Introduzione a Blender 3

Daniele De Luca

VISIT LAB
VISUAL INFORMATION TECHNOLOGY LAB
CINECA

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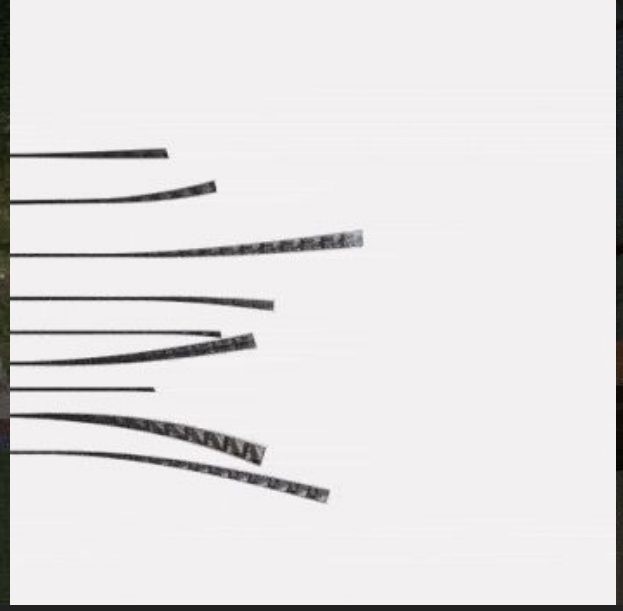
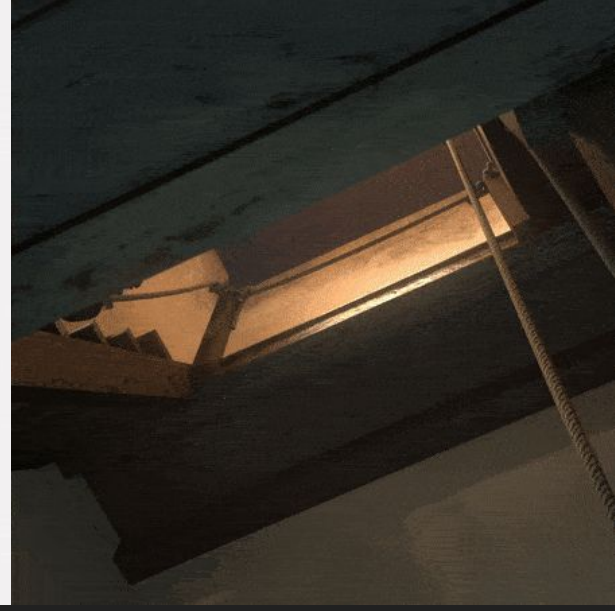
CINECA and VisitLab

Cineca is an **Interunivesity Consortium** serving both research and industries by means of the main Italian supercomputing public facility.

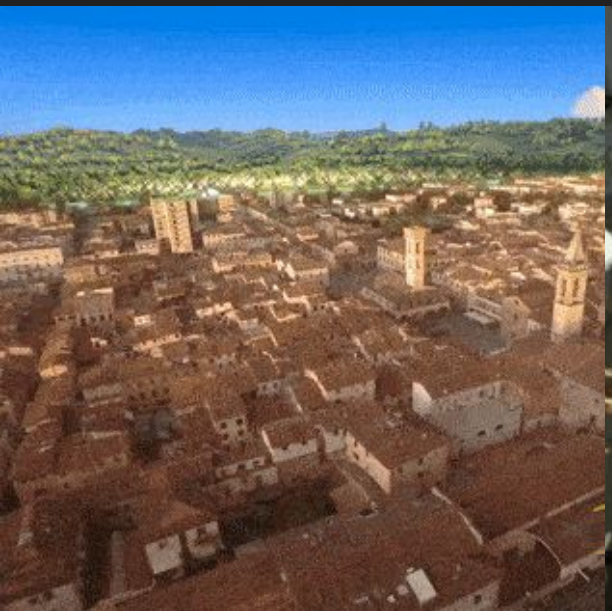
Cineca Visual IT Lab is a small department focused on computer graphics applications. We have been developing real-time applications and short movies to communicate scientific results and cultural heritage knowledge both for research and a general public

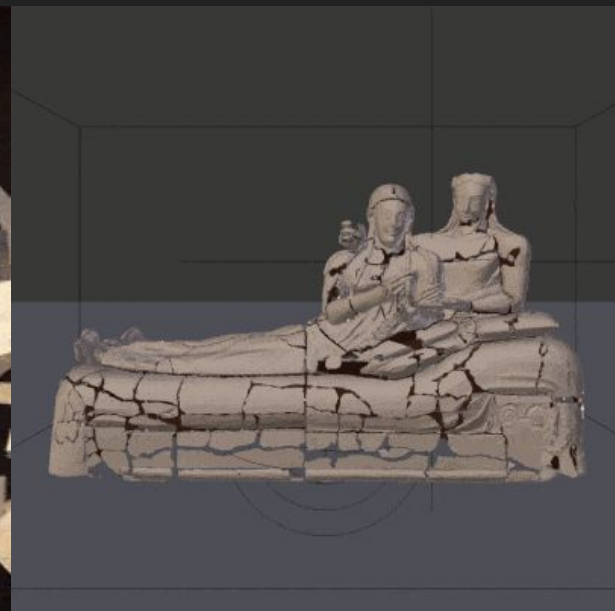


Daniele De Luca

d.deluca@cineca.it



Computer graphics

It **uses computers** both to **generate visual images** and to **integrate** or alter **visual and spatial information** sampled from the real world.

HISTORY:

1960 - Development in **computer graphics** was first fueled by **academic interests** and **government sponsorship**. The exclusive domain was of computers with high-power computing and electronics dedicated.

1980 - Along with supercomputers began to appear the **first personal computer** with greater technological capacity for processing and displaying images (i.e. home computer Commodore Amiga).

1990 - The computer graphics were now possible through the use of each computer with the **spread of video cards of great versatility and power**. Thanks to the evolution of information technology and lower prices, **computers allowed many people access to computer graphics.**

Pixar – Knick Knack (1989)

Pixar – Toy Story (1995)

Disney – Everything (2010-today)

Application fields

- real-time 3D rendering (i.e. videogame, Web3D, VR)
- video capture and video creation rendering
- movies with special effects and animation techniques (VFX)
- photo editing
- printing and press work
- modeling for engineering and architectural (i.e. CAD), Geographic Informatic System (GIS), medical purposes, visualization of scientific data, ...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Blender Foundation

Blender 3.1 - http://www.blender.org

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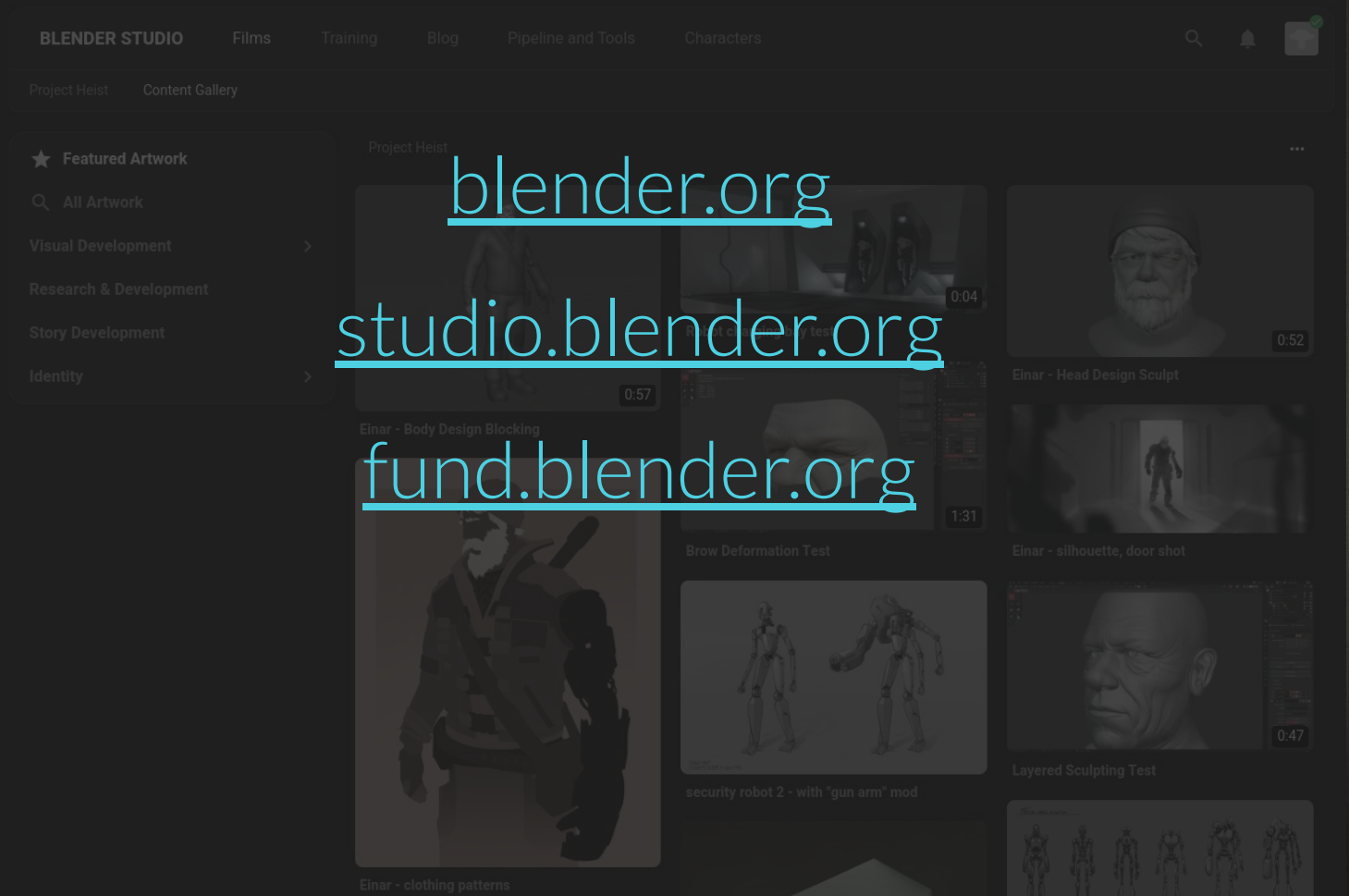
Blender Foundation,
Blender Animation Studio,
other spinoffs and where to find them...



blender.org

studio.blender.org

fund.blender.org

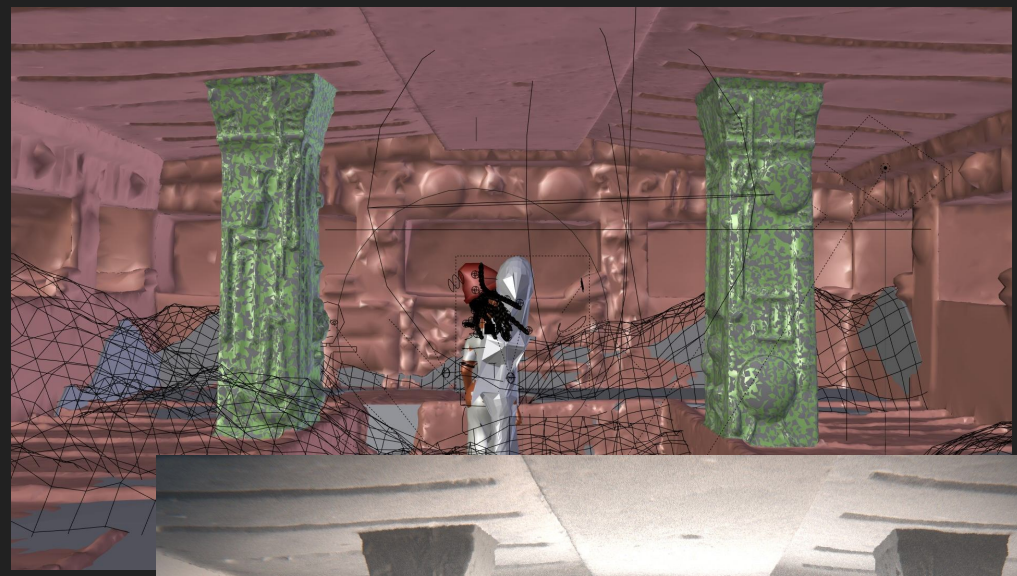

blender

3D Computer graphics

It is a technique for **representing three-dimensional objects** using mathematical models and the **result is a two-dimensional image.**

- **SCENE** a description of what you want display and it is composed of mathematical representations of three-dimensional objects (MODELS)

- **RENDER** a **mechanism for producing an image 2D** from the scene, through the use of algorithms that simulate the light and the physical properties of objects and materials.



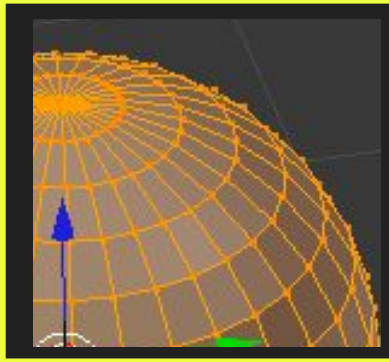
Scene

The scene includes points, lines and polygons that exist inside a three dimensions space defined by X, Y, Z axis.

In order to **compose a scene** is necessary:

- define 3D object geometry

  OBJECT MODELING



Mesh composed by:

- Vertices
- Edges
- Faces

Scene

The scene includes points, lines and polygons that exist inside a three dimensions space defined by X, Y, Z axis.

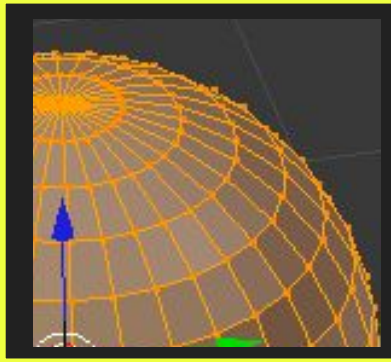
In order to **compose a scene** is necessary:

- define 3D object geometry

  OBJECT MODELING

- define texture and material of all objects

  SHADING AND TEXTURING



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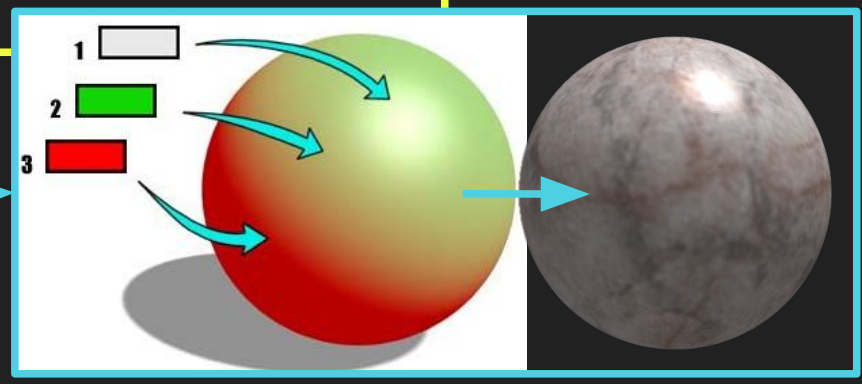


Scene

The scene includes points, lines and polygons that exist inside a three dimensions space defined by X, Y, Z axis.

In order to **compose a scene** is necessary:

- define 3D object geometry

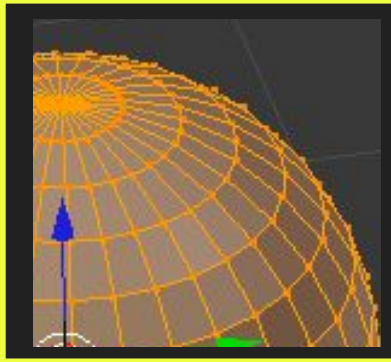
  OBJECT MODELING

- define texture and material of all objects

  SHADING AND TEXTURING

- define scene light for realistic final render

  LIGHTING



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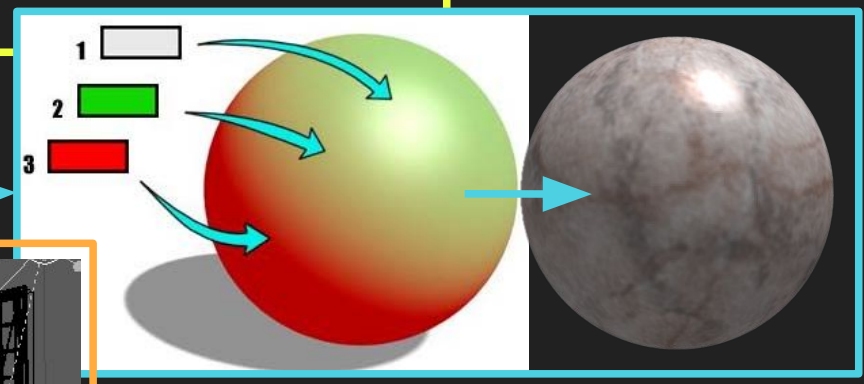

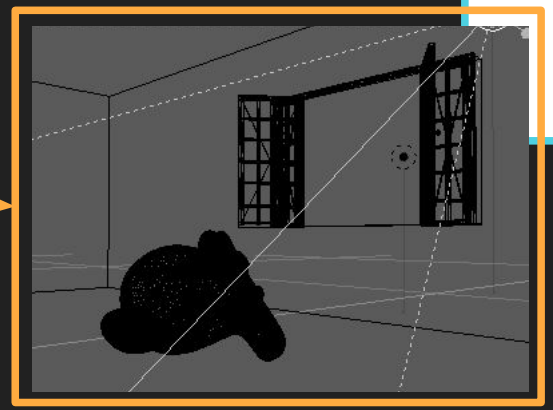

Scene

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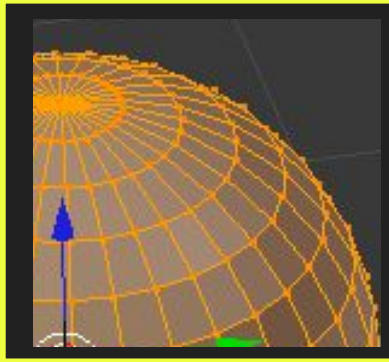
In order to **compose a scene** is necessary:

- define 3D object geometry
  OBJECT MODELING
- define texture and material of all objects
  SHADING AND TEXTURING
- define scene light for realistic final render
  LIGHTING
- realize frame (**RENDERING**) or export created models in format file for real-time visualization



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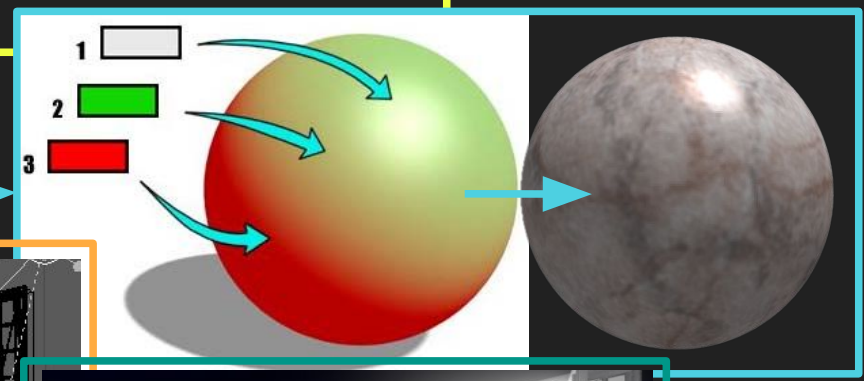

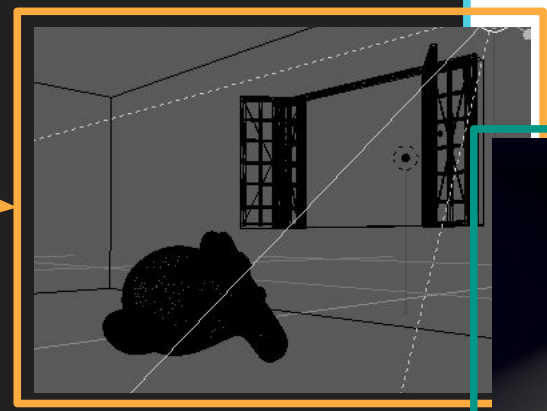


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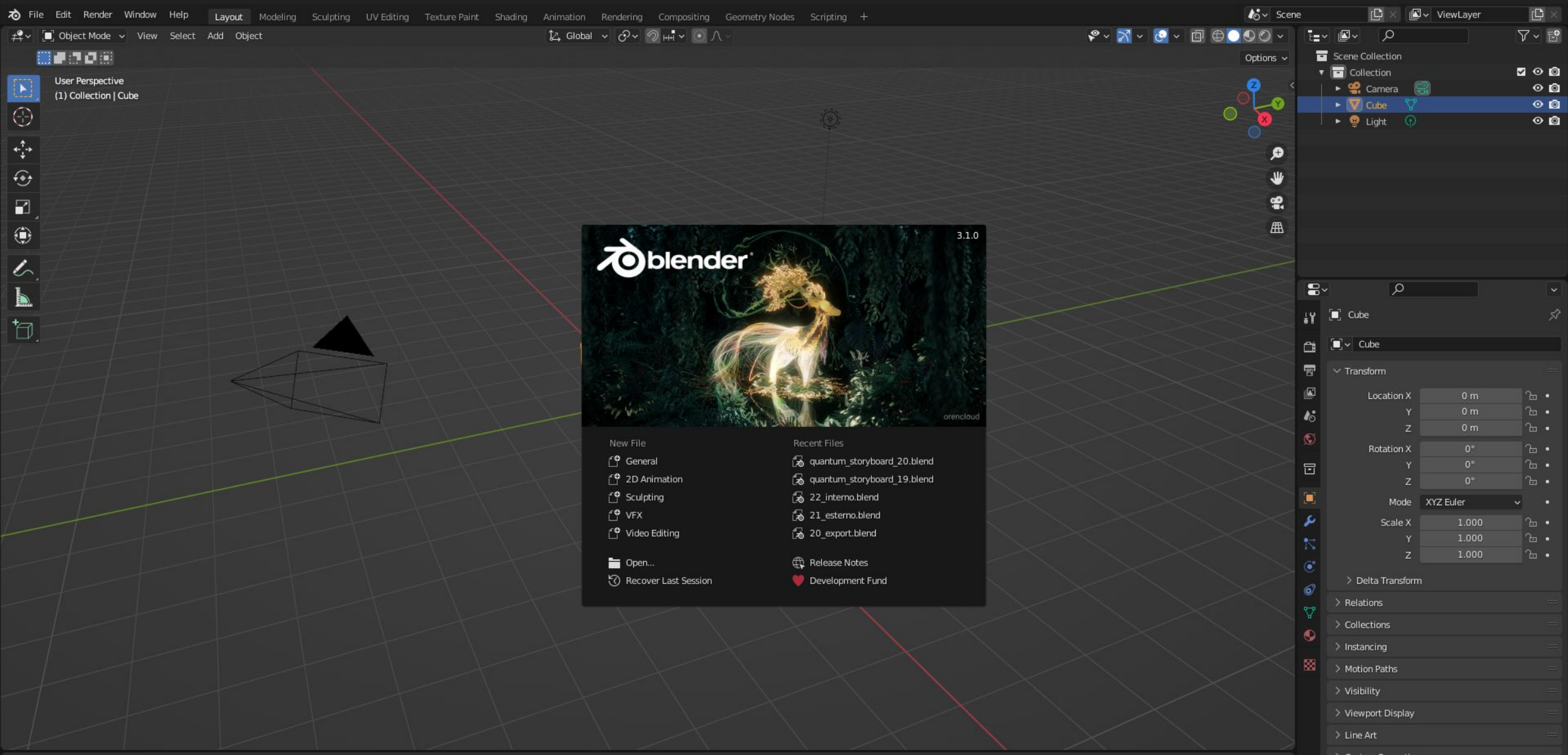
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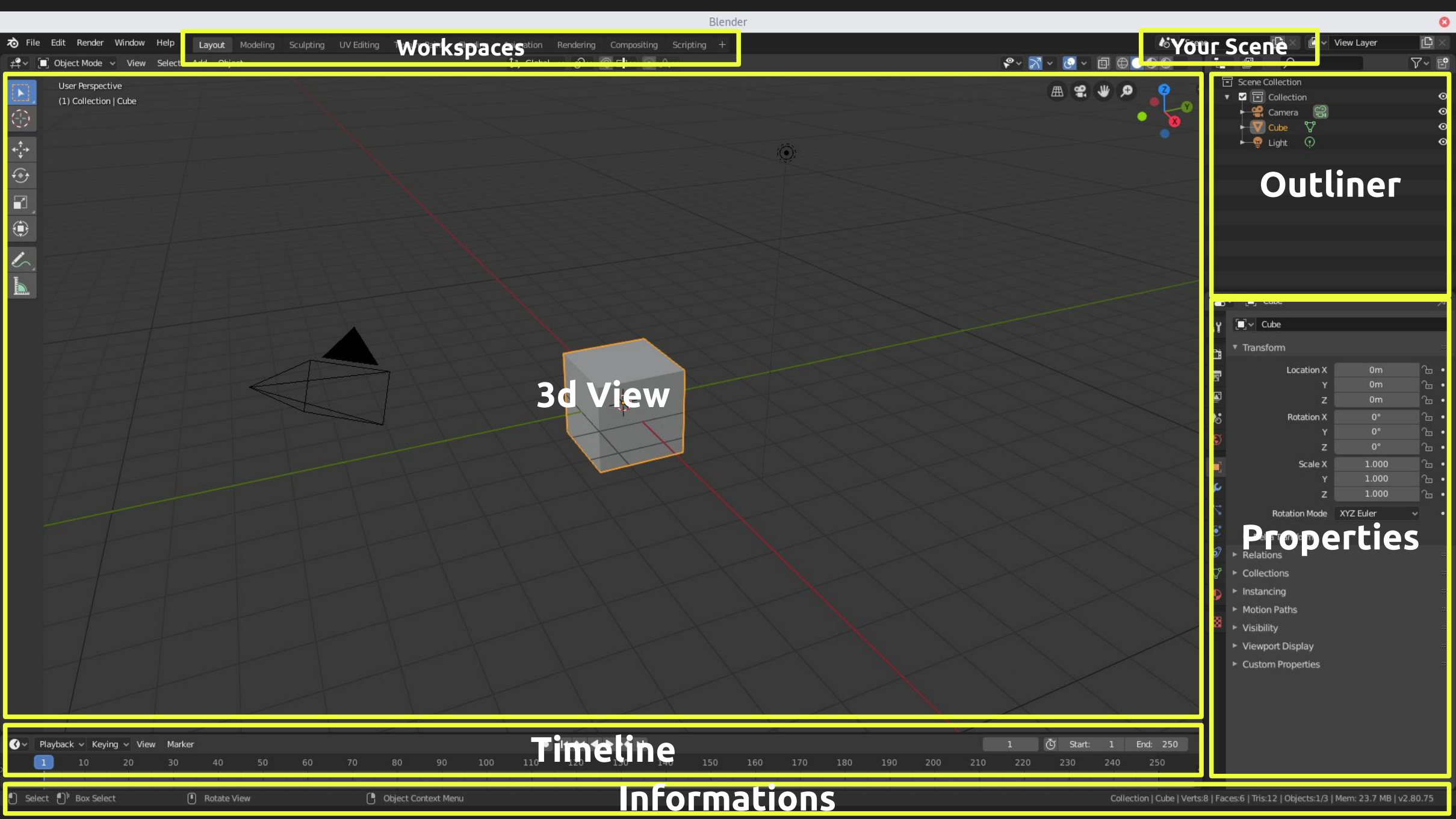
Blender
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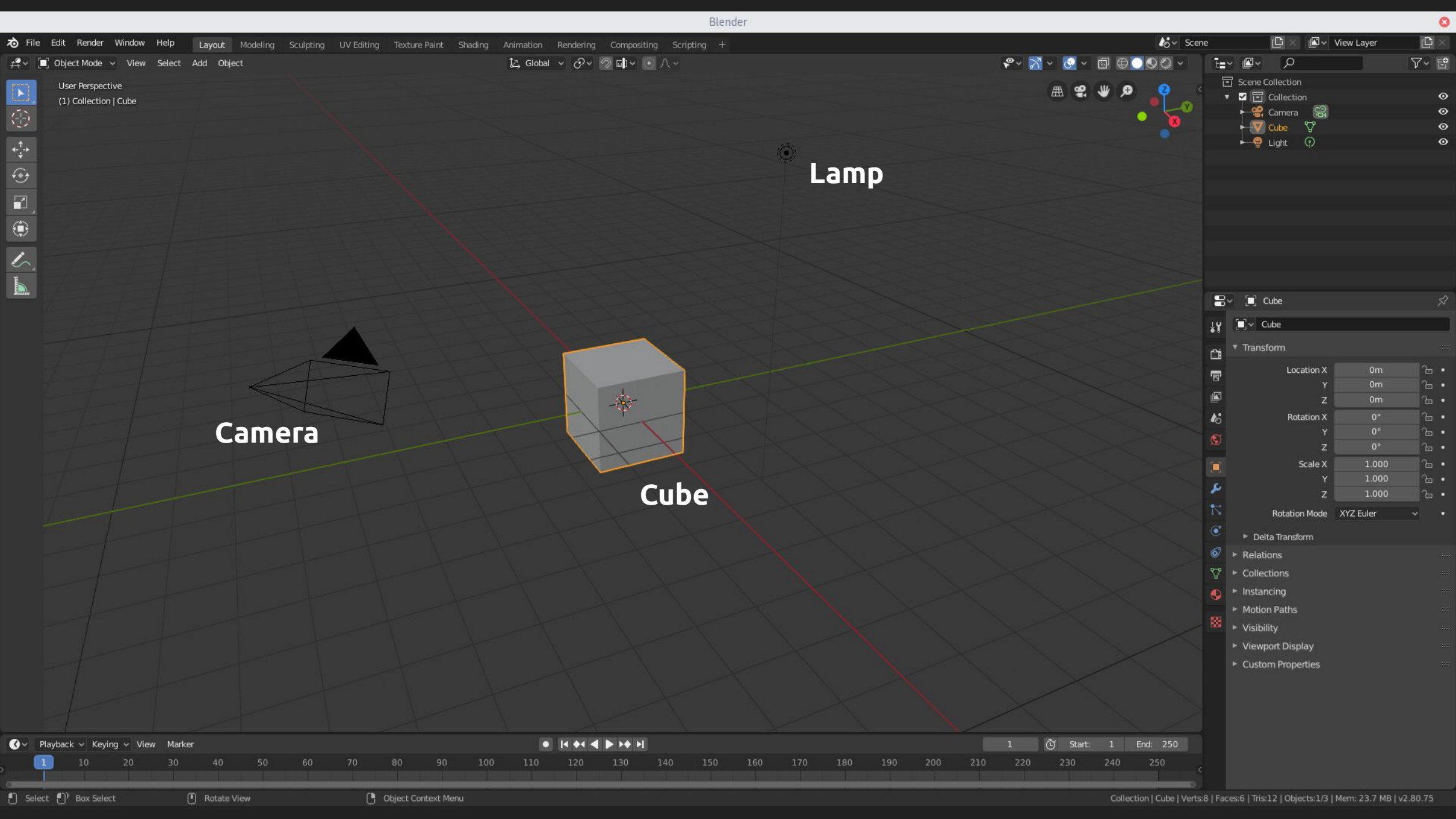
Informations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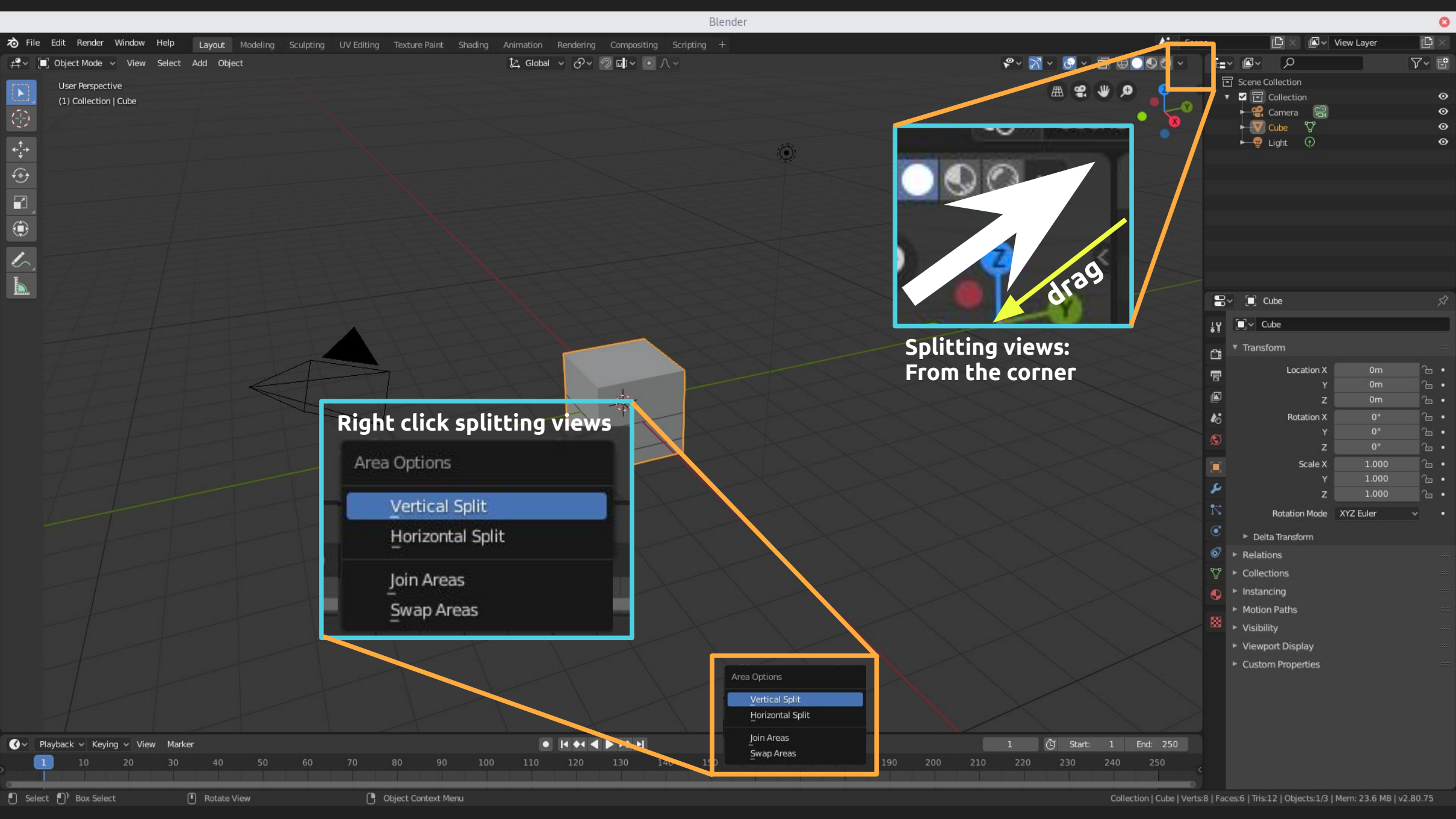
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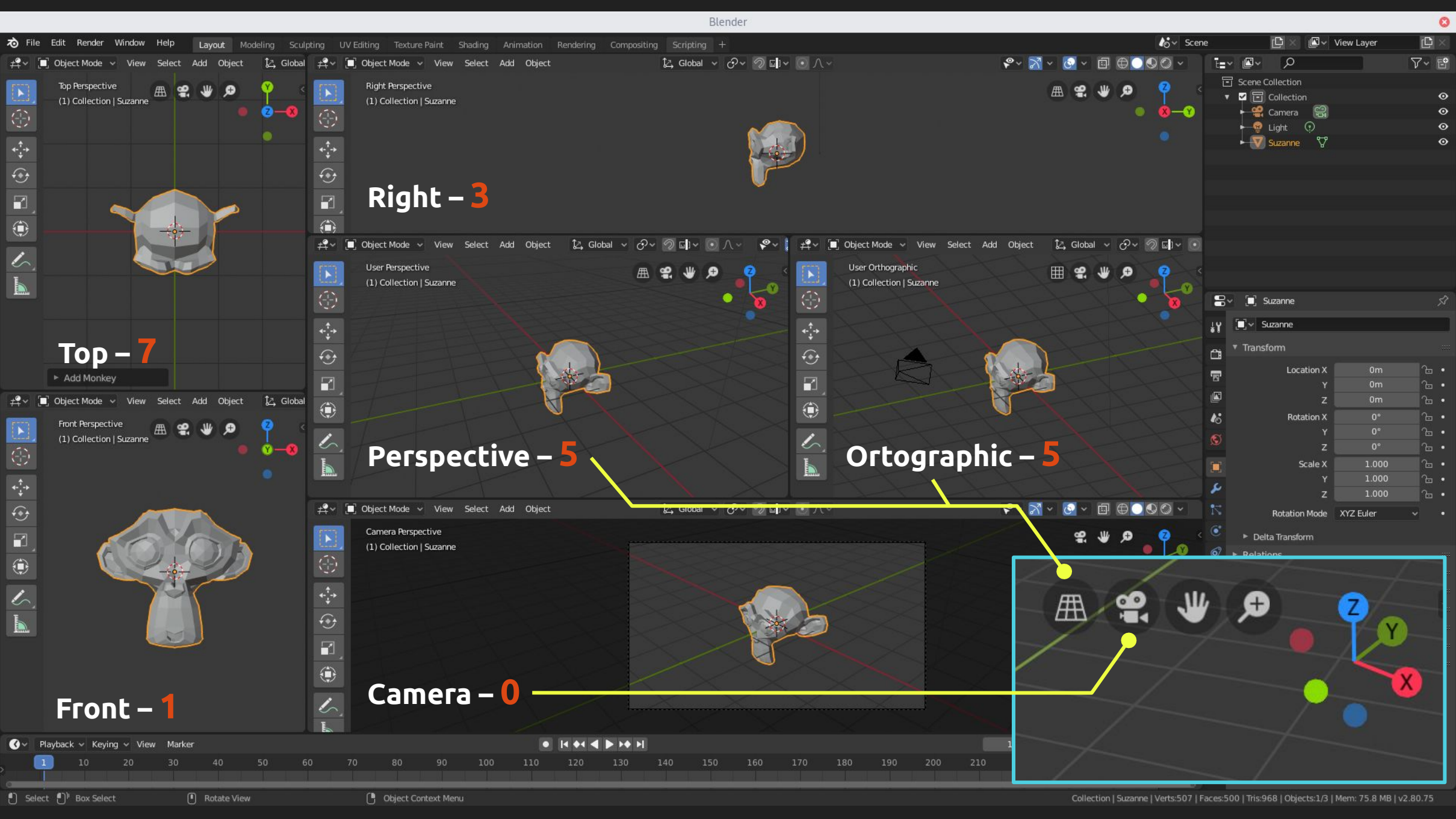
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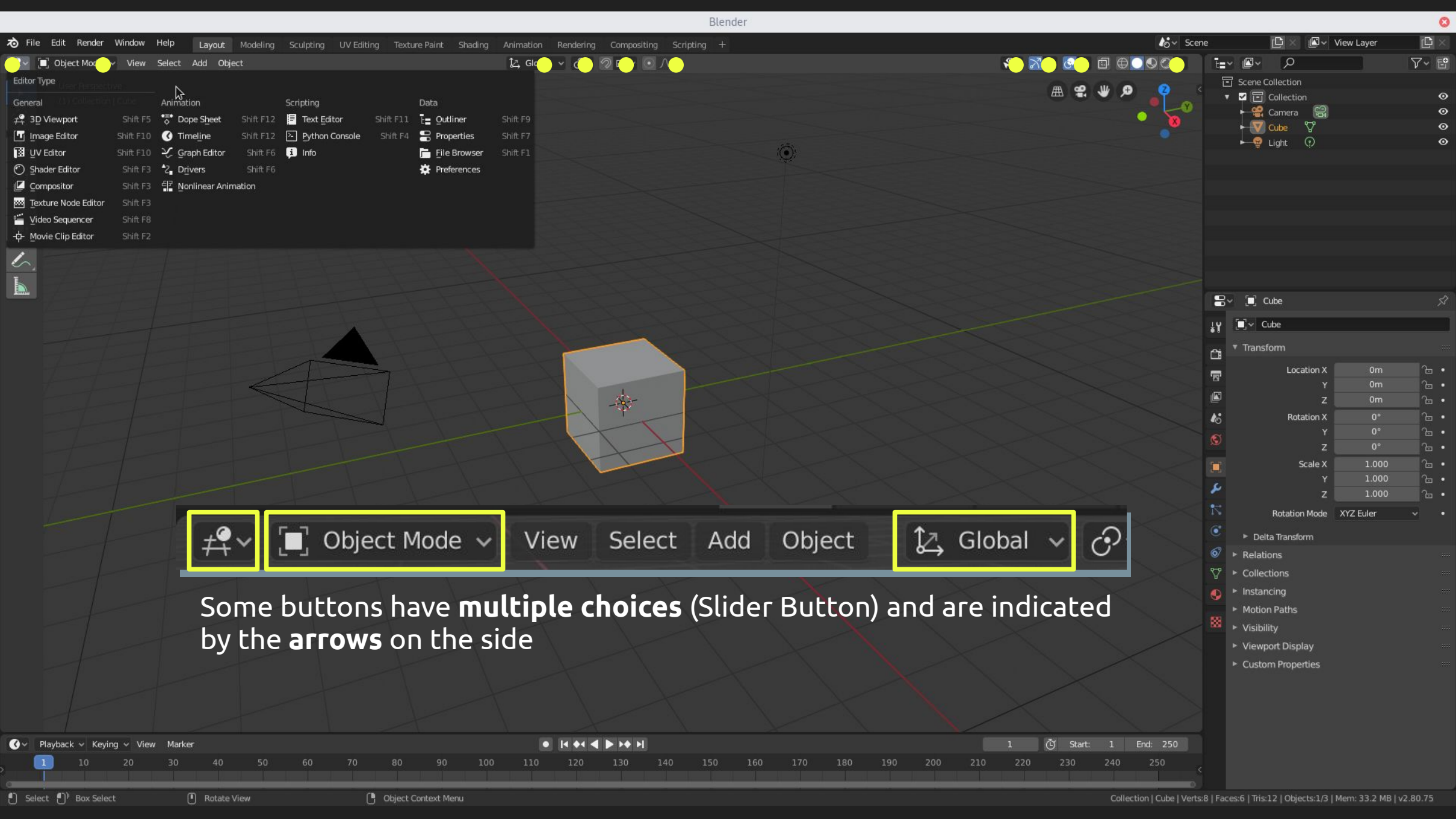
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Image Editor Shift F10
UV Editor Shift F10
Shader Editor Shift F3
Compositor Shift F3
Texture Node Editor Shift F3
Video Sequencer Shift F8
Movie Clip Editor Shift F2
Animation
Dope Sheet Shift F12
Timeline Shift F12
Graph Editor Shift F6
Drivers Shift F6
Nonlinear Animation
Scripting
Text Editor Shift F11
Python Console Shift F4
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File Browser Shift F1
Preferences
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Cube
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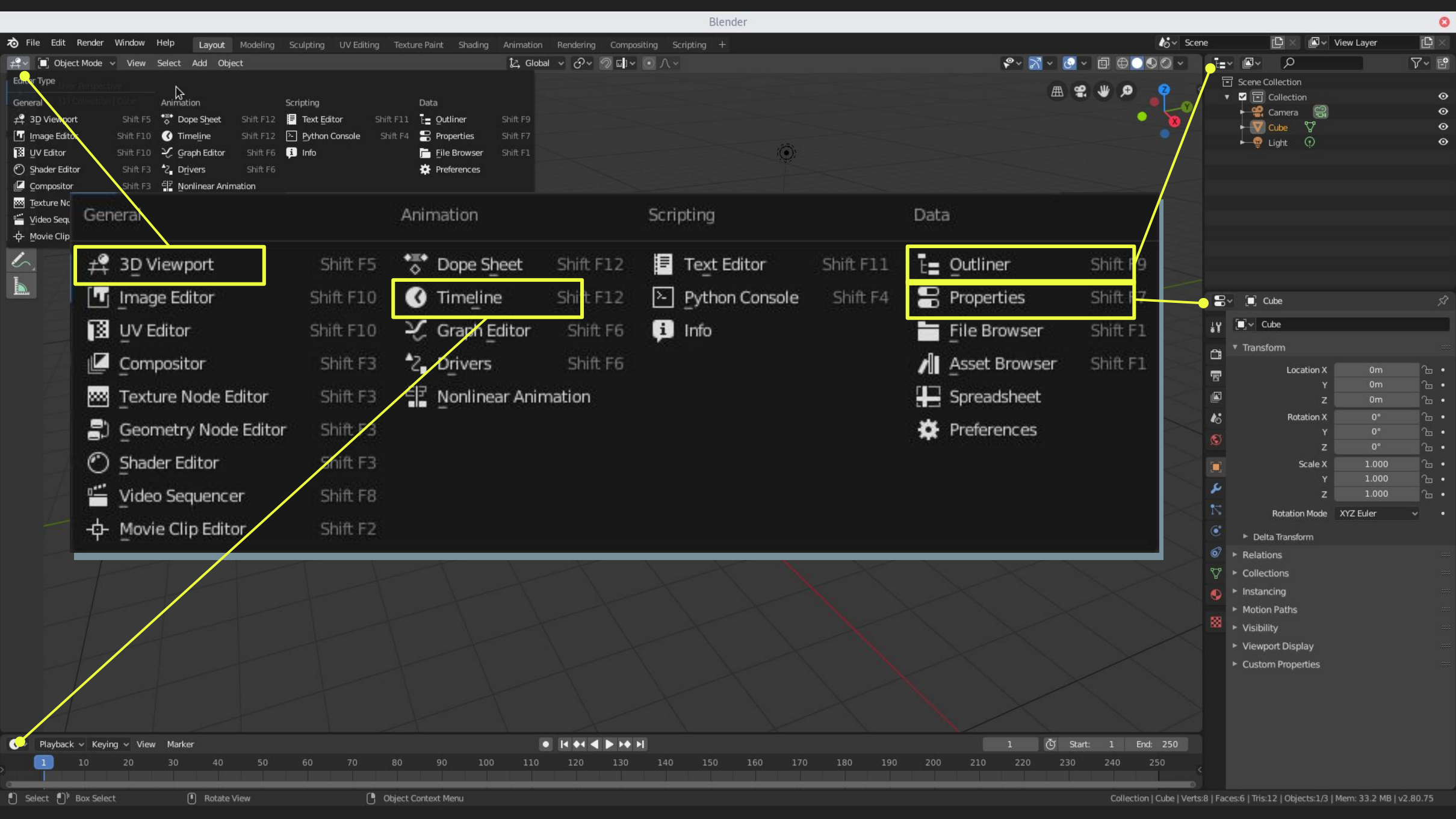
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Outliner Shift F9
Properties Shift F7
File Browser Shift F1
Preferences
Texture Node Editor Shift F3
Geometry Node Editor Shift F3
Video Sequencer Shift F8
Movie Clip Editor Shift F2
Asset Browser Shift F1
Spreadsheet
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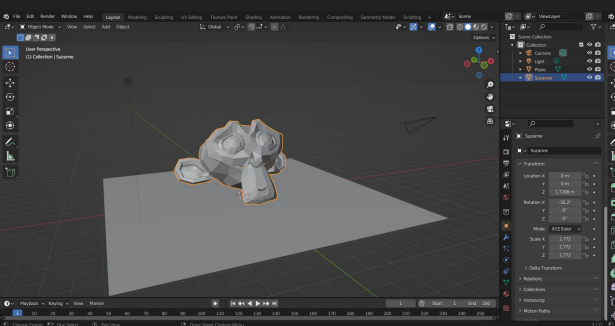
File Edit Render Window Help | Layout | Modeling | Sculpting | UV Editing | Texture Paint | Shading | Animation | Rendering | Compositing | Geometry Nodes | Scripting | + | Scene | ViewLayer

Workspaces

Layout



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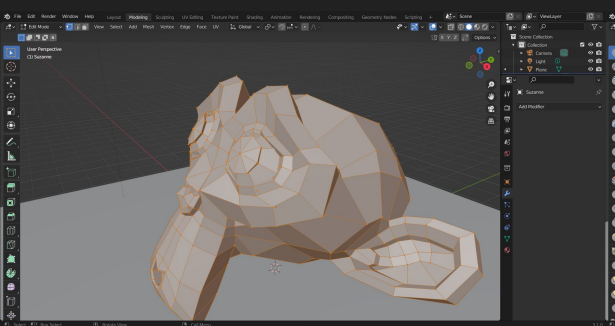
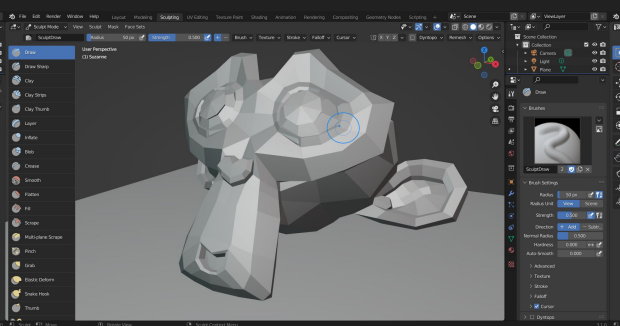
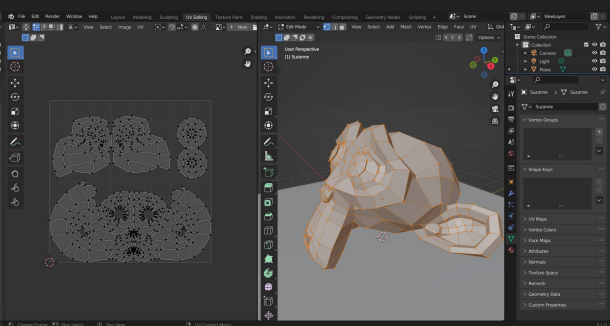


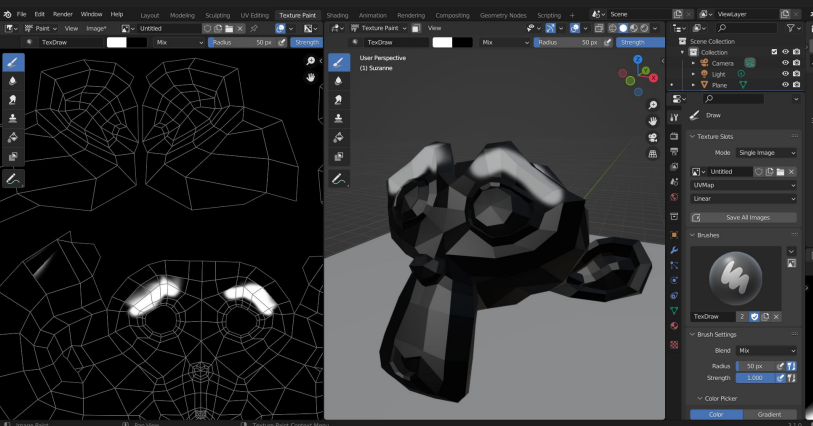
Sculpting



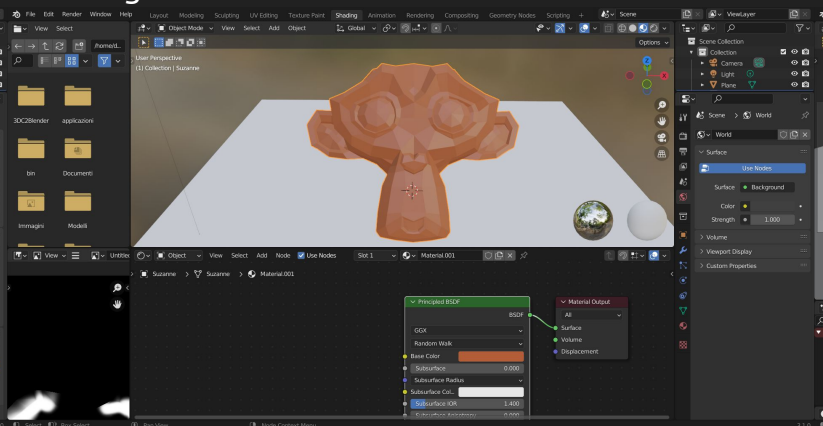
UV Editing



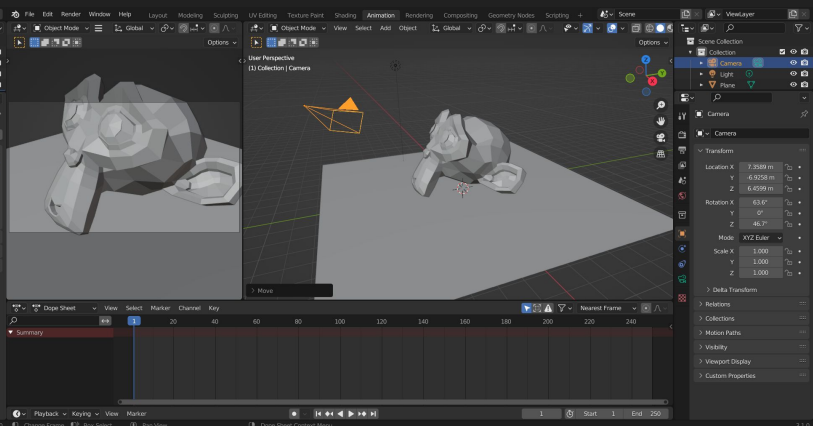
Texture Paint



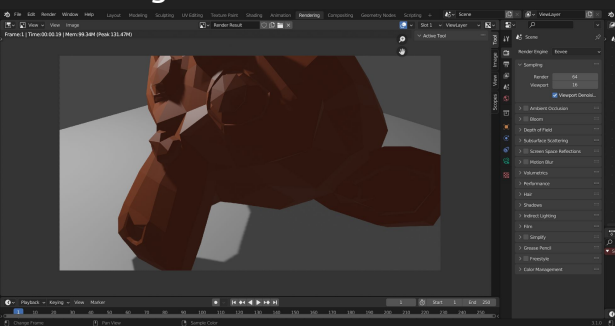
Shading



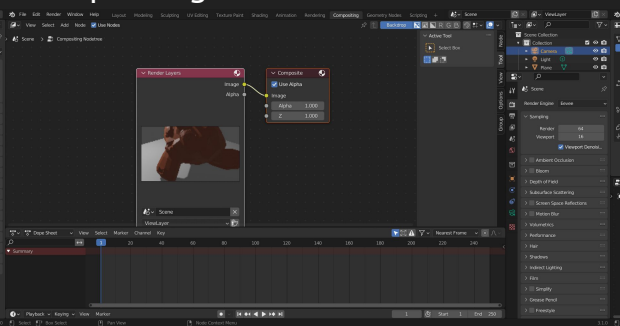
Animation



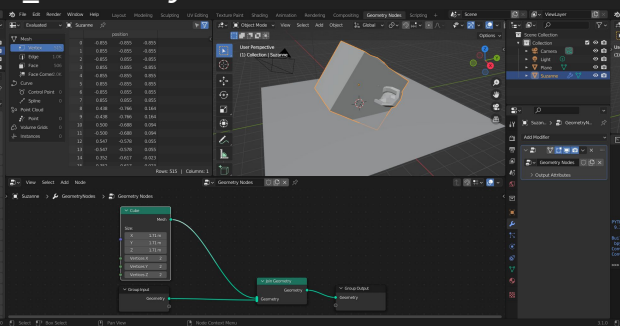
Rendering



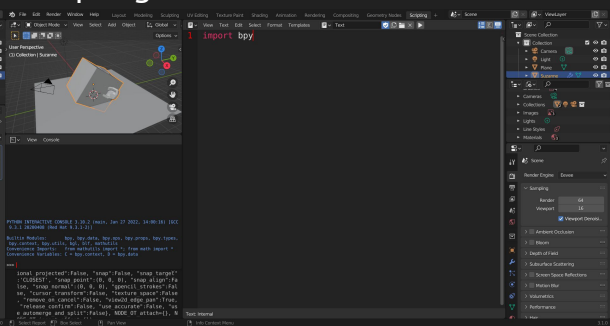
Compositing

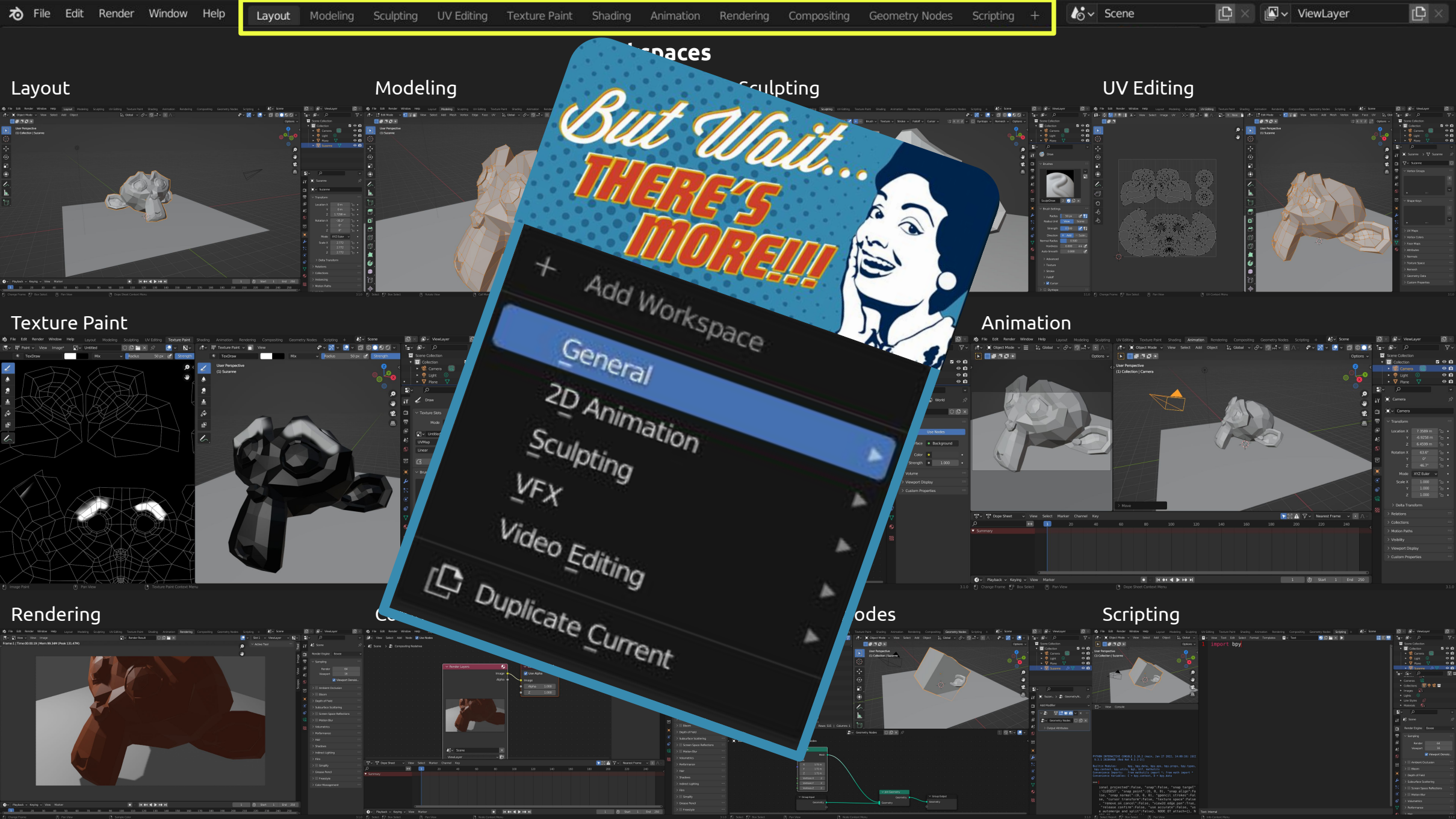


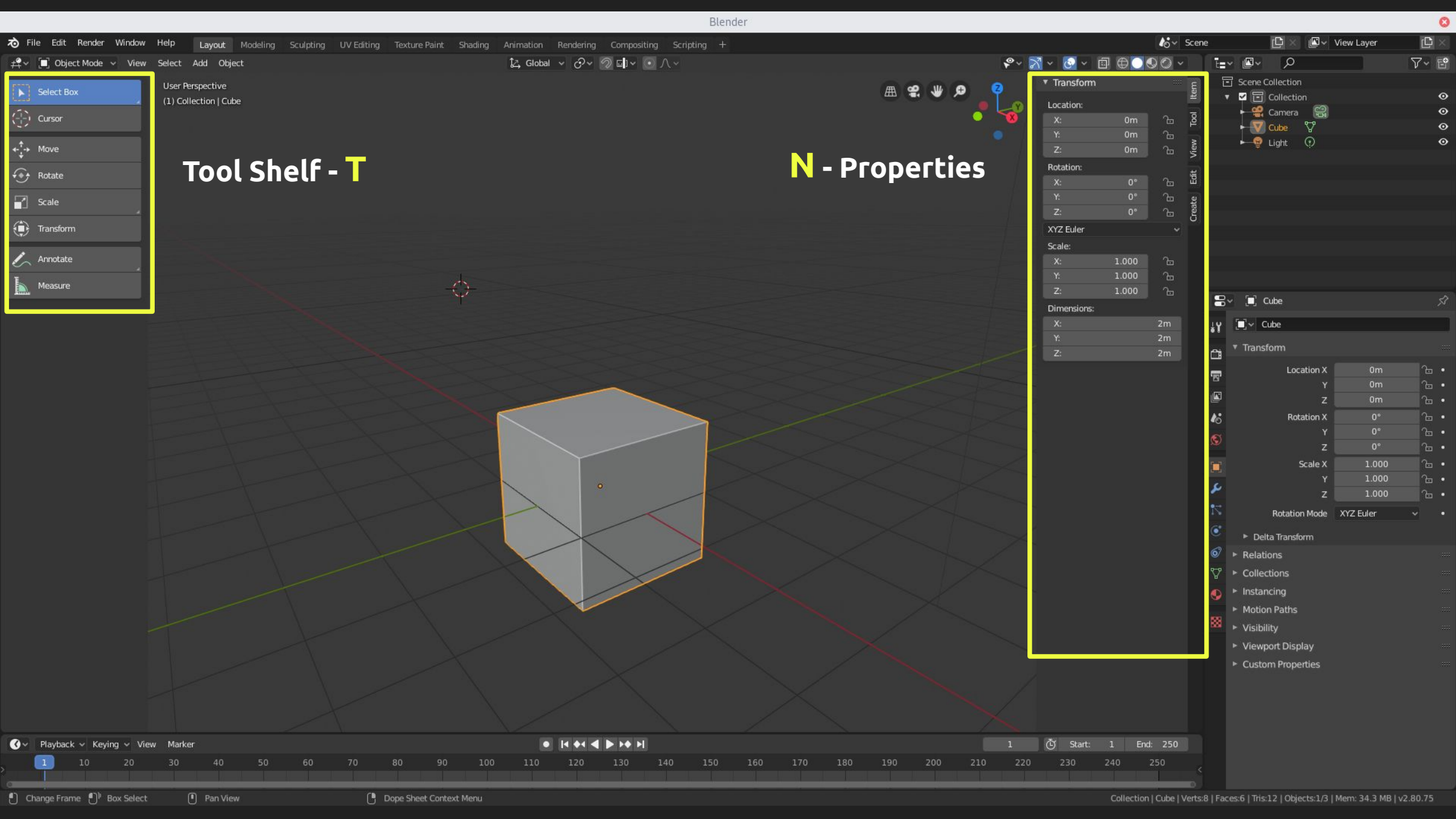
_Geometry Nodes



Scripting




File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Geometry Nodes Scripting +
Scene
ViewLayer
spaces
Layout
Modeling
Sculpting
UV Editing
But Wait...
THERE'S MORE!!!
Add Workspace
General
2D Animation
Sculpting
VFX
Video Editing
Duplicate Current
Texture Paint
Animation
Rendering
odes
Scripting
import bpy


Blender
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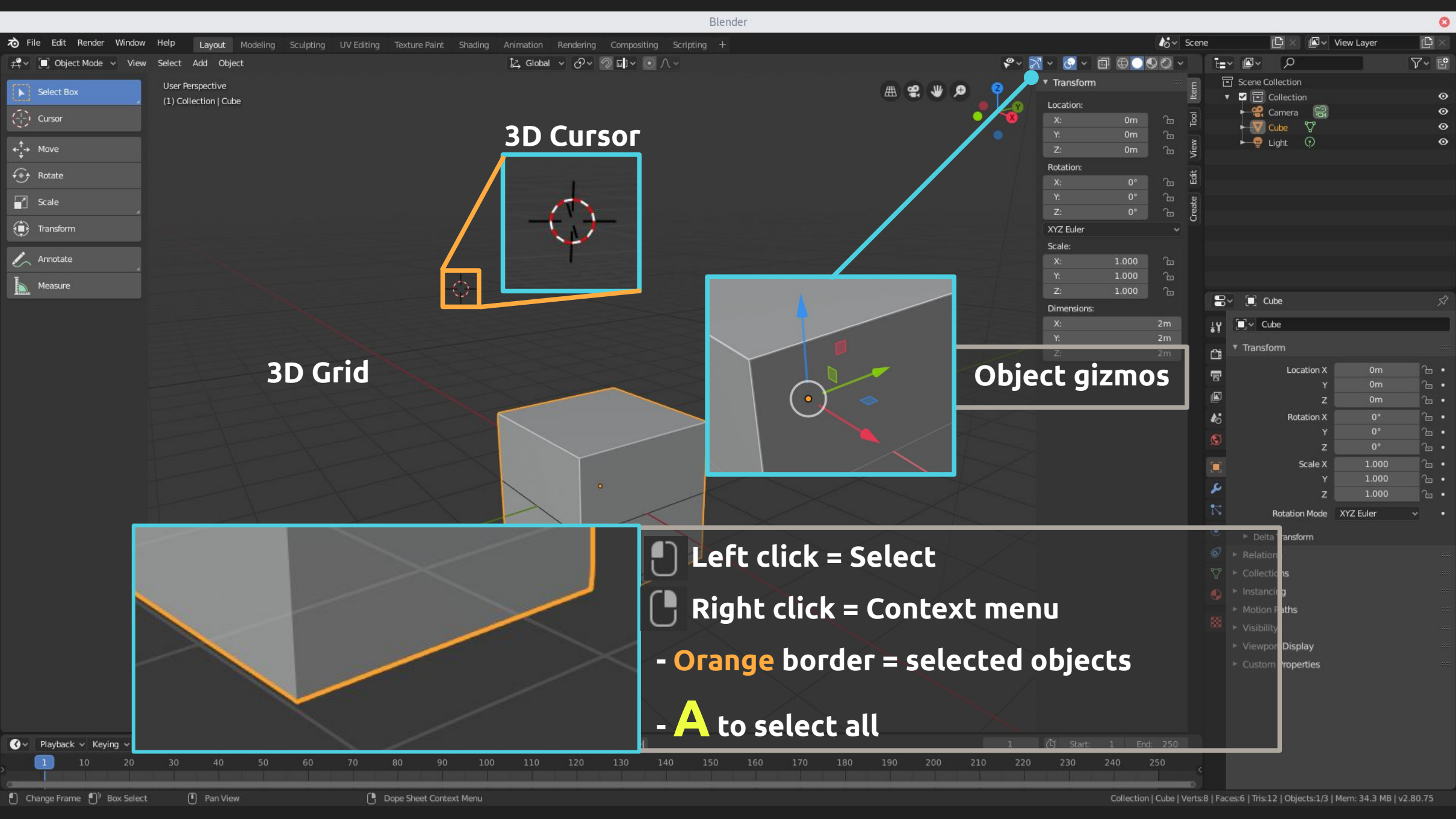
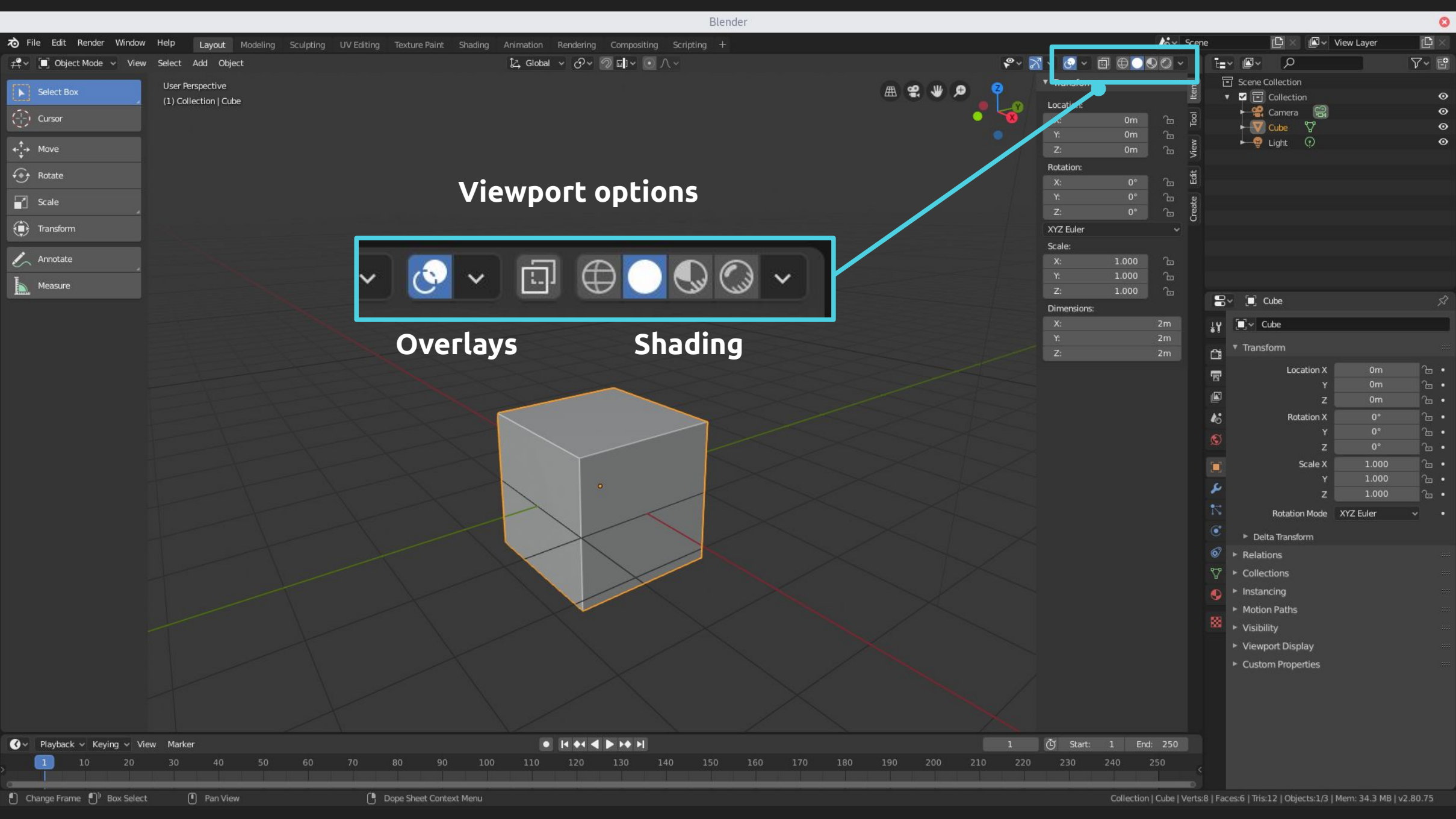
User Perspective
(1) Collection | Cube
Select Box
Cursor
Move
Rotate
Scale
Transform
Annotate
Measure
Tool Shelf - T
N - Properties
Transform
Location:
X: 0m
Y: 0m
Z: 0m
Rotation:
X: 0°
Y: 0°
Z: 0°
XYZ Euler
Scale:
X: 1.000
Y: 1.000
Z: 1.000
Dimensions:
X: 2m
Y: 2m
Z: 2m
Item
Tool
View
Edit
Create
Scene Collection
Collection
Camera
Cube
Light
Cube
Cube
Transform
Location X 0m
Y 0m
Z 0m
Rotation X 0°
Y 0°
Z 0°
Scale X 1.000
Y 1.000
Z 1.000
Rotation Mode XYZ Euler
Delta Transform
Relations
Collections
Instancing
Motion Paths
Visibility
Viewport Display
Custom Properties
Playback Keying View Marker
1
Start: 1
End: 250
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
Change Frame
Box Select
Pan View
Dope Sheet Context Menu
Collection | Cube | Verts:8 | Faces:6 | Tris:12 | Objects:1/3 | Mem: 34.3 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
Select Box
Cursor
Move
Rotate
Scale
Transform
Annotate
Measure
User Perspective
(1) Collection | Cube
3D Cursor
3D Grid
Object gizmos
Transform
Location:
Rotation:
XYZ Euler
Scale:
Dimensions:
Scene Collection
Collection
Camera
Cube
Light
Location X
Rotation X
Scale X
Rotation Mode
Left click = Select
Right click = Context menu
- Orange border = selected objects
- A to select all
Playback Keying
Change Frame
Box Select
Pan View
Dope Sheet Context Menu
Collection | Cube | Verts:8 | Faces:6 | Tris:12 | Objects:1/3 | Mem: 34.3 MB | v2.80.75

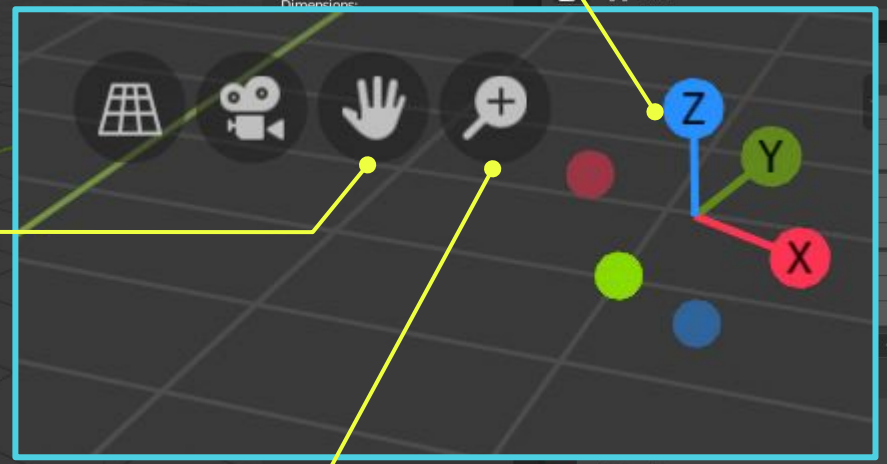

Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
Scene
View Layer
Select Box
Cursor
Move
Rotate
Scale
Transform
Annotate
Measure
User Perspective
(1) Collection | Cube
Viewport options
Overlays
Shading
Location:
Rotation:
XYZ Euler
Scale:
Dimensions:
Scene Collection
Collection
Camera
Cube
Light
Transform
Location X
Rotation X
Scale X
Rotation Mode
Delta Transform
Relations
Collections
Instancing
Motion Paths
Visibility
Viewport Display
Custom Properties
Playback Keying View Marker
Start: 1
End: 250
Change Frame
Box Select
Pan View
Dope Sheet Context Menu
Collection | Cube | Verts:8 | Faces:6 | Tris:12 | Objects:1/3 | Mem: 34.3 MB | v2.80.75

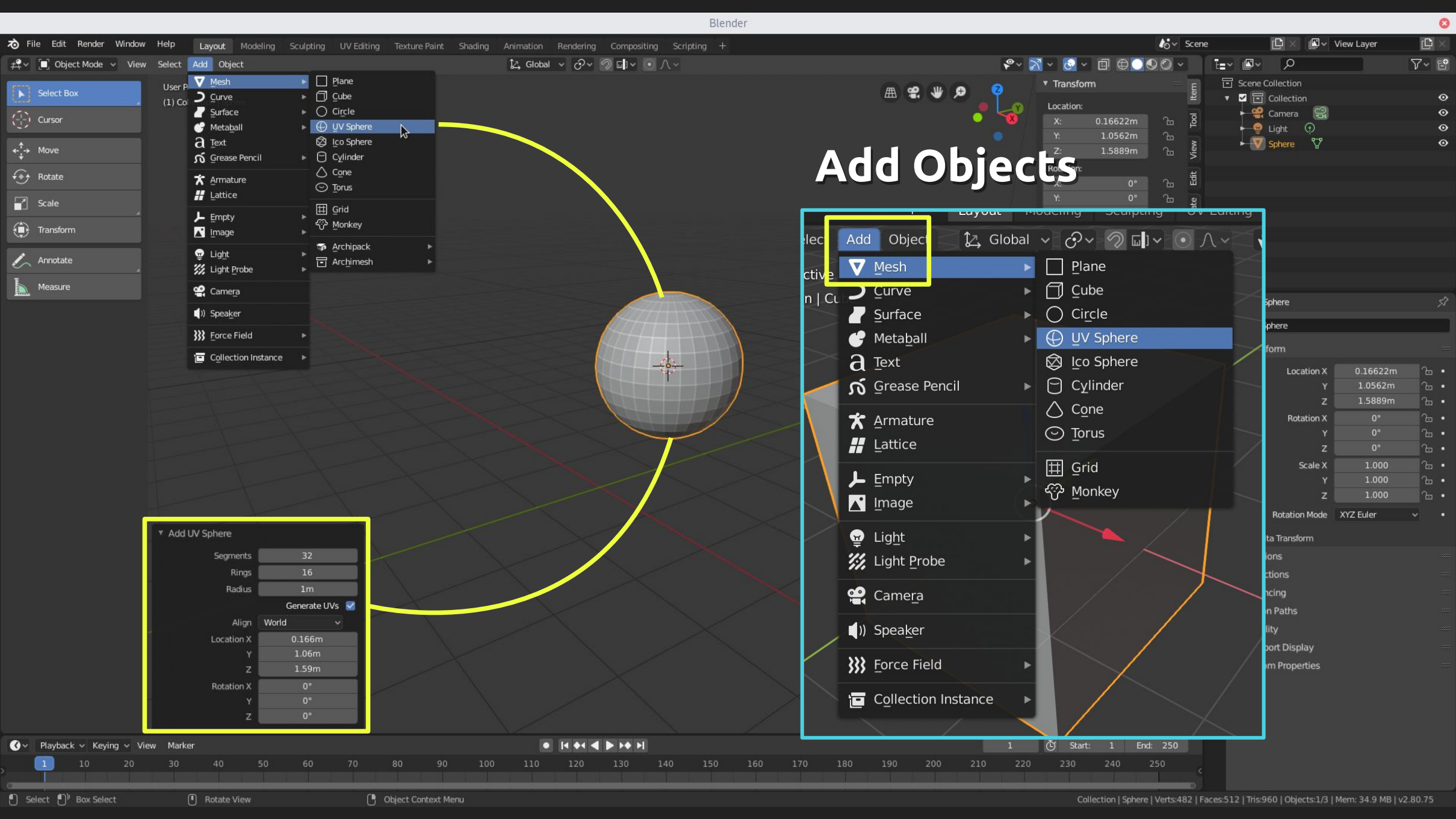
Movement inside the interface

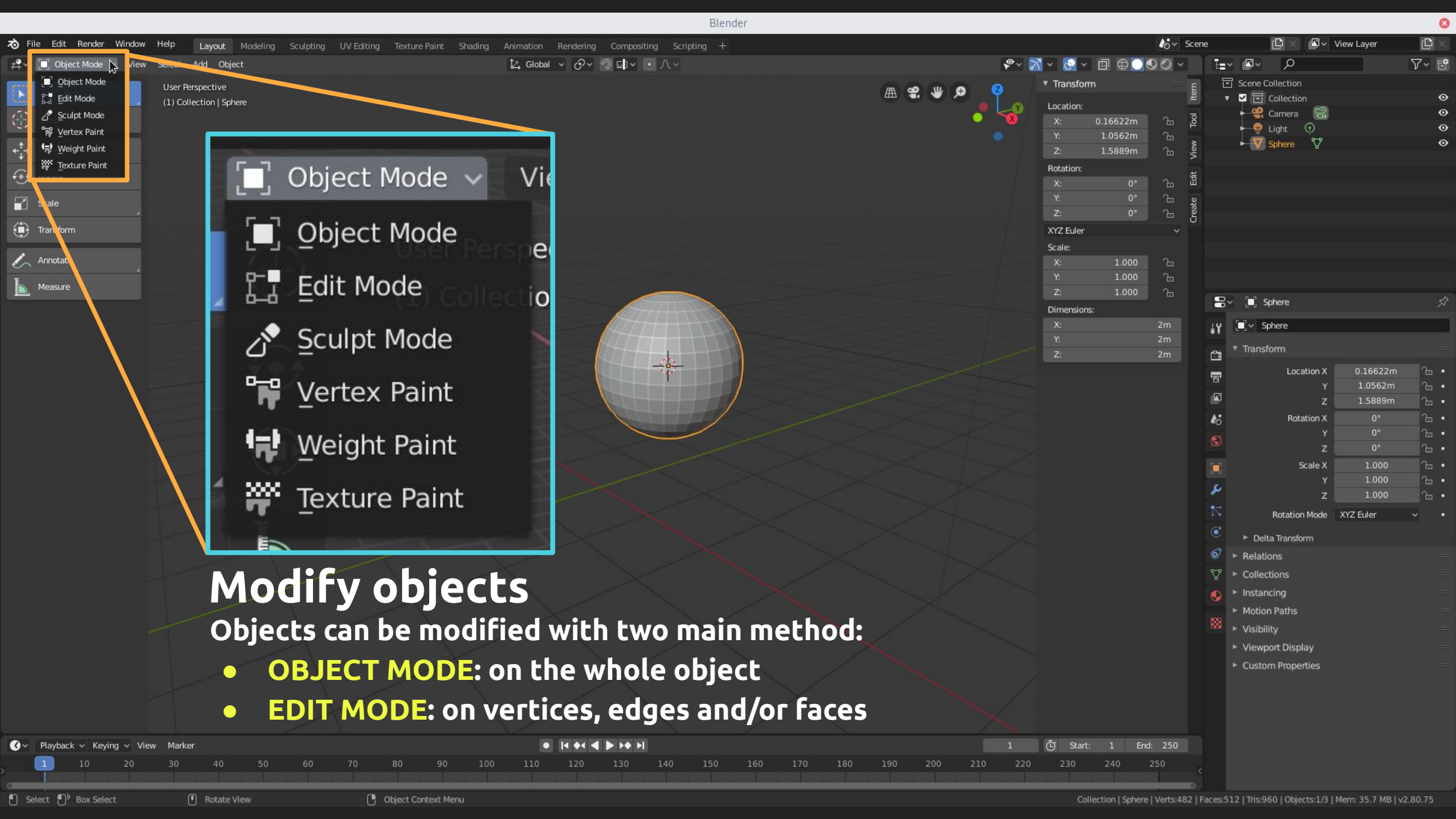
MMB pressed → View **Rotation**

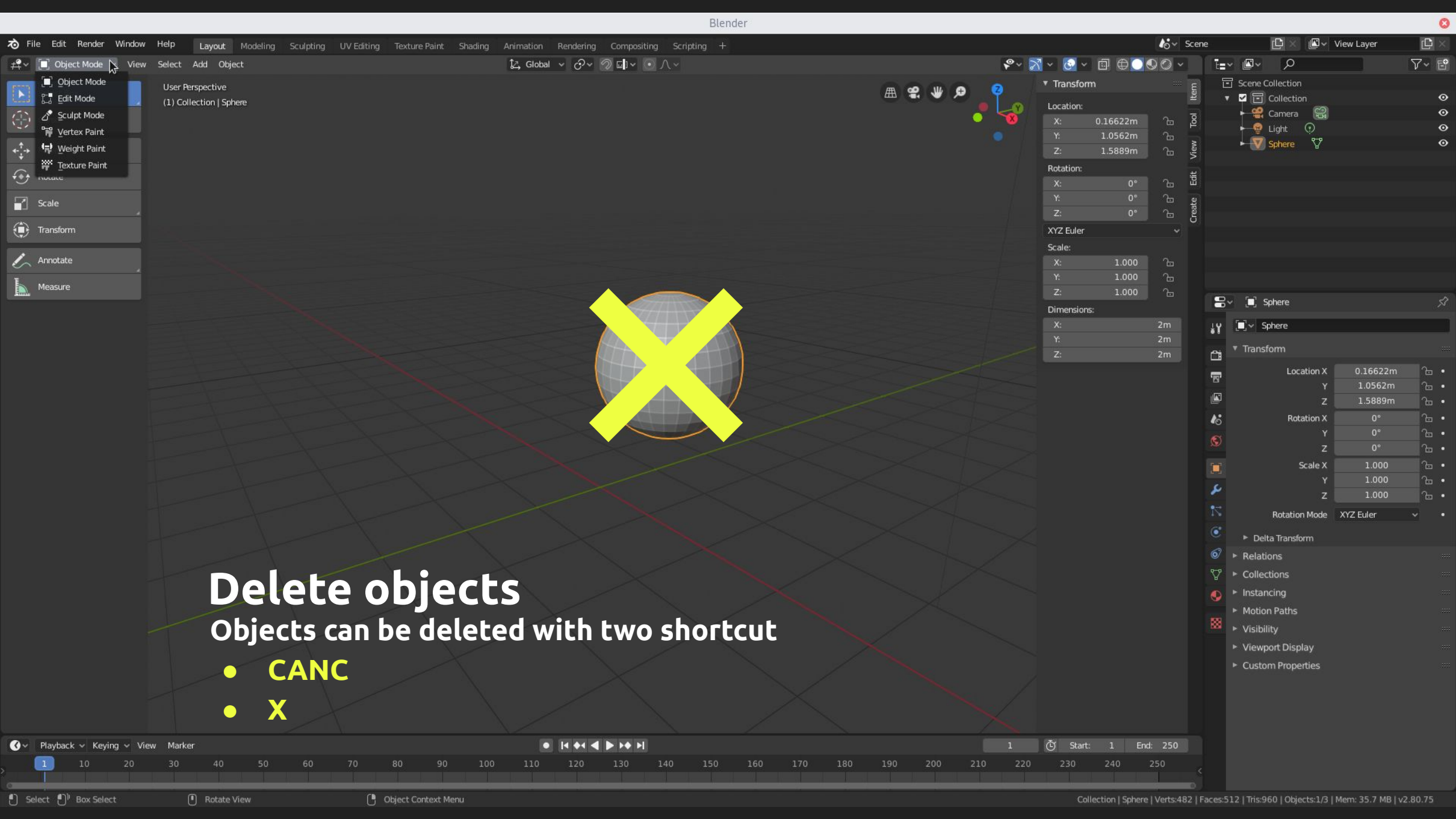
Shift
+
MMB pressed
→ View **Traslation**

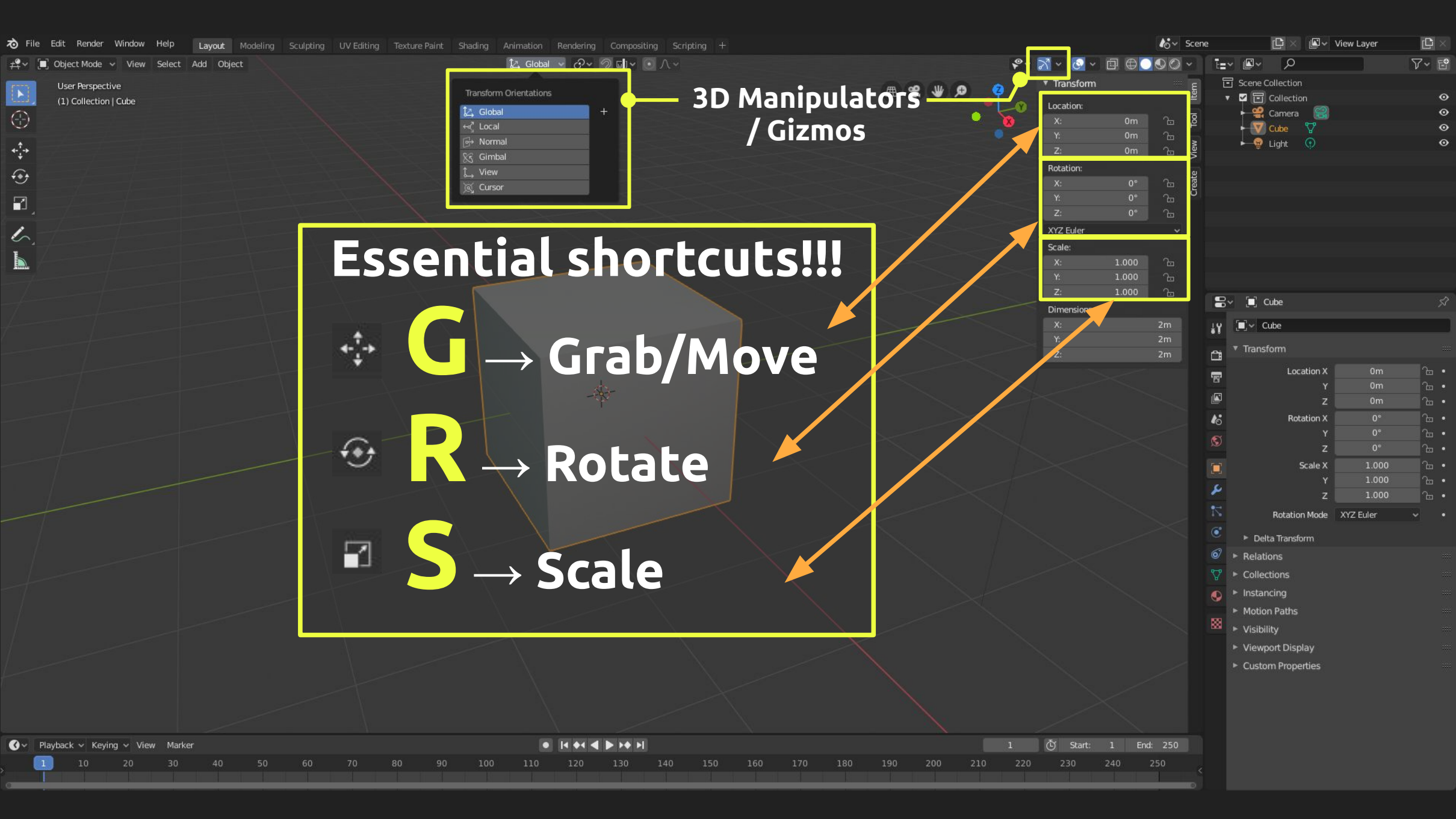
Ctrl
+
MMB pressed
→ View **Zoom**



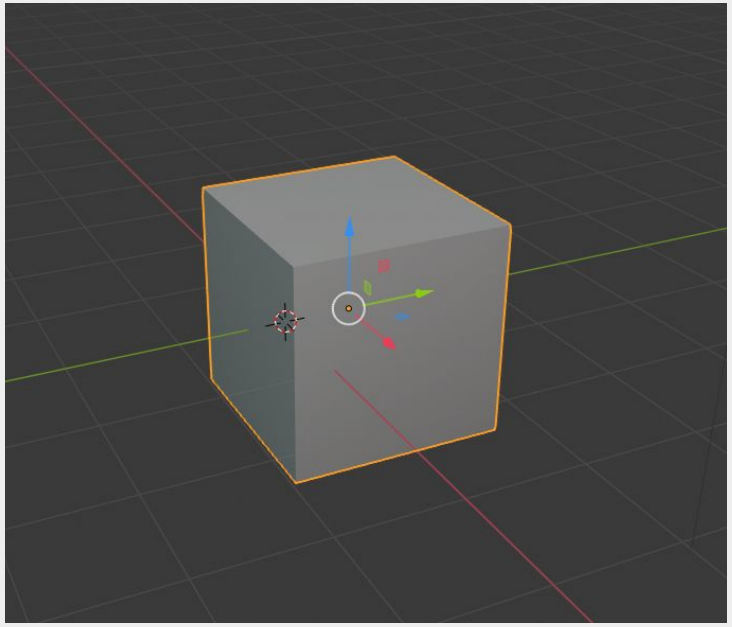

Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
Select Box
Cursor
Move
Rotate
Scale
Transform
Annotate
Measure
Mesh
Curve
Surface
Metaball
Text
Grease Pencil
Armature
Lattice
Empty
Image
Light
Light Probe
Camera
Speaker
Force Field
Collection Instance
Plane
Cube
Circle
UV Sphere
Ico Sphere
Cylinder
Cone
Torus
Grid
Monkey
Archipack
Archimesh
Add Objects
Transform
Location:
X: 0.16622m
Y: 1.0562m
Z: 1.5889m
Scene Collection
Collection
Camera
Light
Sphere
Add UV Sphere
Segments 32
Rings 16
Radius 1m
Generate UVs
Align World
Location X 0.166m
Y 1.06m
Z 1.59m
Rotation X 0°
Y 0°
Z 0°
Playback Keying View Marker
Start: 1 End: 250
Select Box Select Rotate View Object Context Menu
Collection | Sphere | Verts:482 | Faces:512 | Tris:960 | Objects:1/3 | Mem: 34.9 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode
Edit Mode
Sculpt Mode
Vertex Paint
Weight Paint
Texture Paint
User Perspective
(1) Collection | Sphere
Transform
Location:
Rotation:
Scale:
Dimensions:
Scene Collection
Collection
Camera
Light
Sphere
Modify objects
Objects can be modified with two main method:
OBJECT MODE: on the whole object
EDIT MODE: on vertices, edges and/or faces

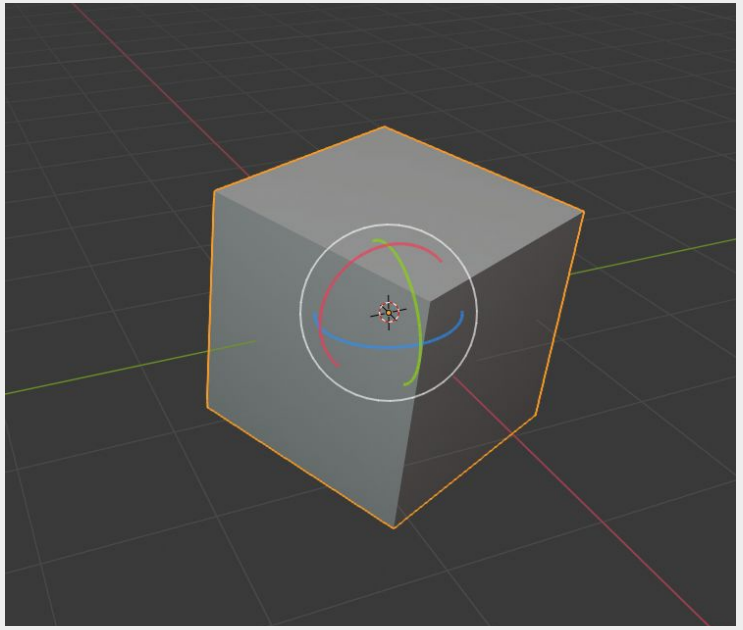

Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
Object Mode
Edit Mode
Sculpt Mode
Vertex Paint
Weight Paint
Texture Paint
User Perspective
(1) Collection | Sphere
Scale
Transform
Annotate
Measure
Transform
Location:
X: 0.16622m
Y: 1.0562m
Z: 1.5889m
Rotation:
X: 0°
Y: 0°
Z: 0°
XYZ Euler
Scale:
X: 1.000
Y: 1.000
Z: 1.000
Dimensions:
X: 2m
Y: 2m
Z: 2m
Item
Tool
View
Edit
Create
Scene
View Layer
Scene Collection
Collection
Camera
Light
Sphere
Sphere
Sphere
Transform
Location X 0.16622m
Y 1.0562m
Z 1.5889m
Rotation X 0°
Y 0°
Z 0°
Scale X 1.000
Y 1.000
Z 1.000
Rotation Mode XYZ Euler
Delta Transform
Relations
Collections
Instancing
Motion Paths
Visibility
Viewport Display
Custom Properties
Delete objects
Objects can be deleted with two shortcut
CANC
X
Playback Keying View Marker
1
Start: 1
End: 250
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
Select
Box Select
Rotate View
Object Context Menu
Collection | Sphere | Verts:482 | Faces:512 | Tris:960 | Objects:1/3 | Mem: 35.7 MB | v2.80.75


File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
User Perspective
(1) Collection | Cube
Transform Orientations
Global
Local
Normal
Gimbal
View
Cursor
3D Manipulators / Gizmos
Scene
View Layer
Transform
Location:
X: 0m
Y: 0m
Z: 0m
Rotation:
X: 0°
Y: 0°
Z: 0°
XYZ Euler
Scale:
X: 1.000
Y: 1.000
Z: 1.000
Dimensions:
X: 2m
Y: 2m
Z: 2m
Scene Collection
Collection
Camera
Cube
Light
Cube
Location X 0m
Y 0m
Z 0m
Rotation X 0°
Y 0°
Z 0°
Scale X 1.000
Y 1.000
Z 1.000
Rotation Mode XYZ Euler
Delta Transform
Relations
Collections
Instancing
Motion Paths
Visibility
Viewport Display
Custom Properties
Essential shortcuts!!!
G → Grab/Move
R → Rotate
S → Scale
Playback Keying View Marker
Start: 1 End: 250

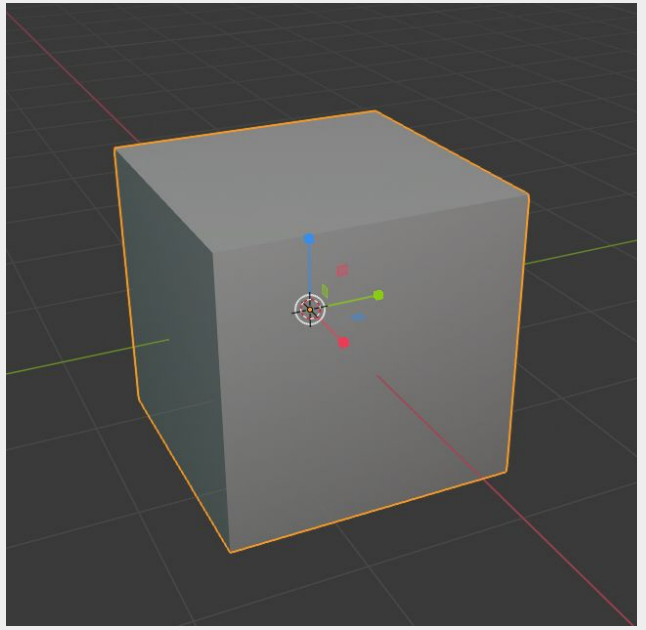
G →Grab/Move



R → Rotate



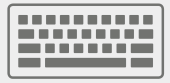
S → Scale

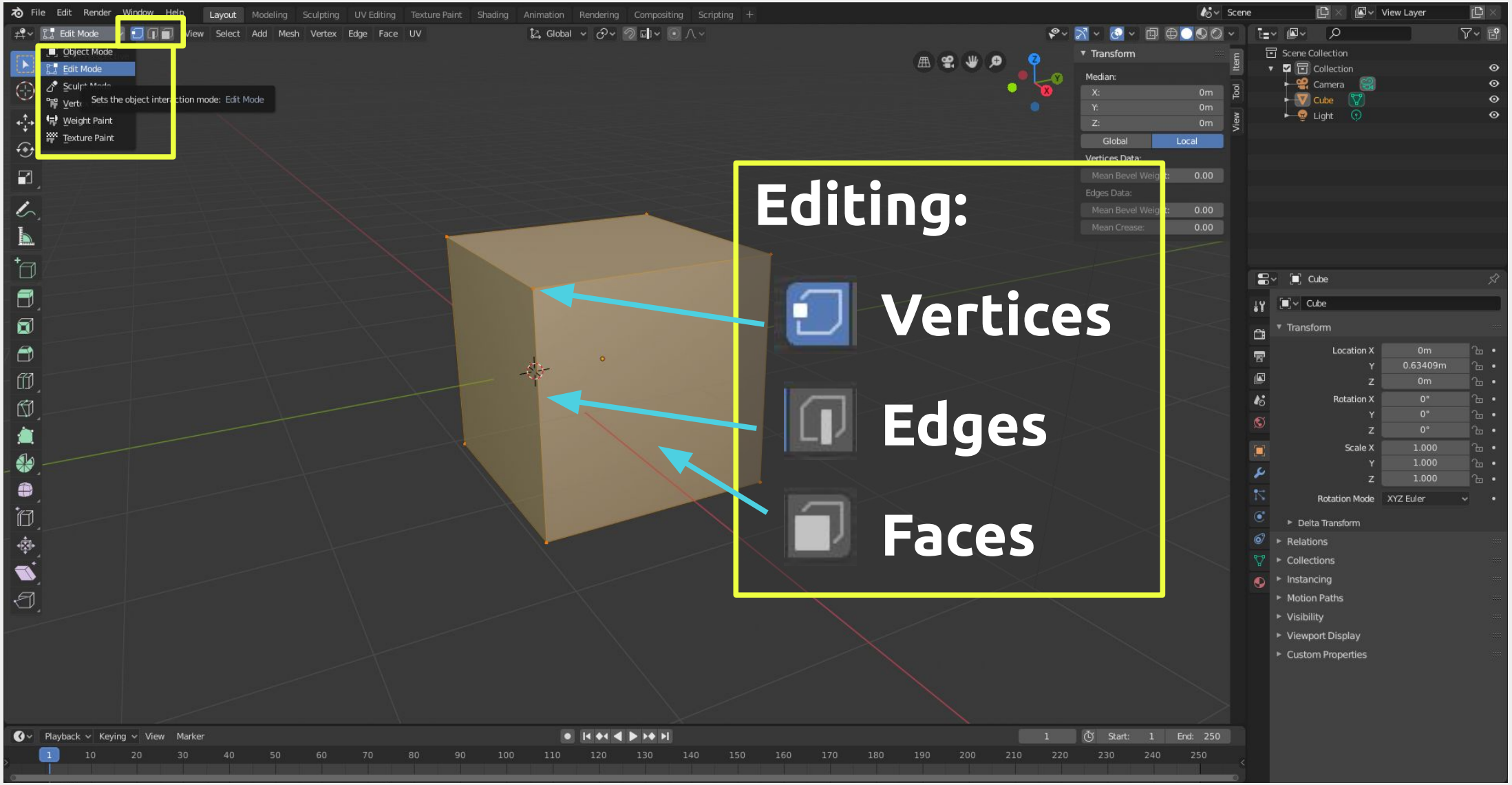


- **Press** once **G,R or S**
- **Move** the object with the **mouse**
- **Confirm** with **left click** or Enter

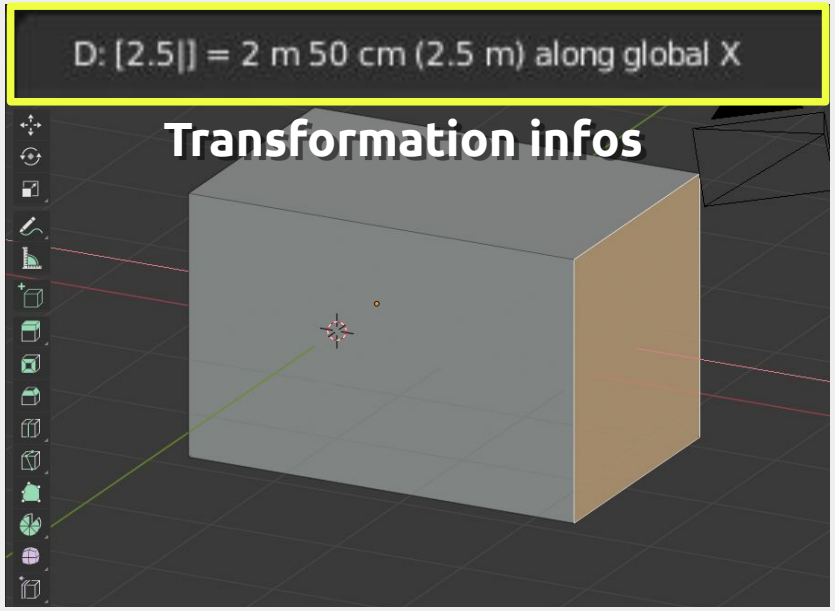
OR

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



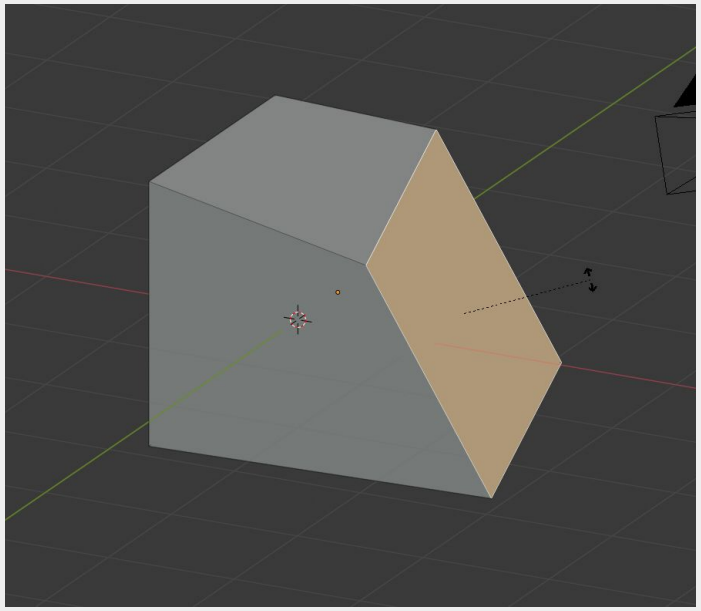

Editing:
Vertices
Edges
Faces

G → Grab/Move

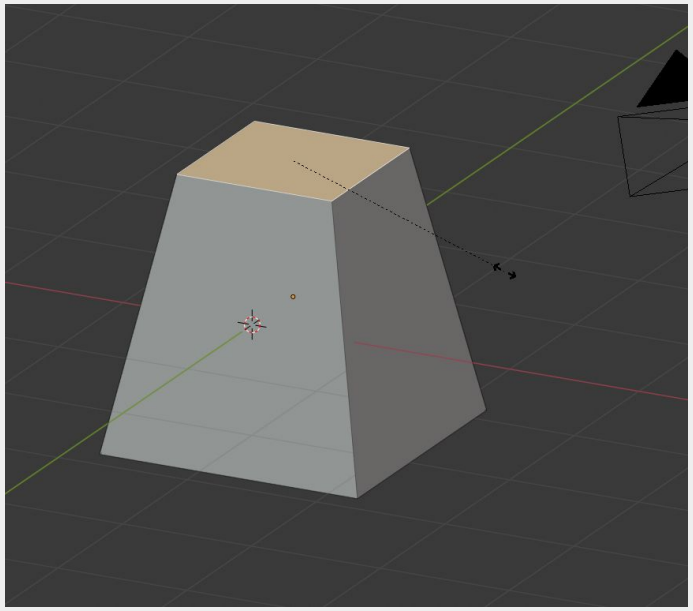


- **Press** once **G,R or S**
- **Move** the mesh with the **mouse**
- **Check the infos**
- **Confirm** with **left click** or Enter

R → Rotate



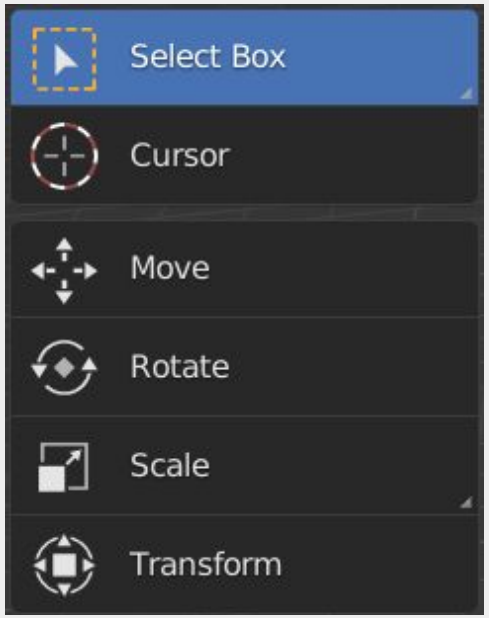
S → Scale



OR

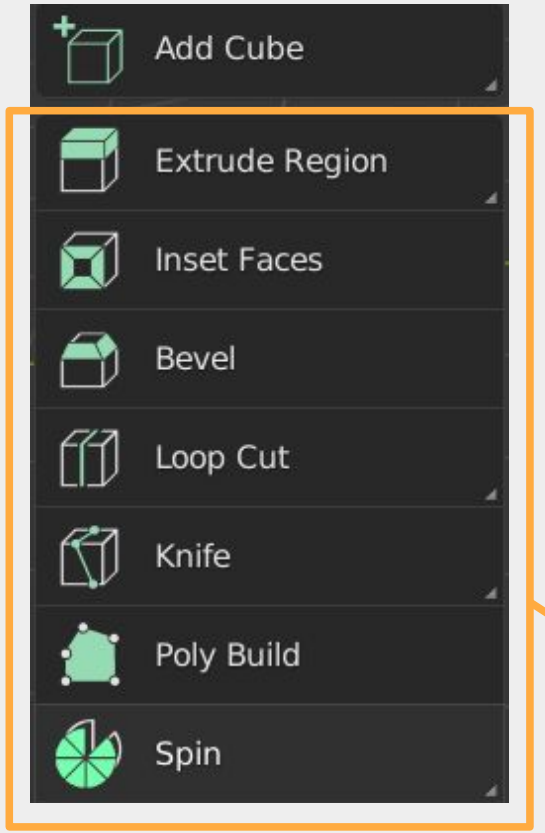
- **Press** once **G,R or S**
- Insert values from **keyboard**
- **Check the infos**
- **Confirm** with left click or **Enter**

Trasforming tools

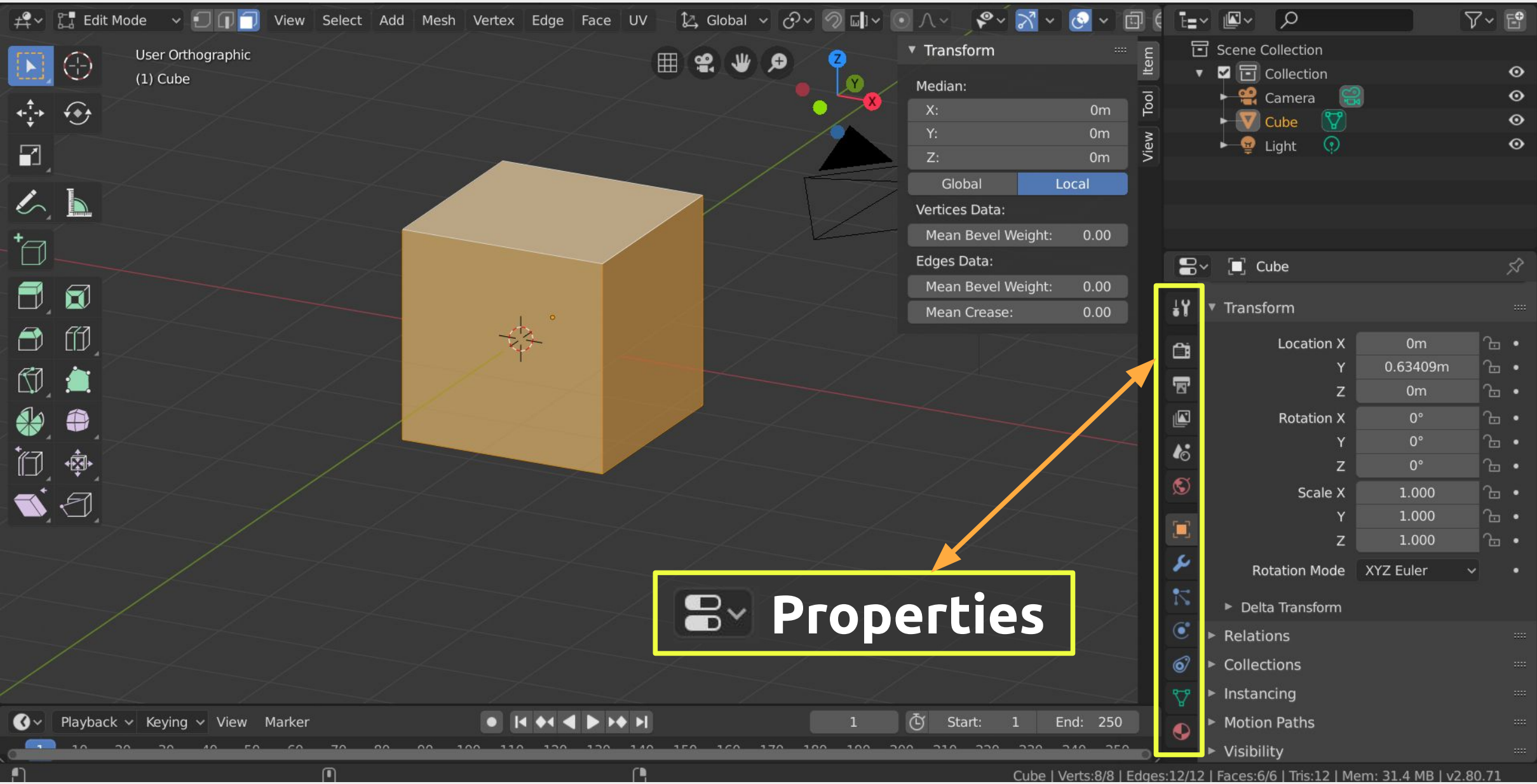


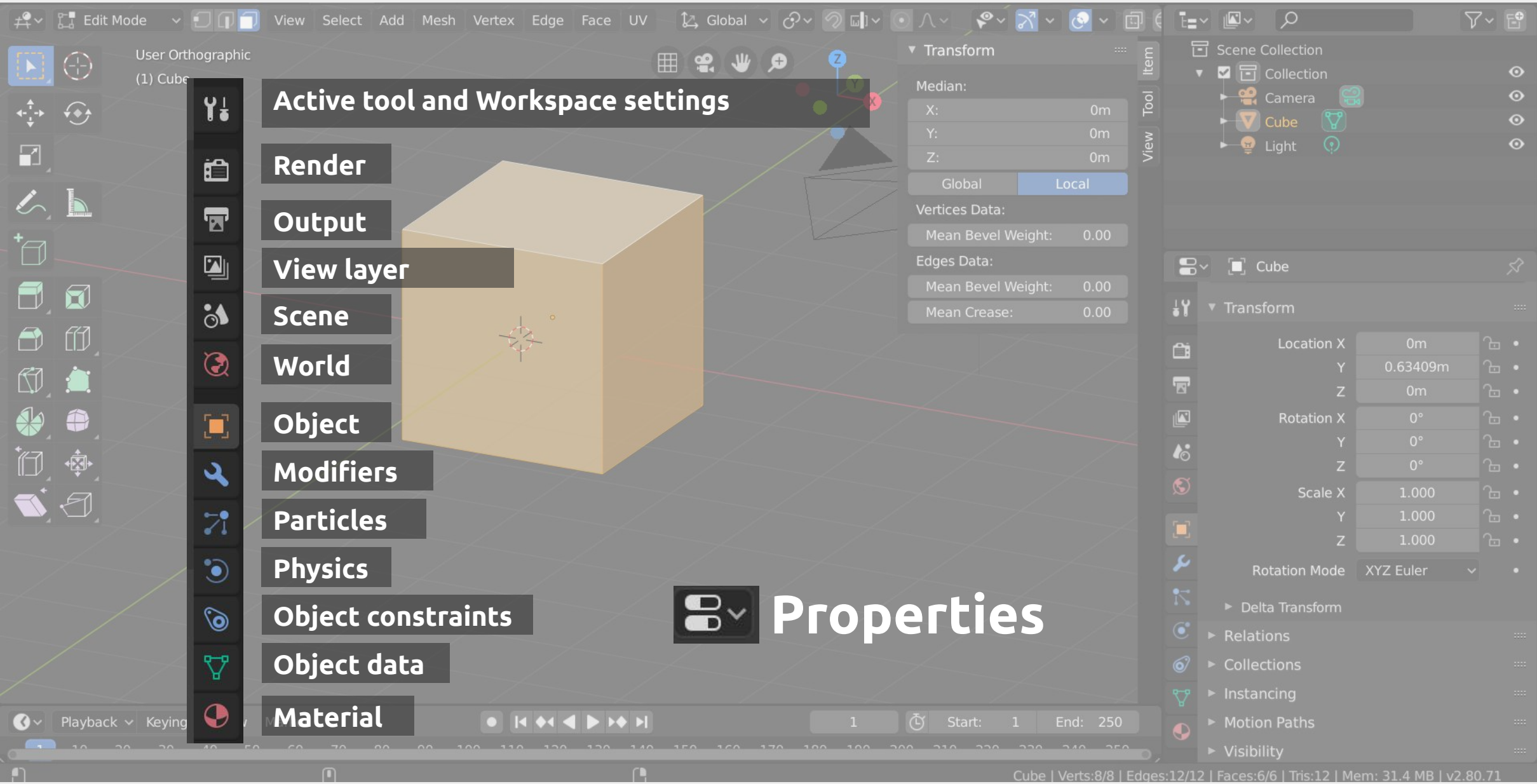
Helpers

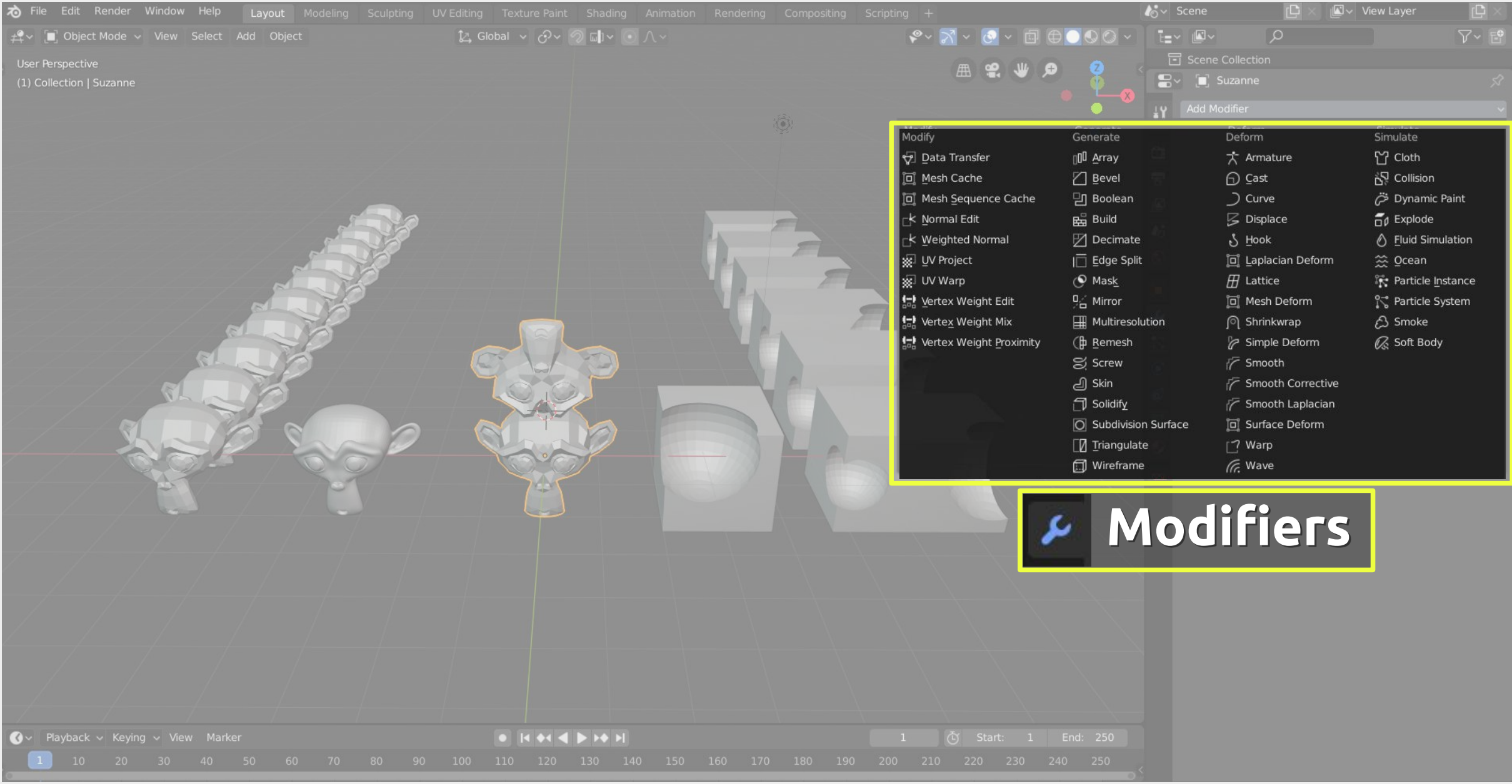
Adding geometry / refining

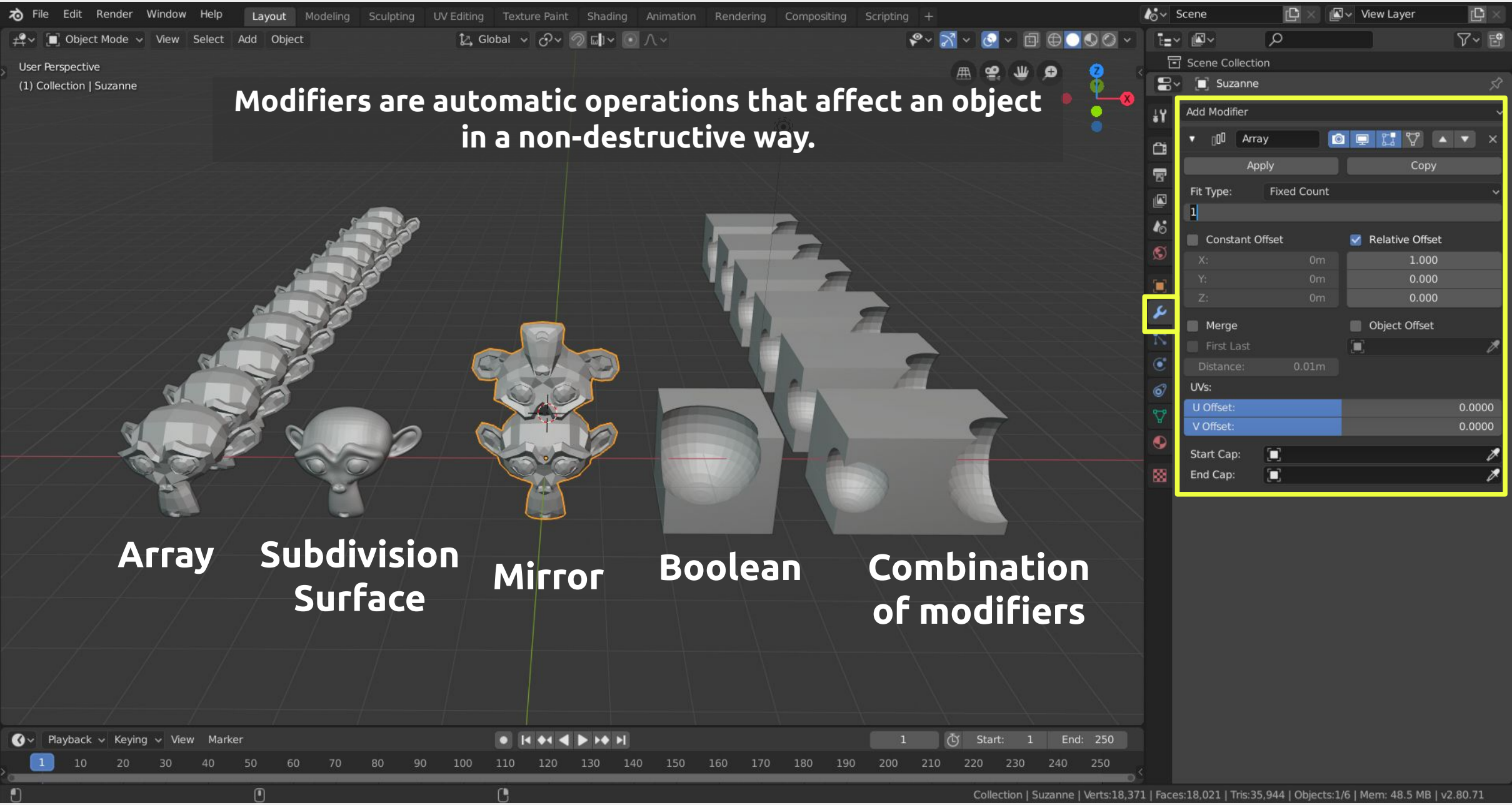


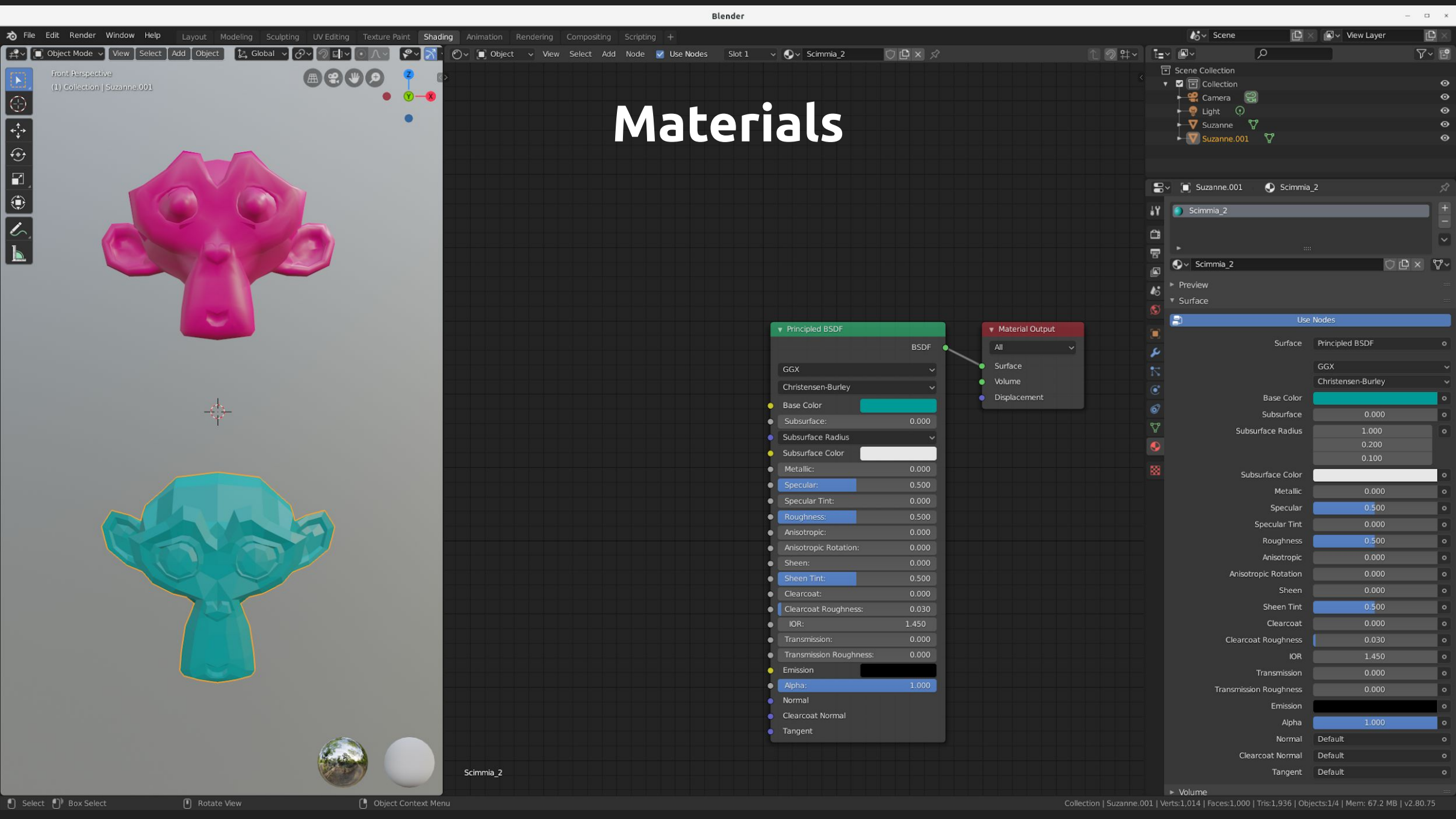
Deforming geometry

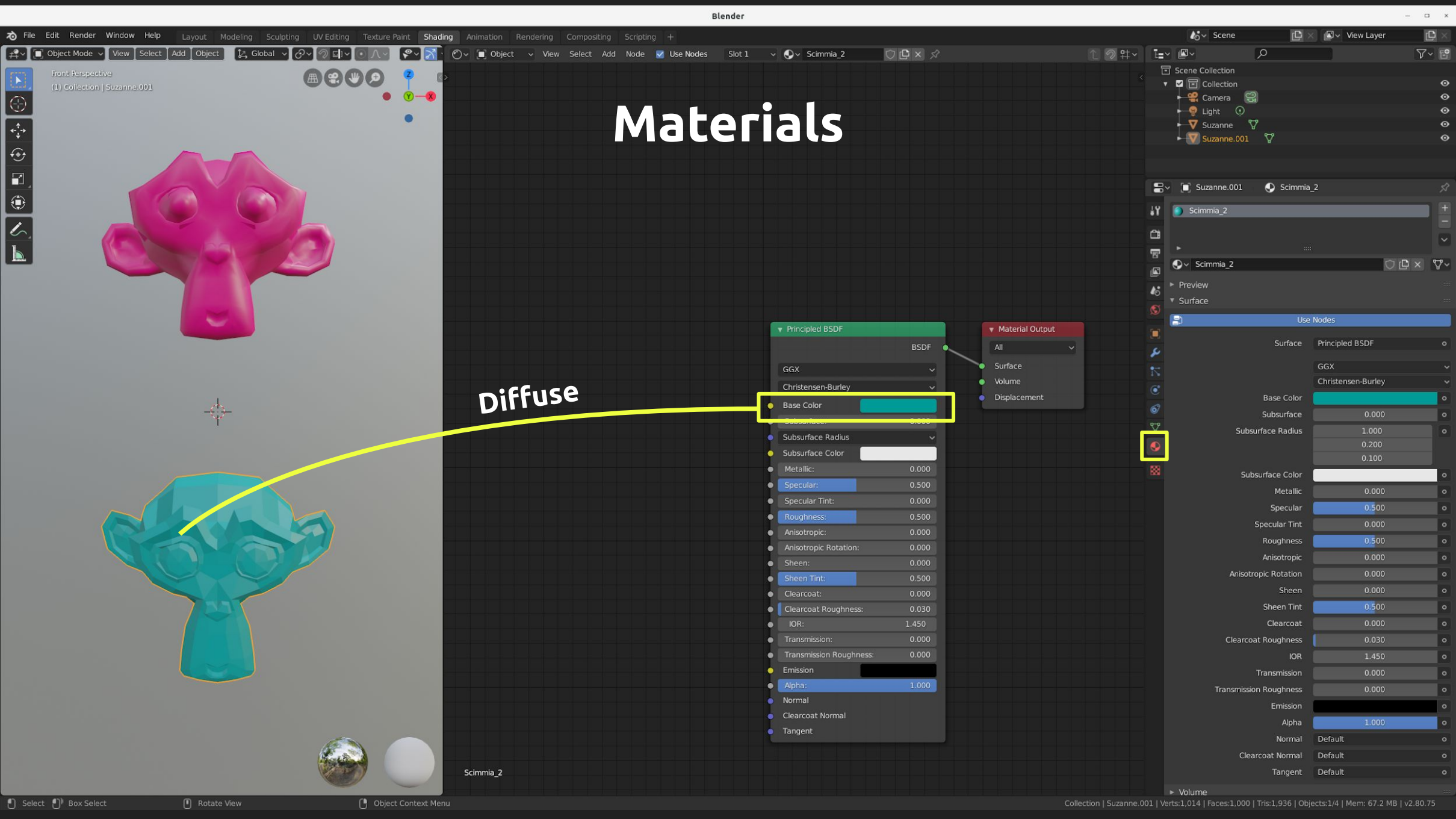

Edit Mode
View
Select
Add
Mesh
Vertex
Edge
Face
UV
Global
User Orthographic
(1) Cube
Transform
Median:
X: 0m
Y: 0m
Z: 0m
Global
Local
Vertices Data:
Mean Bevel Weight: 0.00
Edges Data:
Mean Bevel Weight: 0.00
Mean Crease: 0.00
Item
Tool
View
Scene Collection
Collection
Camera
Cube
Light
Cube
Transform
Location X 0m
Y 0.63409m
Z 0m
Rotation X 0°
Y 0°
Z 0°
Scale X 1.000
Y 1.000
Z 1.000
Rotation Mode XYZ Euler
Delta Transform
Relations
Collections
Instancing
Motion Paths
Visibility
Properties
Playback
Keying
View
Marker
1
Start: 1
End: 250
Cube | Verts:8/8 | Edges:12/12 | Faces:6/6 | Tris:12 | Mem: 31.4 MB | v2.80.71

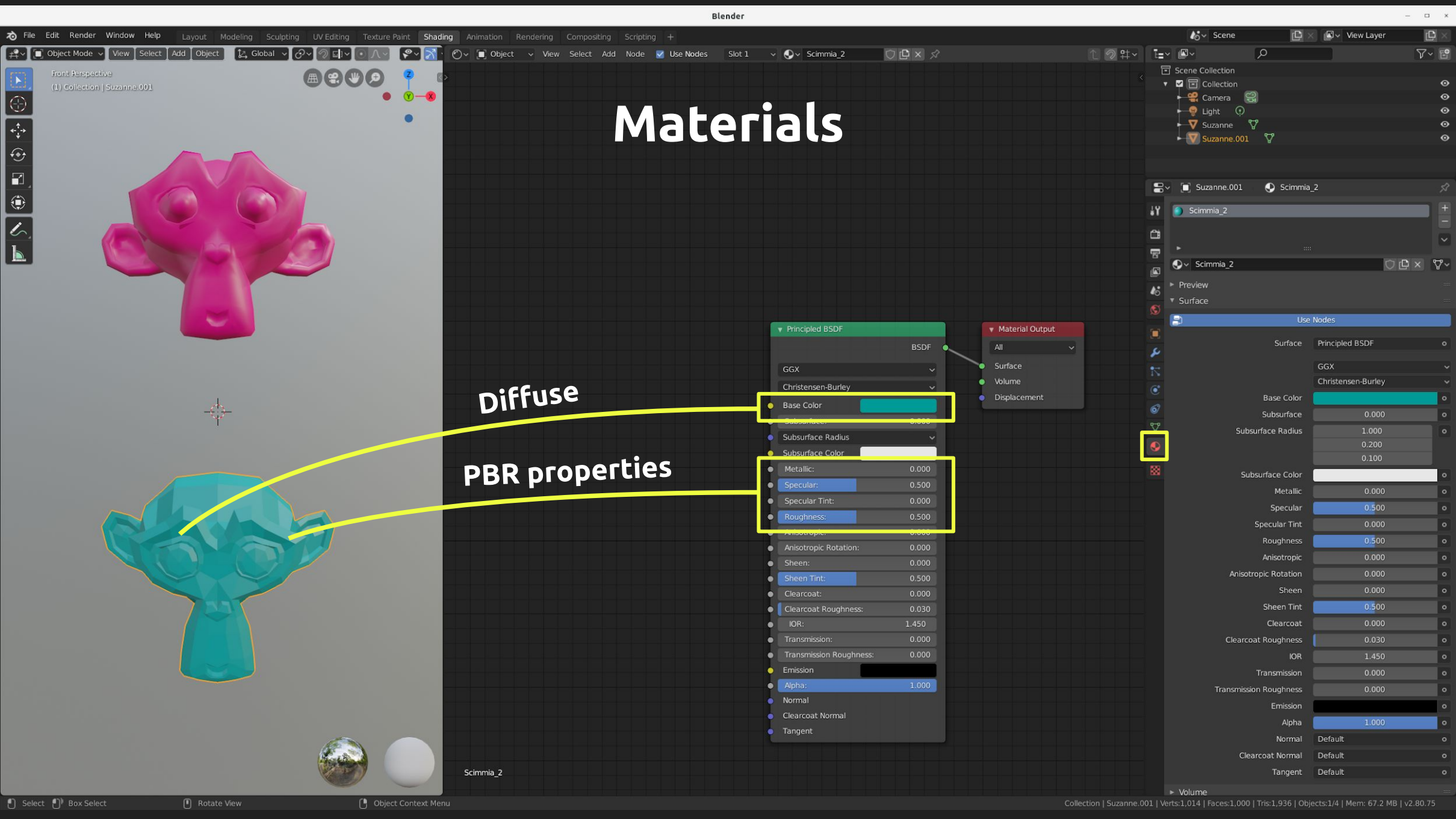

Edit Mode
View
Select
Add
Mesh
Vertex
Edge
Face
UV
Global
User Orthographic
(1) Cube
Active tool and Workspace settings
Render
Output
View layer
Scene
World
Object
Modifiers
Particles
Physics
Object constraints
Object data
Material
Properties
Transform
Median:
X: 0m
Y: 0m
Z: 0m
Global
Local
Vertices Data:
Mean Bevel Weight: 0.00
Edges Data:
Mean Bevel Weight: 0.00
Mean Crease: 0.00
Item
Tool
View
Scene Collection
Collection
Camera
Cube
Light
Cube
Transform
Location X 0m
Y 0.63409m
Z 0m
Rotation X 0°
Y 0°
Z 0°
Scale X 1.000
Y 1.000
Z 1.000
Rotation Mode XYZ Euler
Delta Transform
Relations
Collections
Instancing
Motion Paths
Visibility
Playback
Keying
1
Start: 1
End: 250
Cube | Verts:8/8 | Edges:12/12 | Faces:6/6 | Tris:12 | Mem: 31.4 MB | v2.80.71


File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
Global
User Perspective
(1) Collection | Suzanne
Scene Collection
Suzanne
Add Modifier
Modify
Data Transfer
Mesh Cache
Mesh Sequence Cache
Normal Edit
Weighted Normal
UV Project
UV Warp
Vertex Weight Edit
Vertex Weight Mix
Vertex Weight Proximity
Generate
Array
Bevel
Boolean
Build
Decimate
Edge Split
Mask
Mirror
Multiresolution
Remesh
Screw
Skin
Solidify
Subdivision Surface
Triangulate
Wireframe
Deform
Armature
Cast
Curve
Displace
Hook
Laplacian Deform
Lattice
Mesh Deform
Shrinkwrap
Simple Deform
Smooth
Smooth Corrective
Smooth Laplacian
Surface Deform
Warp
Wave
Simulate
Cloth
Collision
Dynamic Paint
Explode
Fluid Simulation
Ocean
Particle Instance
Particle System
Smoke
Soft Body
Modifiers
Playback Keying View Marker
1
Start: 1
End: 250
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


File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
User Perspective
(1) Collection | Suzanne
Modifiers are automatic operations that affect an object in a non-destructive way.
Array
Subdivision Surface
Mirror
Boolean
Combination of modifiers
Scene
View Layer
Scene Collection
Suzanne
Add Modifier
Array
Apply
Copy
Fit Type:
Fixed Count
Constant Offset
Relative Offset
X: 0m
Y: 0m
Z: 0m
1.000
0.000
0.000
Merge
Object Offset
First Last
Distance: 0.01m
UVs:
U Offset: 0.0000
V Offset: 0.0000
Start Cap:
End Cap:
Playback Keying View Marker
Start: 1
End: 250
Collection | Suzanne | Verts:18,371 | Faces:18,021 | Tris:35,944 | Objects:1/6 | Mem: 48.5 MB | v2.80.71


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
Global
Front Perspective
(1) Collection | Suzanne.001
Object View Select Add Node Use Nodes Slot 1 Scimmia_2
Materials
Scene Collection
Collection
Camera
Light
Suzanne
Suzanne.001
Suzanne.001 Scimmia_2
Scimmia_2
Preview
Surface
Use Nodes
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface: 0.000
Subsurface Radius
Subsurface Color
Metallic: 0.000
Specular: 0.500
Specular Tint: 0.000
Roughness: 0.500
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
Alpha: 1.000
Normal
Clearcoat Normal
Tangent
Material Output
All
Surface
Volume
Displacement
Surface Principled BSDF
GGX
Christensen-Burley
Base Color
Subsurface 0.000
Subsurface Radius 1.000 0.200 0.100
Subsurface Color
Metallic 0.000
Specular 0.500
Specular Tint 0.000
Roughness 0.500
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
Alpha 1.000
Normal Default
Clearcoat Normal Default
Tangent Default
Volume
Scimmia_2
Select Box Select Rotate View Object Context Menu
Collection | Suzanne.001 | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 67.2 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
Global
Front Perspective
(1) Collection | Suzanne.001
Object View Select Add Node Use Nodes Slot 1 Scimmia_2
Materials
Diffuse
Scene Collection
Collection
Camera
Light
Suzanne
Suzanne.001
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface Radius
Subsurface Color
Metallic: 0.000
Specular: 0.500
Specular Tint: 0.000
Roughness: 0.500
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
Alpha: 1.000
Normal
Clearcoat Normal
Tangent
Material Output
All
Surface
Volume
Displacement
Suzanne.001
Scimmia_2
Preview
Surface
Use Nodes
Surface Principled BSDF
Subsurface 0.000
Subsurface Radius 1.000 0.200 0.100
Metallic 0.000
Specular 0.500
Specular Tint 0.000
Roughness 0.500
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
Alpha 1.000
Normal Default
Clearcoat Normal Default
Tangent Default
Volume
Select Box Select Rotate View Object Context Menu
Collection | Suzanne.001 | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 67.2 MB | v2.80.75


Blender
Materials
Diffuse
PBR properties
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface Radius
Subsurface Color
Metallic: 0.000
Specular: 0.500
Specular Tint: 0.000
Roughness: 0.500
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
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Alpha: 1.000
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Clearcoat Normal
Tangent
Material Output
All
Surface
Volume
Displacement
Scene Collection
Collection
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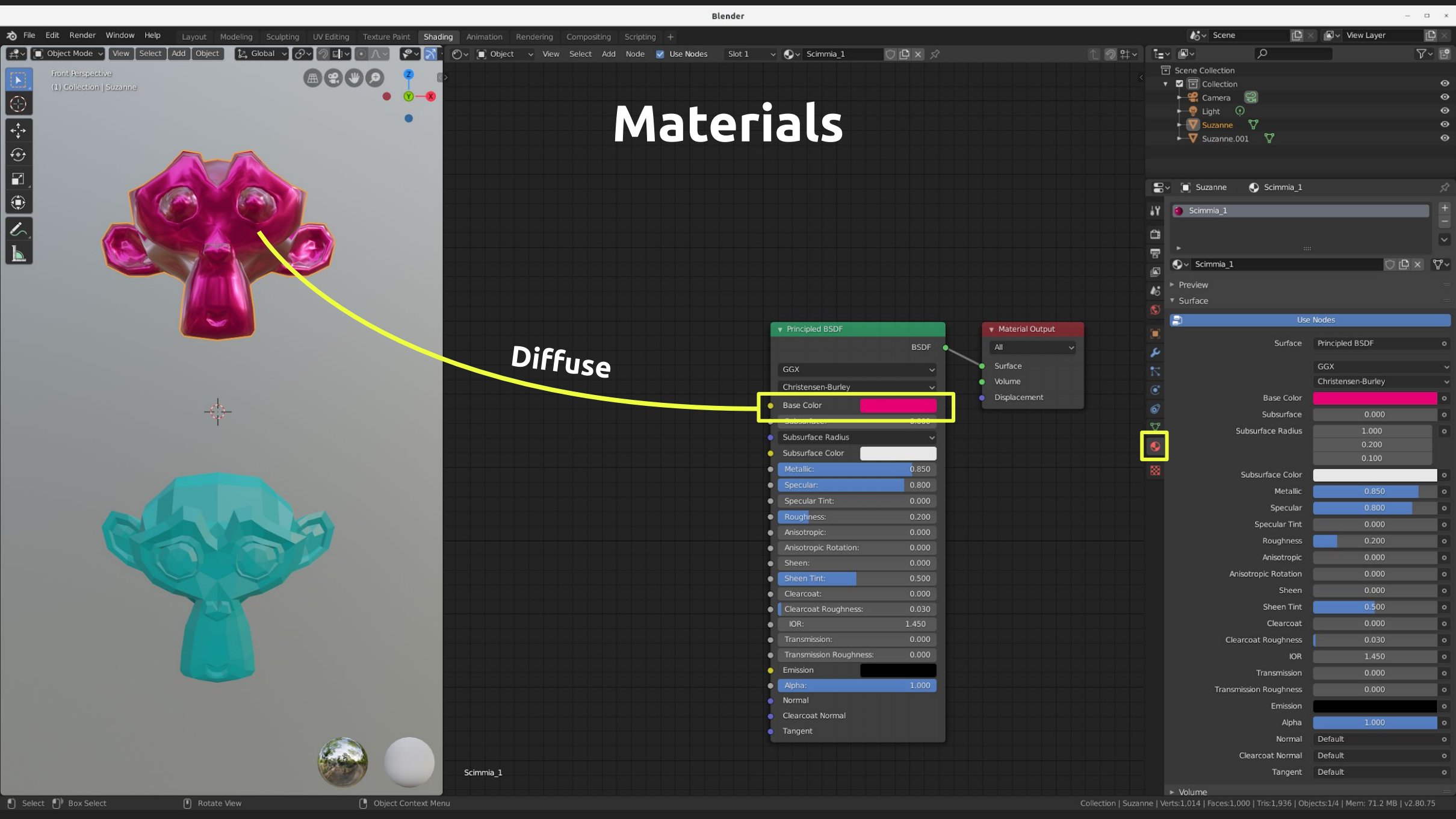
Light
Suzanne
Suzanne.001
Scimmia_2
Use Nodes
Preview
Surface
Subsurface
Subsurface Radius
Anisotropic
Anisotropic Rotation
Sheen
Sheen Tint
Clearcoat
Clearcoat Roughness
IOR
Transmission
Transmission Roughness
Emission
Alpha
Normal
Clearcoat Normal
Tangent
Volume
Front Perspective
(1) Collection | Suzanne.001


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
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Object View Select Add Node Use Nodes Slot 1 Scimmia_1
Front Perspective
(1) Collection | Suzanne
Materials
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Scene Collection
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Suzanne
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Suzanne Scimmia_1
Scimmia_1
Preview
Surface
Use Nodes
Principled BSDF
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GGX
Christensen-Burley
Base Color
Subsurface
Subsurface Radius
Subsurface Color
Metallic: 0.850
Specular: 0.800
Specular Tint: 0.000
Roughness: 0.200
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Anisotropic Rotation: 0.000
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Sheen Tint: 0.500
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Clearcoat Roughness: 0.030
IOR: 1.450
Transmission: 0.000
Transmission Roughness: 0.000
Emission
Alpha: 1.000
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Clearcoat Normal
Tangent
Material Output
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Surface
Volume
Displacement
Surface Principled BSDF
GGX
Christensen-Burley
Base Color
Subsurface 0.000
Subsurface Radius 1.000 0.200 0.100
Subsurface Color
Metallic 0.850
Specular 0.800
Specular Tint 0.000
Roughness 0.200
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
Alpha 1.000
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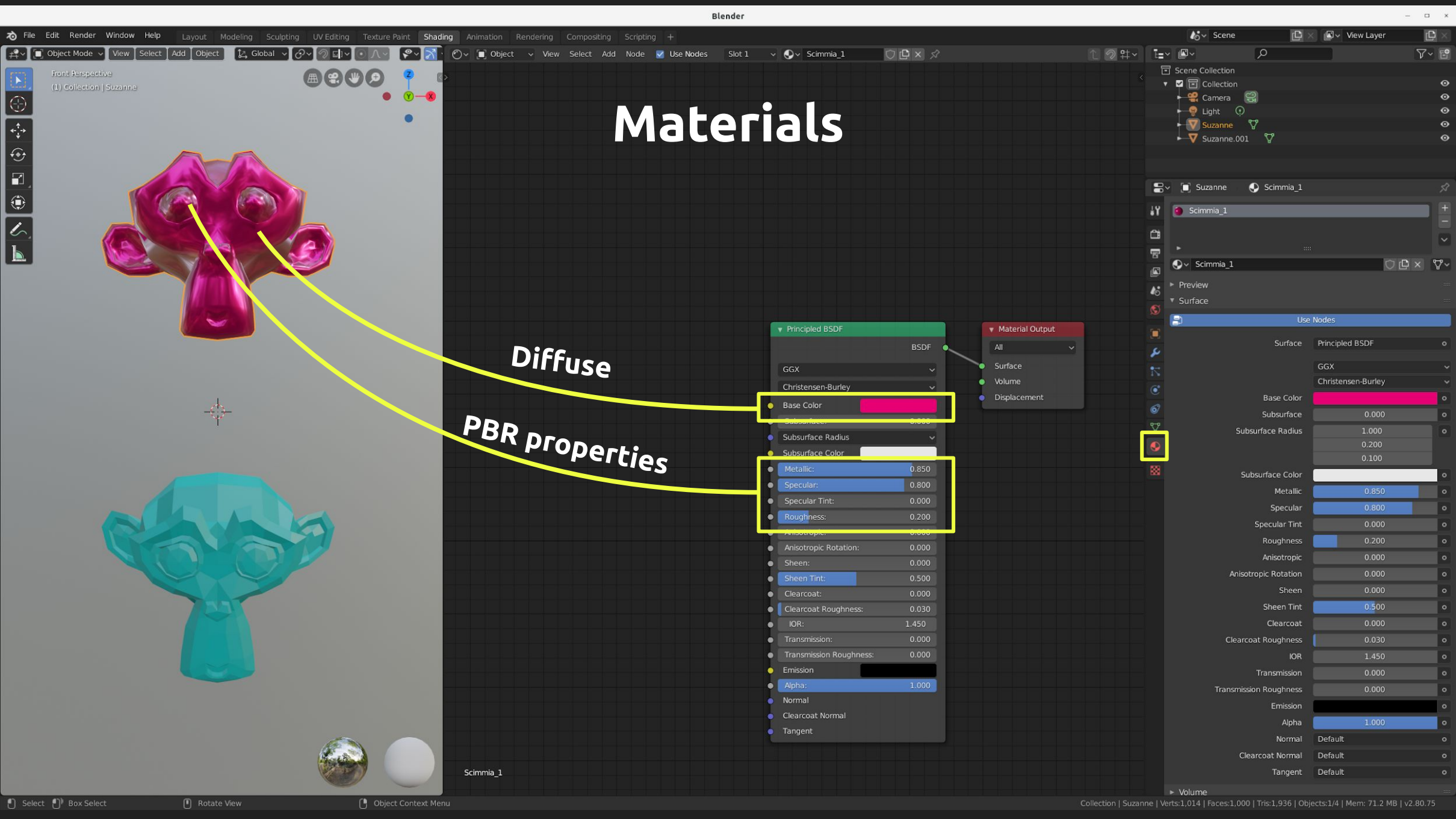
Clearcoat Normal Default
Tangent Default
Volume
Scimmia_1
Select Box Select Rotate View Object Context Menu
Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 71.2 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
Global
Object View Select Add Node Use Nodes Slot 1 Scimmia_1
Front Perspective
(1) Collection | Suzanne
Materials
Diffuse
PBR properties
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface Radius
Subsurface Color
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Specular: 0.800
Specular Tint: 0.000
Roughness: 0.200
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
Alpha: 1.000
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Clearcoat Normal
Tangent
Material Output
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Displacement
Scene Collection
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Camera
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Suzanne
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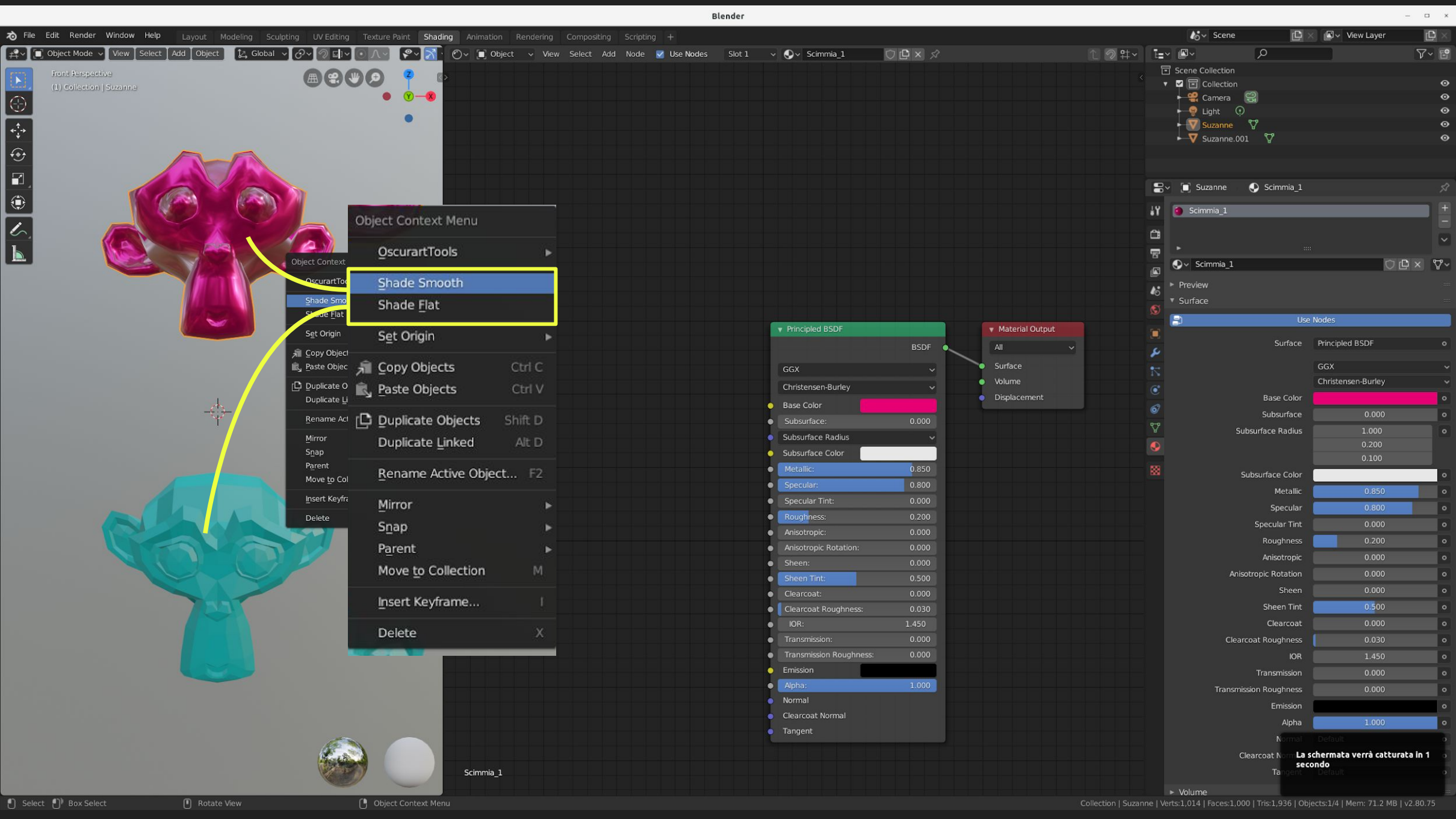
Scimmia_1
Preview
Surface
Use Nodes
Surface Principled BSDF
GGX
Christensen-Burley
Base Color
Subsurface 0.000
Subsurface Radius 1.000 0.200 0.100
Subsurface Color
Metallic 0.850
Specular 0.800
Specular Tint 0.000
Roughness 0.200
Anisotropic 0.000
Anisotropic Rotation 0.000
Sheen 0.000
Sheen Tint 0.500
Clearcoat 0.000
Clearcoat Roughness 0.030
IOR 1.450
Transmission 0.000
Transmission Roughness 0.000
Emission
Alpha 1.000
Normal Default
Clearcoat Normal Default
Tangent Default
Volume
Scimmia_1
Select Box Select Rotate View Object Context Menu
Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 71.2 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
Front Perspective
(1) Collection | Suzanne
Object Context Menu
OscurartTools
Shade Smooth
Shade Flat
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
Object View Select Add Node Use Nodes Slot 1 Scimmia_1
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface: 0.000
Subsurface Radius
Subsurface Color
Metallic: 0.850
Specular: 0.800
Specular Tint: 0.000
Roughness: 0.200
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
Alpha: 1.000
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Scene Collection
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Light
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Suzanne.001
Suzanne Scimmia_1
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Surface
Use Nodes
Surface Principled BSDF
GGX
Christensen-Burley
Base Color
Subsurface 0.000
Subsurface Radius 1.000 0.200 0.100
Subsurface Color
Metallic 0.850
Specular 0.800
Specular Tint 0.000
Roughness 0.200
Anisotropic 0.000
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Sheen Tint 0.500
Clearcoat 0.000
Clearcoat Roughness 0.030
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Transmission 0.000
Transmission Roughness 0.000
Emission
Alpha 1.000
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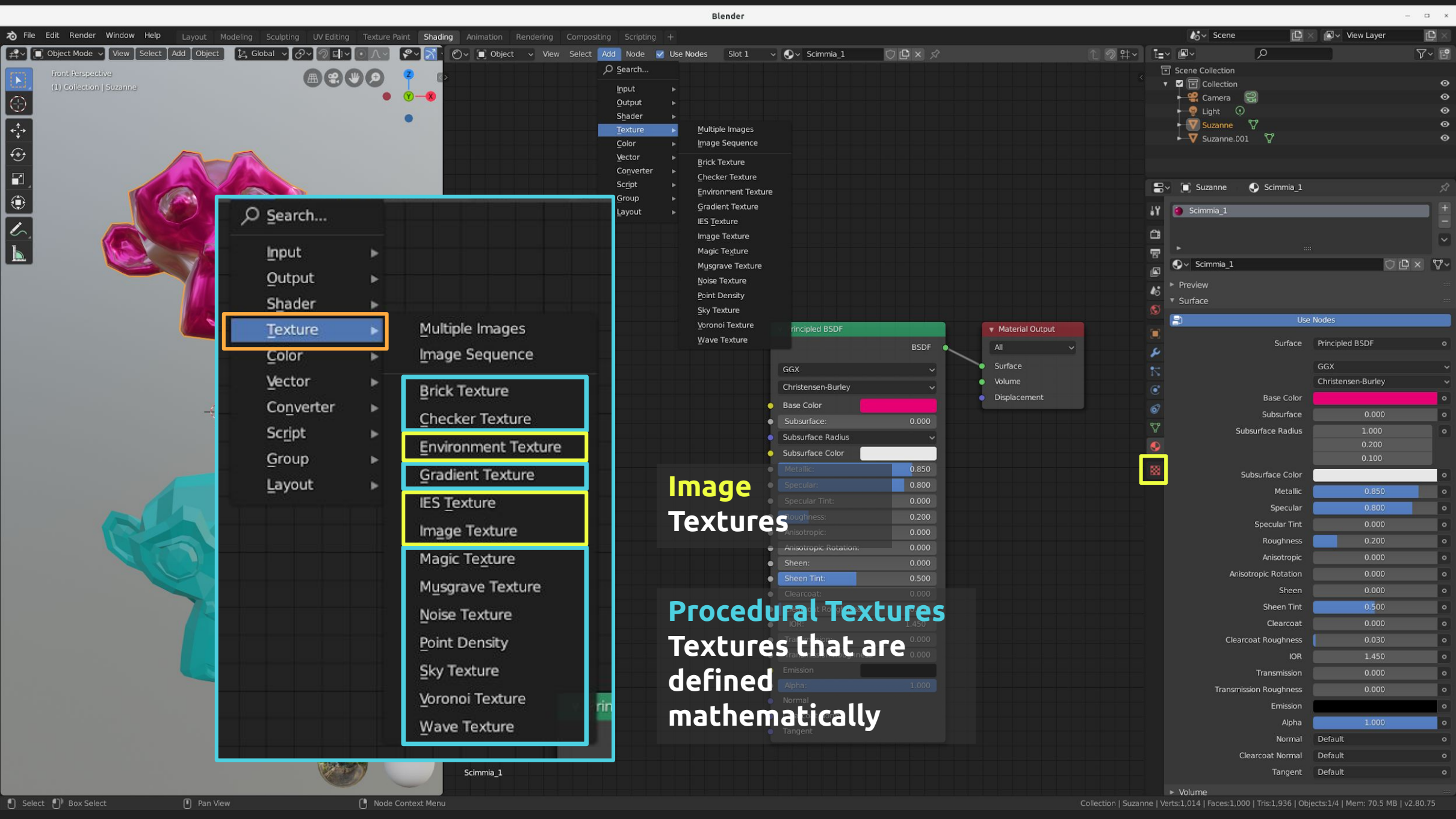
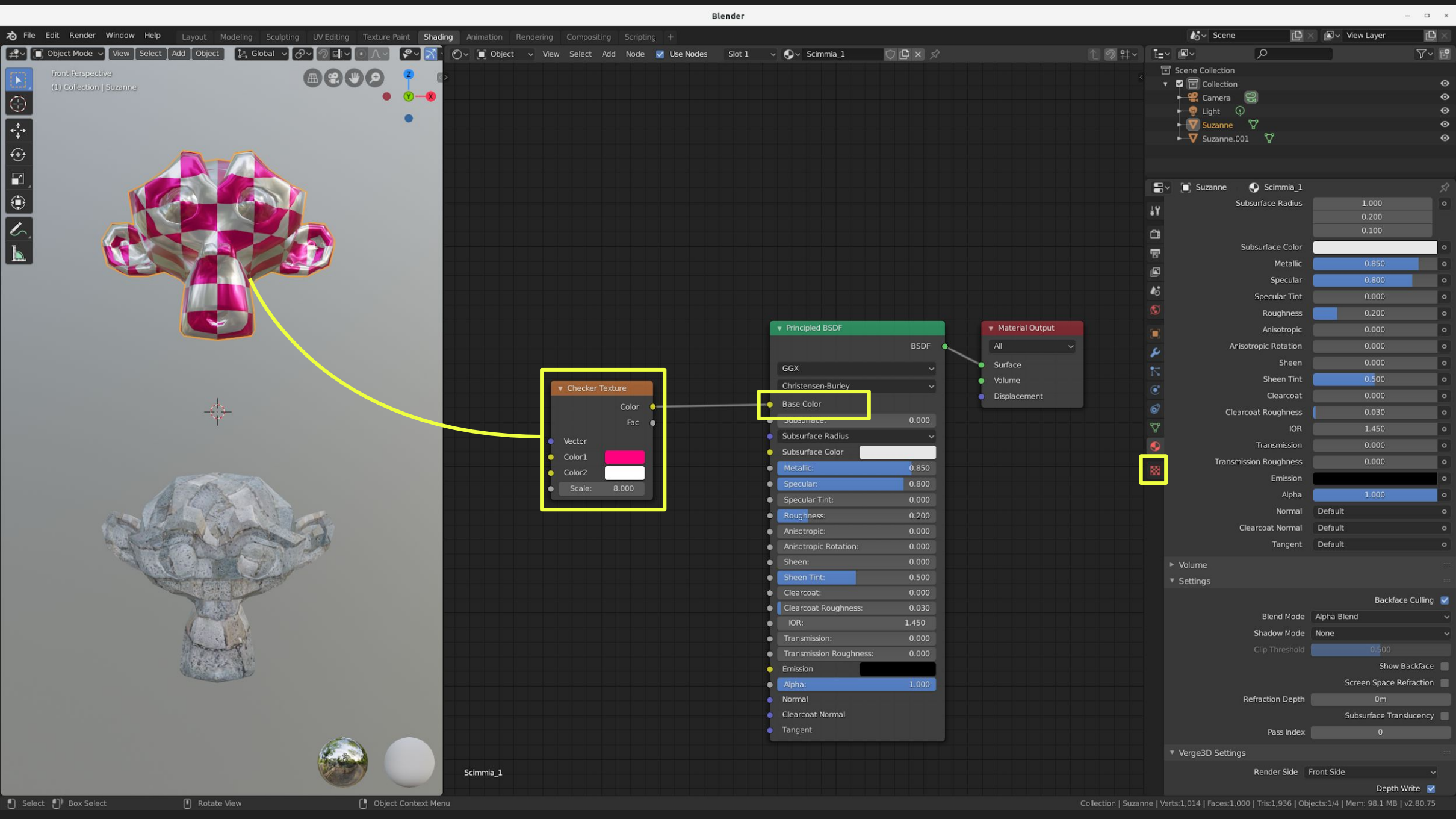
La schermata verrà catturata in 1 secondo
Scimmia_1
Select Box Select Rotate View Object Context Menu
Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 71.2 MB | v2.80.75


Blender
Search...
Input
Output
Shader
Texture
Color
Vector
Converter
Script
Group
Layout
Multiple Images
Image Sequence
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
Image Textures
Procedural Textures
Textures that are defined mathematically


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
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Front Perspective
(1) Collection | Suzanne
Object View Select Add Node Use Nodes Slot 1 Scimmia_1
Scene Collection
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Camera
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Suzanne
Suzanne.001
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Color
Fac
Vector
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Color2
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GGX
Christensen-Burley
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Subsurface: 0.000
Subsurface Radius
Subsurface Color
Metallic: 0.850
Specular: 0.800
Specular Tint: 0.000
Roughness: 0.200
Anisotropic: 0.000
Anisotropic Rotation: 0.000
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Sheen Tint: 0.500
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Subsurface Color
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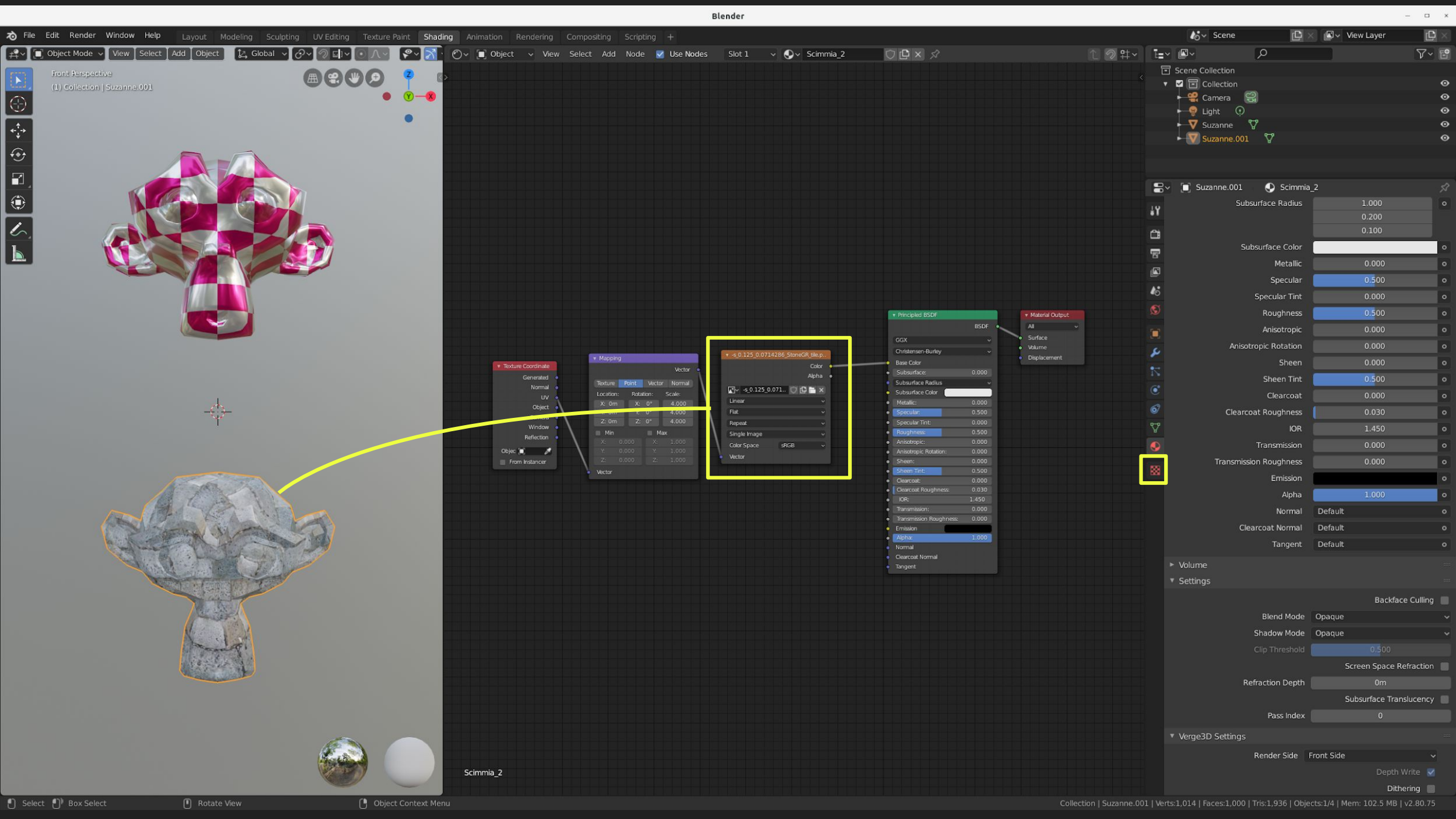
Specular 0.800
Specular Tint 0.000
Roughness 0.200
Anisotropic 0.000
Anisotropic Rotation 0.000
Sheen 0.000
Sheen Tint 0.500
Clearcoat 0.000
Clearcoat Roughness 0.030
IOR 1.450
Transmission 0.000
Transmission Roughness 0.000
Emission
Alpha 1.000
Normal Default
Clearcoat Normal Default
Tangent Default
Volume
Settings
Backface Culling
Blend Mode Alpha Blend
Shadow Mode None
Clip Threshold 0.500
Show Backface
Screen Space Refraction
Refraction Depth 0m
Subsurface Translucency
Pass Index 0
Verge3D Settings
Render Side Front Side
Depth Write
Scimmia_1
Select Box Select Rotate View Object Context Menu
Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 98.1 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Object Mode View Select Add Object
Global
Front Perspective
(1) Collection | Suzanne.001
Object View Select Add Node Use Nodes Slot 1 Scimmia_2
Texture Coordinate
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UV
Object
Window
Reflection
From Instancer
Mapping
Vector
Location:
Rotation:
Scale:
Min
Max
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Color
Alpha
Linear
Flat
Repeat
Single Image
Color Space
sRGB
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface:
Subsurface Radius
Subsurface Color
Metallic:
Specular:
Specular Tint:
Roughness:
Anisotropic:
Anisotropic Rotation:
Sheen:
Sheen Tint:
Clearcoat:
Clearcoat Roughness:
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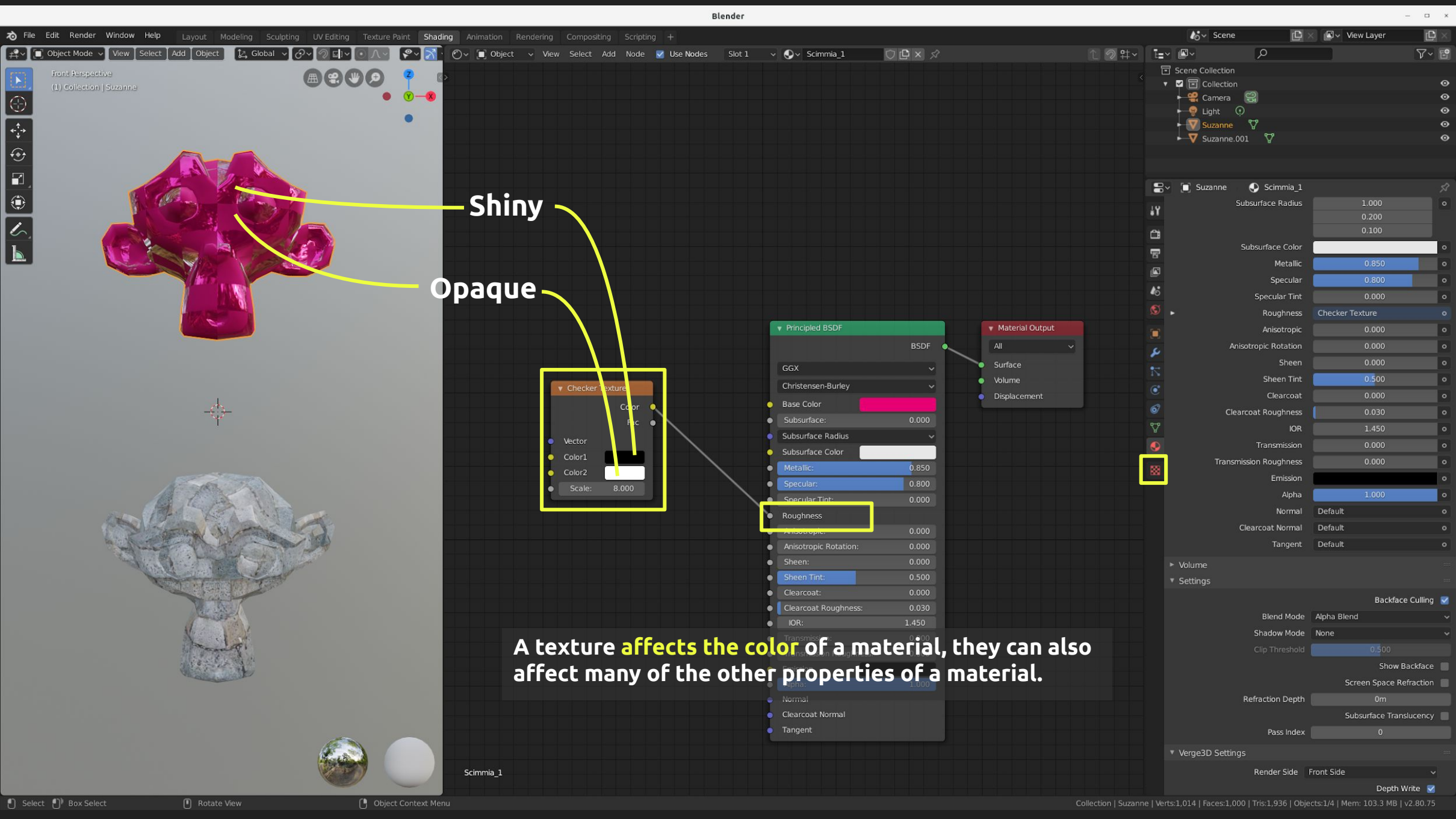
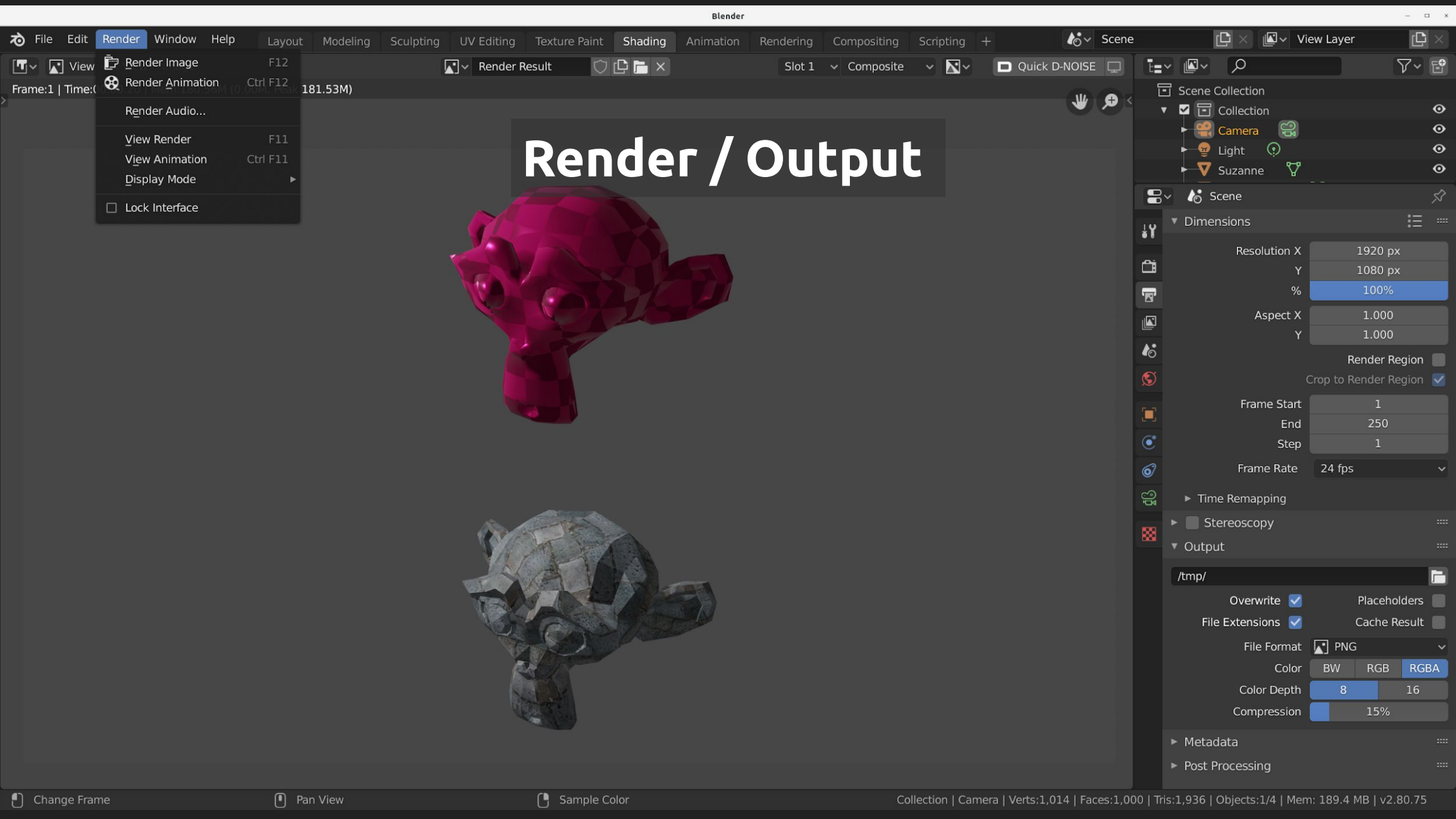
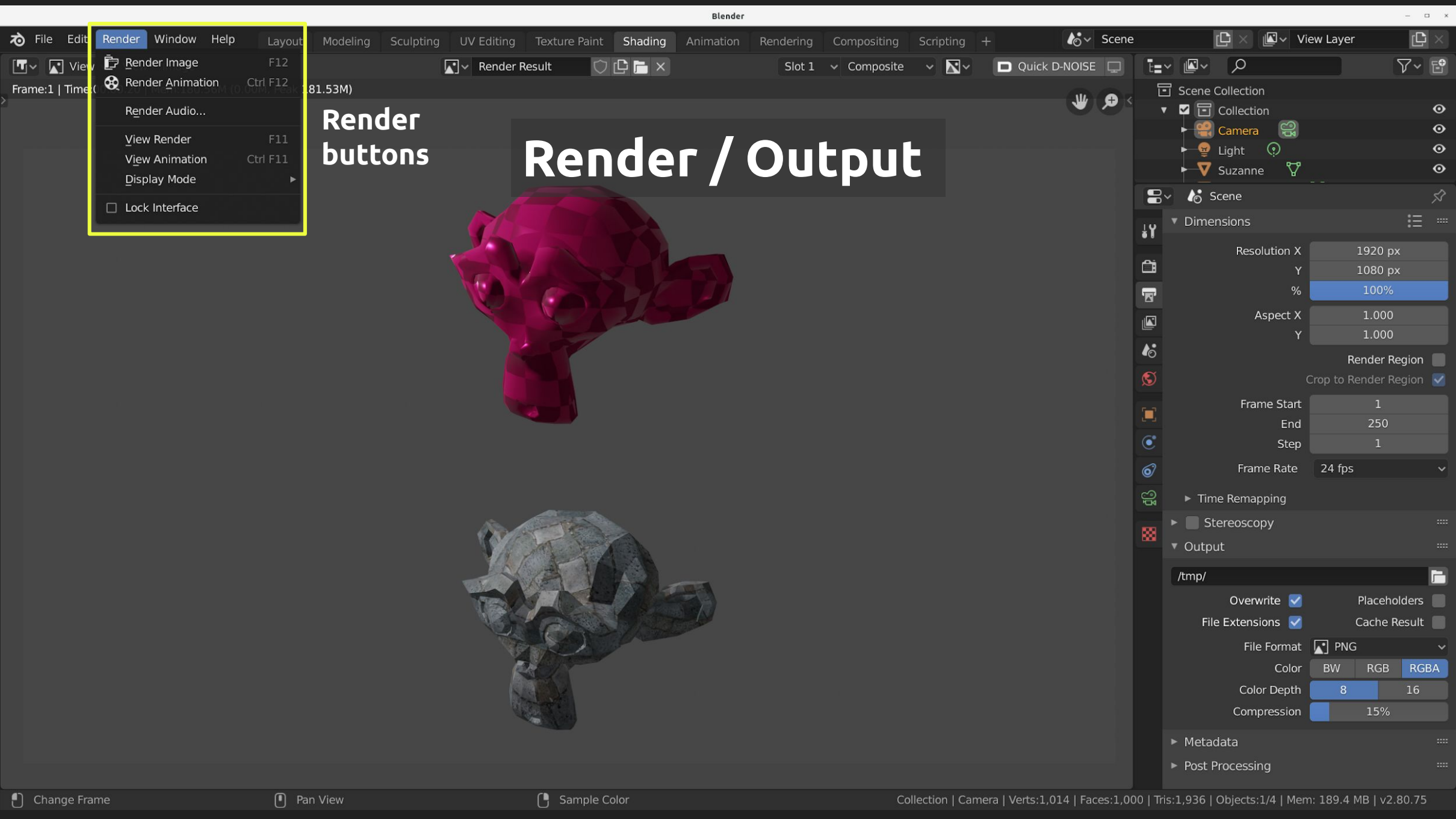
Transmission:
Transmission Roughness:
Emission
Alpha:
Normal
Clearcoat Normal
Tangent
Material Output
All
Surface
Volume
Displacement
Scimmia_2
Scene Collection
Collection
Camera
Light
Suzanne
Suzanne.001
Suzanne.001
Scimmia_2
Subsurface Radius 1.000 0.200 0.100
Subsurface Color
Metallic 0.000
Specular 0.500
Specular Tint 0.000
Roughness 0.500
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
Alpha 1.000
Normal Default
Clearcoat Normal Default
Tangent Default
Volume
Settings
Backface Culling
Blend Mode Opaque
Shadow Mode Opaque
Clip Threshold 0.500
Screen Space Refraction
Refraction Depth 0m
Subsurface Translucency
Pass Index 0
Verge3D Settings
Render Side Front Side
Depth Write
Dithering
Select
Box Select
Rotate View
Object Context Menu
Collection | Suzanne.001 | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 102.5 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Object Mode View Select Add Object
Global
Front Perspective
(1) Collection | Suzanne
Object View Select Add Node Use Nodes
Slot 1
Scimmia_1
Shiny
Opaque
Checker Texture
Color
Vector
Color1
Color2
Scale: 8.000
Principled BSDF
BSDF
GGX
Christensen-Burley
Base Color
Subsurface: 0.000
Subsurface Radius
Subsurface Color
Metallic: 0.850
Specular: 0.800
Specular Tint: 0.000
Roughness
Anisotropic: 0.000
Anisotropic Rotation: 0.000
Sheen: 0.000
Sheen Tint: 0.500
Clearcoat: 0.000
Clearcoat Roughness: 0.030
IOR: 1.450
Normal
Clearcoat Normal
Tangent
Material Output
All
Surface
Volume
Displacement
Scene
View Layer
Scene Collection
Collection
Camera
Light
Suzanne
Suzanne.001
Subsurface Radius 1.000 0.200 0.100
Subsurface Color
Metallic 0.850
Specular 0.800
Specular Tint 0.000
Roughness Checker Texture
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
Alpha 1.000
Normal Default
Clearcoat Normal Default
Tangent Default
Volume
Settings
Backface Culling
Blend Mode Alpha Blend
Shadow Mode None
Clip Threshold 0.500
Show Backface
Screen Space Refraction
Refraction Depth 0m
Subsurface Translucency
Pass Index 0
Verge3D Settings
Render Side Front Side
Depth Write
A texture affects the color of a material, they can also affect many of the other properties of a material.
Scimmia_1
Select Box Select Rotate View Object Context Menu
Collection | Suzanne | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 103.3 MB | v2.80.75


Blender
File Edit Render Window Help
Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compositing Scripting
Scene
View Layer
Render Image F12
Render Animation Ctrl F12
Render Audio...
View Render F11
View Animation Ctrl F11
Display Mode
Lock Interface
Render Result
Slot 1
Composite
Quick D-NOISE
Render / Output
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
Frame Start 1
End 250
Step 1
Frame Rate 24 fps
Time Remapping
Stereoscopy
Output
/tmp/
Overwrite
Placeholders
File Extensions
Cache Result
File Format PNG
Color BW RGB RGBA
Color Depth 8 16
Compression 15%
Metadata
Post Processing
Change Frame
Pan View
Sample Color
Collection | Camera | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 189.4 MB | v2.80.75


Blender
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Window
Help
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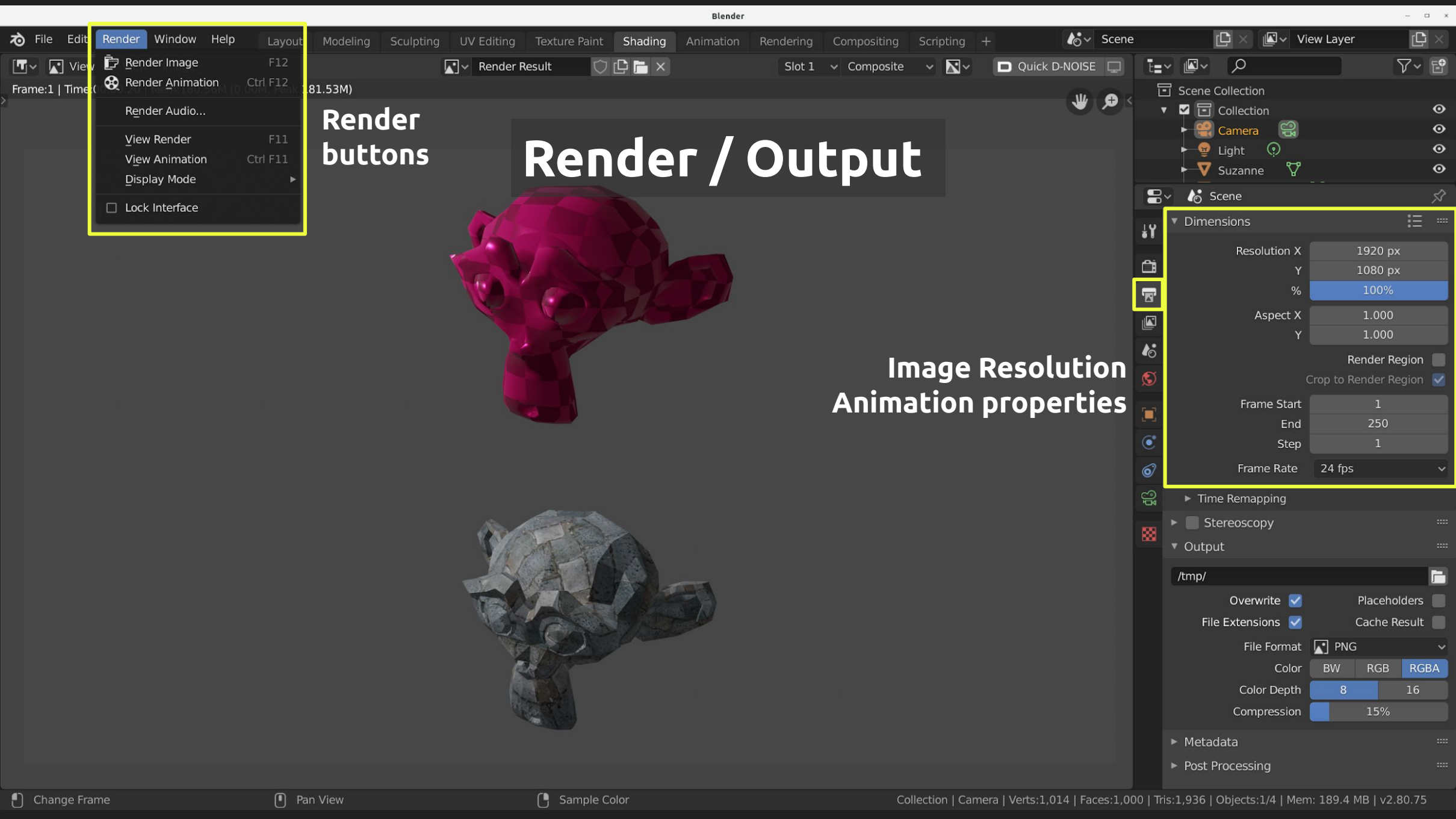
Modeling
Sculpting
UV Editing
Texture Paint
Shading
Animation
Rendering
Compositing
Scripting
Scene
View Layer
Render Image F12
Render Animation Ctrl F12
Render Audio...
View Render F11
View Animation Ctrl F11
Display Mode
Lock Interface
Render Result
Slot 1
Composite
Quick D-NOISE
Render buttons
Render / Output
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
Frame Start 1
End 250
Step 1
Frame Rate 24 fps
Time Remapping
Stereoscopy
Output
/tmp/
Overwrite
Placeholders
File Extensions
Cache Result
File Format PNG
Color BW RGB RGBA
Color Depth 8 16
Compression 15%
Metadata
Post Processing
Change Frame
Pan View
Sample Color
Collection | Camera | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 189.4 MB | v2.80.75


Blender
File
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Layout
Modeling
Sculpting
UV Editing
Texture Paint
Shading
Animation
Rendering
Compositing
Scripting
Scene
View Layer
Render Image F12
Render Animation Ctrl F12
Render Audio...
View Render F11
View Animation Ctrl F11
Display Mode
Lock Interface
Render Result
Slot 1
Composite
Quick D-NOISE
Render buttons
Render / Output
Scene Collection
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Suzanne
Dimensions
Resolution X 1920 px
Y 1080 px
% 100%
Aspect X 1.000
Y 1.000
Render Region
Crop to Render Region
Frame Start 1
End 250
Step 1
Frame Rate 24 fps
Image Resolution
Animation properties
Time Remapping
Stereoscopy
Output
/tmp/
Overwrite
Placeholders
File Extensions
Cache Result
File Format PNG
Color BW RGB RGBA
Color Depth 8 16
Compression 15%
Metadata
Post Processing
Change Frame
Pan View
Sample Color
Collection | Camera | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 189.4 MB | v2.80.75

Blender

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

Render Image F12
Render Animation Ctrl F12
Render Audio...
View Render F11
View Animation Ctrl F11
Display Mode
Lock Interface

Render Result | Slot 1 | Composite | Quick D-NOISE

Render buttons

Render / Output

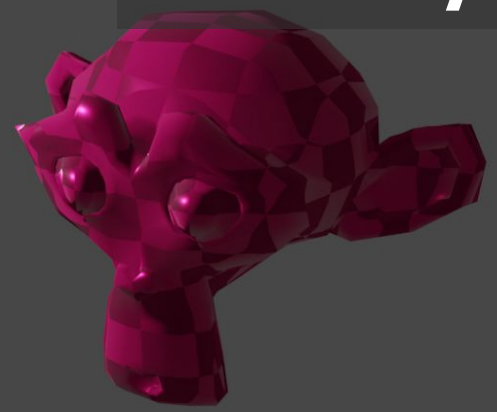

Image Resolution
Animation properties

Output path

File format

Scene Collection
Collection
Camera
Light
Suzanne

Scene

Dimensions
Resolution X 1920 px
Y 1080 px
% 100%
Aspect X 1.000
Y 1.000
Render Region
Crop to Render Region
Frame Start 1
End 250
Step 1
Frame Rate 24 fps

Time Remapping
Stereoscopy

Output
/tmp/
Overwrite
Placeholders
File Extensions
Cache Result
File Format PNG
Color BW RGB RGBA
Color Depth 8 16
Compression 15%

Metadata
Post Processing

Change Frame | Pan View | Sample Color | Collection | Camera | Verts:1,014 | Faces:1,000 | Tris:1,936 | Objects:1/4 | Mem: 189.4 MB | v2.80.75

Many thanks for your attention

Any questions ?

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docs.blender.org/manual/en/latest/