

REU Modeling Course - Part 2

Blender

More Modeling



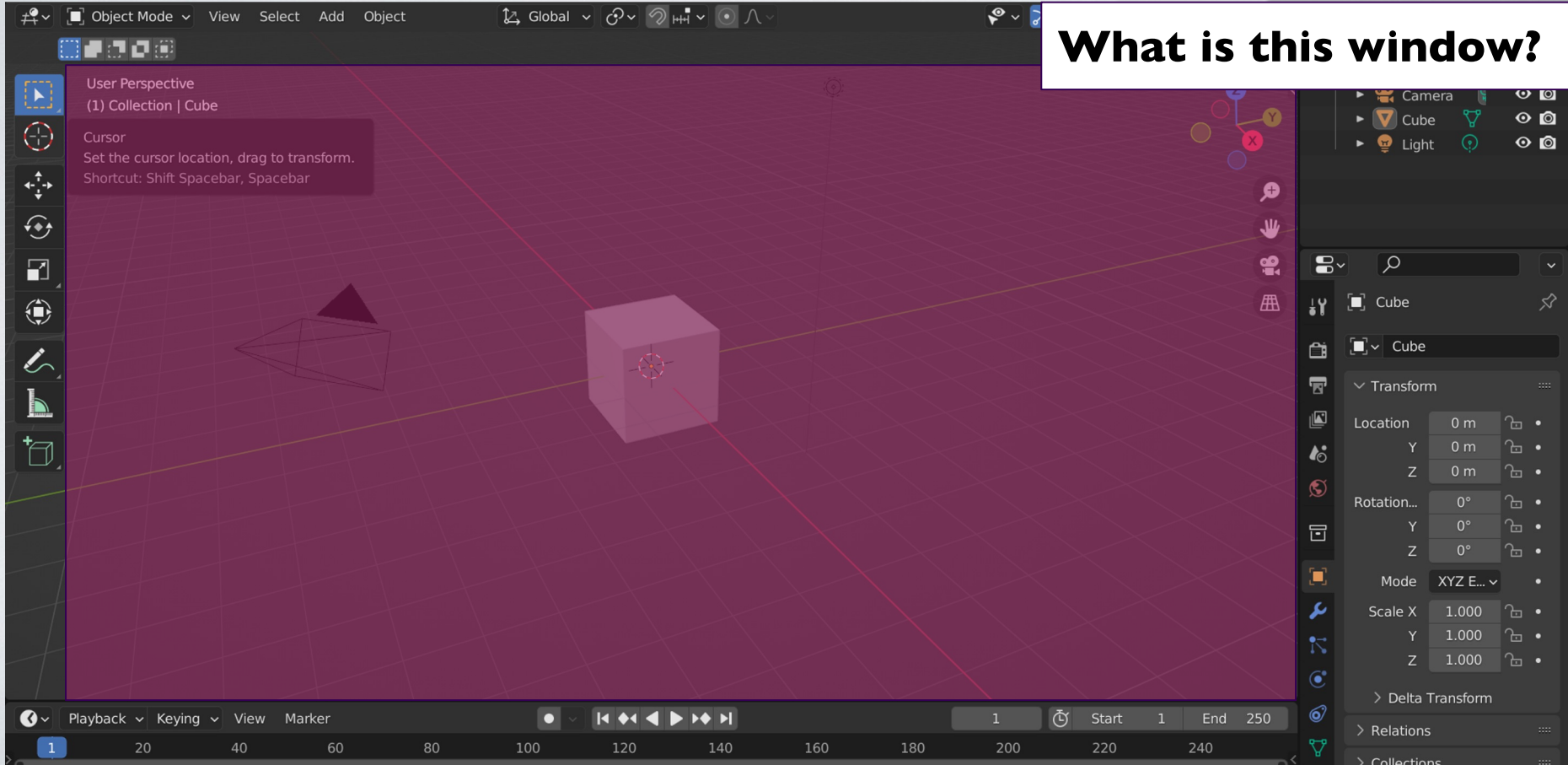
Workshop Workflow

- **Review Previous Session**
- **More Modeling Operations**
- **Organizing Scenes/Objects in Blender**
- **Today's Mini Creation**

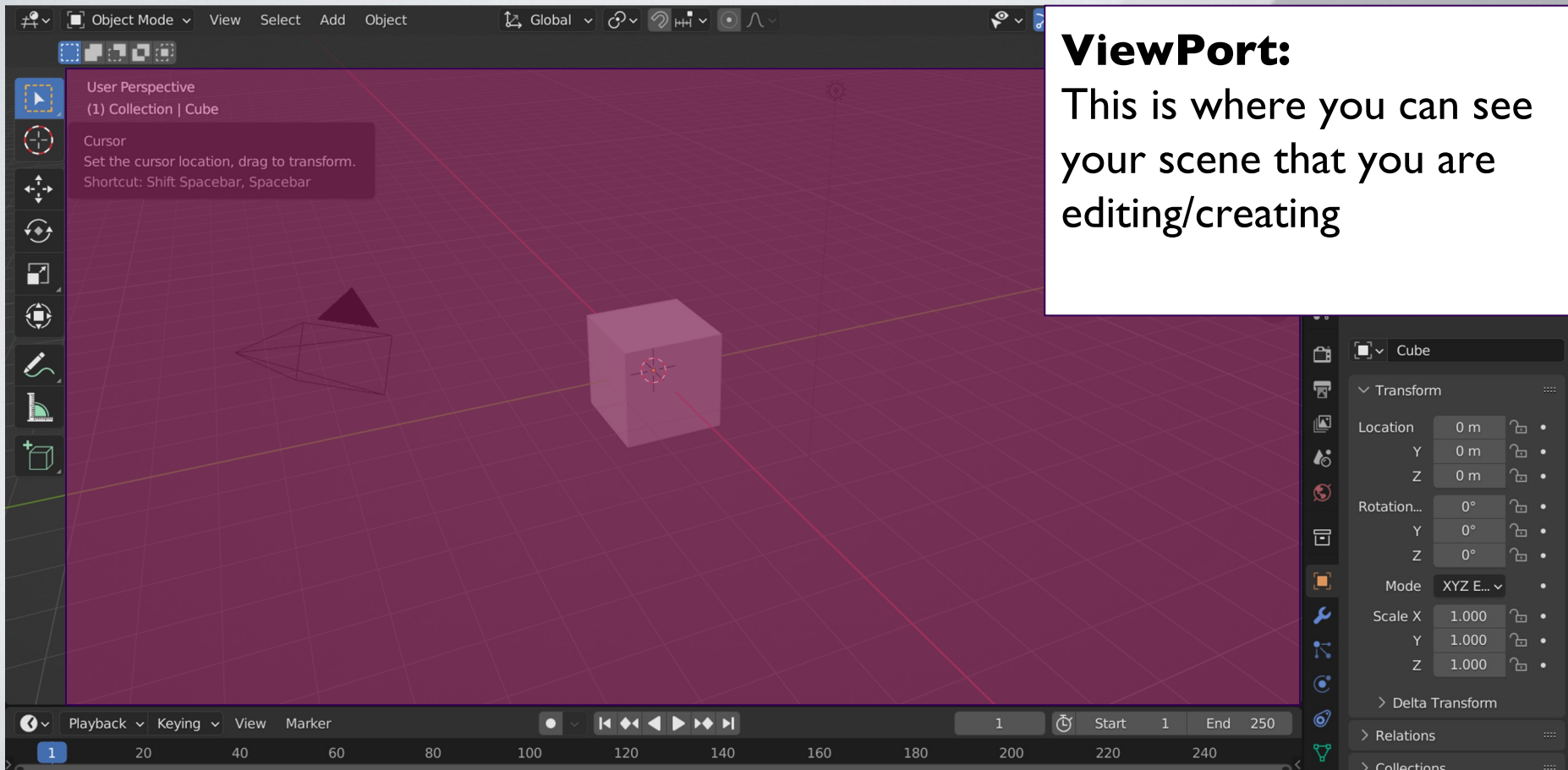


Review

What is this window?

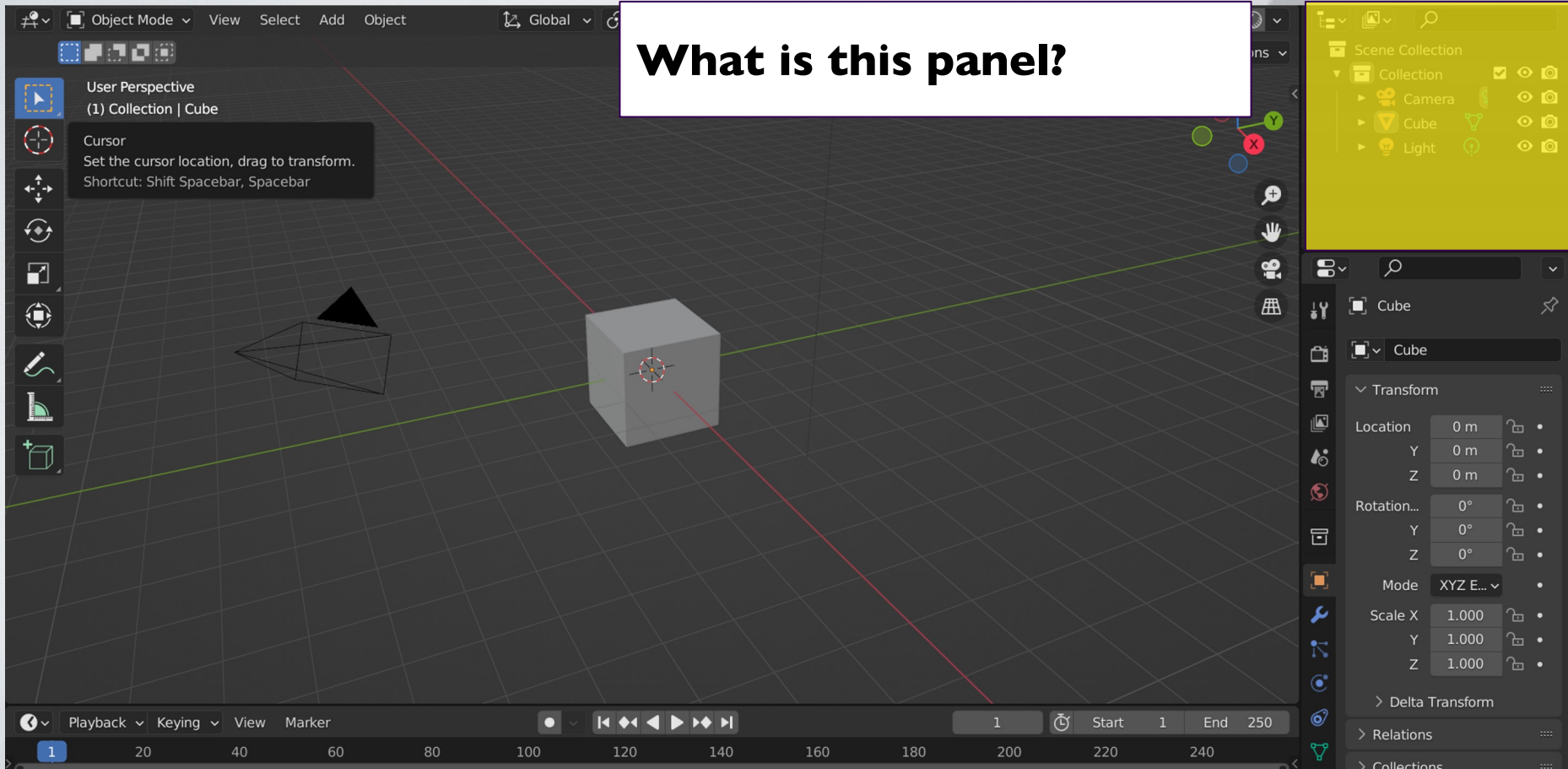


Review



Review

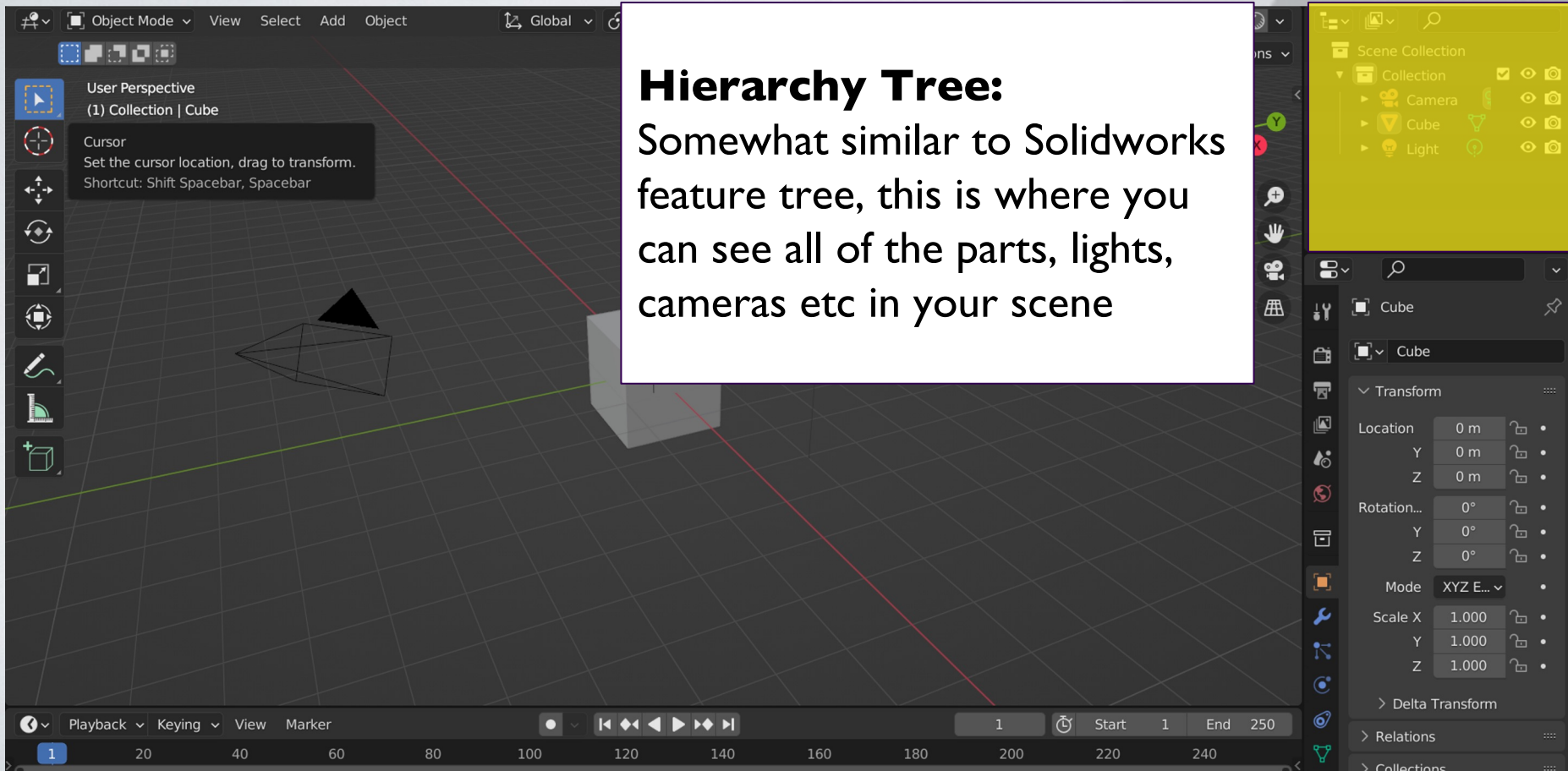
What is this panel?



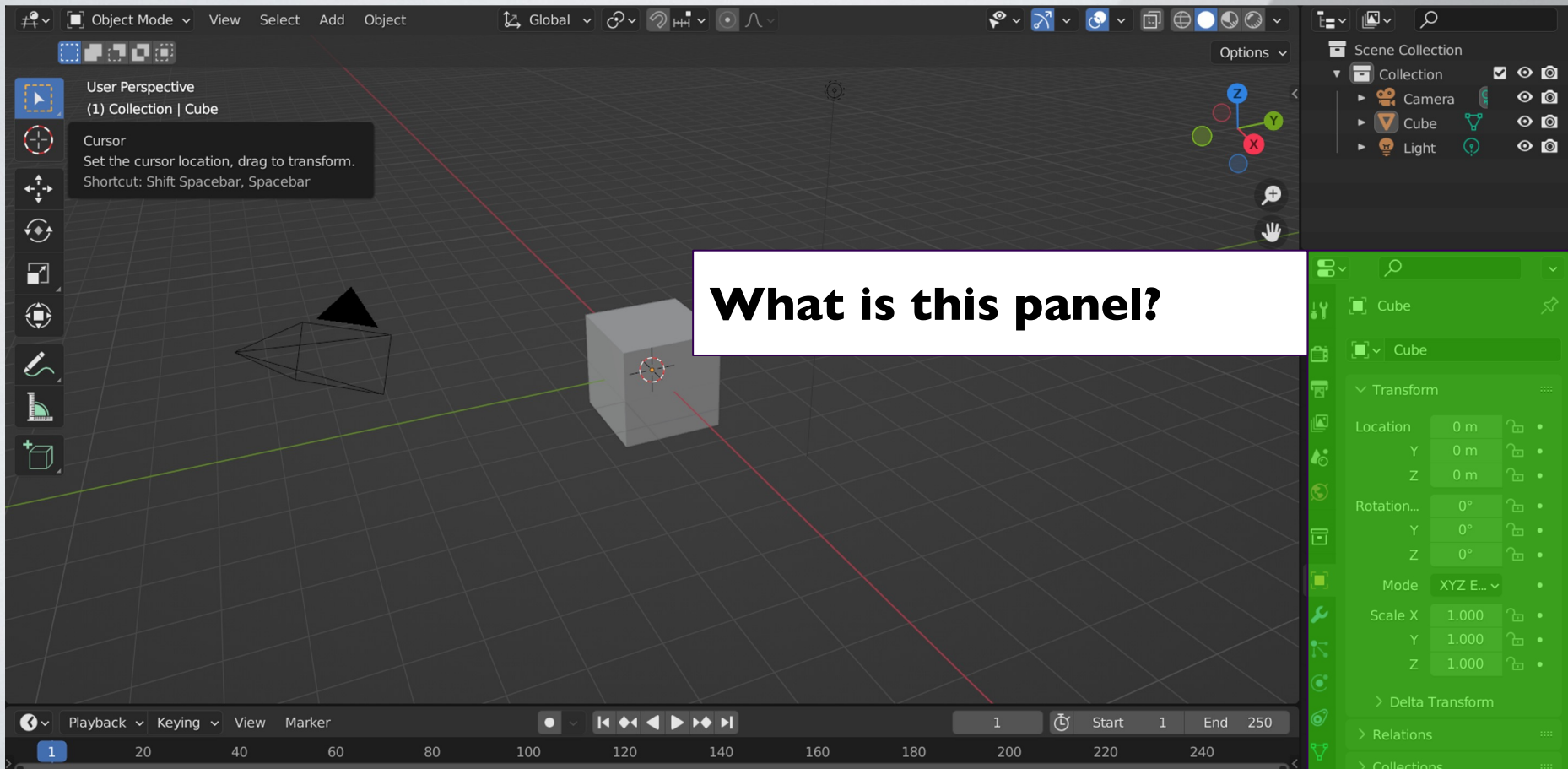
Review

Hierarchy Tree:

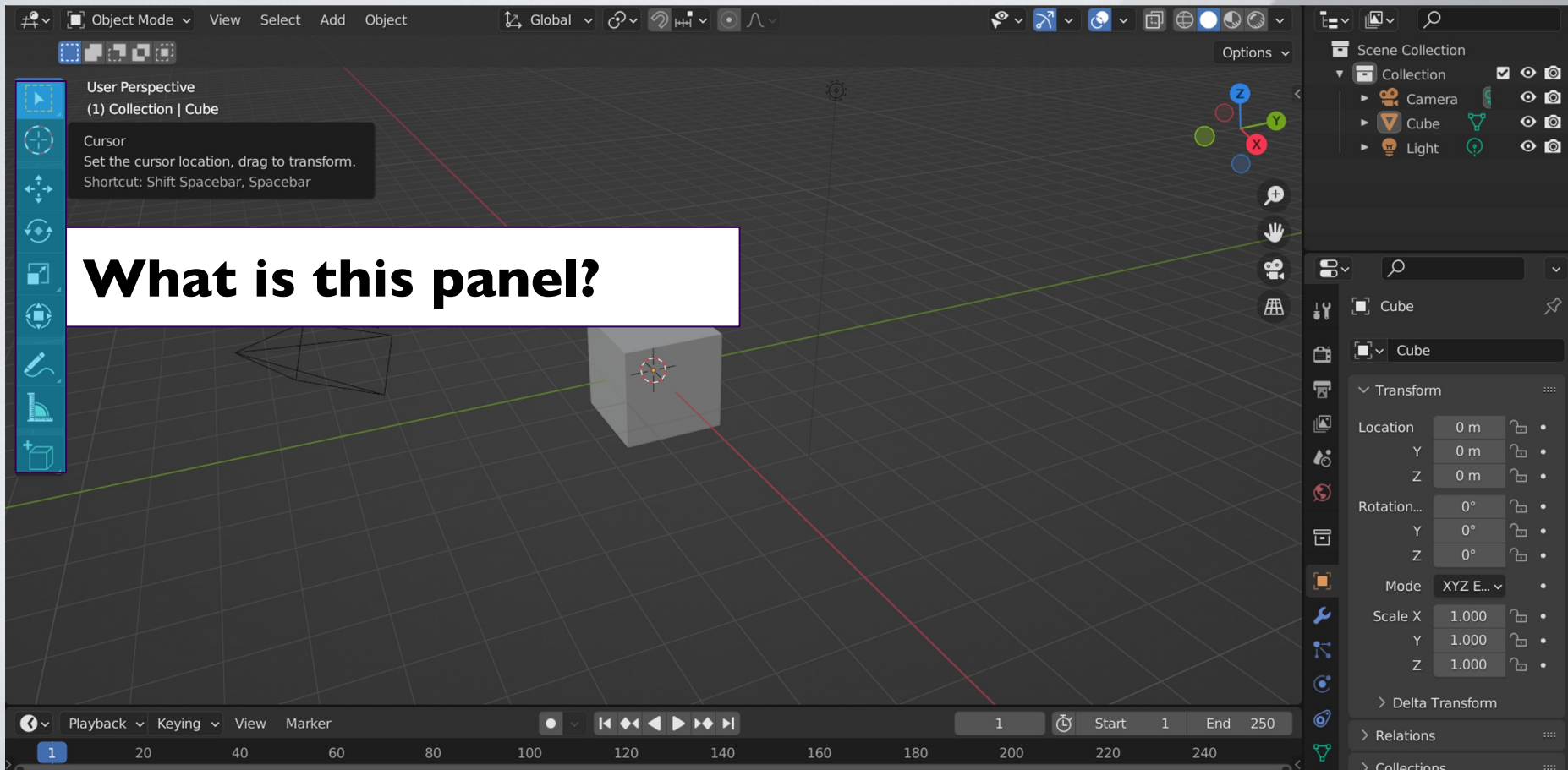
Somewhat similar to Solidworks feature tree, this is where you can see all of the parts, lights, cameras etc in your scene



Review



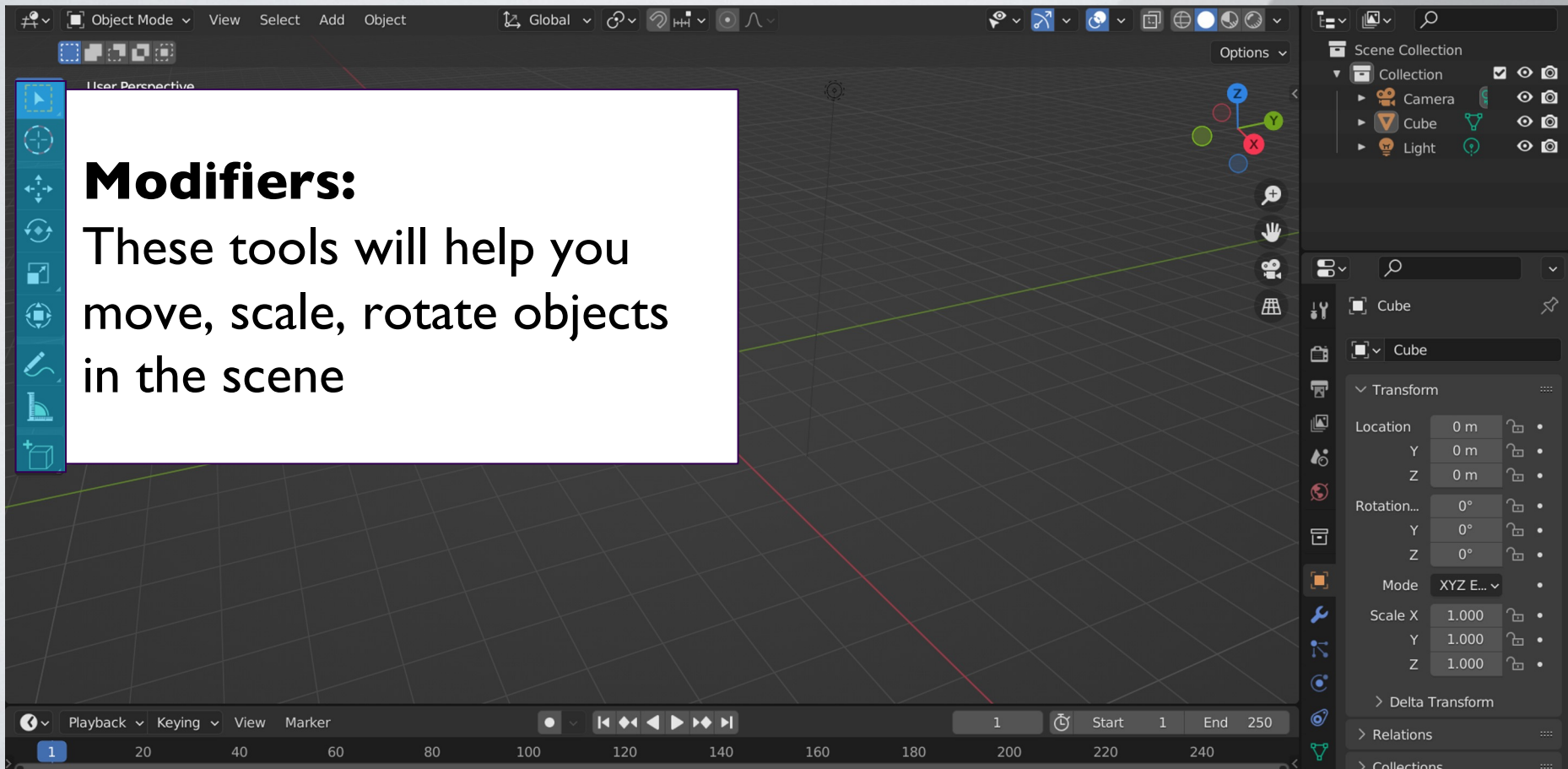
Review



Review

Modifiers:

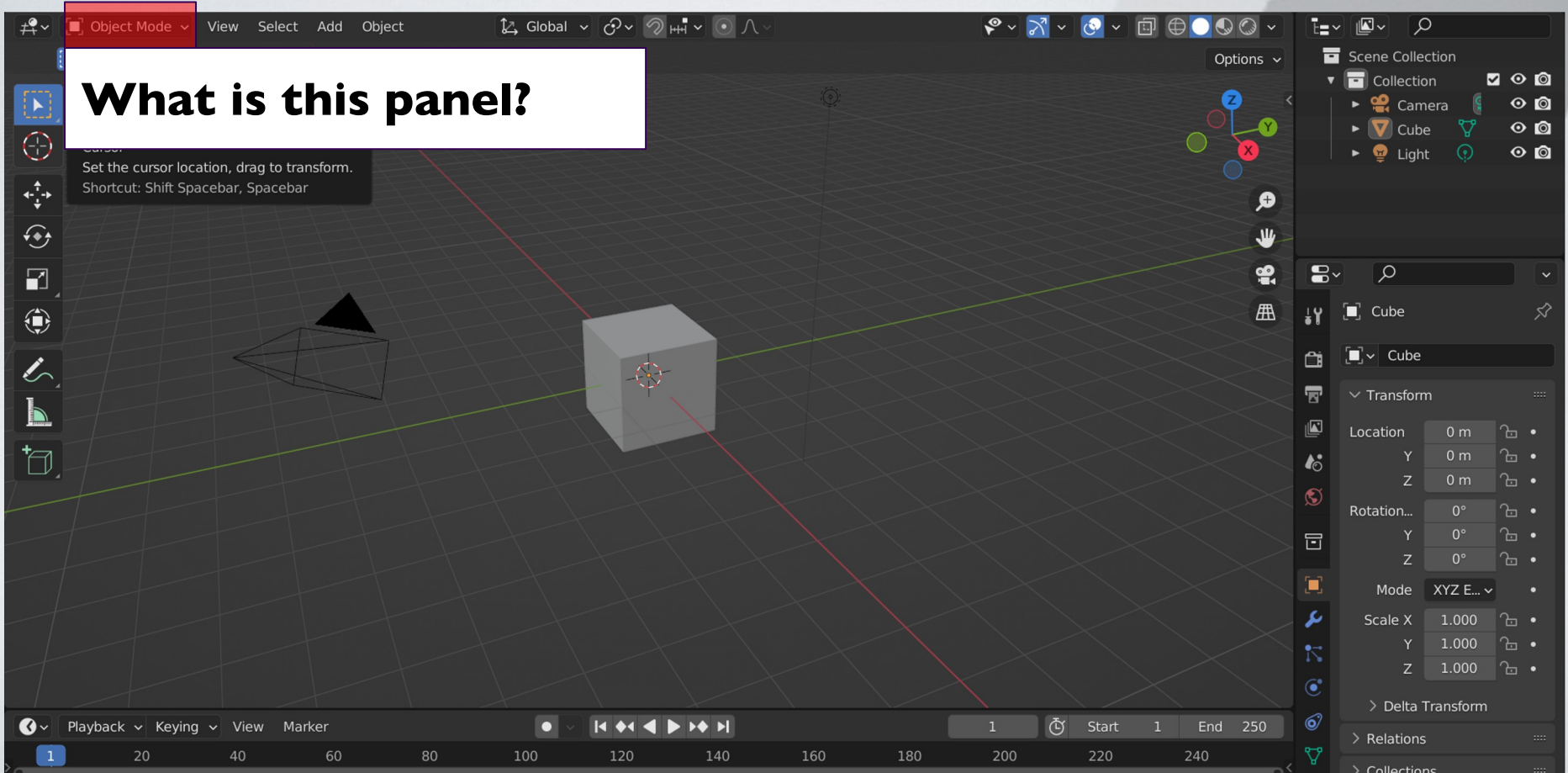
These tools will help you move, scale, rotate objects in the scene



Areas

What is this panel?

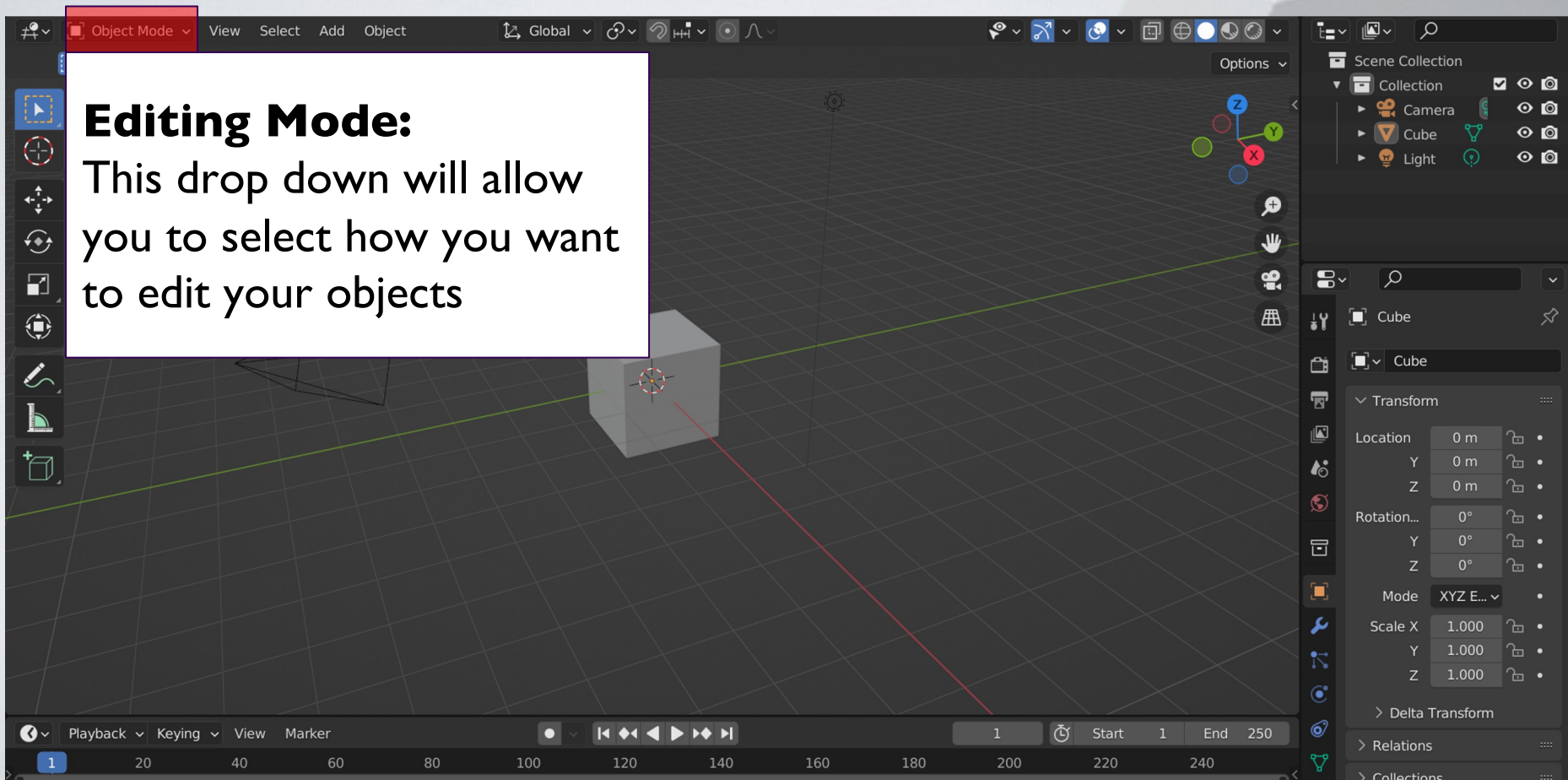
Set the cursor location, drag to transform.
Shortcut: Shift Spacebar, Spacebar



Review

Editing Mode:

This drop down will allow you to select how you want to edit your objects

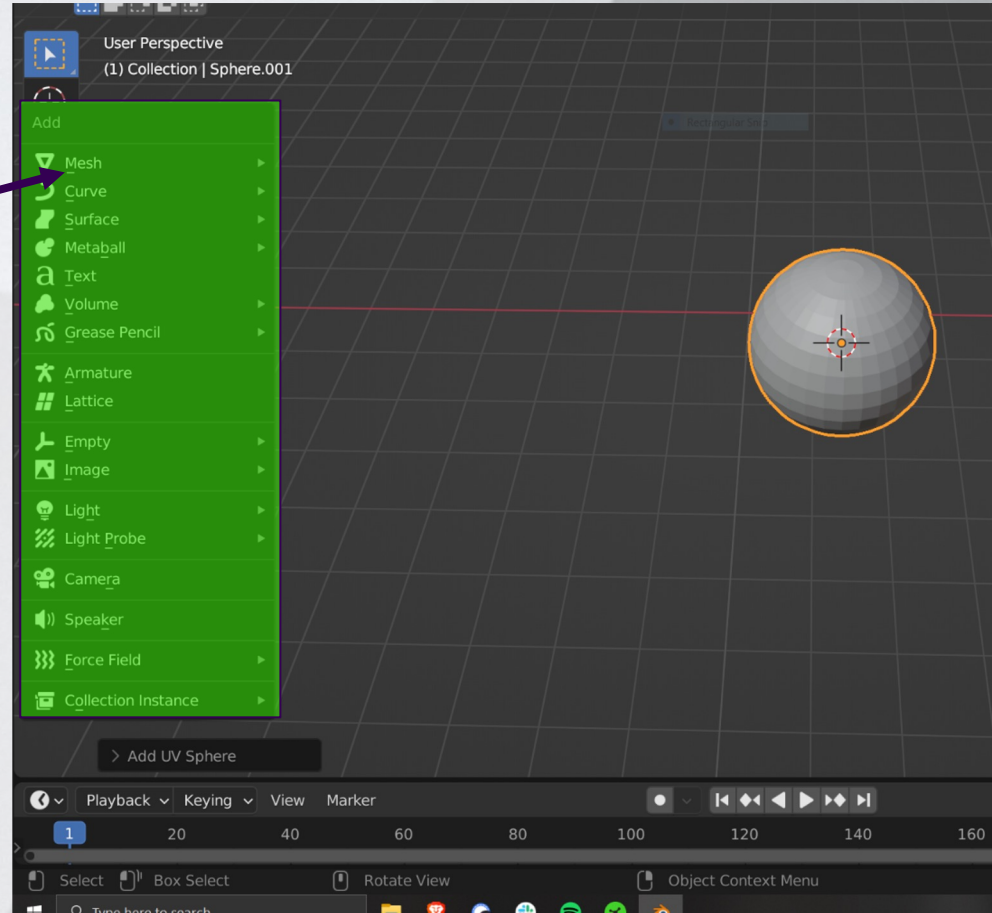


Review

- **Shift + A is a crucial hotkey!**
- **(Open Add Menu) Shift + A**
- **Add Menu > Mesh > UV Sphere**

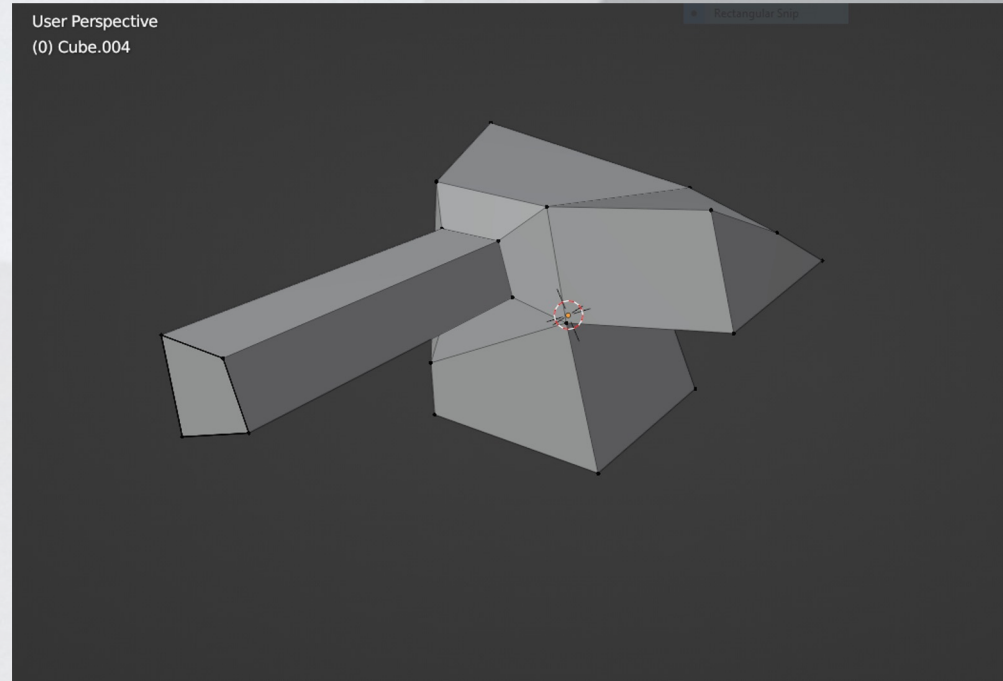
Hotkey Review:

- **Move: G**
- **Scale: S**
- **Rotate: R**
- **Switch Editing Mode: Tab**



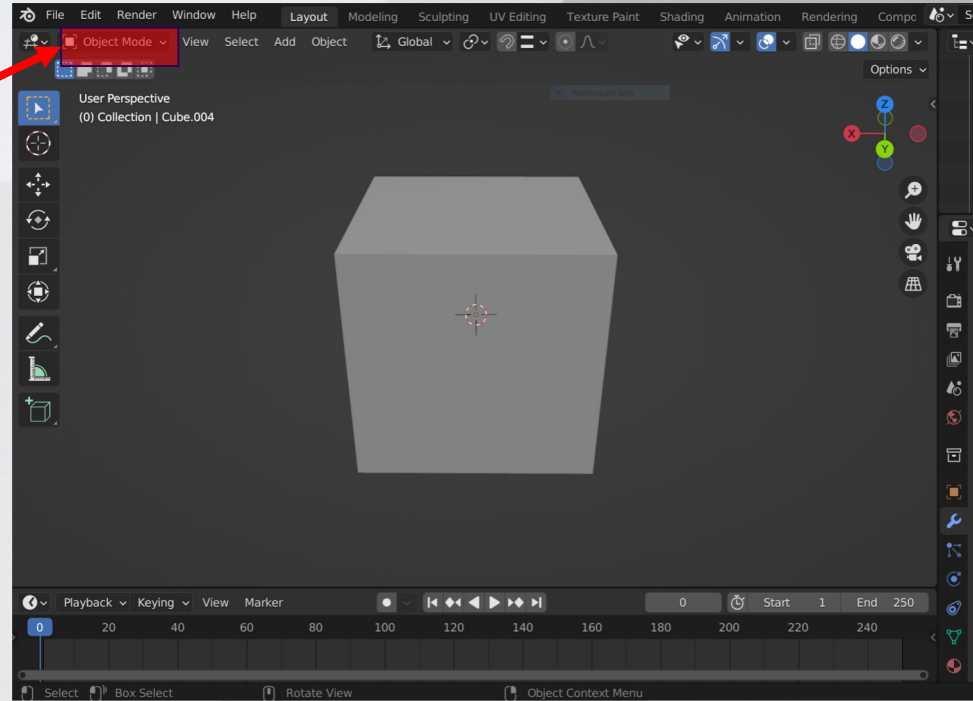
More Vertex Operations

- The following tools were used to make this shape from a simple cube:
 - Extrude
 - Bevel
 - Edge Slide



Vertices: Extrude

- **Add a cube to scene**
 - (Hint: Shift + A opens add menu)
- **Enter “Edit Mode”**



Vertices: Extrude

Extrude (E)

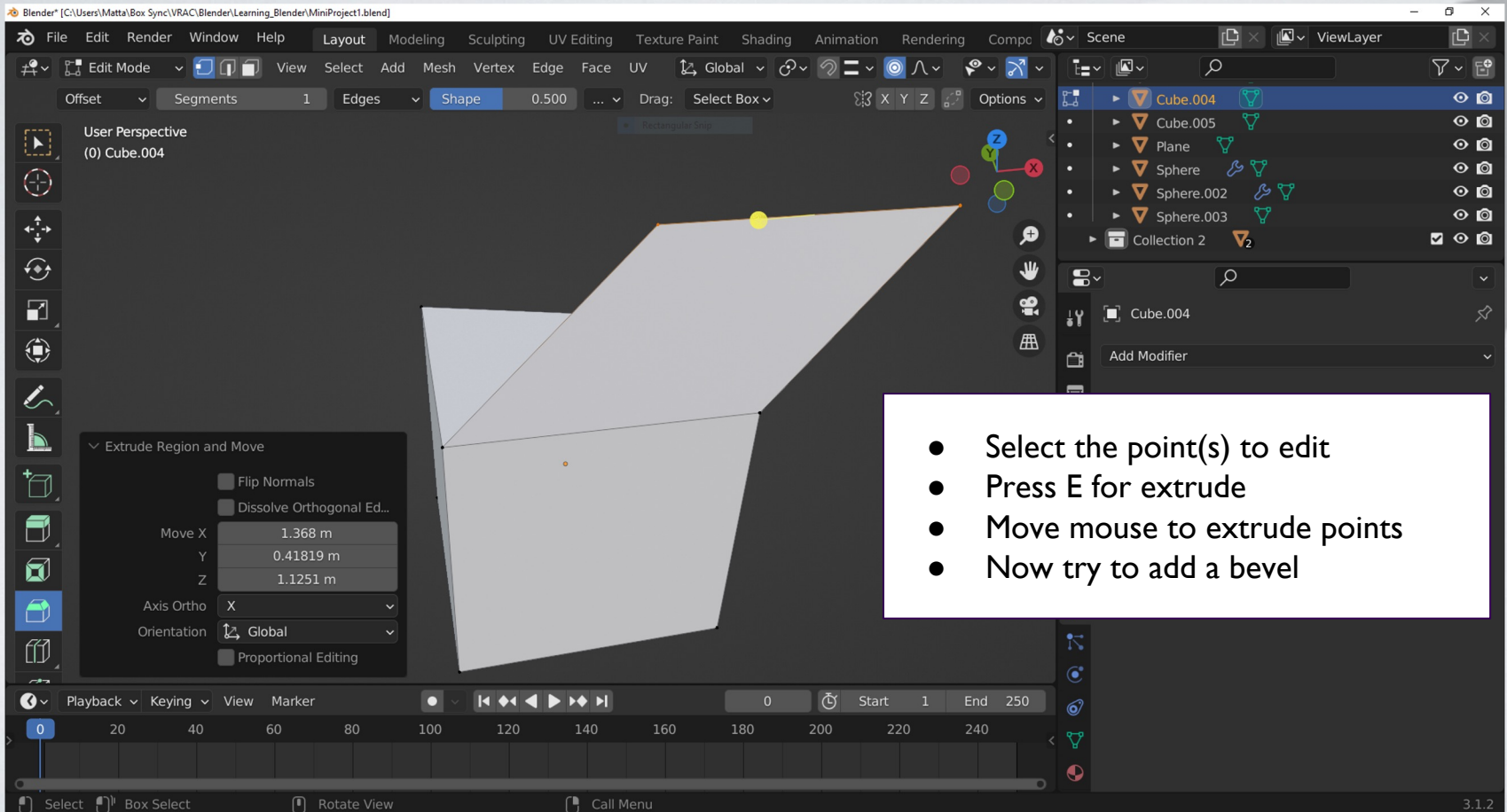
Bevel (ctrl+B)

Hot tip: Clicking and dragging is the best way to select vertices

Notice that a new menu has popped up on the left

Blender 3.1.2 interface showing the Extrude (E) and Bevel (ctrl+B) tools in the left toolbar. A cube is shown with a vertex selected. A 'Hot tip' box states: 'Clicking and dragging is the best way to select vertices'. A text box notes: 'Notice that a new menu has popped up on the left'.

Vertices: Extrude

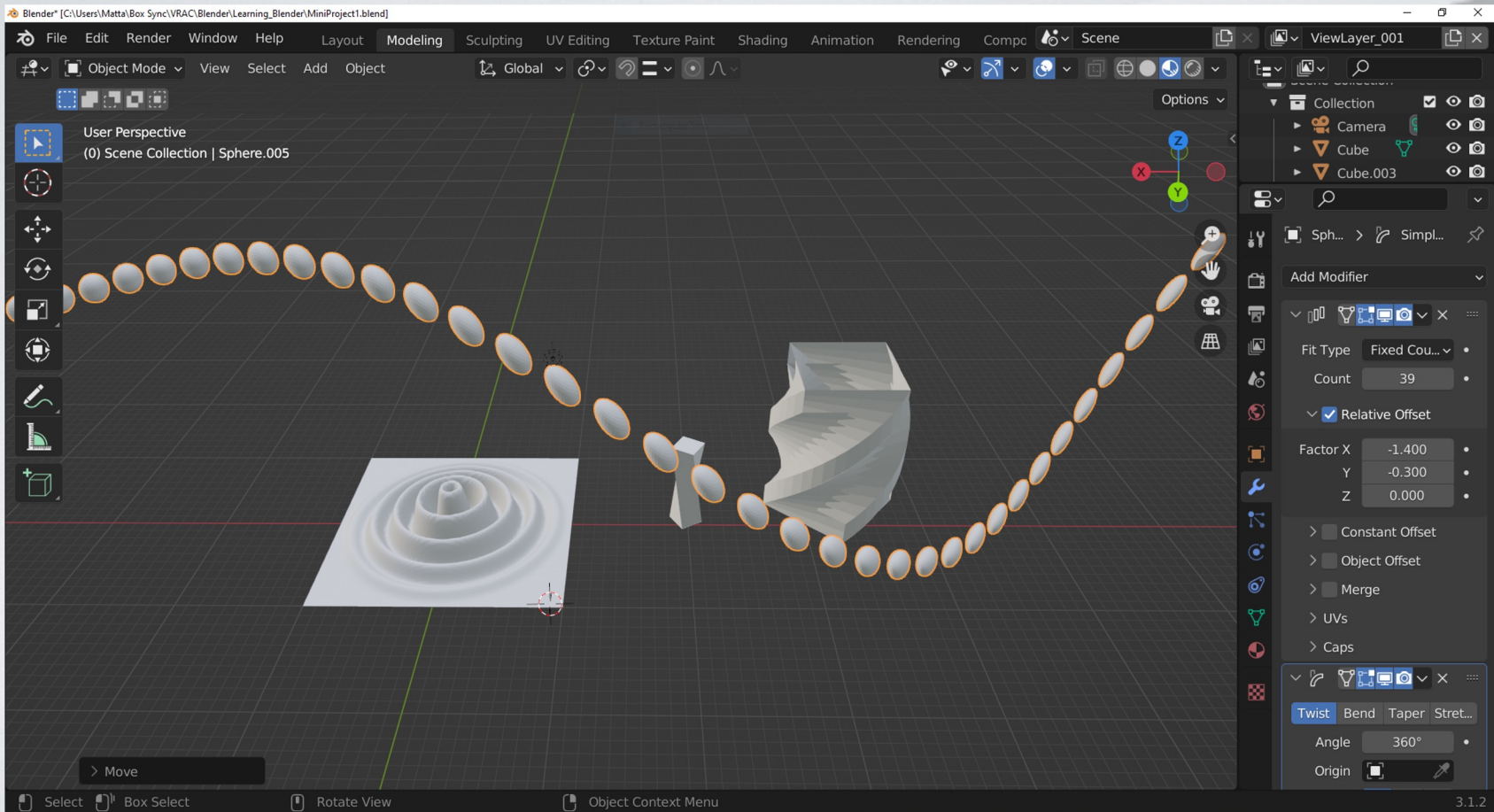


Break Time!

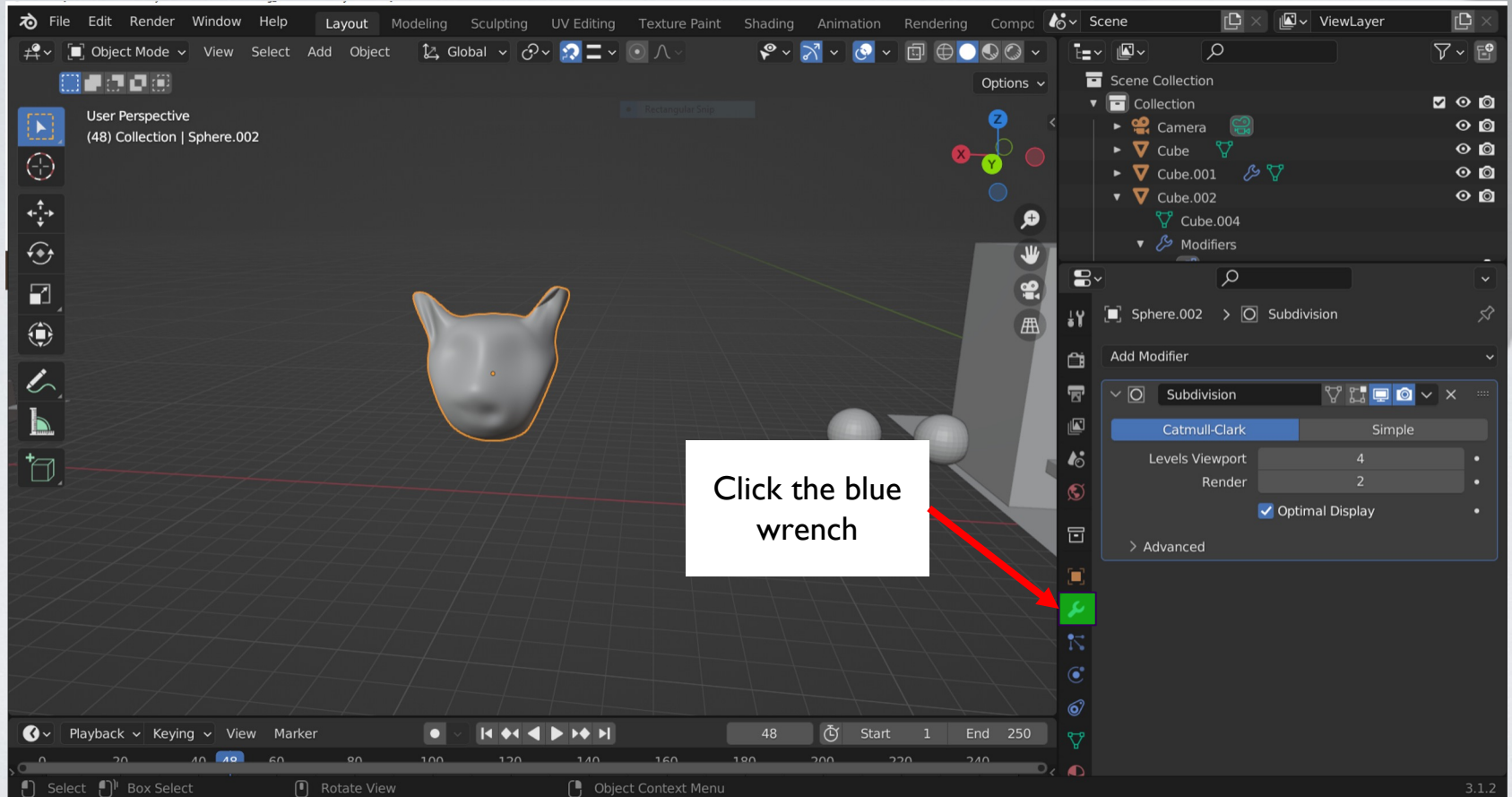


[dance music]

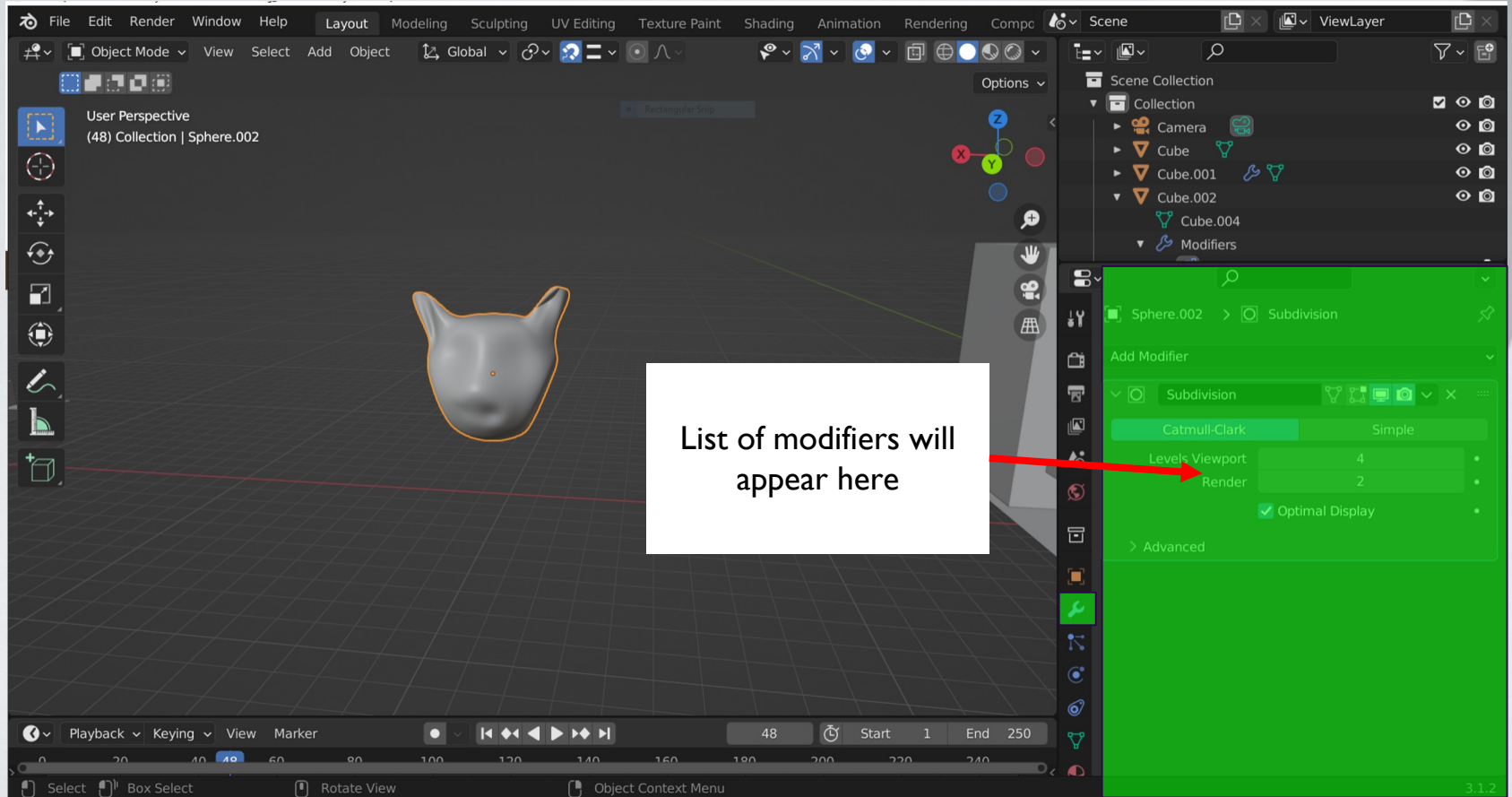
Modifiers!



Modifiers: Menu Introduction



Modifiers: Menu Introduction



List of modifiers will appear here

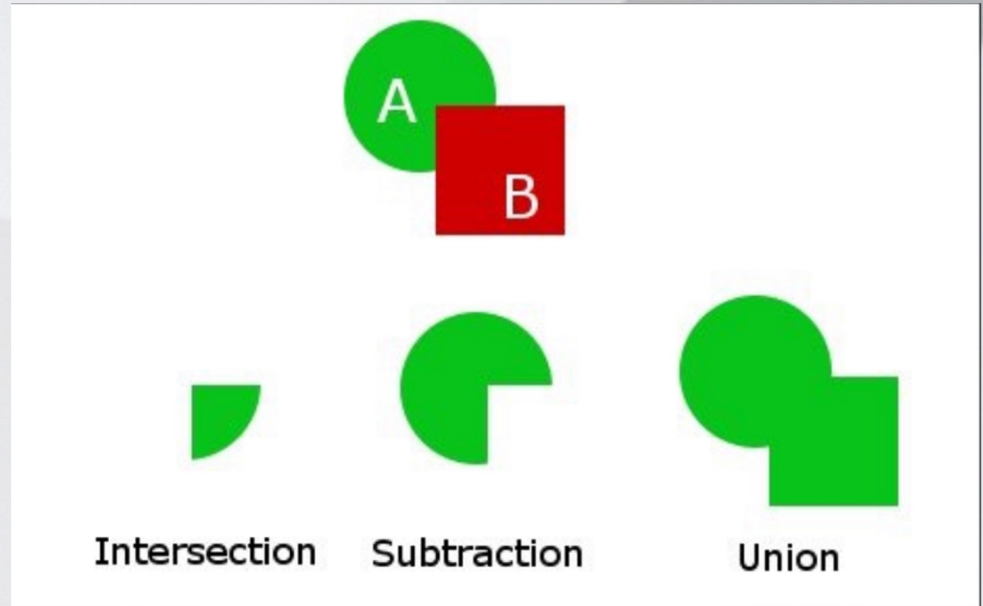
Boolean Modifiers

- **Boolean Modifiers**

- Booleans let you subtract, add or intersect an object's geometry onto another object (merging)
- Usually used for objects that will not be deformed (mechanical)

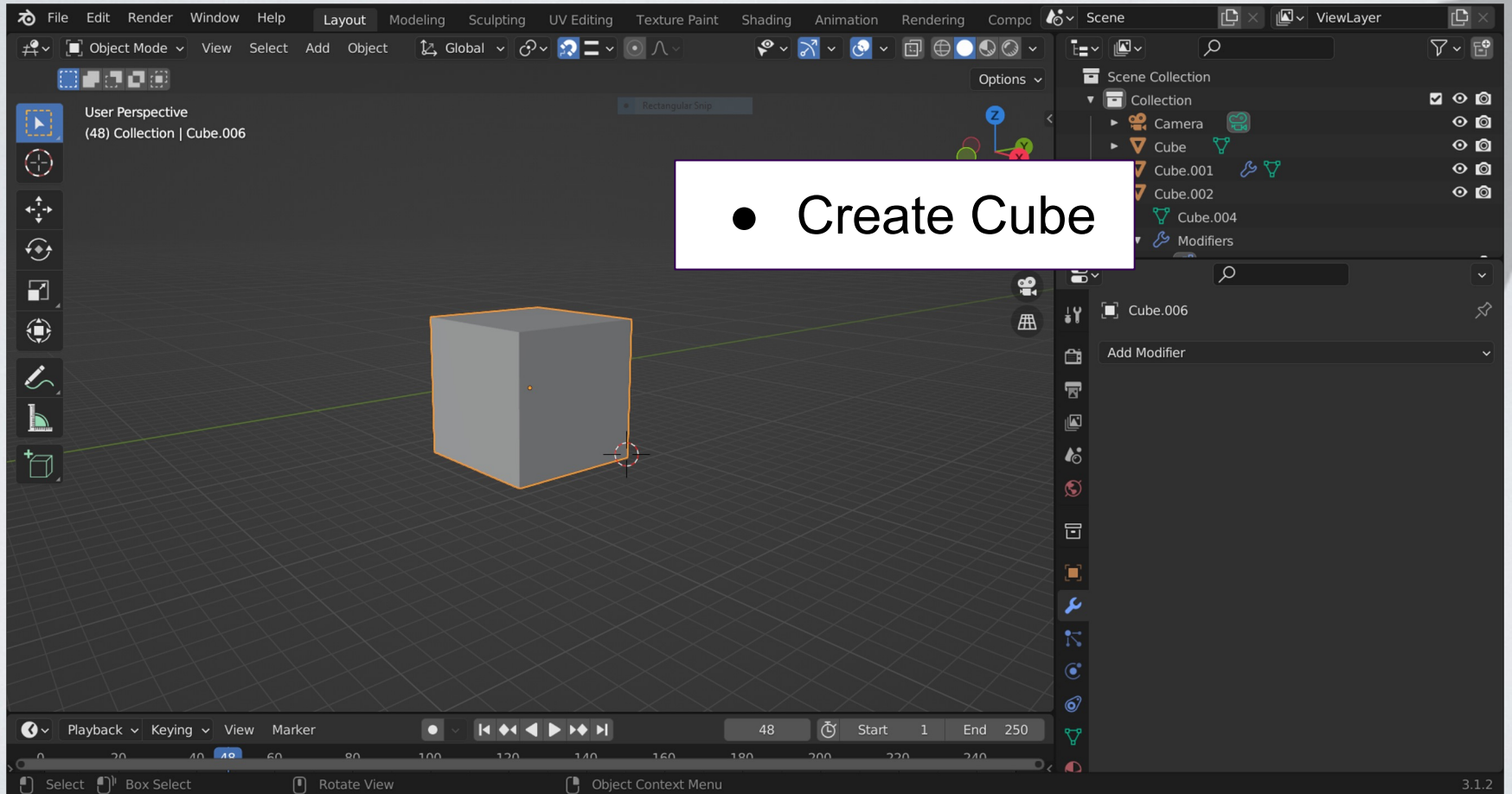
- **Drawbacks:**

- Geometry cannot be deformed

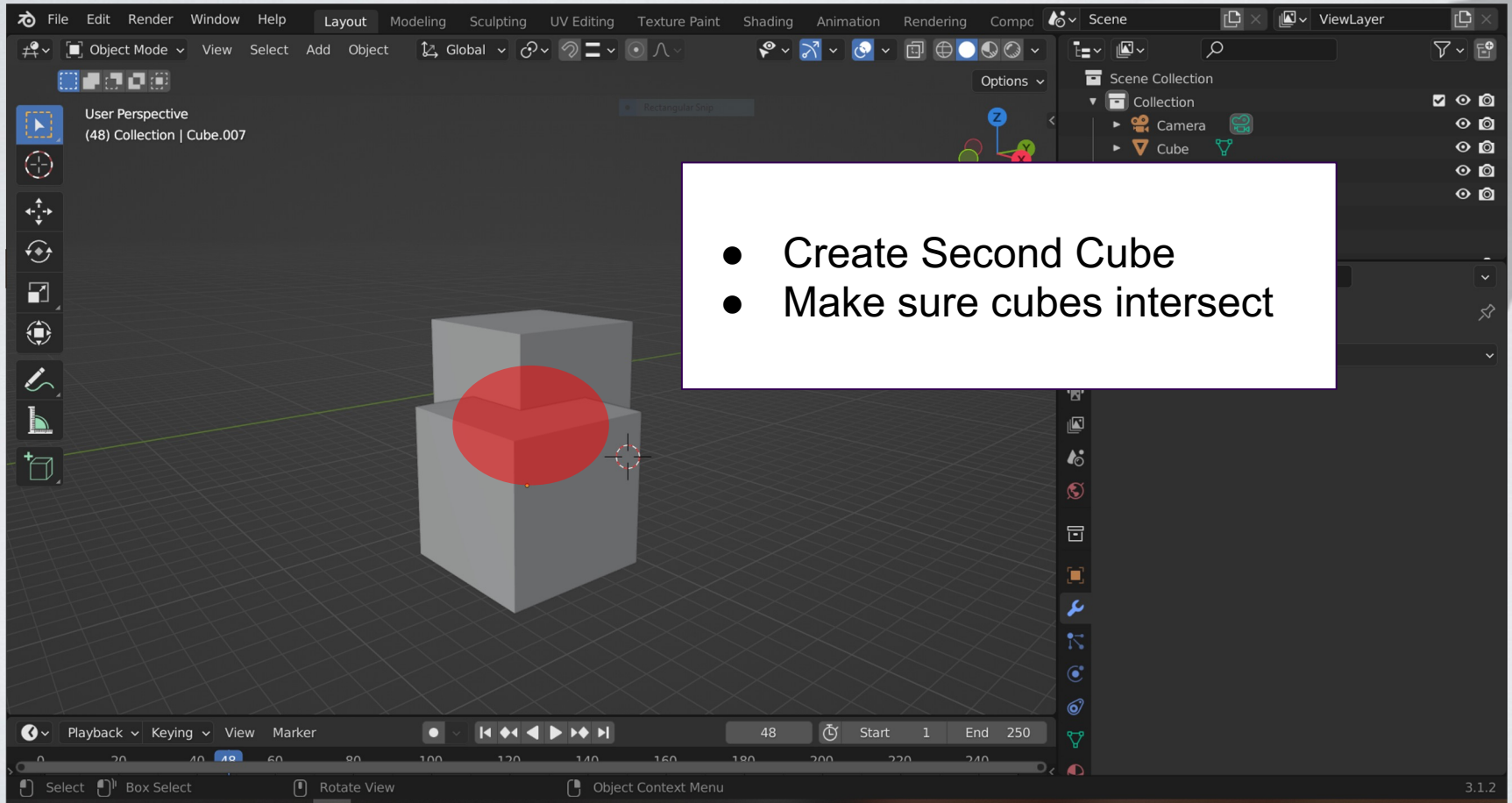


Modifiers: Boolean Difference

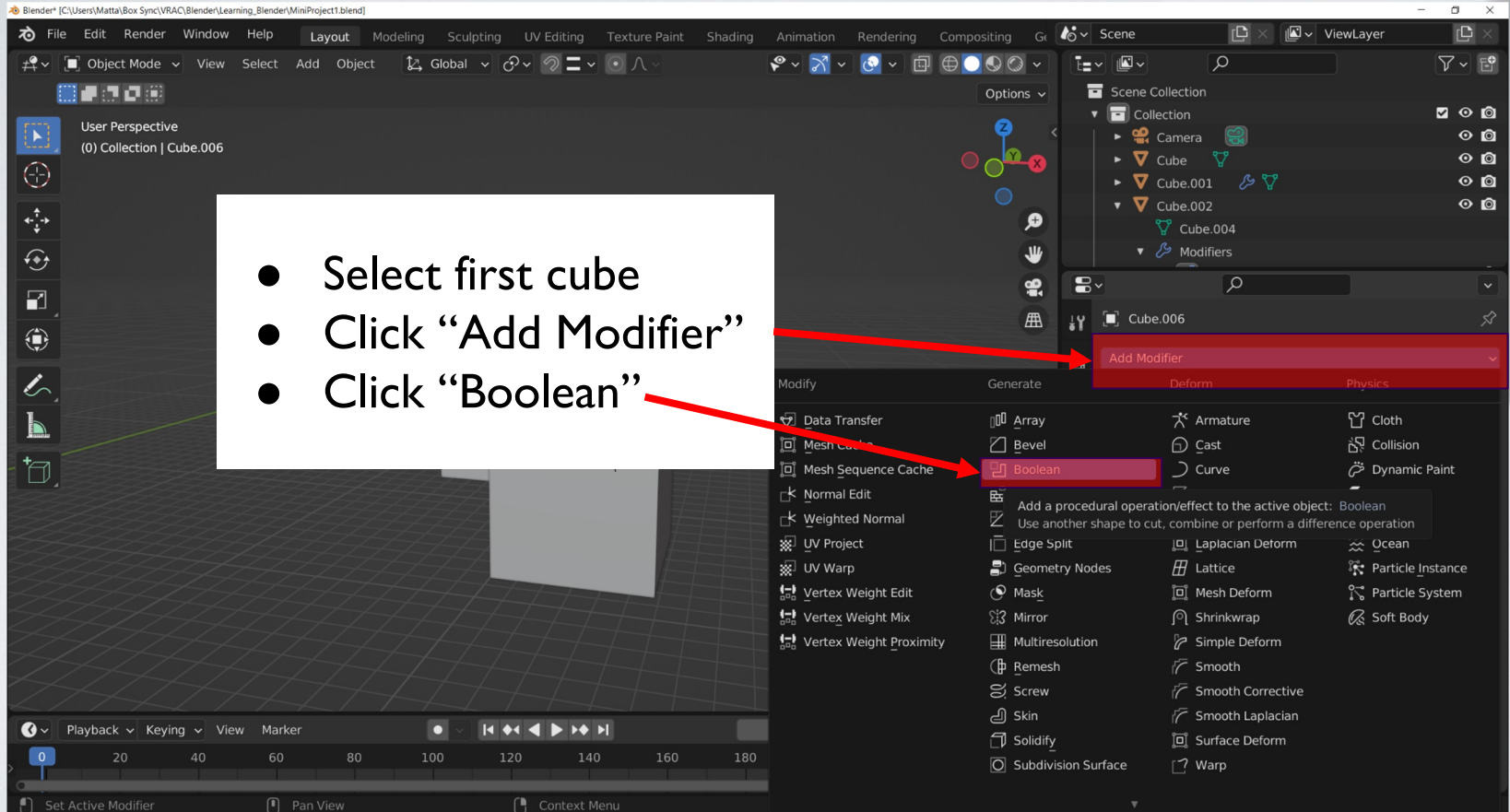
- Create Cube

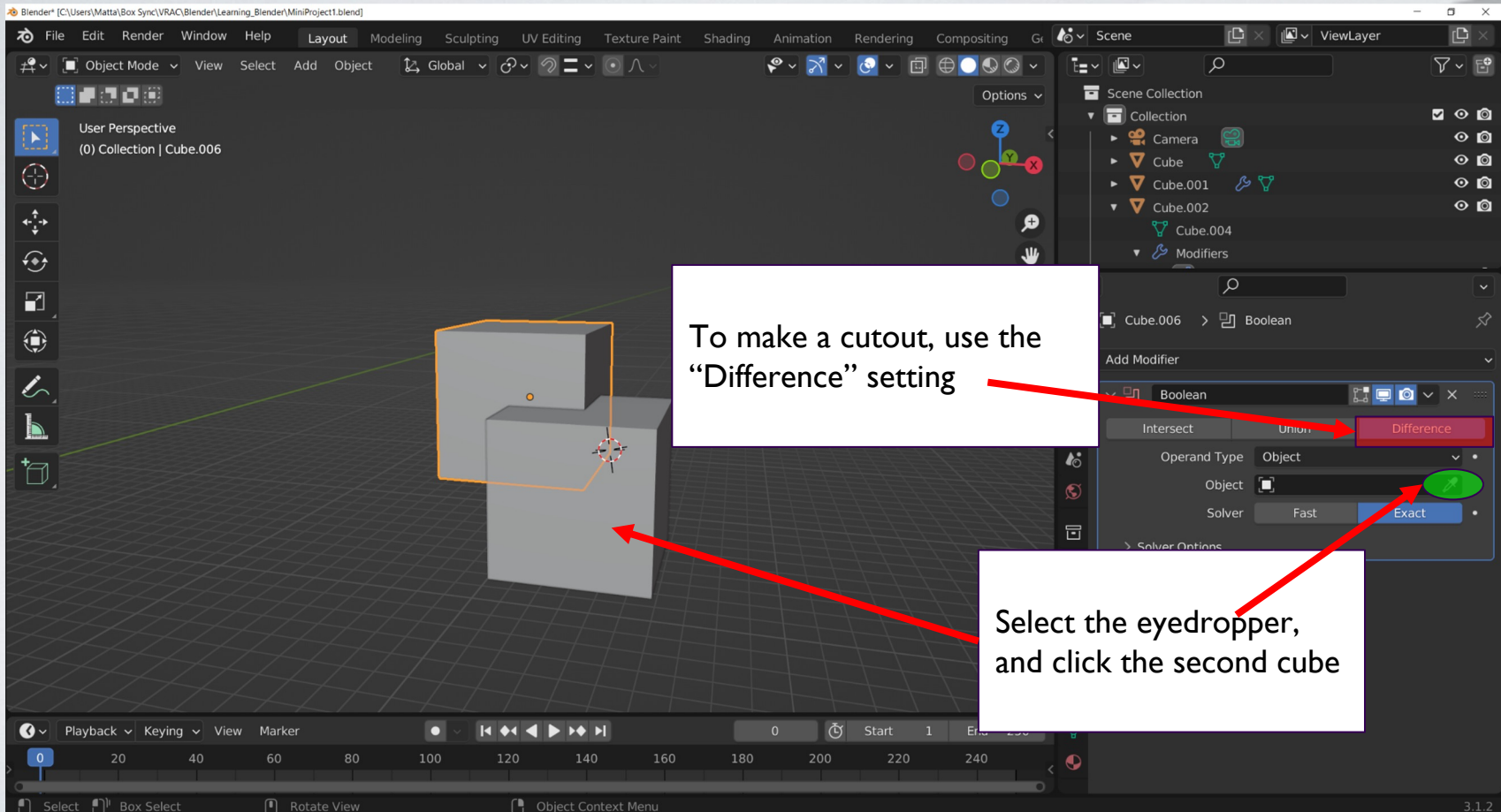


Modifiers: Boolean Difference



Modifiers: Boolean Difference

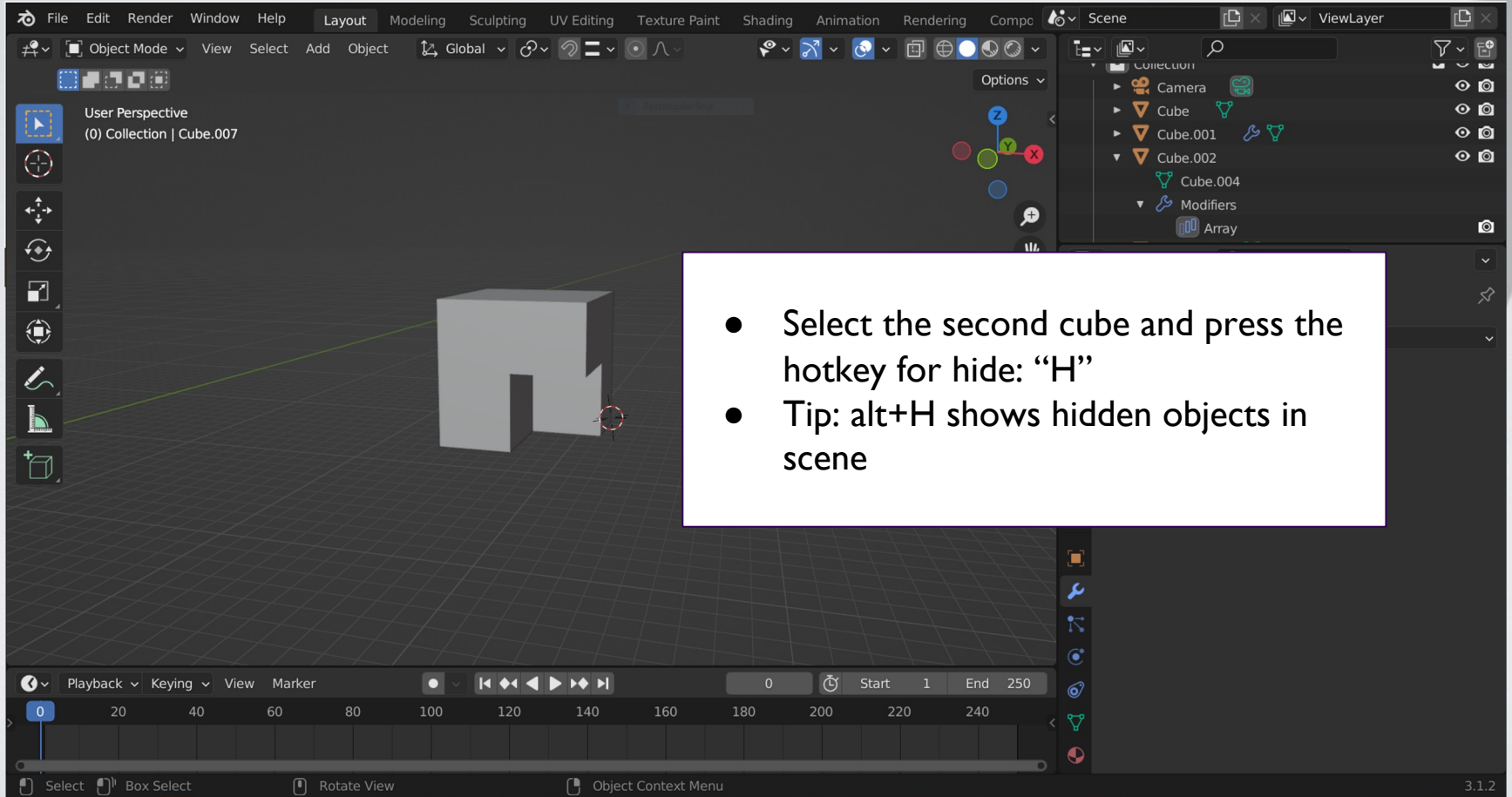




To make a cutout, use the "Difference" setting

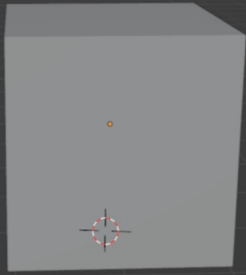
Select the eyedropper, and click the second cube

Modifiers: Boolean Difference

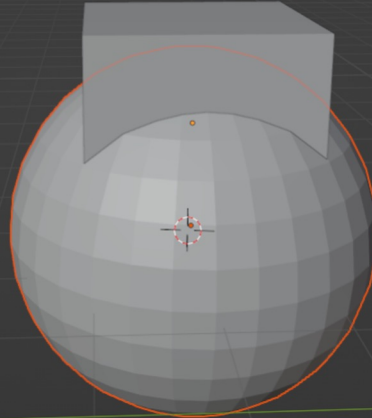


Boolean Modifiers: Intersect Example

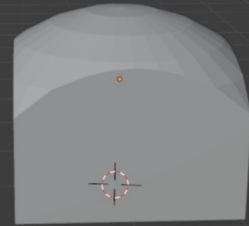
1. Add a mesh cube



2. Add a mesh sphere



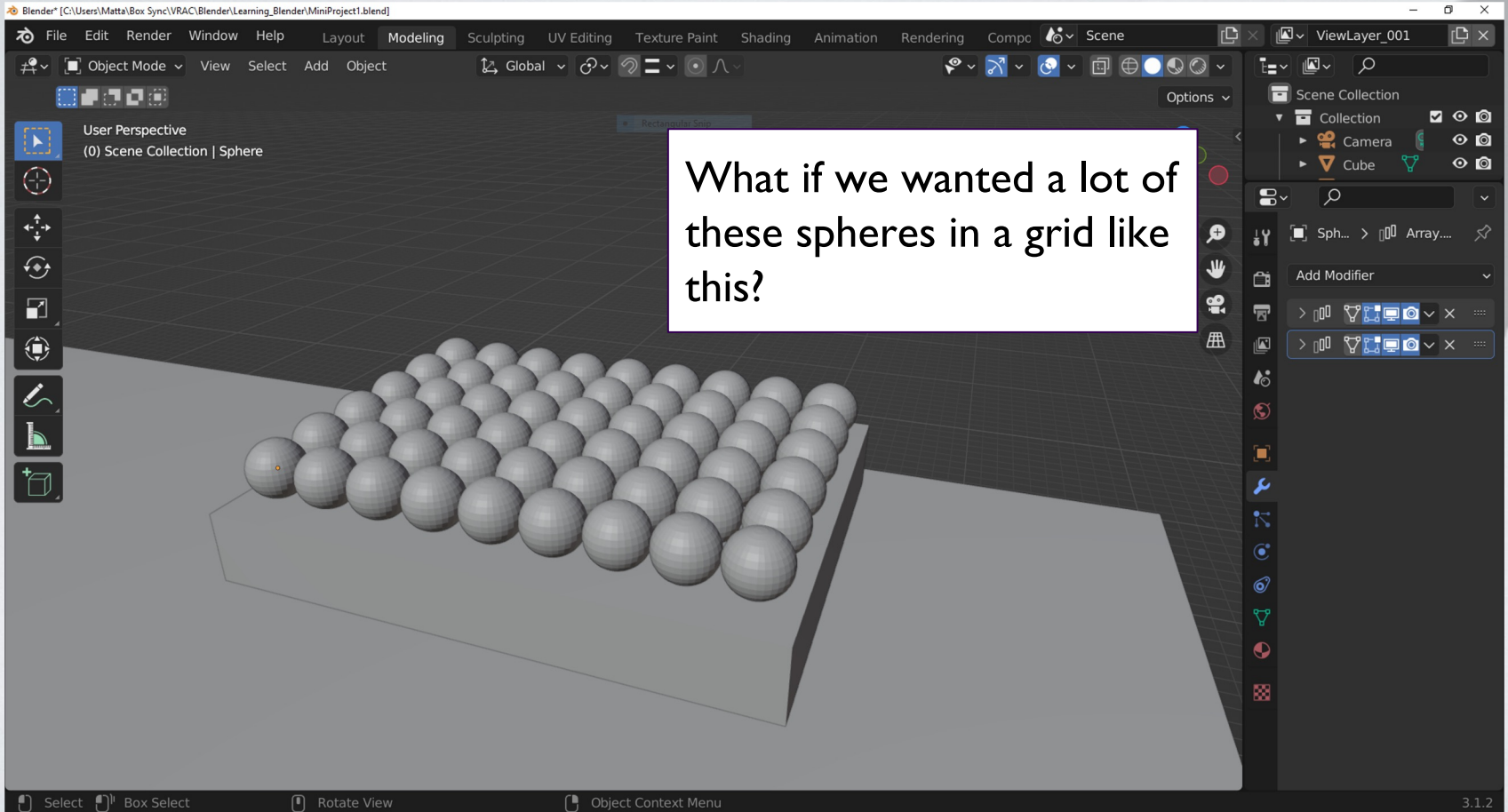
3. Apply the bool modifier to cube



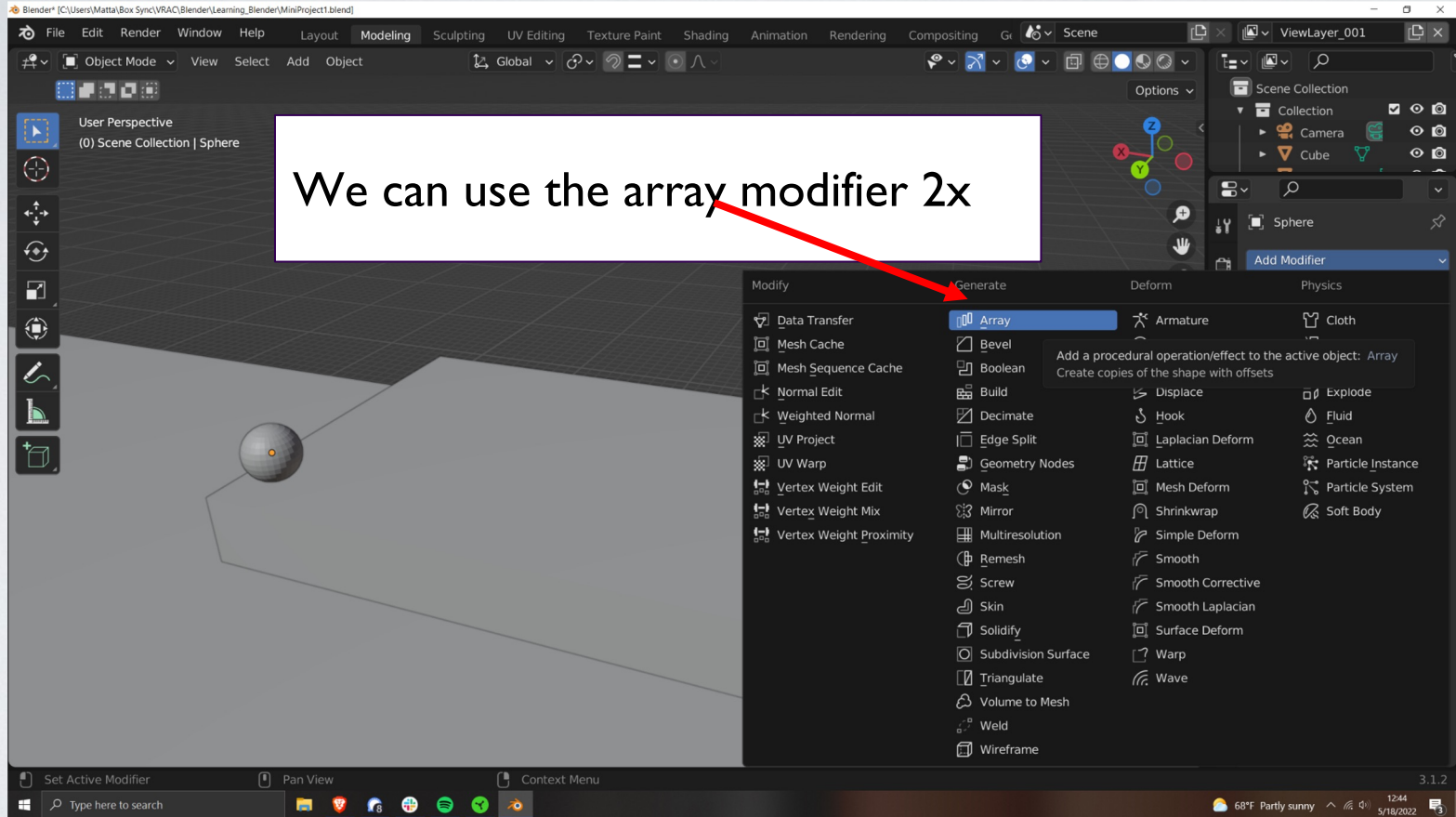
Break Time!



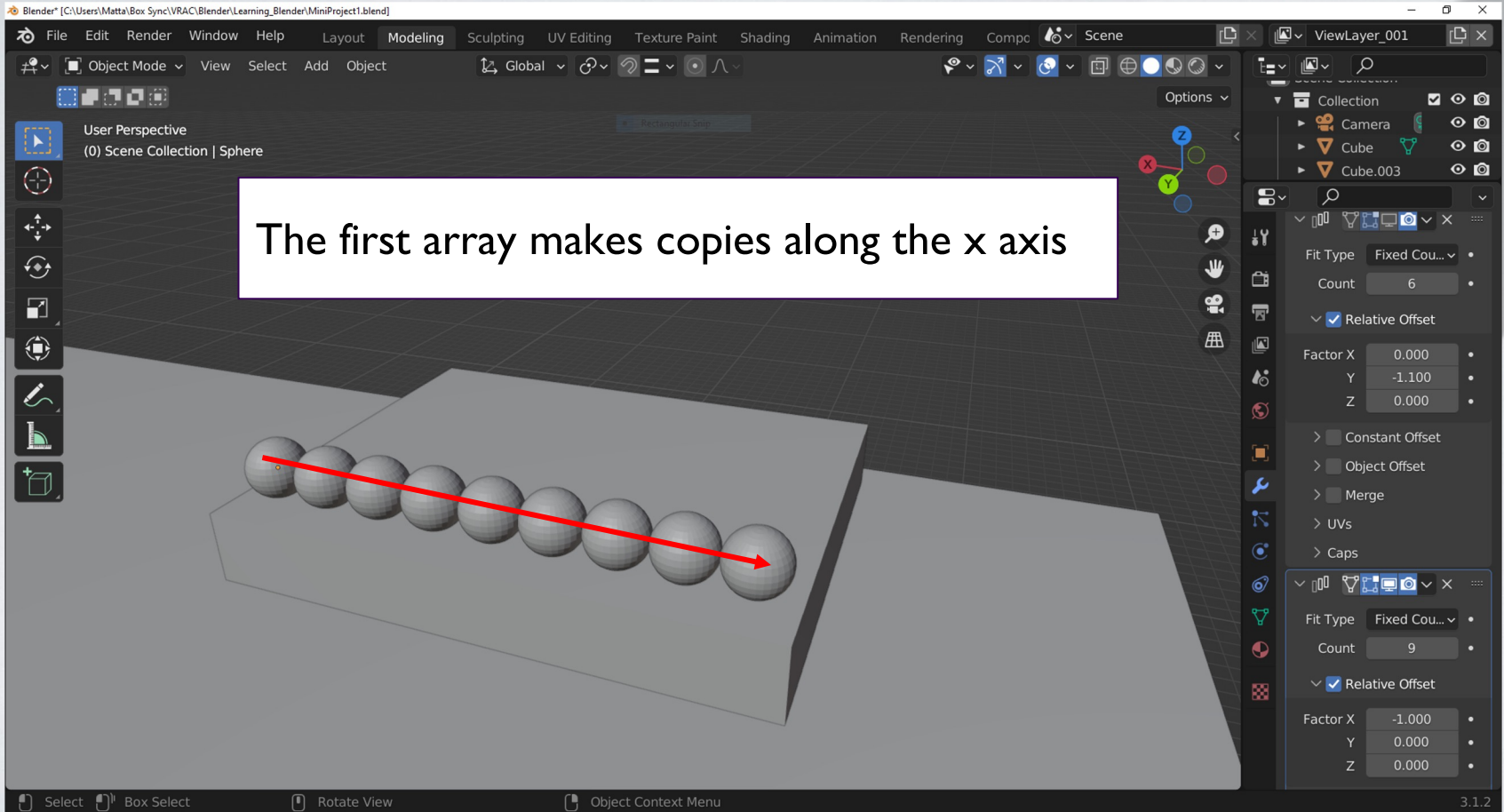
Modifiers: Array



Modifiers: Array

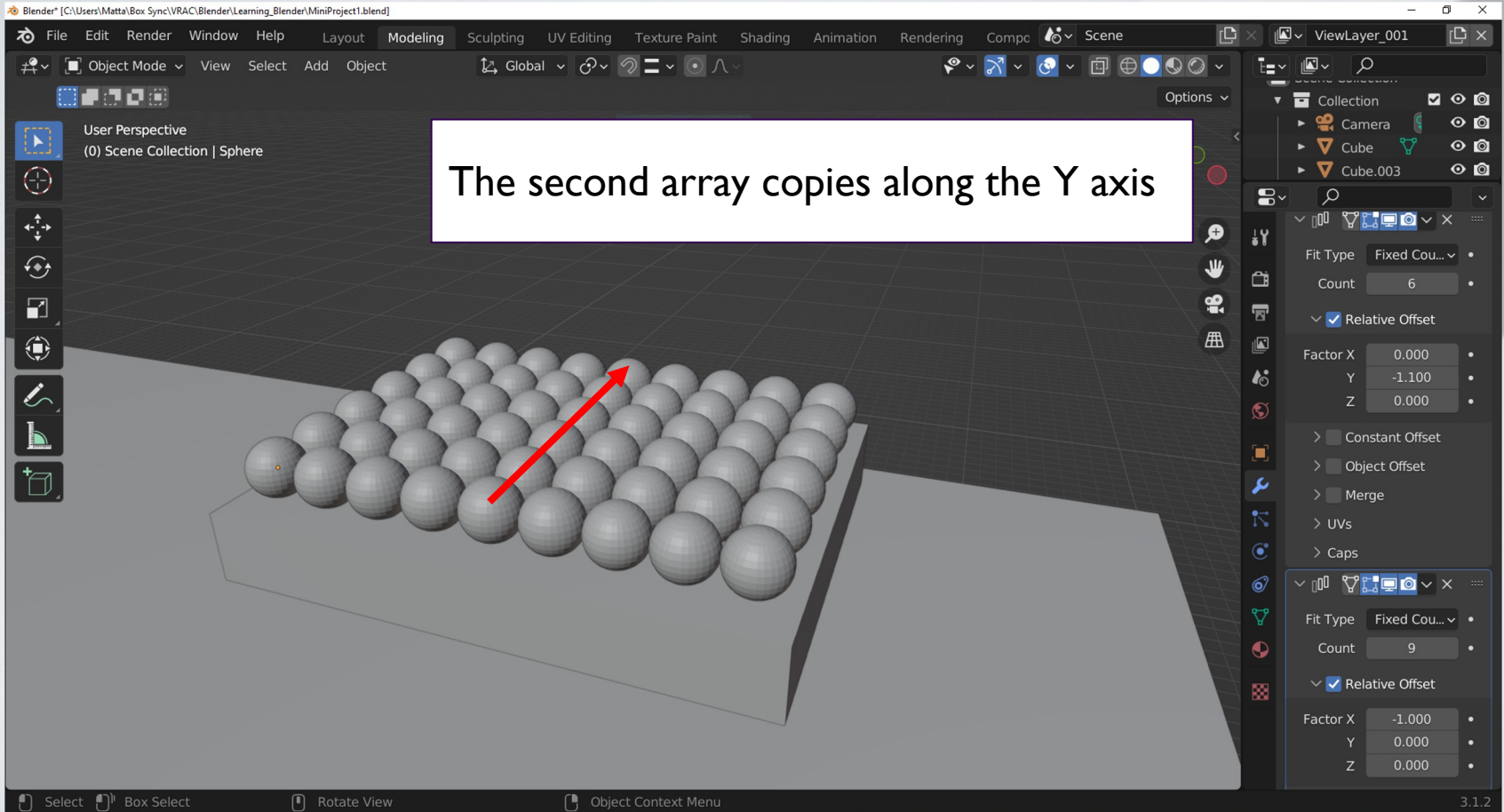


Modifiers: Array

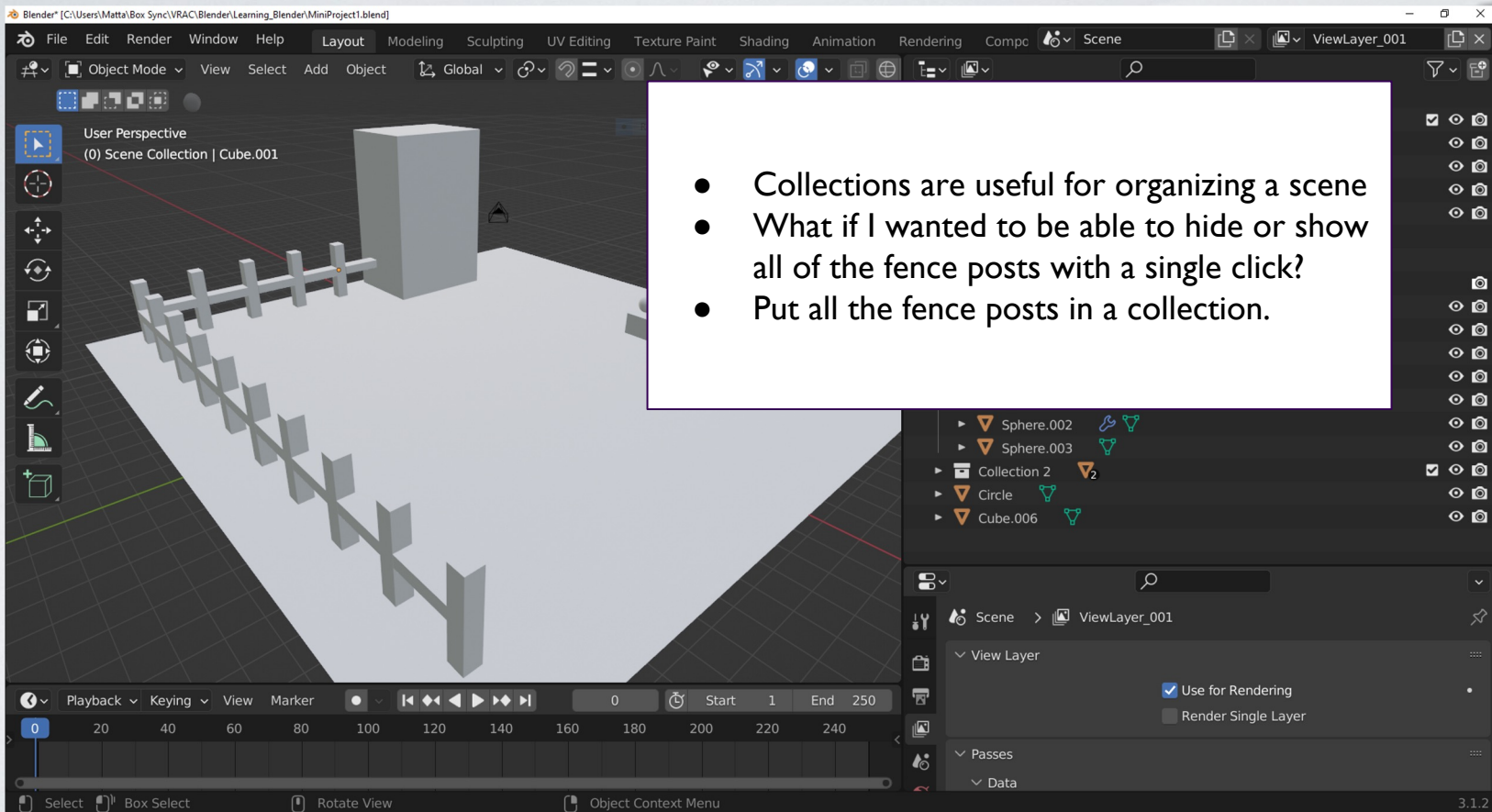


The first array makes copies along the x axis

Modifiers: Array



Creating Collections



Blender* [C:\Users\Matta\Box Sync\VRAC\Blender\Learning_Blender\MiniProject1.blend]

File Edit Render Window Help Layout Modeling Sculpting UV Editing Texture Paint Shading Animation Rendering Compc Scene ViewLayer_001

Object Mode View Select Add Object Global

User Perspective
(0) Scene Collection | Cube.001

- Collections are useful for organizing a scene
- What if I wanted to be able to hide or show all of the fence posts with a single click?
- Put all the fence posts in a collection.

Sphere.002
Sphere.003
Collection 2
Circle
Cube.006

Scene > ViewLayer_001

View Layer

Use for Rendering
 Render Single Layer

Passes
Data

3.1.2

Creating Collections

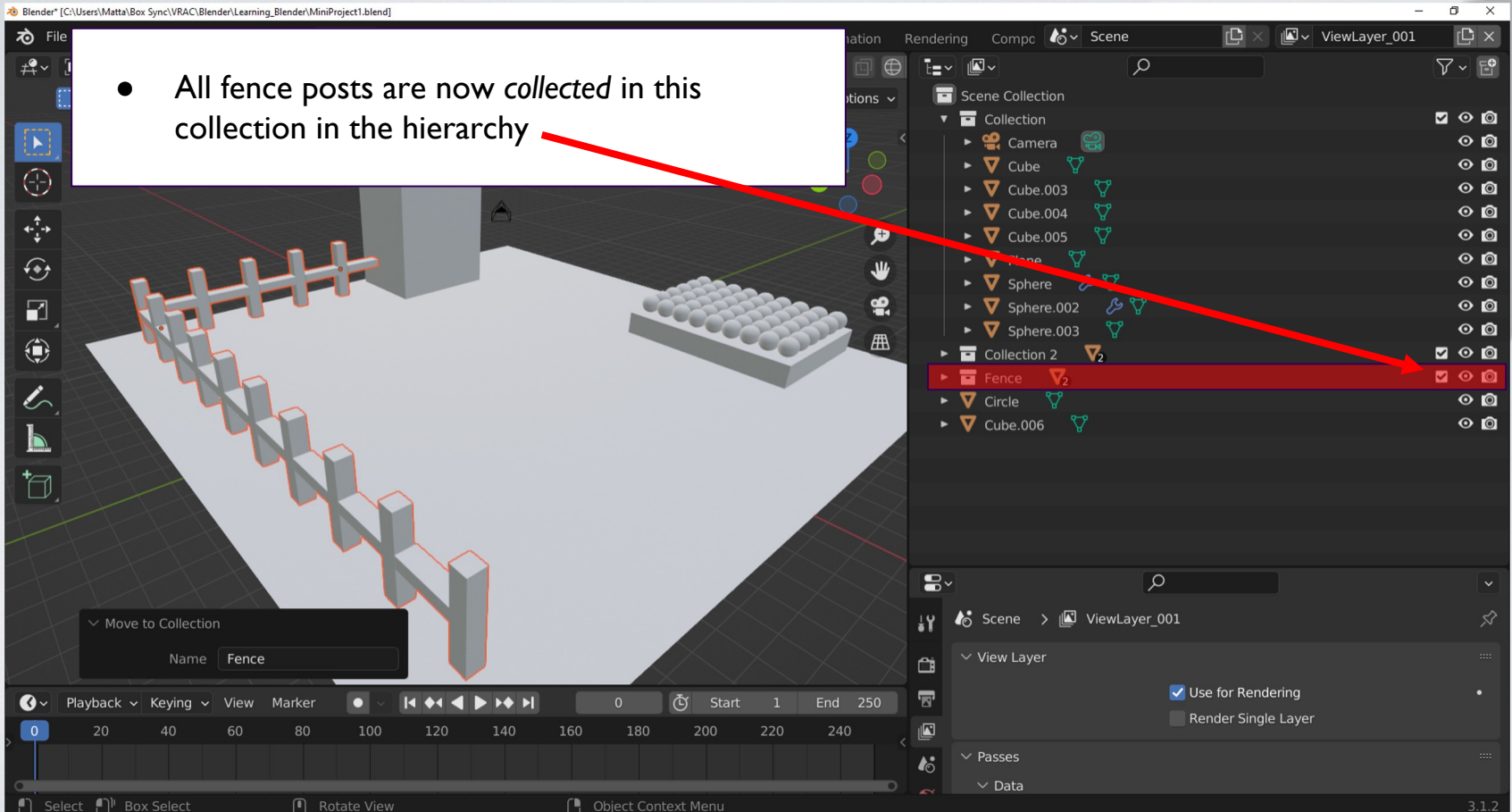
The image shows the Blender 3.1.2 interface in Object Mode. A 3D scene contains a grey cube, a fence made of grey posts and rails, and a sphere. A 'Move to Collection' dialog box is open, showing 'Name: Fence' and an 'OK' button. A white text box on the right contains the following instructions:

- Select fence objects
- Press M
- “New Collection”
- Label the collection

The interface includes a top menu bar (File, Edit, Render, Window, Help, Layout, Modeling, Sculpting, UV Editing, Texture Paint, Shading, Animation, Rendering, Compo, Scene), a toolbar on the left, a 3D viewport, a timeline at the bottom, and a Properties panel on the right. The Properties panel shows the 'Scene' and 'View Layer' sections, with 'Use for Rendering' checked.

Creating Collections

- All fence posts are now *collected* in this collection in the hierarchy



Mini Creation

Keep working on your creation from Session I. Add more details, or try new techniques from what we talked about today. Try new modifiers, and play around to see what you can create. Use collections to organize your scene

Stage I: 3 Objects

- Create a building
 - House
 - Shed
- Landscape/ground
- Yard feature
 - Wagon
 - Tree/bush

Stage II: 2 Objects

- Landscaping feature
 - Rocks
 - Walking path
- Details to building:
 - Door
 - Roof

Stage III: 2 Objects

- More details
 - Cow
 - Water well
- Details to building:
 - Windows
 - Chimney

Mini Creation Inspiration



Mini Creation Bonus

- Try animating something in your scene (eg: smoke from chimney, swaying tree)
- Use animation toolset to make the camera fly through your scene
- Try adding colors to the objects in your scene