



Unit 3 - Intro to Lighting, Texturing & Rendering

Lesson #2 - Materials and Textures

CG Cookie Videos used in this lesson

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

- Fundamentals of Shading - Diffuse and Specular
- Fundamentals of Shading - Shading and Transparency
- Fundamentals of Shading - Mirror and SSS
- Fundamentals of Shading - Textures Panel Overview
- Fundamentals of Shading - Procedural Textures

Key Training

- Working with Multiple materials to an object
- Create a shader using Materials and Textures.
- Create Procedural Textures

Instructor Focus and Tips

- Start a lecture on how materials are containers that hold all the settings that make up how an object is rendered. *Review that an object may have multiple materials.*
- **Go over how materials are the containers that hold textures.** Review the differences between materials and textures. Watch the video on materials and practice with materials. Then watch the videos on textures and make it a point to show that textures are part of a material and cannot be added to an object without a material.
- Students will sometimes get materials and textures mixed up. They will also try and create a texture without creating a material first. Be prepared to help students with this issue while working in this unit.
- Have some open source or creative commons textures folder available for all students to access. Show students how to access those images. This is also the time to go over digital rights and what is ok to use in their projects. Try to limit student use of downloading of images because of copyright. Watch the CGCookie live stream [Sourcing Third Party Material in Your Work](#) for some tips on this subjects.

- Working with materials and textures can get complicated very quickly. Limit your time to working with just a few settings for this unit. Your goal for this lesson is to focus on the difference between materials and textures.

Student Activities and Assignments`

- Have the student start a new project with the monkey head. Have the students create a set of material for the head, eyes, ears, nose and mouth. Have the students use those material to color the head, ears, nose and mouth of the monkey on the vertex level of an object.
- Have the students start a new scene and add 3 monkeys. Name the objects Monkey1, Monkey2 and Monkey3.
 - Have the students create a new material for each monkey. Have them make one of the monkeys look like it is made of shiny rubber, make one as though it is made of glass, and the last one like it is made of gold. Make sure the students properly name their materials. Have them render their files.
- Start a new project and add a plane to the scene. Have the students make the plane look like the ocean using a combination of materials and procedural textures.

Blender Terminology, Commands and Hotkeys Introduced

- Diffuse material settings
- Specular material settings
- Materials data settings
- Textures data settings

BellRinger Prompts and Ideas

- What is the difference between a material and a texture?

Exit Ticket Prompts and Ideas

- What is a Procedural texture?

Learning Targets

- Student can create and add multiple materials to an object.
- Student can add materials and textures to an object.
- Student can create and add a procedural texture to an object.

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.
Shading and Transparency	Student has received a demonstration on creating materials using the shading and transparency shaders.	Student can create a simple material using shading or transparency shaders with assistance.	Student can create a simple material using shading or transparency shaders.	Student can create a simple and complex material using shading and transparency shaders.
Mirror and sub-surface scattering	Student has received a demonstration on creating materials using the mirror and sub-surface scattering shaders.	Student can create a simple material using mirror or subsurface scattering with assistance.	Student can create a simple material using mirror or subsurface scattering shaders.	Student can create a simple and complex material using mirror and subsurface scattering shaders.
Applying materials to objects	Student has received a demonstration on applying materials to objects.	Student can create and apply materials to objects with assistance.	Student can create and apply materials to objects.	Student can create and apply multiple materials to objects mesh data.
Textures	Student has received a demonstration on adding textures to materials.	Student can add textures to materials with assistance.	Student can add textures to materials.	Student can add multiple textures to a material.

Procedural Textures	Student has received a demonstration on creating textures using procedural.	Student can create textures using procedurals to influence materials with assistance.	Student can create textures using procedurals to influence materials.	Student can create multiple textures using procedurals to influence materials.
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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
- **Objective 3: Create, apply and edit textures**
 - o Indicator 4: Create procedural textures
 - o Indicator 5: Apply textures to 3D models
- **Objective 4: Create, apply and edit materials**
 - o Indicator 1: Add and edit material color
 - o Indicator 2: Add and edit material texture
 - o Indicator 3: Add and edit material gloss
 - o Indicator 4: Add and edit material luminosity
 - o Indicator 5: Add and edit material reflectivity
 - o Indicator 6: Add and edit material transparency