



Unit 3 - Intro to Lighting, Texturing & Rendering

Lesson #1 - Materials, Rendering

CG Cookie Videos used in this lesson

Videos for this unit are available within the [Fundamentals of Shading](#) download, [Fundamentals of Rendering](#) and or are Included within the [Educator Blender Bundle](#).

- Fundamentals of Shading - Chapter 4 - Diffuse and Specular
- Fundamentals of Rendering - Chapter 1 - Dimensions & Stamp
- Fundamentals of Rendering - Chapter 1 - Rendering Interface

Key Training

- Add a simple material to an object and change its color in the diffuse.
- Work with the cameras to set up a scene.
- How to render images and the types of rendering outputs.

Instructor Focus and Tips

- Start this unit by reviewing the models that the students have made in the class so far. Have a discussion on what makes their models look like they were done by amateurs or professionals. Lead the conversation to the two things that make their models look bad. The first one is having no environment, I like to call it floating head syndrome. The other is poor lighting which we will get into with lesson 3. Explain that this unit is what will make their models look professional by adding material and lighting.
- Show the student how to add a simple material to the monkey and give it color. Have them then watch the Fundamentals of Shading - Chapter 4 - Diffuse and Specular video. Hold a discussion on how materials are the containers that hold all of the settings and textures to make up a shader. We will get deeper into this during lesson 2, we just want to have something with color to render.
- Show the students how to set up a scene using the default camera. When setting up cameras I get the students comfortable using Ctrl-Alt-Q to toggle quad view on and off using. When in quad view have the students change the upper right window to camera view with Numpad 0. Have them move the camera around in the different views to get the scene setup.

- Show students how to render their scene, from the video Fundamentals of Rendering - Chapter 1 - Rendering Interface go over the difference between the Blender Render and Cycles Rendering . Show them how the F-12 Key will render their scene and after the scene is render the F-3 Key will save the render to a file.
- After the students watch the Fundamentals of Rendering - Chapter 1 - Dimensions & Stamp set a class standard size for rendering images. You can also have the students stamp their renders with their name so you know which students work is which.
- The rendering might look bad at first because of default lighting. Let the students know this is ok and over the next lessons their rendering will improve with the addition of materials, textures and lighting.

Student Activities and Assignments

- Have the students watch the Fundamentals of Rendering - Chapter 1 - Dimensions & Stamp and Fundamentals of Rendering - Chapter 1 - Rendering Interface then practice rendering past projects using both the blender render and the cycles render.
- Have the students start a new project and insert suzanne.
 - Have the students add a material and change its color.
 - Set up a scene with the camera and a simple plane for environment.
 - Create a rendering using the blender render and another rendering using cycles rendering.

Blender Terminology, Commands and Hotkeys Introduced

- Toggle Quad view - Ctrl Alt Q
- F12 Key - Renders scene
- F3 Key - Save Render Scene

BellRinger Prompts and Ideas

- What makes a 3D scene look like it was done by an amateur?

Exit Ticket Prompts and Ideas

- What is the difference between Blender Render and Cycles Render. Which do you prefer to use.

Learning Targets

- Students can create a simple material
- Students can set up a camera and scene in blender.
- Students can output and save rendered images.

Rubric

	Beginning	Developing	Accomplished	Exemplary
Diffuse and Specular	Student has received a demonstration on creating materials using the diffuse and specular shaders.	Student can create a simple material using the diffuse and specular shaders with assistance.	Student can create a simple material using the diffuse and specular shaders.	Student can create simple and complex materials using the diffuse and specular shaders.
Rendering	Student has received a demonstration on rendering.	Student can render an image with assistance.	Student can render an image.	Student can render to multiple image slots and compare changes between renderings.
Dimension	Student has received a demonstration on different render output dimensions.	Student can render an image to different output dimensions with assistance	Student can render an image to different output dimensions.	Student can render an image to different output dimension and presets.

Standards

Standard 4: Surface Materials

- **Objective 1: Surface Material Terminology**

- o Indicator 1: Know surface material terminology
- o Indicator 2: Identify parts of the 3d application interface used with surface materials

Standard 6: Rendering

- **Objective 1: Rendering terminology**

- o Indicator 1: Know Rendering terminology
- o Indicator 2: Identify parts of the 3D application interface used in rendering

- **Objective 2: Apply the mechanics of rendering**

- o Indicator 1: Output different file types