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
What is this window?
Review

Viewport:
This is where you can see your scene that you are editing/creating.
What is this panel?
**Hierarchy Tree:**
Somewhat similar to Solidworks feature tree, this is where you can see all of the parts, lights, cameras etc in your scene.
What is this panel?
What is this panel?
Modifiers:
These tools will help you move, scale, rotate objects in the scene
What is this panel?
**Editing Mode:**
This drop down will allow you to select how you want to edit your objects.
● 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
- Enter “Edit Mode”
Notice that a new menu has popped up on the left.

**Tip:** Clicking and dragging is the best way to select vertices.
- Select the point(s) to edit
- Press E for extrude
- Move mouse to extrude points
- Now try to add a bevel
Break Time!
Modifiers!
Modifiers: Menu Introduction

Click the blue wrench
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

- Create Second Cube
- Make sure cubes intersect
Modifiers: Boolean Difference

- Select first cube
- Click “Add Modifier”
- Click “Boolean”
Modifiers: Boolean Difference

To make a cutout, use the “Difference” setting.

Select the eyedropper, and click the second cube.
Modifiers: Boolean Difference

- Select the second cube and press the hotkey for hide: “H”
- Tip: alt+H shows hidden objects in scene
Boolean Modifiers: Intersect Example

1. Add a mesh cube

2. Add a mesh sphere

3. Apply the bool modifier to cube
Break Time!
What if we wanted a lot of these spheres in a grid like this?
We can use the array modifier in two ways.
The first array makes copies along the x axis
Modifiers: Array

The second array copies along the Y axis
Creating Collections

- 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.
Creating Collections

- Select fence objects
- Press M (or) right-click & select 'Move to Collection'
- “New Collection”
- Label the collection
All fence posts are now collected in this collection in the hierarchy.
Mini Creation

Keep working on your creation from Session 1. 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 1: Design
- Make a quick sketch using the materials provided to design and environment with the objects below.
- Confirm design with instructor before modeling.

Stage I: 3 Objects
- Create a building
  - House
  - Shed
- Landscape/ground
- Yard feature
  - Wagon
  - Tree/bush

Stage III: 2 Objects
- Landscaping feature
  - Rocks
  - Walking path
- Details to building:
  - Door
  - Roof

Stage IV: 2 Objects
- More details
  - Cow
  - Water well
- Details to building:
  - Windows
  - Chimney
Mini Creation Inspiration
Mini Creation Bonus

- Try animating something in your scene (e.g., 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