been selected before entering **Edit Mode**. The **Fade** option has then been used to reduce the visibility of other elements.



Another result of entering **Edit Mode** is that we are presented with an additional entry in our block of icons.

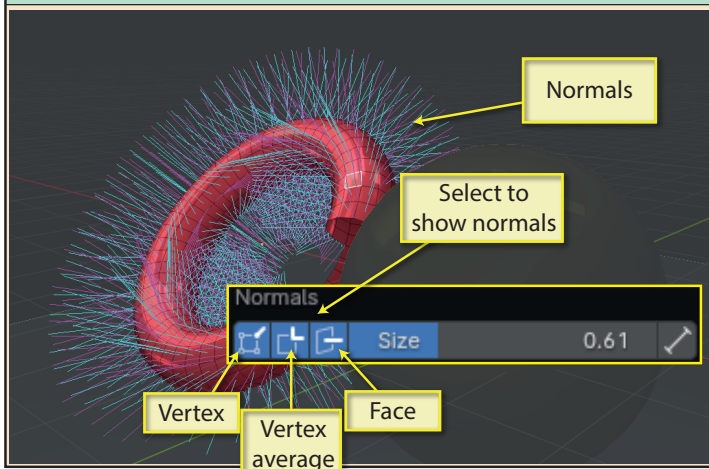
This is the **Edit Mode Viewport Overlays** icon with its advanced set of options.

Most of these can be ignored at this time, but one item of interest is ...

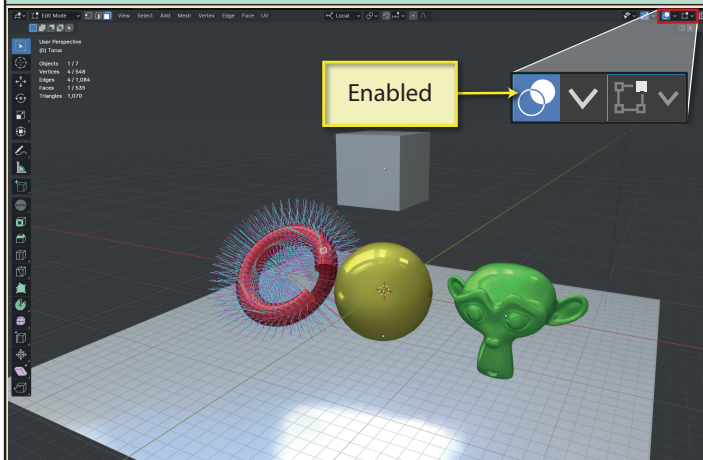




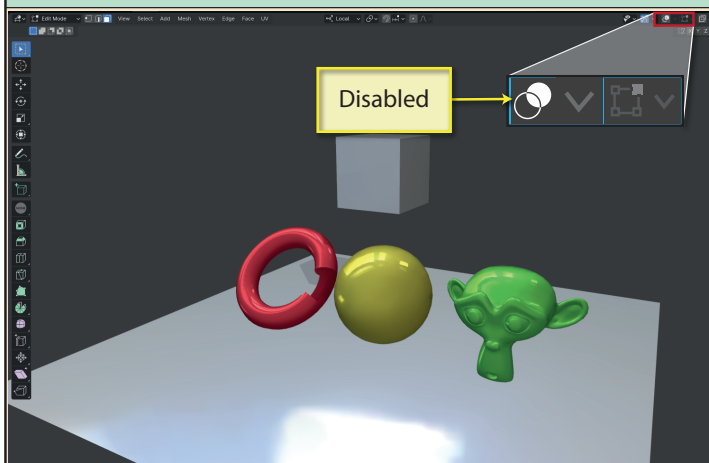
...the **Normals** option. This allows us to make normally invisible **face**, **vertex**, and **vertex average** normals show on the screen. Each normal type is colour-coded. The value to the right adjusts the length of the normals.



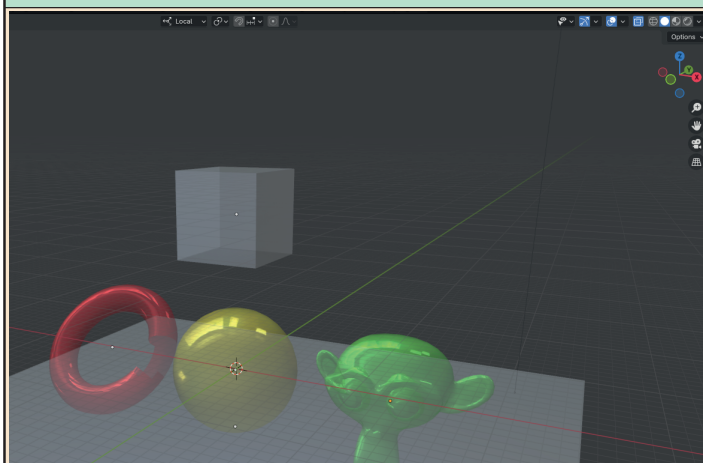
Like the *Gizmo Visibility icon*, the **Viewport Overlay** icon can be deactivated by clicking on it to disable every option that has been selected within its panel. Below we can see the display when the options are active.



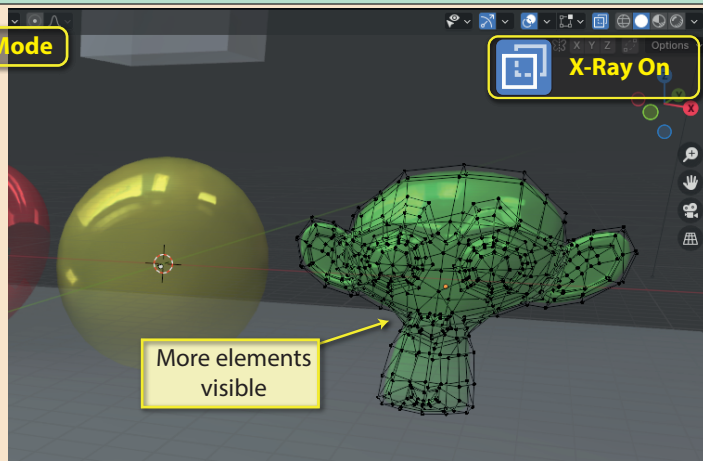
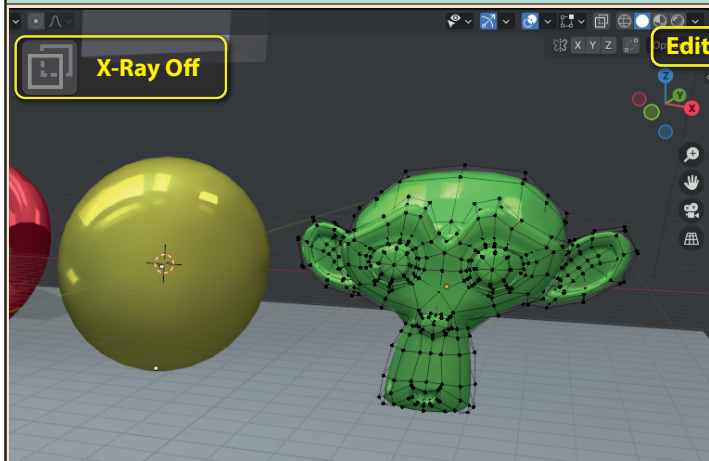
When the *Overlay Visibility icon* is disabled, the *Edit Mode Overlay Visibility icon* is also automatically disabled.



The next icon is the **X-Ray Mode icon**. This icon - which has no dropdown panel - adds a level of transparency to all the objects in our scene as shown below.

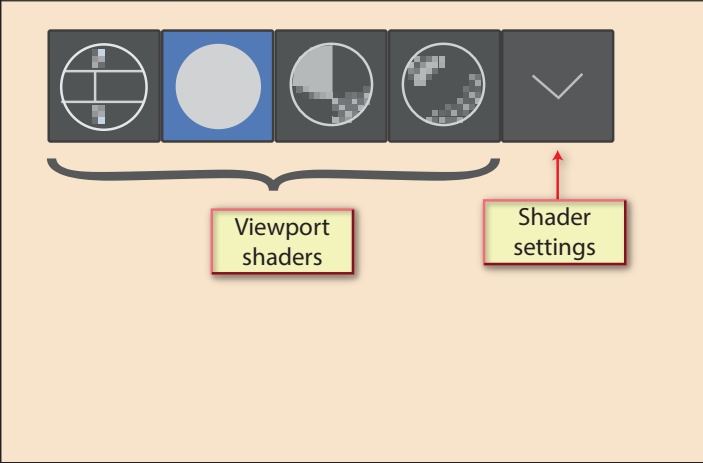


However, *X-Ray Mode* is really designed to be used in **Edit Mode** where it allows us access to elements of the currently selected mesh that would normally be hidden from our viewpoint.

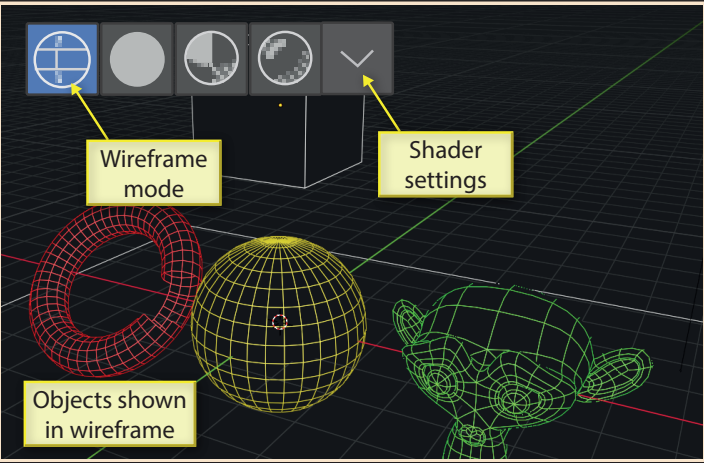




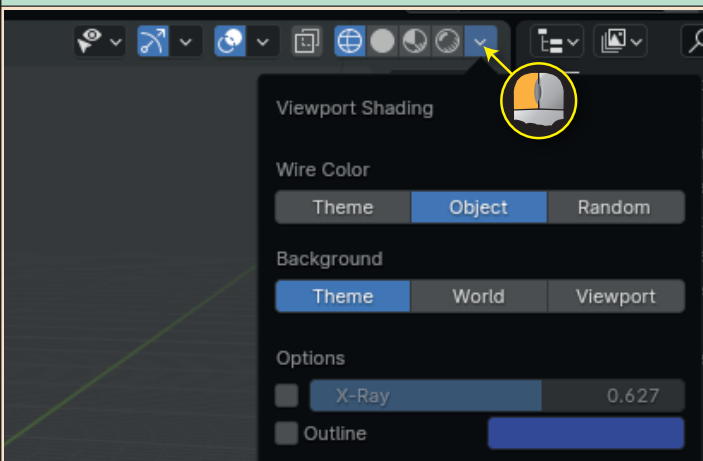
The final four icons control the shading in the **3D Viewport**. Because they share a common purpose and are mutually exclusive, they appear together in a group with the **Shader Settings** button at the end of the group.



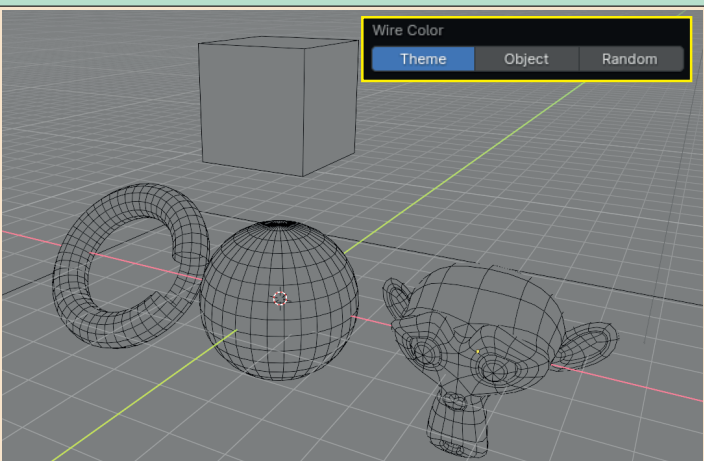
The first of the group displays the scene in **Wireframe mode**, showing the edges that make up the meshes in our scene.



The **Shader Settings** button creates a panel with several entries as shown below.

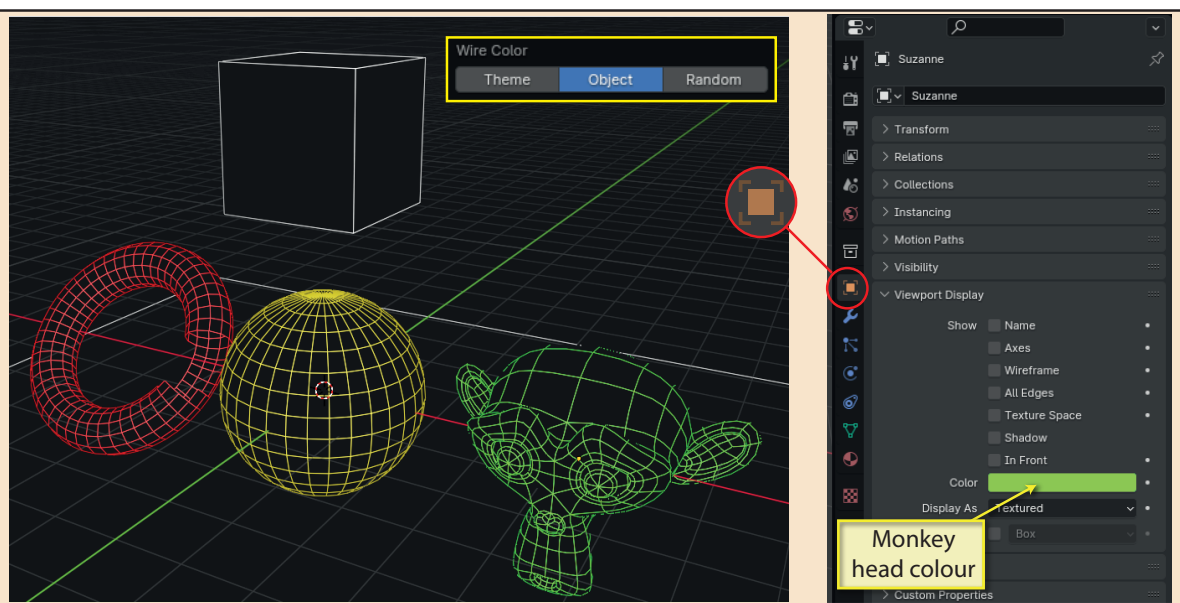


**Wire Color** determines the colour of the mesh edges. **Theme** uses the colour specified for the Blender theme we selected in the first Splash Screen. All meshes are assigned the same colour.

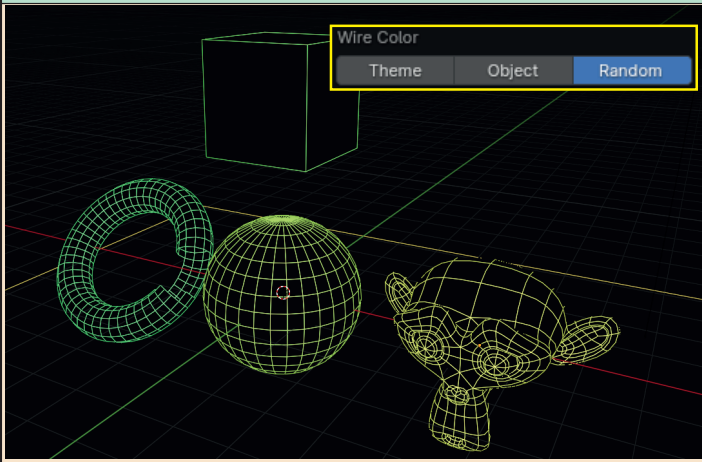


**Object** colours the edges according to the colour set up for each object in its **Properties Editor's Object Properties** page.

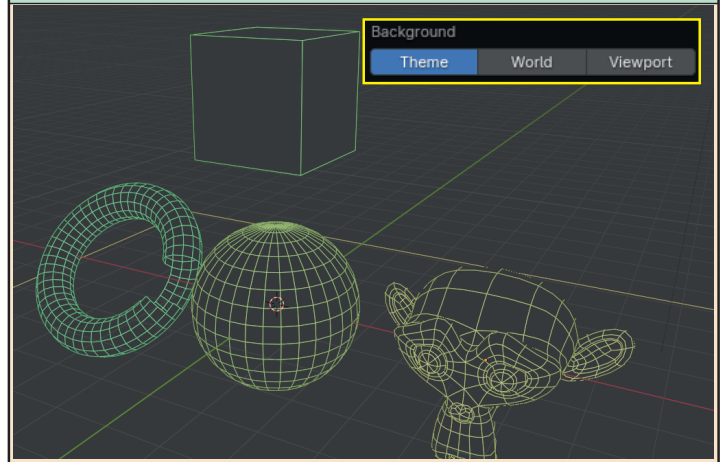
On the right we can see that page for the monkey head.



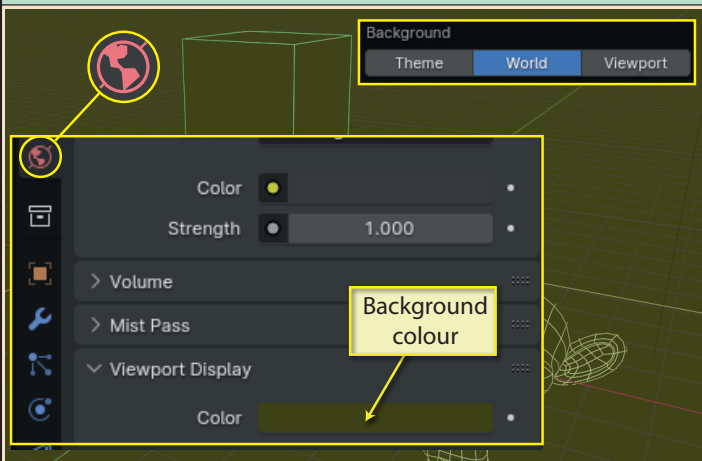
**Random** assigns a random colour to the each object's edges.



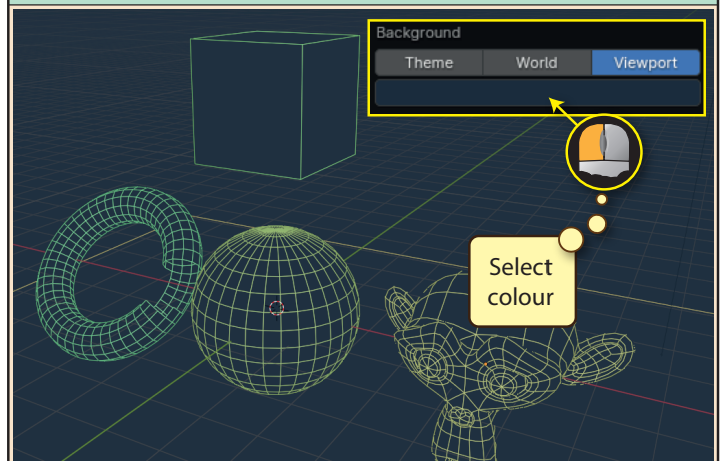
**Background** is the next heading in the panel. Again, there are three possible values. **Theme** uses the colour specified in our selected theme.



**World** uses the colour defined in the *Properties Editor's World Properties page* in the entry *Viewport Display>Color*.



**Viewport**, when selected, creates a colour bar where we can select any colour for the background.



Returning to our **Wireframe** parameters panel, the next heading is **Options**. Here we find **X-Ray**. When switched on, this displays edges that are normally invisible from our viewpoint. The associated value adjusts the opacity of these newly seen edges.

