

Blender 3.4 splash screen*



Introduction to Blender 3.5

Paolo Zuzolo

PhD student UNIBO

paolo.zuzolo2@unibo.it



studio.blender.org

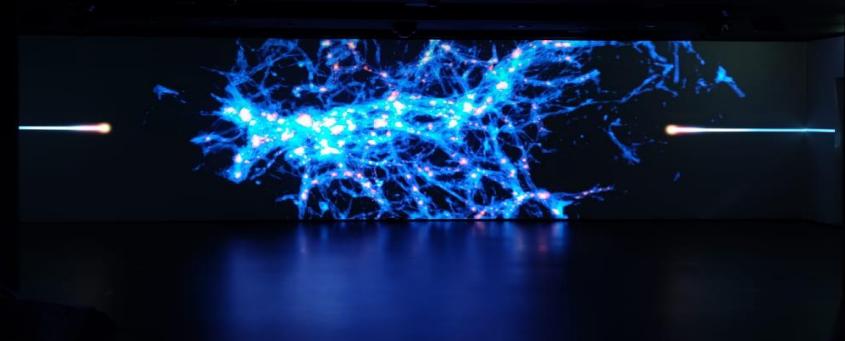
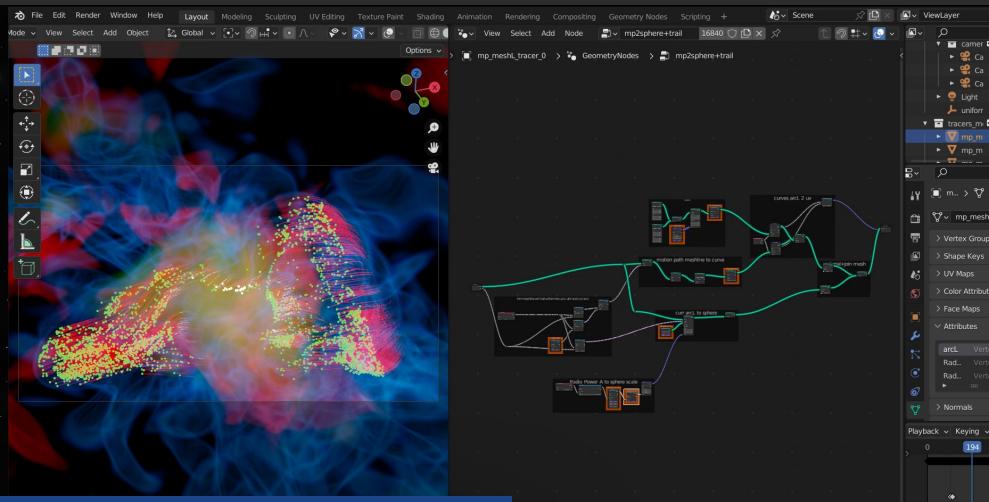
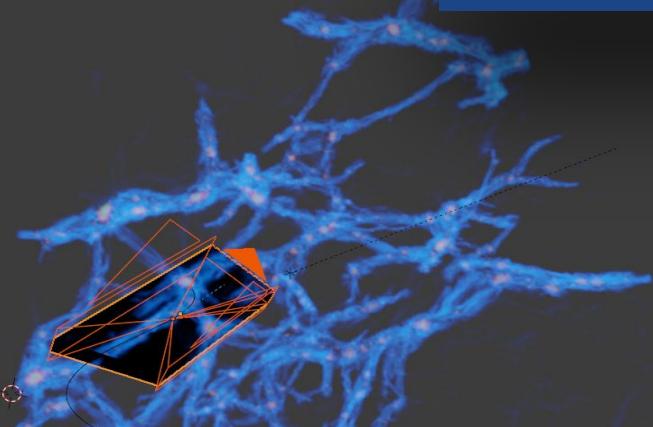
Some of my Blender experiences..

Giannandrea Inchingolo

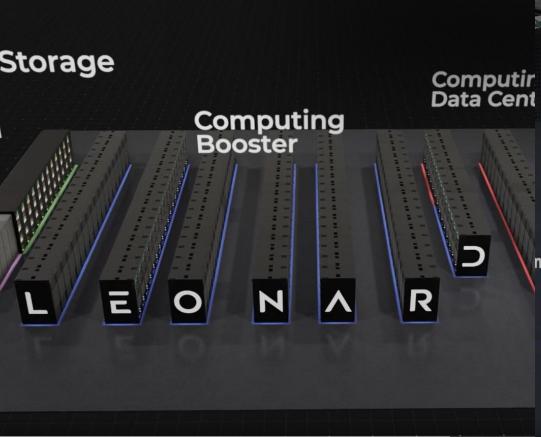
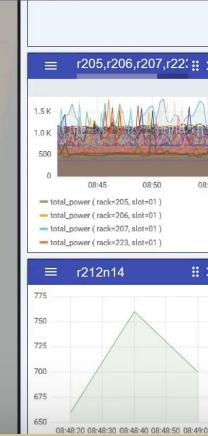
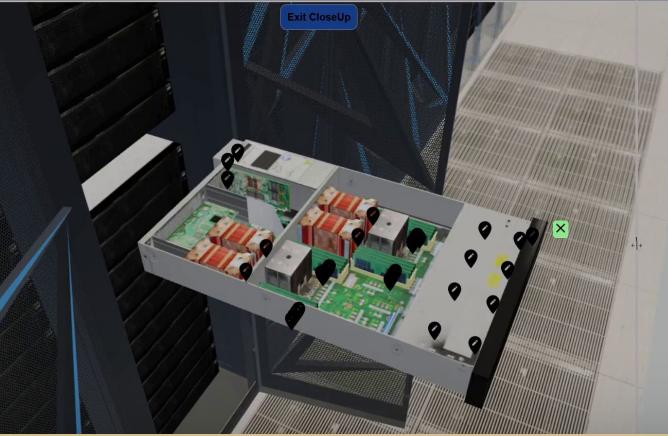
Dipartimento di Fisica e Astronomia, University of Bologna
Istituto di Radio Astronomia, INAF

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to public communication

Cinematic Scientific Visualization



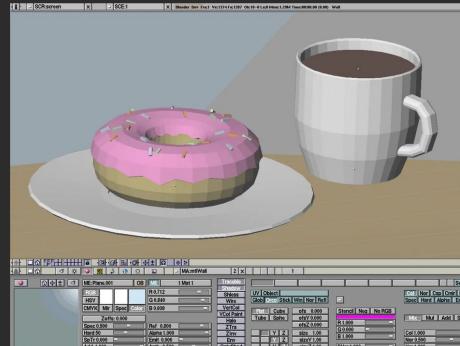
Some of my Blender experiences..



Blender history and its ecosystem

1994

first source file titled “Blender” released by [Ton Roosendaal](#).



2002

birth of the [Blender Foundation](#) and Blender was released under the terms of GNU GPL.



2005

Project Orange and the release of Elephant Dream short movie.

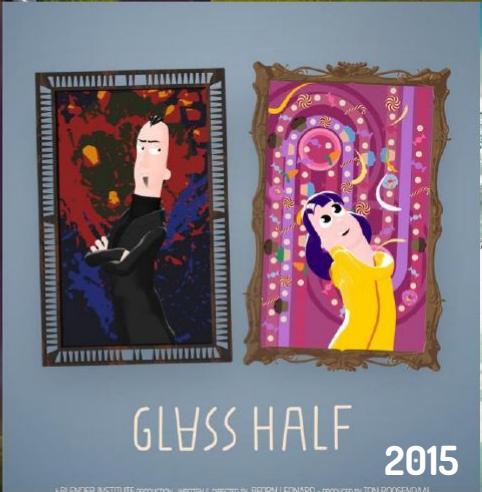
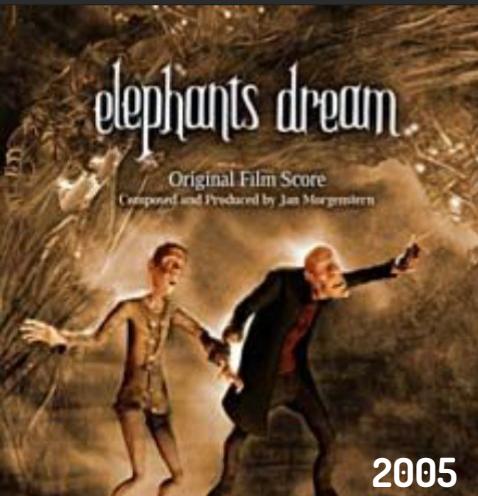


2007

The [Blender Institute](#) and the [Blender Studio](#) were established.

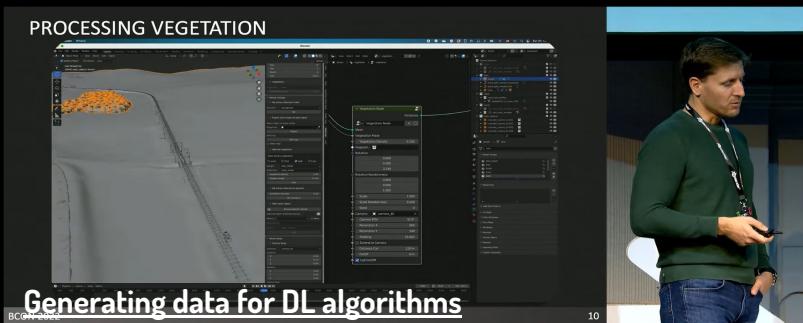
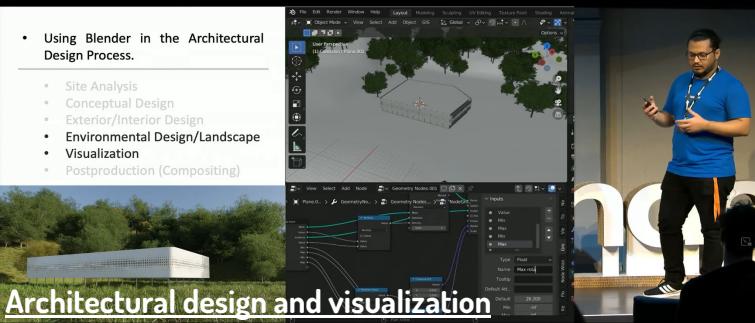


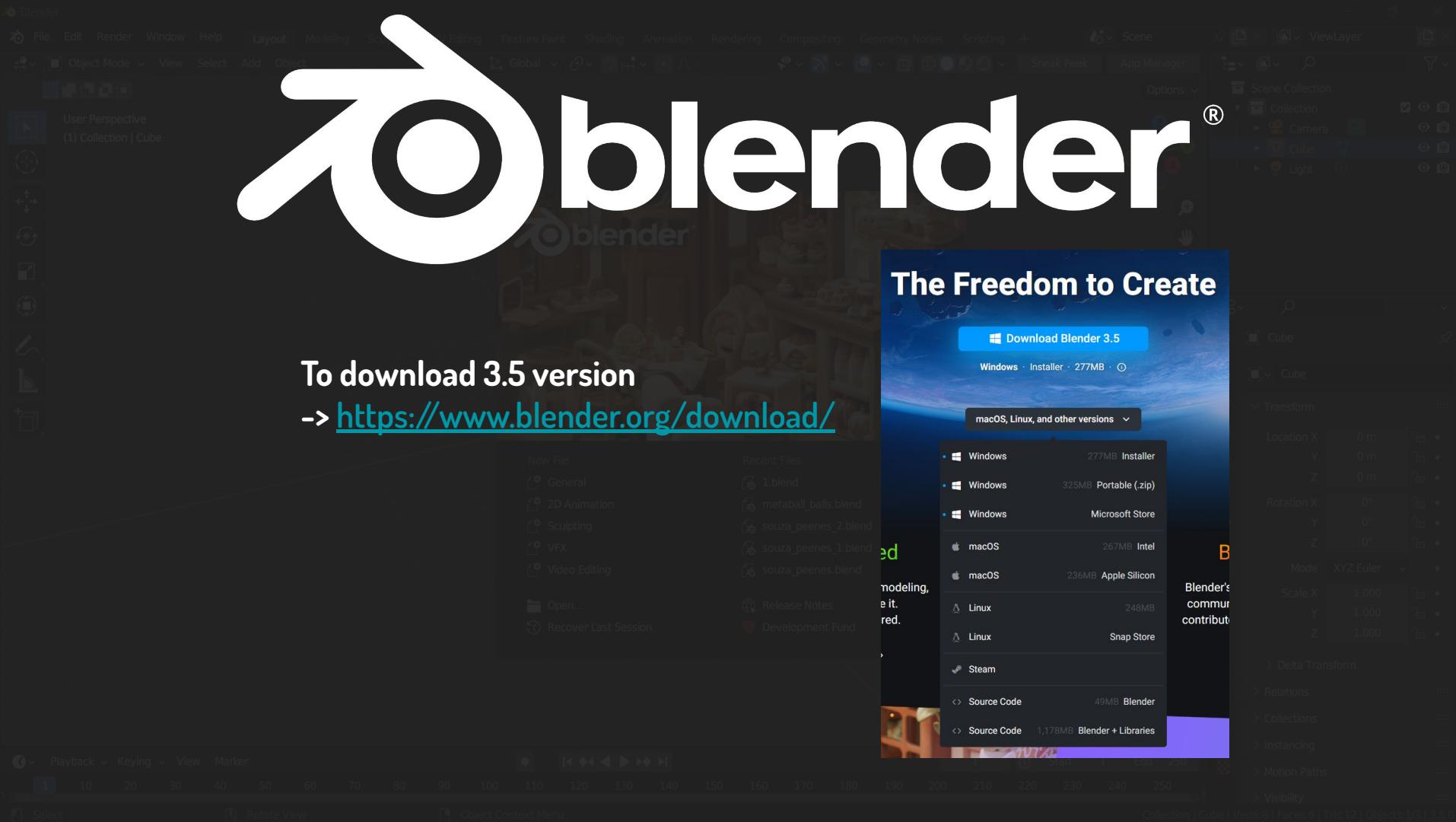
Blender open movies



and much more...

Blender Conference 2022





To download 3.5 version
-> <https://www.blender.org/download/>

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting + Scene ViewLayer

User Perspective
(1) Collection | Cube

Global

3.5.0

Nicole Morena

New File

- General
- 2D Animation
- Sculpting
- VFX
- Video Editing

Recent Files

- 1.blend

Open... Recover Last Session

Release Notes Development Fund

Scene Collection

- Collection
 - Camera
 - Cube
 - Light

Options

Cube

Cube

Transform

Location X	0 m
Y	0 m
Z	0 m
Rotation X	0°
Y	0°
Z	0°
Mode	XYZ Euler
Scale X	1.000
Y	1.000
Z	1.000

> Delta Transform

> Relations

> Collections

> Instancing

> Motion Paths

> Visibility

Playback Keying View Marker

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

1 Start 1 End 250

Select Rotate View Object Context Menu

Collection | Cube | Verts:8 | Faces:6 | Tris:12 | Objects:0/3 | 3.5.0

Blender

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Painting Workspaces Compositing Geometry Nodes Scripting Scene ViewLayer

User Perspective (1) Collection | Cube

3D View

right click to show other information

Information

Timeline

Collection | Cube | Verts:8 | Faces:6 | Tris:12 | Objects:0/3 | 3.50

Scene Collection Collection Camera Cube Light

Outliner

Properties

Cube

Transform

Location X	0 m
Y	0 m
Z	0 m
Rotation X	0°
Y	0°
Z	0°
Mode	XYZ Euler
Scale X	1.000
Y	1.000
Z	1.000

> Delta Transform

> Relations

> Collections

> Instancing

> Motion Paths

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting + Scene ViewLayer

User Perspective
(1) Collection | Cube

Camera

Cube

Lamp

Scene Collection

- Collection
- Camera
- Cube
- Light

Cube

Cube

Transform

Location X	0 m
Y	0 m
Z	0 m
Rotation X	0°
Y	0°
Z	0°
Mode	XYZ Euler
Scale X	1.000
Y	1.000
Z	1.000

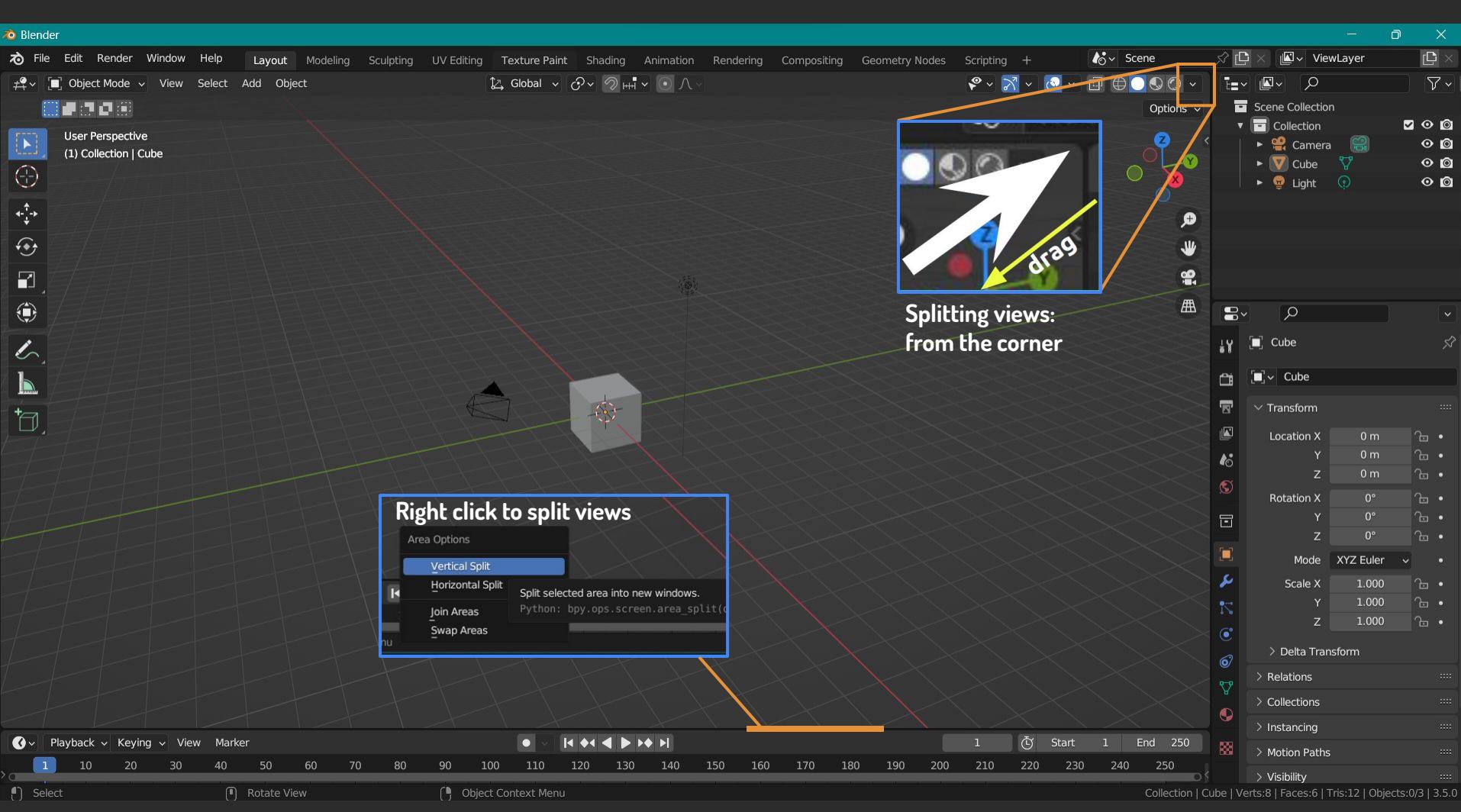
Playback Keying View Marker

1 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

1 Start 1 End 250

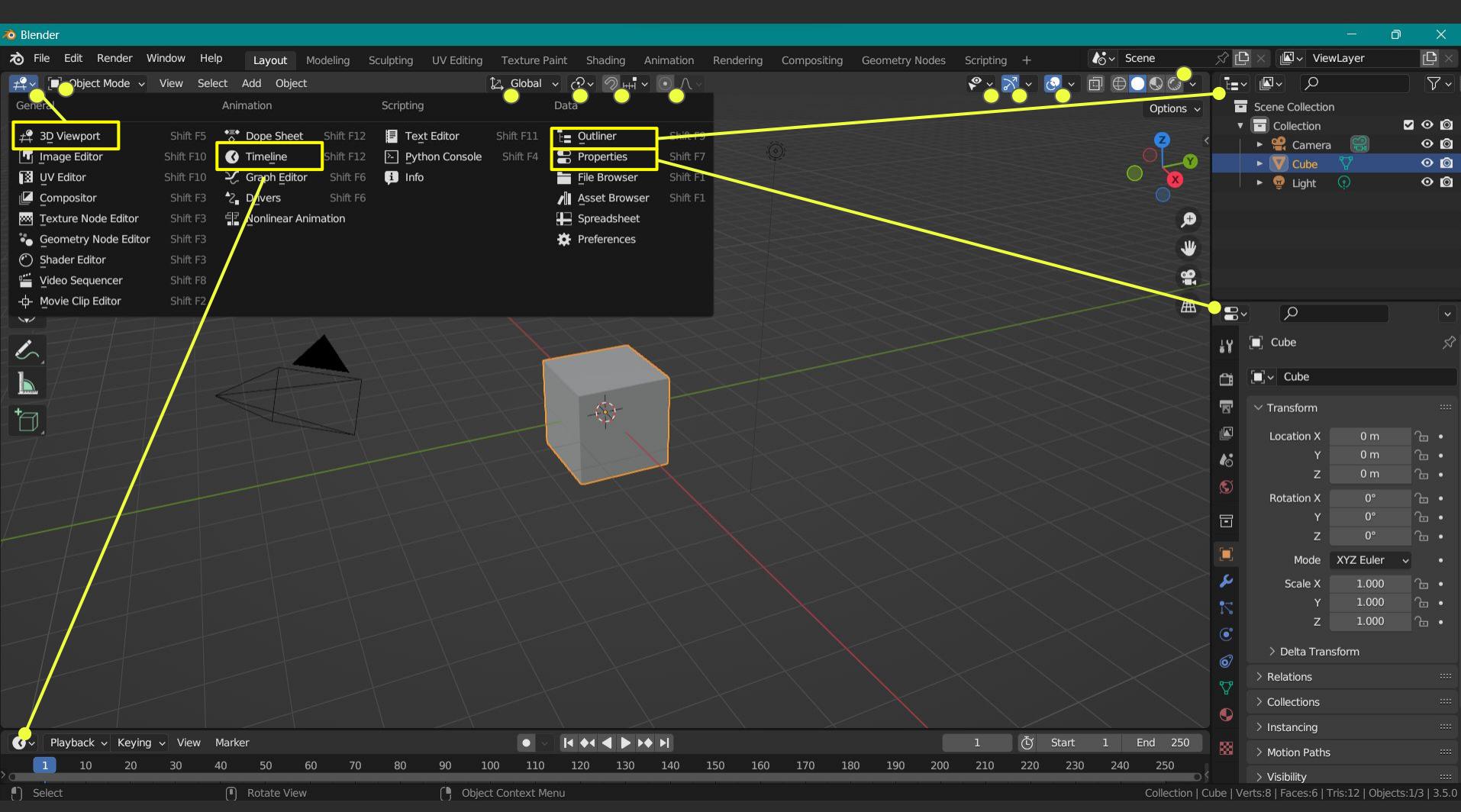
Select Rotate View Object Context Menu

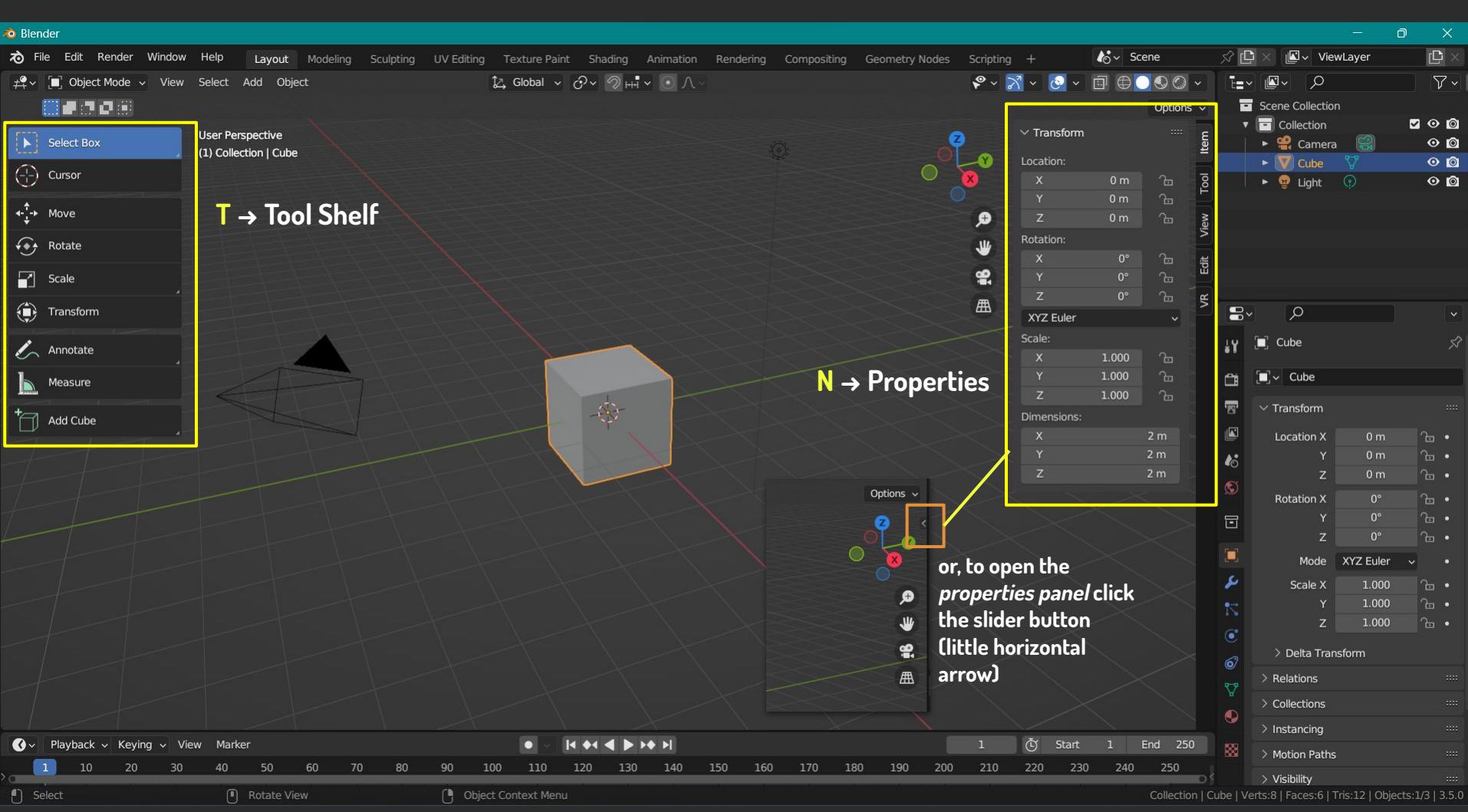
Collection | Cube | Verts:8 | Faces:6 | Tris:12 | Objects:0/3 | 3.50

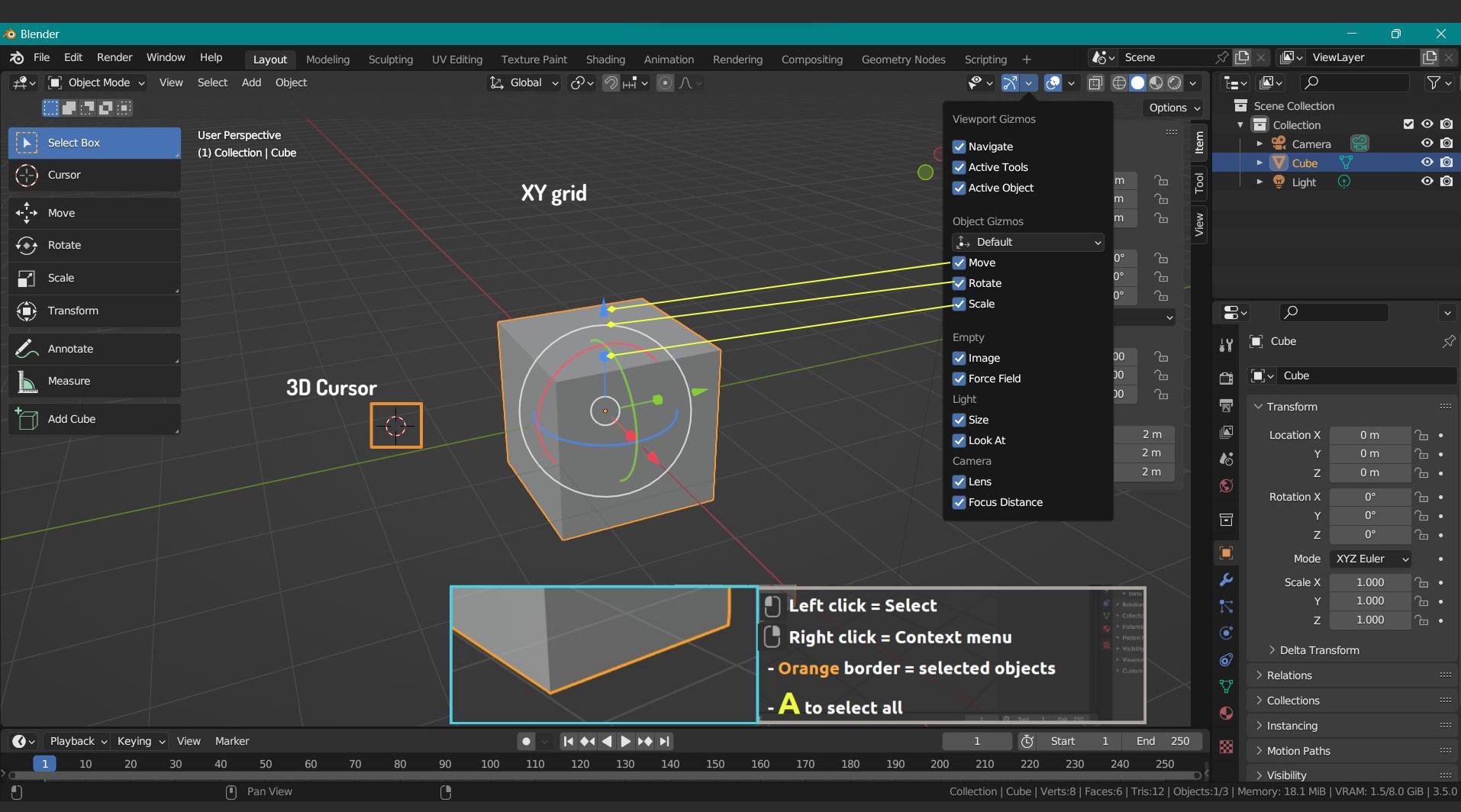


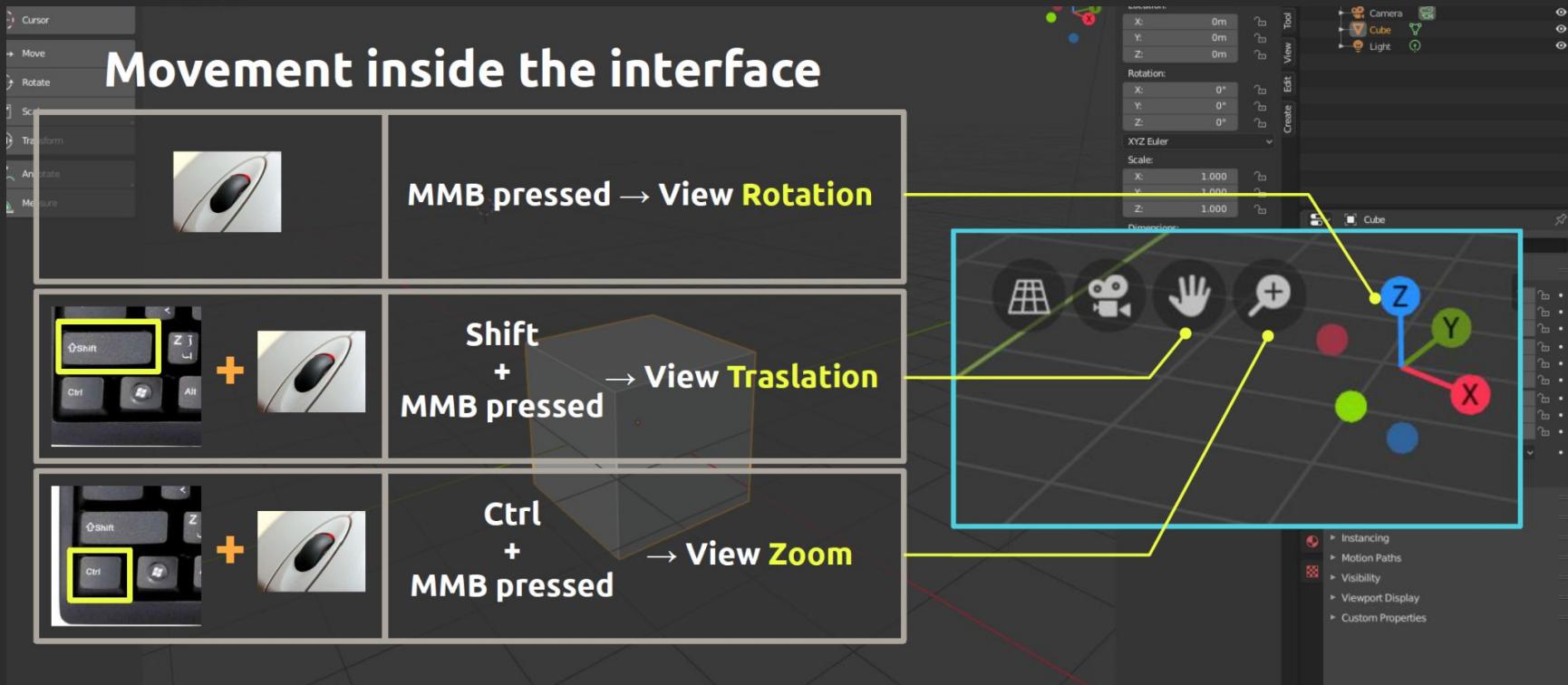
Blender

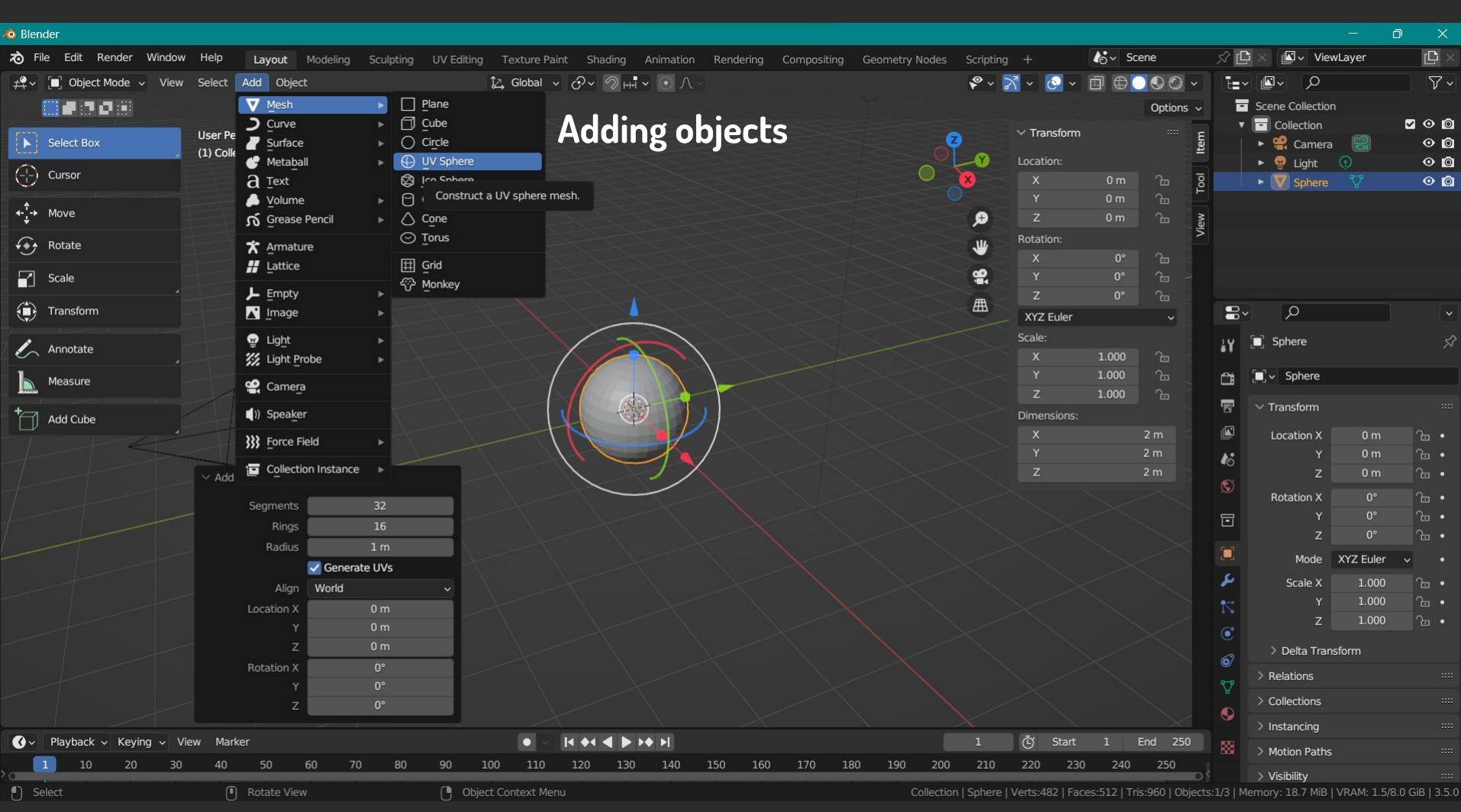












File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting + Scene ViewLayer

User Perspective
(1) Collection | Sphere

Object Mode View Select Add Object

Global

Transform

Location:

- X 0 m
- Y 0 m
- Z 0 m

Rotation:

- X 0°
- Y 0°
- Z 0°

XYZ Euler

Scale:

- X 1.000
- Y 1.000
- Z 1.000

Dimensions:

- X 2 m
- Y 2 m
- Z 2 m

Sphere

Sphere

Transform

Location X 0 m

Location Y 0 m

Location Z 0 m

Rotation X 0°

Rotation Y 0°

Rotation Z 0°

Mode XYZ Euler

Scale X 1.000

Scale Y 1.000

Scale Z 1.000

Delta Transform

Relations

Collections

Instancing

Motion Paths

Visibility

Add Cube

Annotation

Measure

Object Mode

Edit Mode

Sculpt Mode

Vertex Paint

Weight Paint

Texture Paint

Rotate

Scale

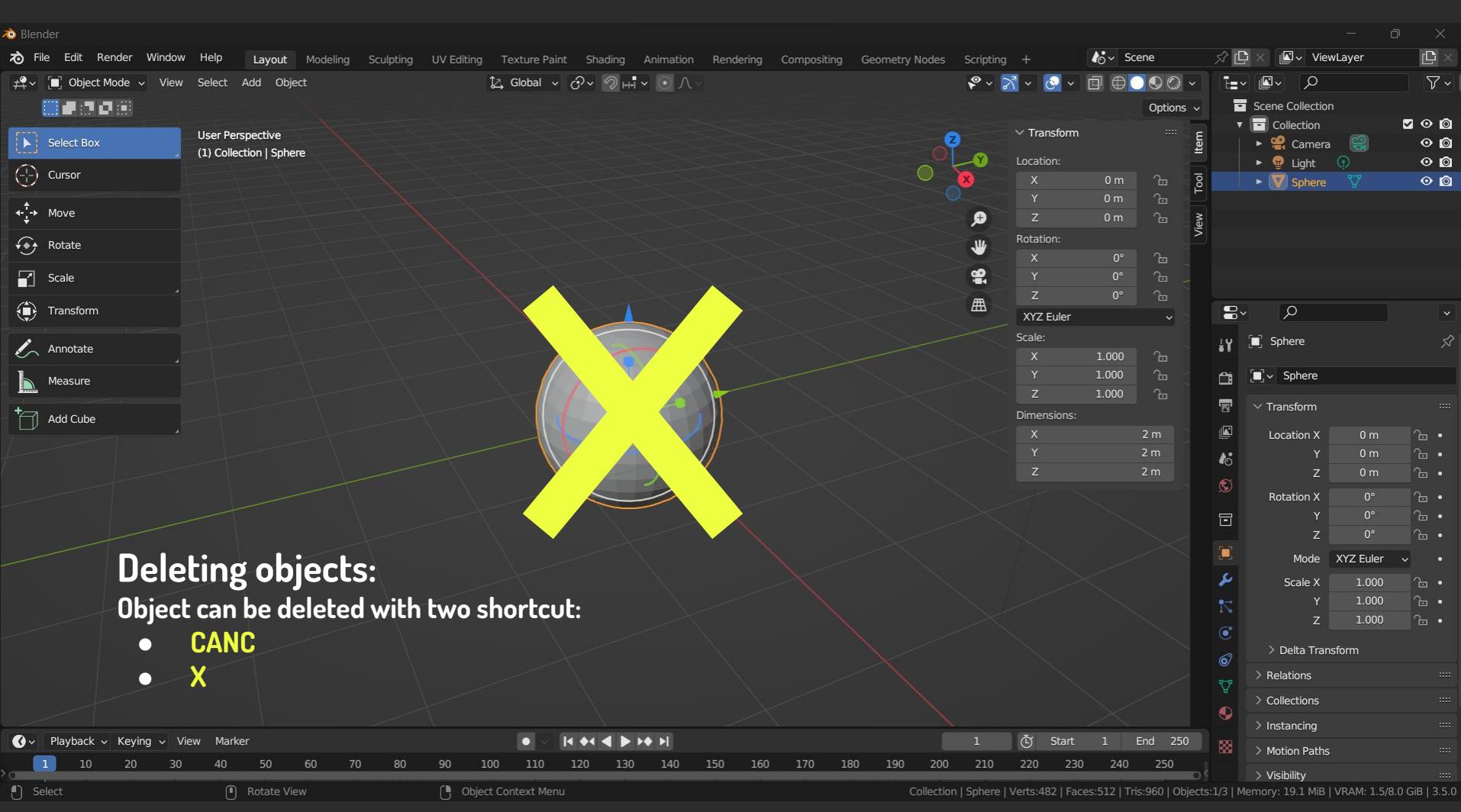
Transform

Object Mode

Object can be modified with two main method:

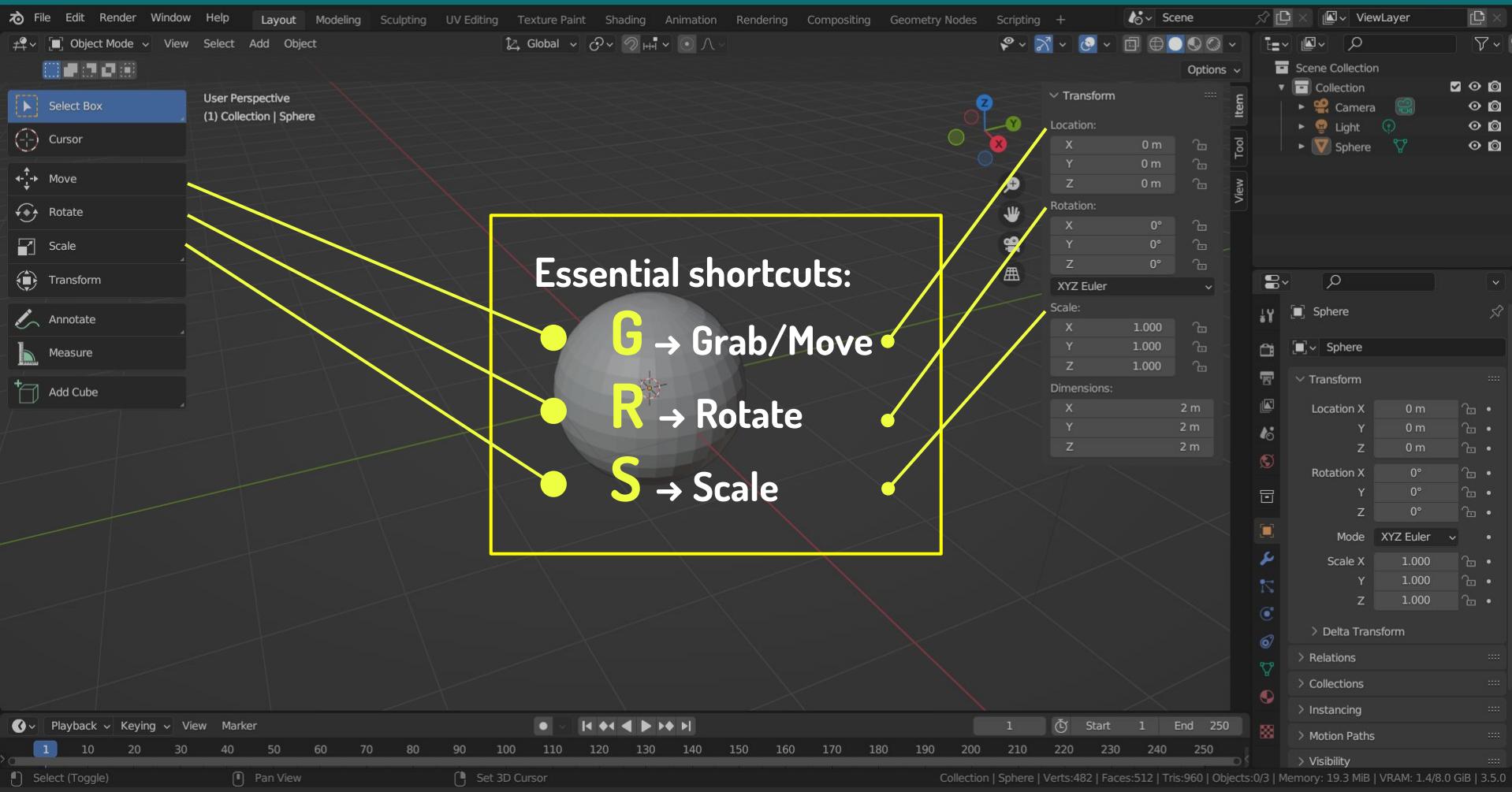
- OBJECT MODE: on the whole object
- EDIT MODE: on vertices, edges and/or faces

3D Viewport with a sphere selected. The 3D cursor is at the center of the sphere. A 3D transform gizmo is overlaid on the sphere, showing local axes (red, green, blue) and global axes (orange, yellow, purple). A camera icon is positioned above the sphere. The Outliner panel shows a collection named "Collection" containing a Camera, Light, and Sphere. The Properties panel shows the sphere's transform settings: Location (X: 0 m, Y: 0 m, Z: 0 m), Rotation (X: 0°, Y: 0°, Z: 0°), and Scale (X: 1.000, Y: 1.000, Z: 1.000). The Dimensions panel shows the sphere's dimensions: X: 2 m, Y: 2 m, Z: 2 m. The Timeline panel shows frame 1, with playback controls and markers. The status bar at the bottom provides system information: Memory: 18.7 MiB | VRAM: 1.5/8.0 GiB | 3.500.



Deleting objects:
Object can be deleted with two shortcut:

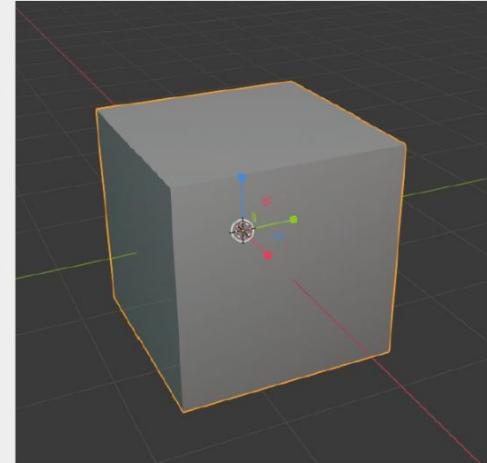
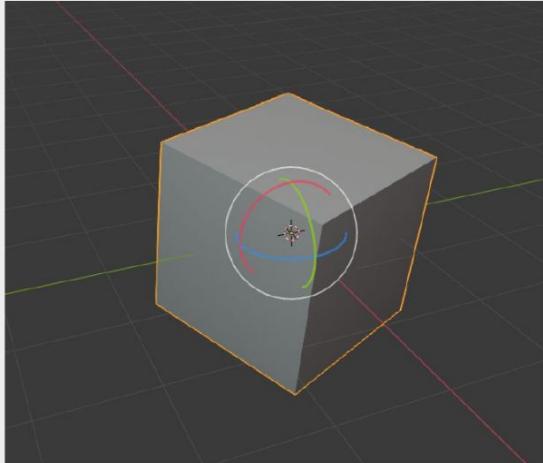
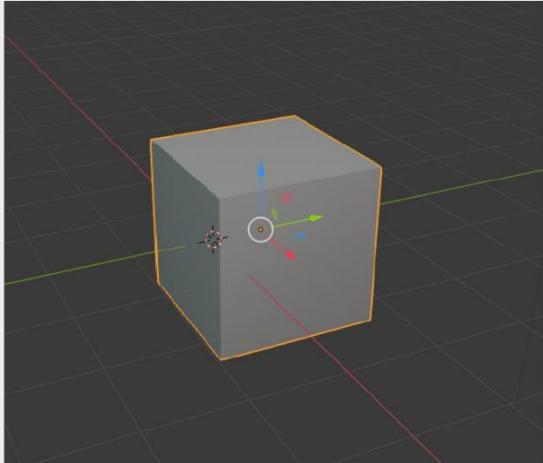
- **CANC**
- **X**



G → Grab/Move

R → Rotate

S → Scale

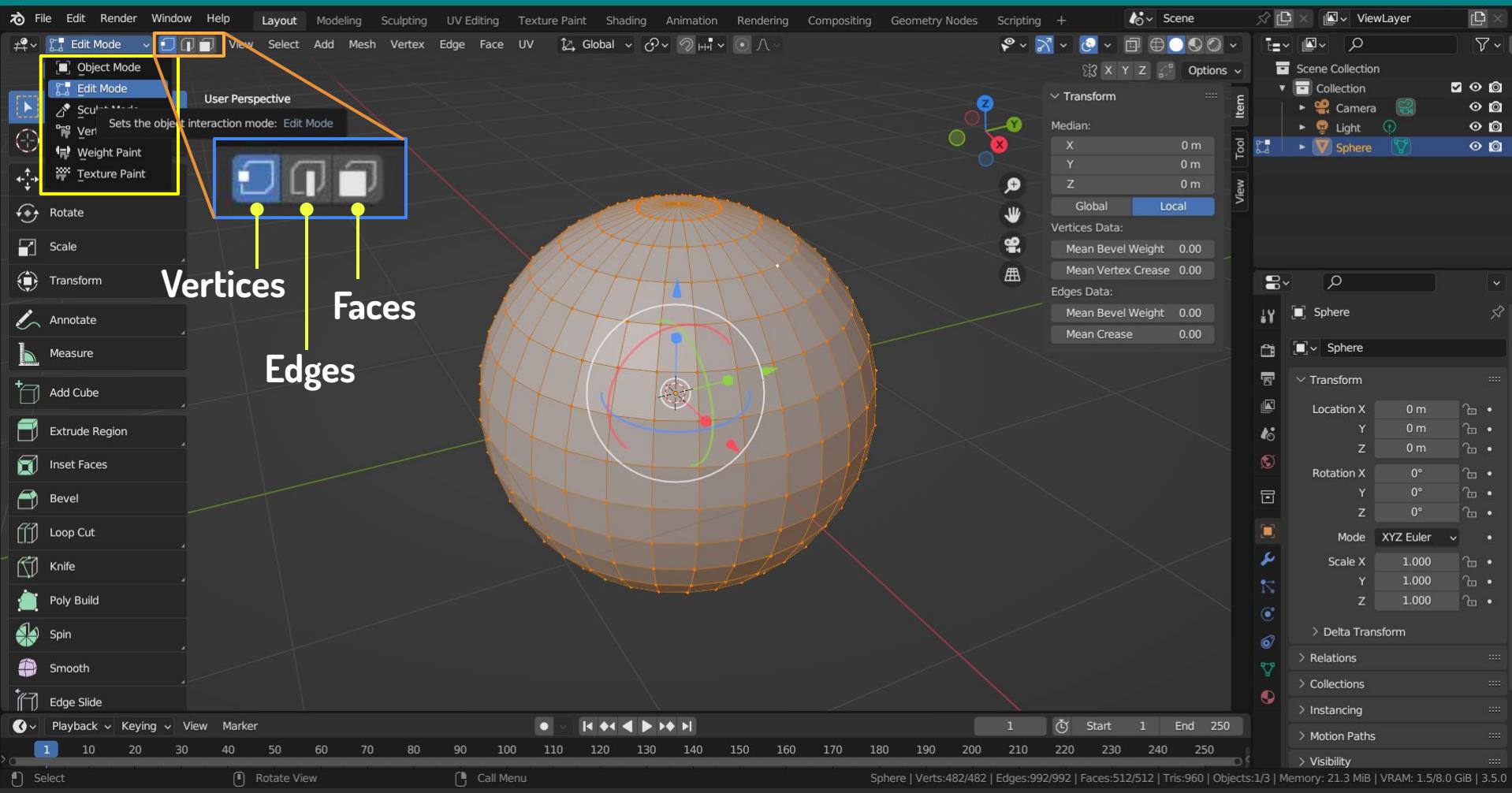


- Press once G,R or S
- Move the object with the mouse
- Confirm with left click or Enter

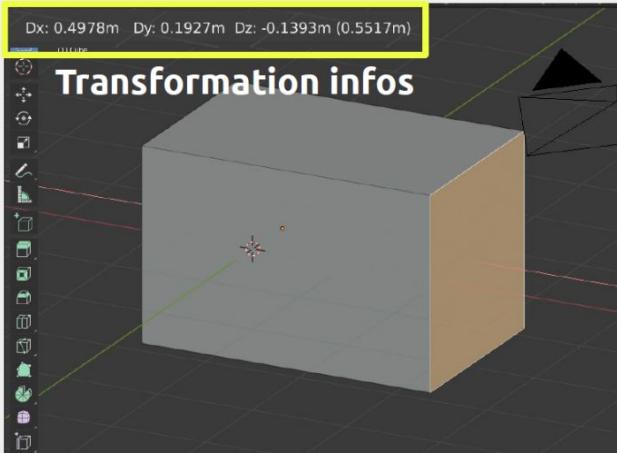
OR

- Press once G,R or S
- Insert values from keyboard
- Confirm with left click or Enter

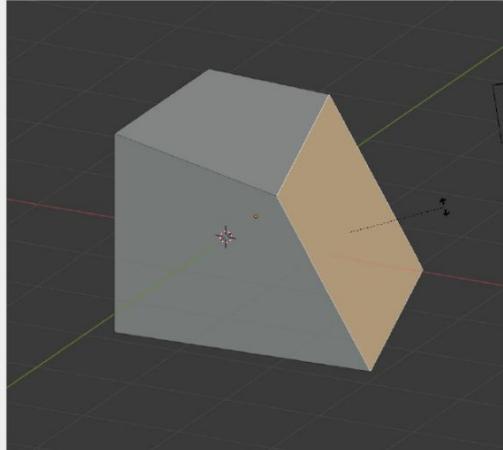
Blender



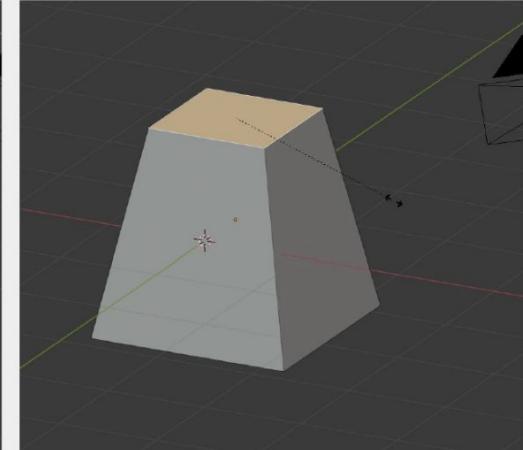
G → Grab/Move



R → Rotate



S → Scale



- Press once G,R or S
- Move the mesh with the mouse
- **Check the infos**
- Confirm with left click or Enter

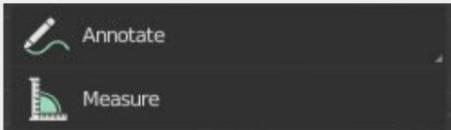
OR

- Press once G,R or S
- Insert values from keyboard
- **Check the infos**
- Confirm with left click or Enter

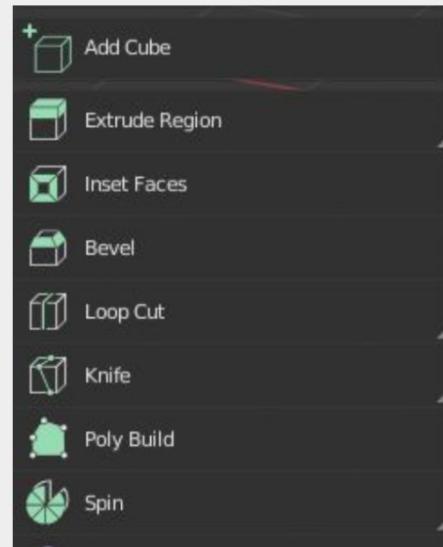
Transforming tools



Helpers

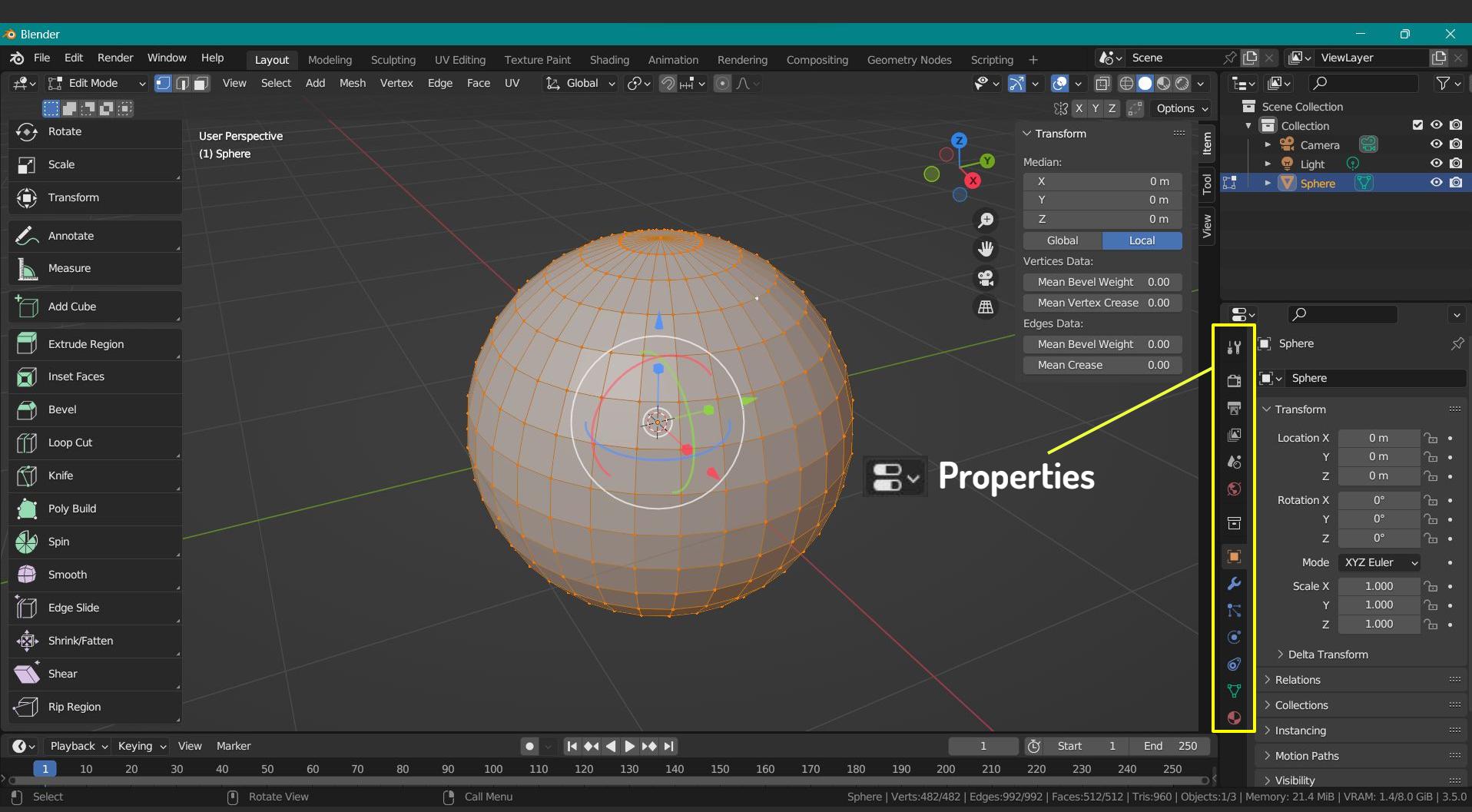


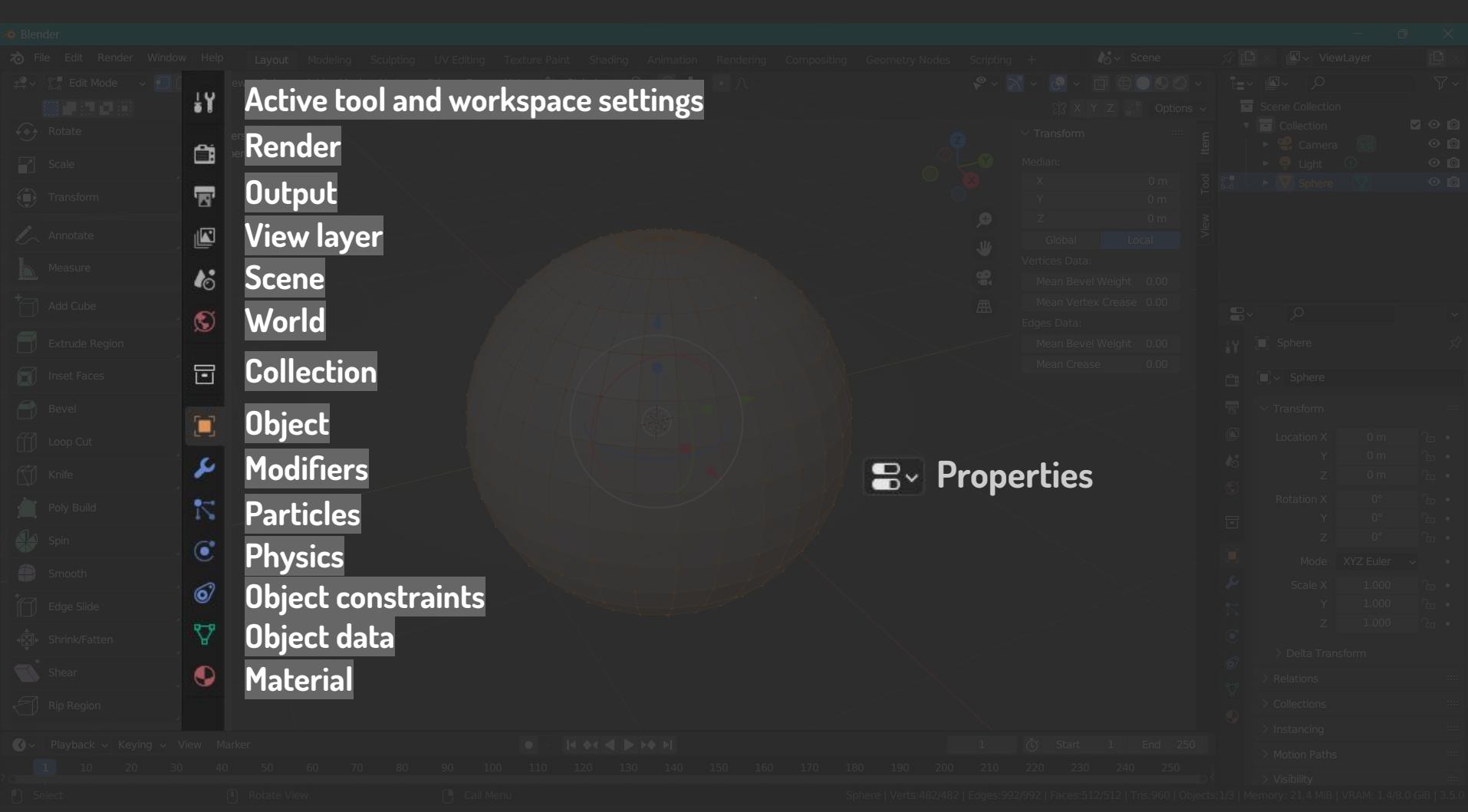
Adding geometry / refining

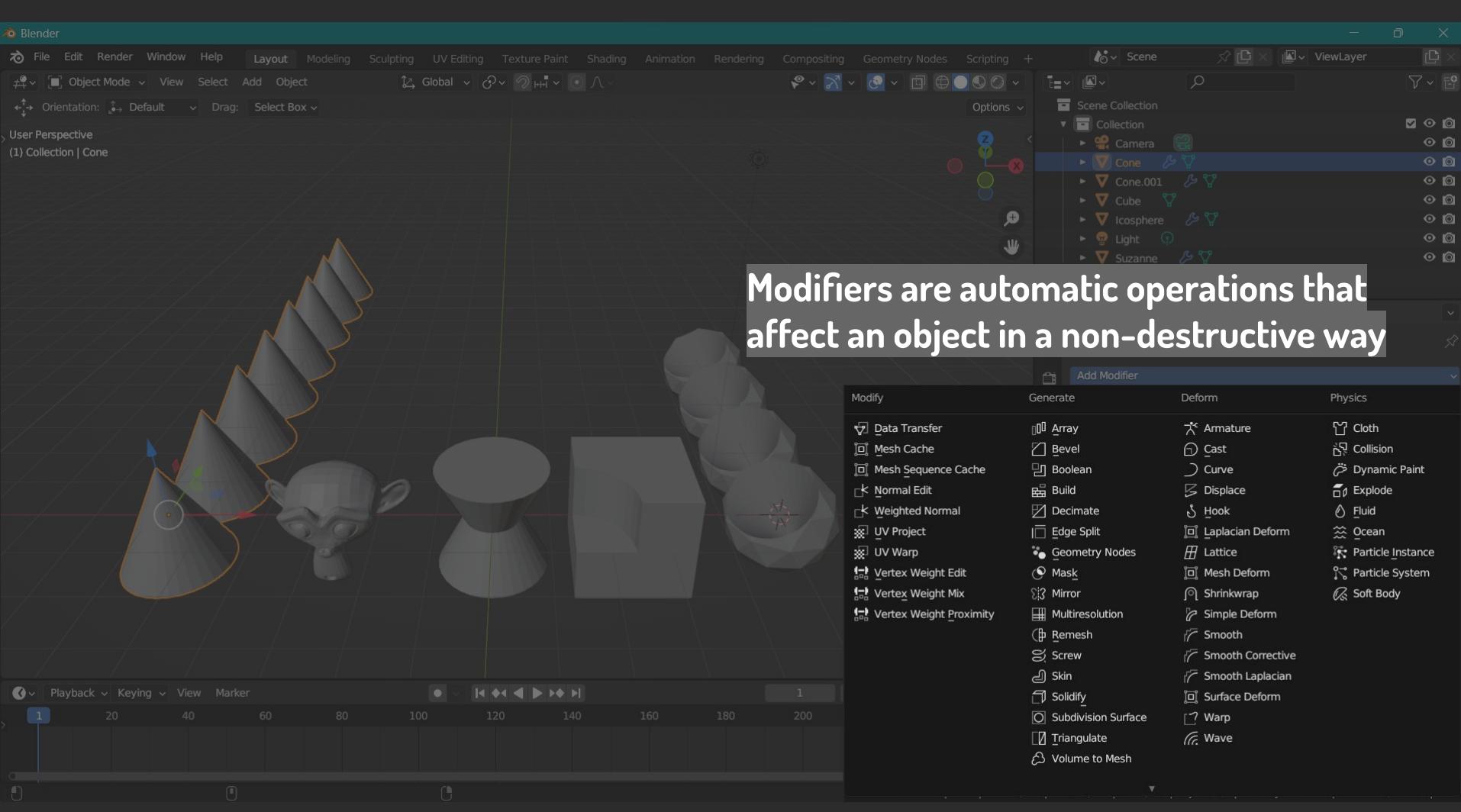


Deforming geometry









Blender

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting +

Object Mode View Select Add Object Global Orientation: Default Drag: Select Box

User Perspective (1) Collection | Cone

Scene Collection Collection Camera Cone Cone.001 Cube Icosphere Light Suzanne

Options

Modifiers are automatic operations that affect an object in a non-destructive way

Array Subdivision Surface Mirror Boolean Combination of modifiers

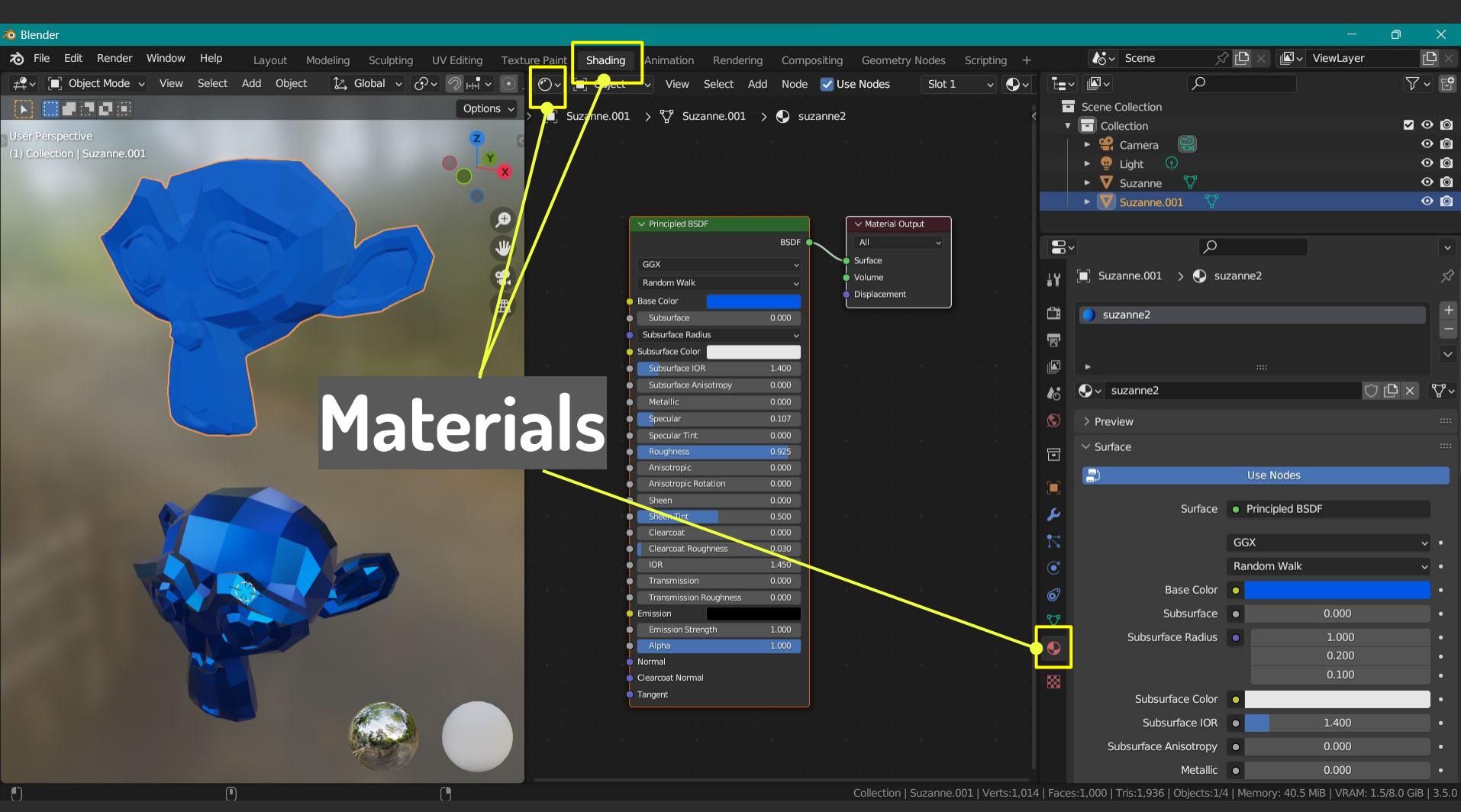
Add Modifier Array Fit Type: Fixed Count Count: 8 Relative Offset Factor X: 0.000 Y: 1.000 Z: 0.000 Constant Offset Object Offset Merge UVs Caps

Playback Keying View Marker 1 20 40 60 80 100 120 140 160 180 200 220 240 250 Start 1 End 250

Select Rotate View Object Context Menu

Collection | Cone | Verts:2,832 | Faces:2,741 | Tris:5,532 | Objects:1/7 | Memory: 22.3 MiB | VRAM: 1.5/8.0 GiB | 3.50

The image shows the Blender 3D interface. In the center, there are several 3D objects: a cone with a wavy array modifier, a Suzanne head with a subdivision surface modifier, a cone with a mirror modifier, a cube with a boolean modifier, and another cone with a combination of modifiers. On the right, the Outliner panel lists objects like Camera, Cone, Cone.001, Cube, Icosphere, Light, and Suzanne. The Properties panel on the far right has a yellow border around the 'Modifiers' tab, which is currently active. It shows the settings for an 'Array' modifier, including 'Fit Type: Fixed Count' with a 'Count' of 8, and 'Relative Offset' with 'Factor X: 0.000', 'Y: 1.000', and 'Z: 0.000'. Below these are other modifier options like 'Constant Offset', 'Object Offset', 'Merge', 'UVs', and 'Caps'. At the bottom, the Timeline shows frames from 1 to 250, and the status bar at the very bottom provides memory and VRAM usage information.



Blender

User Perspective
(1) Collection | Suzanne.001

Shading Options

Suzanne.001 > Suzanne.001 > suzanne2

Scene Collection
Collection
Camera
Light
Suzanne
Suzanne.001

Suzanne.001 > suzanne2

suzanne2

Preview

Surface

Use Nodes

Surface Principled BSDF

GGX Random Walk

Base Color (yellow box)

Subsurface 0.000

Subsurface Radius

Subsurface Color (white box)

Subsurface IOR 1.400

Subsurface Anisotropy

Metallic 0.000

Specular 0.107

Specular Tint 0.000

Roughness 0.925

Anisotropic

Anisotropic Rotation

Sheen

Sheen Tint 0.500

Clearcoat

Clearcoat Roughness 0.030

IOR 1.450

Transmission

Transmission Roughness 0.000

Emission

Emission Strength 1.000

Alpha 1.000

Normal

Clearcoat Normal

Tangent

Collection | Suzanne.001 | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Memory: 40.5 MiB | VRAM: 1.5/8.0 GiB | 3.50

User Perspective
(1) Collection | Suzanne

The image shows the Blender interface with the following details:

- Header:** File, Edit, Render, Window, Help, Layout, Modeling, Sculpting, UV Editing, Texture Paint, Shading, Animation, Rendering, Compositing, Geometry Nodes, Scripting, +, Scene, ViewLayer.
- Toolbar:** Object Mode, View, Select, Add, Object, Global, View, Select, Add, Node, Use Nodes, Slot 1.
- Properties Panel (Shading tab):** Principled BSDF node settings. A yellow box highlights the "Base Color" input, which is connected to the "Surface" output of the Material Output node. Another yellow box highlights the "Metallic", "Specular", "Specular Tint", and "Roughness" inputs.
- Material Output Node:** Set to "Surface".
- Scene Outliner:** Shows a collection named "Collection" containing Camera, Light, Suzanne, and Suzanne.001.
- Outliner:** Suzanne object selected, showing its material "suzanne1".
- Properties Panel (Surface tab):** Shows the Principled BSDF node setup with various parameters like IOR, Transmission, Emission, and Alpha.
- Bottom Status Bar:** Select, Rotate View, Object Context Menu, Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Memory: 40.5 MB | VRAM: 1.5/8.0 GiB | 3.50

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting + Scene ViewLayer

User Perspective
(1) Collection | Suzanne

Object Mode View Select Add Object Global View Select Add Node Use Nodes Slot 1

Suzanne > Suzanne > suzanne1

Object Context Menu

- Shade Smooth
- Shade Auto Smooth
- Shade Flat
- Join Ctrl J
- Convert To
- Set Origin
- Copy Objects Ctrl C
- Paste Objects Ctrl V
- Duplicate Objects Shift D
- Duplicate Linked Alt D
- Rename Active Object... F2
- Mirror
- Snap
- Parent
- Move to Collection M
- Insert Keyframe... I
- Delete X

Shade Smooth

Principled BSDF

BSDF

GGX Random Walk

Base Color Subsurface Subsurface Radius

Subsurface Color Subsurface IOR Subsurface Anisotropy

Metallic Specular Specular Tint

Roughness Anisotropic Anisotropic Rotation

Anisotropic Sheen Sheen Tint

Clearcoat Clearcoat Roughness IOR

Transmission Transmission Transmission Roughness

Emission Emission Strength Alpha

Normal Clearcoat Normal Tangent

Material Output

- All
- Surface
- Volume
- Displacement

Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:2/4 | Memory: 40.7 MiB | VRAM: 1.5/8.0 GiB | 3.50

Scene Collection

Collection

- Camera
- Light
- Suzanne
- Suzanne.001

Suzanne > suzanne1

suzanne1

Preview

Surface

Use Nodes

Surface Principled BSDF

GGX Random Walk

Base Color 0.000

Subsurface 1.000

Subsurface Radius 0.200

Subsurface Anisotropy 0.100

Subsurface Color 1.400

Subsurface IOR 0.000

Subsurface Anisotropy 0.000

Metallic 1.000

Blender

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting + Scene ViewLayer

Add Node Use Nodes Slot 1 suzanne2

to add a new node: Shift+a or

Suzanne.001 > Suzanne.001 > suzanne2

User Perspective (1) Collection | Suzanne.001

Texture Coordinate
Generated Normal UV Object Camera Window Reflection
Color1 Color2 Scale 5.000

Principled BSDF
GGX Random Walk
Base Color Subsurface 0.000
Subsurface Radius
Subsurface Color
Subsurface IOR 1.400
Subsurface Anisotropy 0.000
Metallic 0.000
Specular 0.107
Specular Tint 0.000
Roughness 0.925
Anisotropic 0.000
Anisotropic Rotation 0.000
Sheen 0.000
Sheen Tint 0.500
Clearcoat 0.000
Clearcoat Roughness 0.030
IOR 1.450
Transmission 0.000
Transmission Roughness 0.000
Emission
Emission Strength 1.000
Alpha 1.000
Normal
Clearcoat Normal

Material Output All Surface Volume Displacement

Add Search... Input Output Shader Texture
Brick Texture Checker Texture Environment Texture Gradient Texture IES Texture Image Texture Magic Texture Musgrave Texture Noise Texture Point Density Sky Texture Voronoi Texture Wave Texture White Noise Texture

Image Textures

Procedural textures
Textures defined mathematically

Scene Collection Collection Camera Light Suzanne Suzanne.001

Suzanne.001 > suzanne2

suzanne2

Preview Surface

Use Nodes Surface Principled BSDF
GGX Random Walk
Base Color Checker Texture
Subsurface 0.000
Subsurface Radius 1.000
Subsurface Radi... 0.200
0.100
Subsurface Color
Subsurface IOR 1.400
Subsurface Anis... 0.000
Metallic 0.000

Collection | Suzanne.001 | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Memory: 54.2 MiB | VRAM: 1.5/8.0 GiB | 3.50

The image displays the Blender 2.8 User Interface (UI) in the Node Editor workspace. At the top, the header bar includes the Blender logo, file navigation (File, Edit, Render, Window, Help), layout modes (Layout, Modeling, Sculpting, UV Editing, Texture Paint), shading tools (Shading, Animation, Rendering, Compositing), geometry nodes (Geometry Nodes), scripting (Scripting), and scene management (Scene, ViewLayer). Below the header, the toolbar contains various icons for selection, transformation, and object creation. The main workspace shows a 3D Viewport on the left displaying a Suzanne model with a purple checkerboard texture, and a Node Editor on the right showing a node graph where a 'Checker Texture' node is connected to a 'Principled BSDF' node. The 'Add' button in the toolbar is highlighted with a yellow box and a callout line. The 'Texture' dropdown menu is open, with the 'Image Textures' section highlighted by a large blue box. Another blue box highlights the 'Procedural textures' section, which is described as 'Textures defined mathematically'. The Outliner panel on the right lists the scene's collection, camera, light, and objects, with 'Suzanne.001' selected. The Properties panel on the far right shows material settings for 'suzanne2', including base color, subsurface, and metallic properties.

Blender

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting + Scene ViewLayer

User Perspective (1) Collection | Suzanne

Options > Suzanne > Suzanne > suzanne1

Slot 1 suzanne1

Shading Options > Suzanne > suzanne1

Scene Collection Collection Camera Light Suzanne Suzanne.001

Suzanne > suzanne1

suzanne1

shiny

opaque

A texture affects the color of a material as well as other properties.

Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Memory: 54.3 MiB | VRAM: 1.5/8.0 GiB | 3.50

The image shows the Blender interface with a 3D Viewport on the left displaying a shiny blue skull model. To the right is the Node Editor, showing a Principled BSDF node setup. A Checker Texture node is connected to the BSDF node's Color input. The BSDF node's Base Color is set to blue. The Node Editor also shows various other properties like Subsurface, Subsurface Radius, and Metallic. The Outliner panel on the far right lists objects and collections, and the Properties panel shows the material settings for 'suzanne1'.

Blender

Frame: 1 | Time: 00:00:00.000

Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting + Scene View Layer

81.53M

Render buttons

Render / Output

Image Resolution
Animation properties

Output path

File format

Scene Collection
Collection
Camera
Light
Suzanne

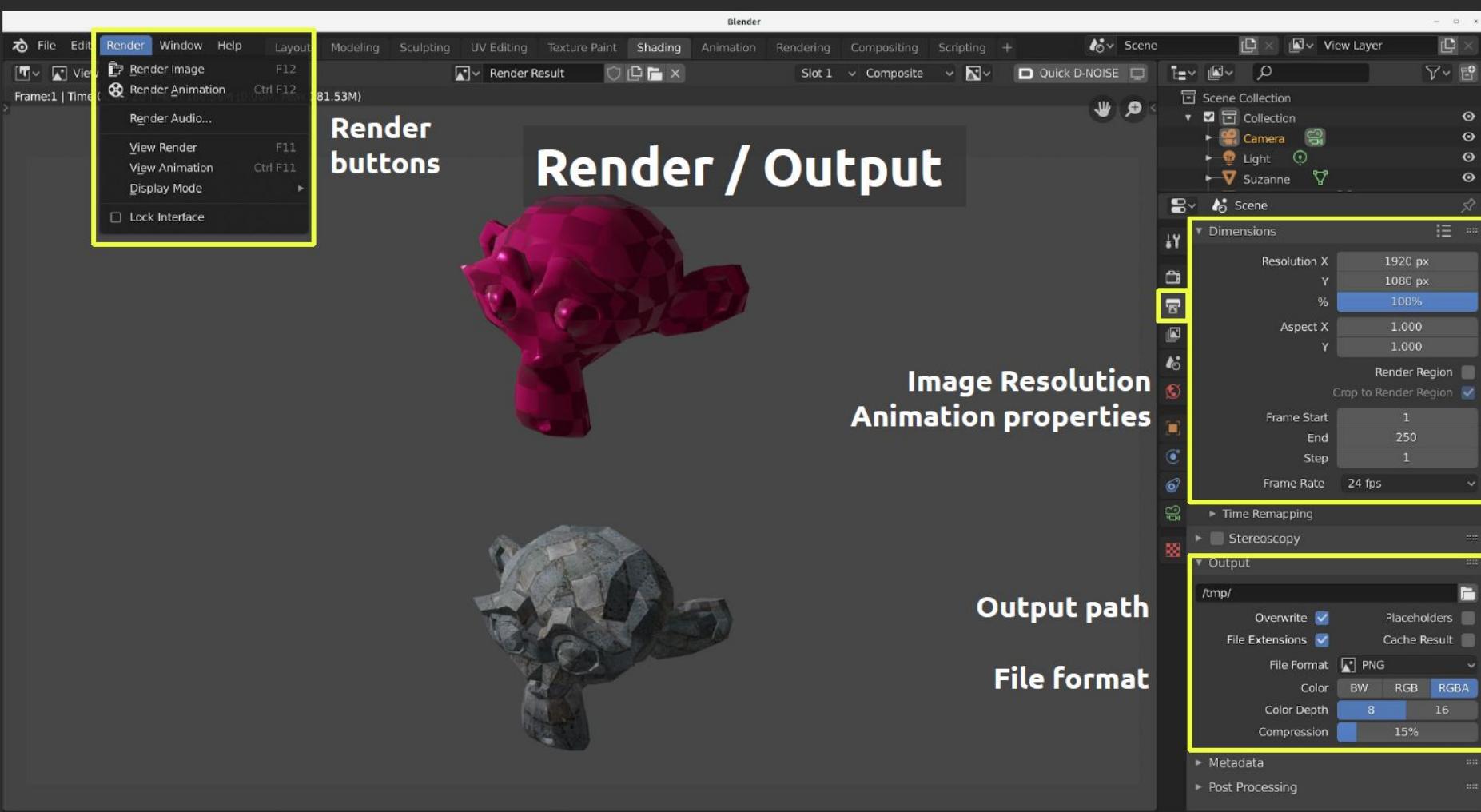
Dimensions
Resolution X: 1920 px
Y: 1080 px
%: 100%
Aspect X: 1.000
Y: 1.000
Render Region
Crop to Render Region: checked

Frame Start: 1
End: 250
Step: 1
Frame Rate: 24 fps

Time Remapping
Stereoscopy

Output
/tmp/
Overwrite: checked
File Extensions: checked
Placeholder: checked
Cache Result: checked
File Format: PNG
Color: BW, RGB, RGBA (RGB selected)
Color Depth: 8
Compression: 15%

Metadata
Post Processing



This image shows the Blender interface with a focus on the Render output properties. A yellow box highlights the 'Render' button in the top menu bar. Another yellow box highlights the 'Dimensions' section in the Properties panel, which includes resolution settings (1920x1080 at 100%), aspect ratio (1.000), frame range (1-250), and frame rate (24 fps). A third yellow box highlights the 'Output' section, showing the file path (/tmp/), file format (PNG), color depth (8), and compression (15%). A fourth yellow box highlights the 'Image Resolution' and 'Animation properties' sections in the main area, which are part of the Render buttons. In the background, there are two 3D models: a red skull-like object and a blue textured object.

Many thanks for your attention

Any questions ?