REU Modeling Course - Part 3

Blender

More Modeling
Workshop Workflow

- Review
- Creating & Applying Materials
- Rendering
- Mini Creation
Review

- What are modifiers?
- How do you add modifiers?
How would you create this:
Basic Lighting Types:

The light on objects in a scene is made up of a combination of these light types.
No materials applied
Shaders/Materials

Materials applied
Adding Basic Materials

We want to make the dirt look like dirt

This button opens the materials tab
Adding Basic Materials

We want to make the dirt look like dirt

This panel shows the material properties
Adding Basic Materials

We want to make the dirt look like dirt

Click “New”
Adding Basic Materials

We want to make the dirt look like dirt

Change Base Color
This is a good start!
More Material Properties

- **Metallic:**
  - As the name implies, makes objects look like metal

- **Roughness:**
  - Less rough = glassy looking
  - More rough = matte

- **Emission:**
  - High value = glowing

- **Normal:**
  - (More on this later)
Multiple Materials

An object can have multiple materials
Multiple Materials

- Enter “Edit Mode” (Tab)
- Select vertices of desired face
Multiple Materials

- Click “+”
- Click “New”
- Select desired base color
- Click “Assign”
Break Time!
What if we wanted to make our dirt look more realistic?
Shader Nodes

With Shader Nodes we can make the dirt more realistic
Shader Nodes

- Click clock icon to open view menu
- Find the “Shader Editor” tab
- Open it
Shader Nodes

- These two panels are the same:
How Do Nodes Work?

- The nodes are “read” from left to right.
How Do Nodes Work?

- Each node represents a modifying operation or function.
- These circles represent inputs on the left and outputs on the right.
Adding Nodes

- Shift + A to open Add Node Menu
Copy these nodes to make the dirt look more realistic.
Without Nodes
With Nodes
Mini Creation

- Add materials to all of the objects from session 2
  - Start with simple materials (colors)
  - Then try one with the Node Editor
Mini Creation
Break Time

BREAK TIME
Lights and Rendering
Adding a Light

To add a light to a scene:

- Shift + A > Light
- There are 4 types

- Lights appear in Hierarchy
**Types of lights**

**Point**
- Emits light from all directions
- Used for lamps or items that light up

**Sun**
- Emits light with parallel rays, so position does not matter
- Used for outdoor/large spaces

**Spot**
- Emits light in a cone shape
- Used for “moody” lighting

**Area**
- Emits light in one direction from a square
- Used for indoor spaces
Every Blender scene has an environment.
This Environment has lighting.
This is why even with NO LIGHTS objects can still be seen.
The Environment can be edited in the “Shader Editor” panel.
Select “World” in this drop down menu.
Cameras are where/what you view your scene: Cameras allow you to frame up your objects

- Adding cameras: Shift + A > Camera

- Hotkey: Numpad 0 = set view to active camera
Camera Properties

- Camera Constraints:
- Camera Properties:
Camera properties

- **Focal Length**
  - Corresponds to the “Zoom” of the camera
  - Bigger numbers = tighter shot
  - Smaller number = wider shot
- **Clip Start/End**
  - How far can the camera see
What if we wanted to use the camera to follow a moving object?

- We could do this manually with key frames, or we can use a constraint.

Enter the constraint menu (looks like a pulley wheel)

- “Add Object Constraint” > “Track To”
- Use Eyedropper to select object of interest
To access render settings select the back of the camera icon:
Shadows

- In this drop down menu there are options for Eevee, Workbench and Cycles.
- We only care about Eevee and Cycles
- These options define how our scene handles light/shadows
Eevee: Depth Map

- Eevee is a faster method.
- By creating a Depth Map, Eevee does some simple math to figure out what the shadows should look like.
Cycles: Ray Tracing

- Cycles is slower, but more accurate.
- Cycles looks at the different paths and bounces that a particle would take in the scene.
Cycles: Ray Tracing

Cycles has less aliasing at the top of the cone
Cycles: Ray Tracing

The shadow drop off is more accurate
Today’s Mini Creation

Apply 1 or more lights in your scene from Mini Creation 2 and render
Final Blender Task: Export for Unity

File > Export > FBX