CS148 Final Project Discussions

11/13/2026

# Geometry & Modeling CA Section

cs148.stanford.edu

# Shortcuts

**Switch between Edit/Object Mode:** Tab

**Focus View on Selected Object:** Numpad . or view -> frame selected

**Duplicate:** Shift D

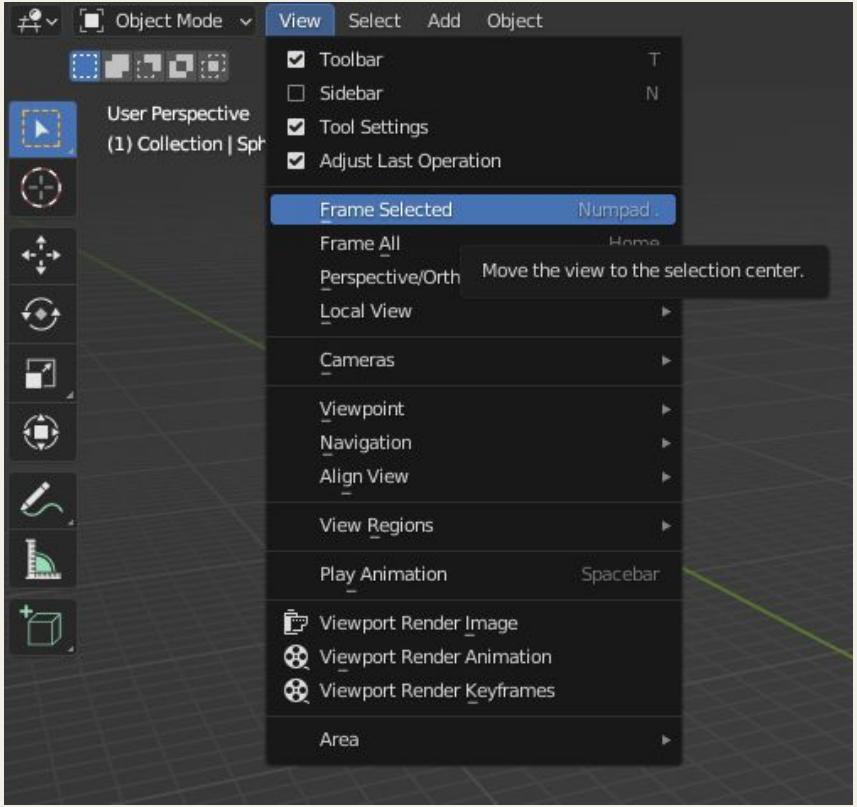
**Repeat last action:** Shift R

**Select All:** A

**Delete (with options):** X

**Select Edge Loop:** Alt+Mouse click

**Join Selected Objects:** Ctrl J

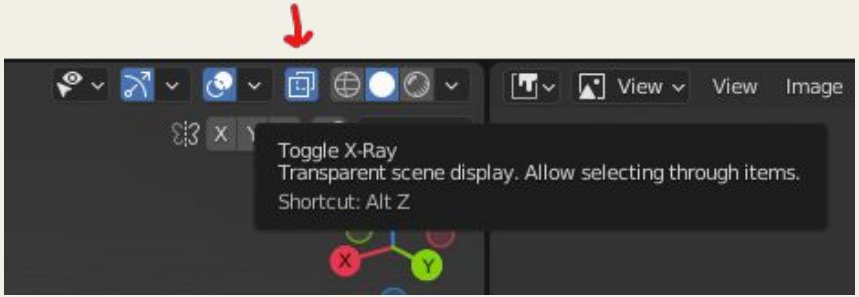


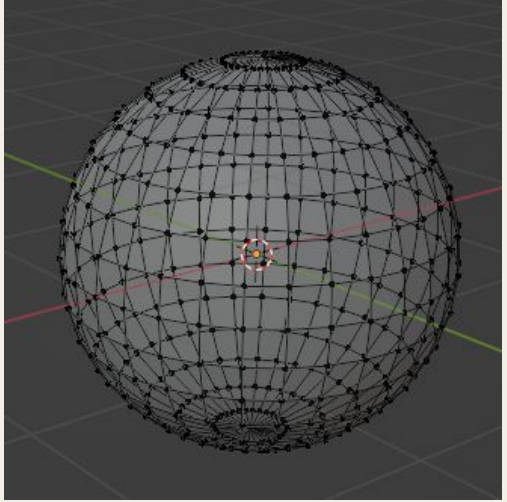



# Editing Tools

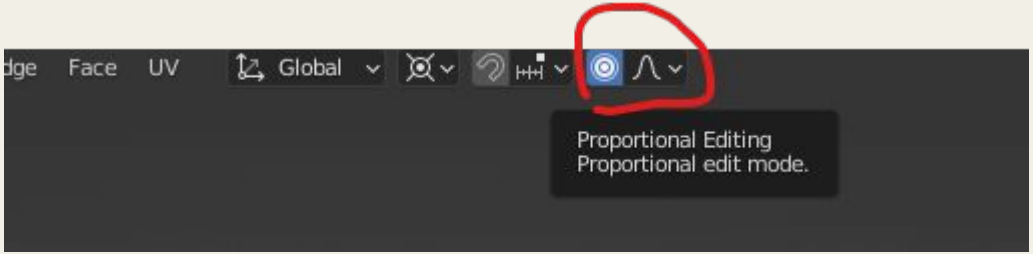
- Extrude (E): Duplicates and moves selected vertices, edges, or faces.
- Bevel (Ctrl B): Rounds off sharp edges or vertices.
- Bridge Edge Loops: Creates bridge of faces between 1 or more selected edge loops
- Loop Cut (Ctrl R) and Slide: Adds new edge loops to a mesh, which can then be repositioned.
- Inset (I): Creates a new face within a selected face.
- Spin: Extrudes a face while rotating it around a pivot point.
- New Edge/Face (F): Makes a new edge/face from selected vertices
- Grid Fill: Creates a grid of faces to fill a selected edge loop.
- Knife Tool (K): Allows you to make custom cuts on a mesh surface.
- Merge (M): Combines selected vertices or edges.

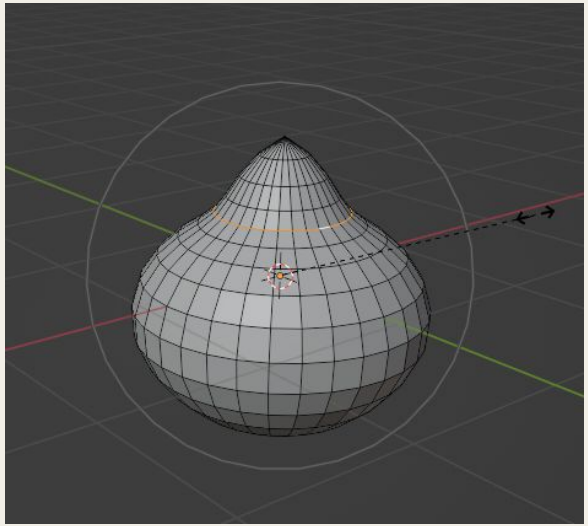
- X-ray toggle



- Proportional Editing Toggle



# Modifiers

**Subdivision Surface:** Increases mesh resolution for a smoother surface

**Mirror:** Creates a symmetrical object by mirroring it across an axis

**Solidify:** Adds thickness to a flat mesh

**Bevel:** Rounds edges and vertices

**Boolean:** Performs union, difference, or intersection operations between objects to cut or combine them

**Array:** Creates duplicates of an object in a pattern

**Curve:** Deforms an object along a curve, useful for things like cables or ribbons

**Simple Deform:** Allows for twisting, bending, tapering, or stretching an object

**Screw:** Creates a shape by rotating a profile around an axis, ideal for pottery or spirals

**Geometry Nodes:** A highly versatile modifier that allows you to create complex, custom procedural setups by manipulating an object's data stream.

**Shrink Wrap:** Conforms one object's surface to another, useful for adding details to a base mesh.

**Decimate:** Reduces the polygon count of a mesh, which can improve performance or be used for baking details.

# Physics



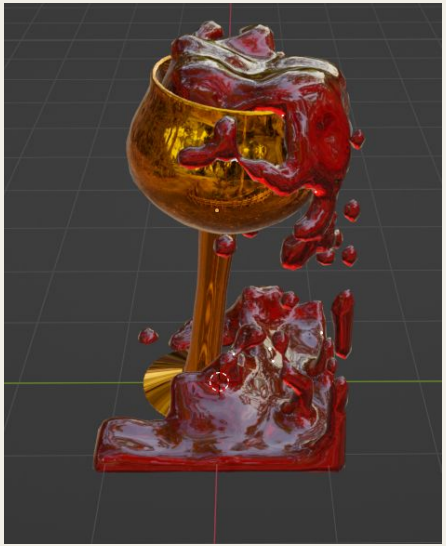

**Rigid Body:** Used for solid, non-deforming objects that interact

**Cloth:** Good for creating realistic-looking fabric, flags, pillows, etc

**Soft Body:** Simulates objects that can deform/compress but retain a general shape, like jello.

**Fluid:** Good for simulating liquids, smoke, and fire

**Force Field:** Can be used to influence other physics simulations, ex wind



# Outside Assets/Resources

Poly Haven: Free HDRIs, Materials, and 3D models

Mixamo: Rigged & Animated humanoid characters

Sketchfab: Community for 3D Creators to showcase works & Asset Marketplace

- Dioramas

CGtrader: Marketplace for 3D Assets

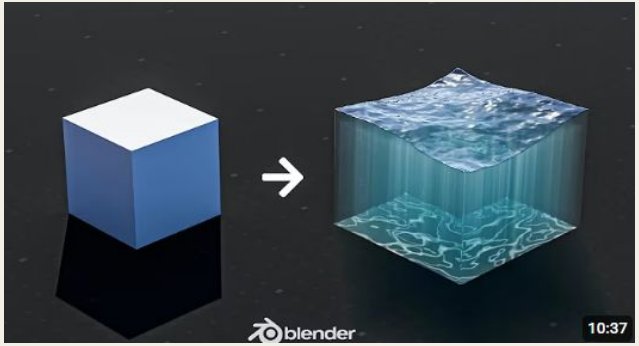
TurboSquid: Marketplace for 3D Assets

# Tutorials

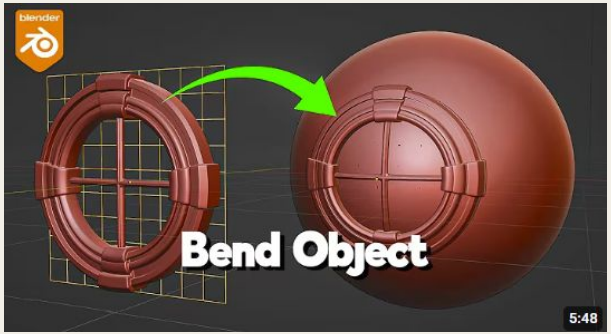
[Blender cell fracture Tutorial]



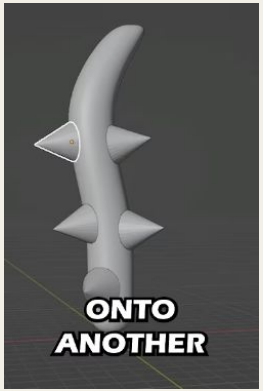

[Hyper Realistic Water]



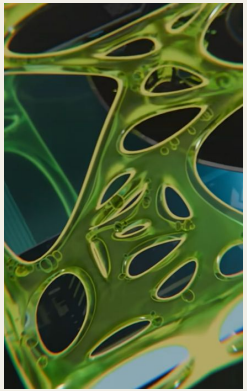

[Deform objects with LATTICE MODIFIER in Blender]




[Snap an Object to a mesh]




[Create easy Neurochrome asthetics]



[Convert 2D Design to 3D]




[Create Pipes in Blender in 1 Minute!]



# Randomizing Objects Tutorials

Randomize Multiple Objects In Scene: Randomize Objects

Scatter Objects on a Surface with Particle System: How I Scatter Assets in Blender with ZERO Addons

Scatter Objects Built-in Addon: Scatter Objects in Blender in 40 Seconds!

