

Note

How to Use This Syllabus

CLASSROOM

Topics

Lists all of the topics you need to cover.
You can also use them to devise quizzes.

1. This part suggests how you might approach a topic. I note the most important points, and mention ways to enlarge upon a topic. Sometimes I suggest specific demonstrations. You'll want to add your own twist to the instruction, and details that seem important in your experience. Use this section to get ideas, to guide you through, and send me a note saying what worked for you. I'll use your advice to make future updates to this file and to update the next edition of **3D Studio MAX 3: Visual QuickStart Guide**.

2. Each class covers about a week's worth of material. It takes about 2 hours to deliver the material in each class. If you are teaching for one hour twice a week, divide the class into two lectures. If you are teaching for three hours a week, use the third hour for supervised lab time while the students work through the exercises. With four or more hours, you should be able to do longer demonstrations with more variations, and have time for students to start working on the projects.

The more time that students put into reading and fiddling around on their own, the better off they will be. The most important skill to develop is self-instruction, because there are so many commands, and they are always changing.

HOMEWORK

Exercises:

Except for the first class, this section always starts out by working through the exercises in the current chapter. 1 - 3 hours

It then continues with projects that use tools covered to date. Projects in the later chapters build on earlier projects, so encourage students to complete every one, and to improve them each time they return. Spend as much time as possible, 3 - 6 hours

Extra Credit:

Suggests ways to exceed the level of the project by reading ahead in the book or by studying topics in the Online Help files.
2 - 4 hours

Online Help:

Tells you where you can find further information in the Online Help files.

For next week:

Tells you what chapter to assign for the students to read by next week. Instruct the students to read the chapter introduction and the text that follows each heading. Students will complete the exercises the following week, after you have taught and demonstrated the topics in class. 1 hour

Introduction
What is 3D?

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Topics

[File Formats](#)

[3D Basics:](#)

· [Modeling](#)

· [Animation](#)

· [Rendering](#)

[Object-orientation](#)

1. Show a movie, demo reel, CD-ROMs, or still images that were created with 3D Studio MAX. Follow this with a discussion of what students want to make with MAX.

2. Explain the difference between 2D graphics files and 3D graphics files in terms of the type of information stored and how they may be viewed.

3. Describe and demonstrate the 3 basic elements of 3D graphics:

· **Modeling** -- Create mesh objects from primitives and change their parameters. Create open and closed splines. Extrude, lathe and/or loft them to model mesh objects.

· **Animation** -- Explain how “persistence of vision” between related frames creates the illusion of animation. Animate the parameters of a mesh object. Then perform a transform animation.

· **Rendering** -- Render a still image and a short animation. Apply a material to the surface of an object. Then render it again. You might also want to position lights and cameras as part of this demonstration.

4. Explain that **object-oriented** programs include commands with the definition of an object, so that object selection determines the availability of commands. Show how commands become grayed out as you change your selection from one object type to another. You might also explain **object data flow** to show how the program applies commands and passes along parameters from one state of the object to another.

HOMEWORK

Exercises:

Ask students to find examples of 3D artwork that inspires them. This can either be printed material or images on the world wide web. Ask them to bring in their favorite images and URLs to share with the class. Here are some good links with which to get started:

www.3dartist.com

www.3dsite.com

www.3dluvr.com

3d-ring.3dark.com

www.3d-design.com

www.boboland.com

3dsmax.gfxcentral.com

www.gfxcentral.com/bobo

www.cgw.com/index2.html

www.max3d.com

www.raph.com/3dartists

www.lightweaver.com

Online Help:

Look up the following heading in the Online Help files Content section:

- *Using 3D Studio MAX*

- *Overview of 3D Studio MAX*

Read the first eight topics, including *Rendering Your Scene*.

For next week:

Read Chapter 1, *Getting Started*.

Chapter 1

Getting Started

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Topics

[Organization of the User Interface](#)
[Major Modules](#)
[Special Features](#)
[File Management](#)
[Using the Online Documentation](#)

1. **Handout** a print out of a screen capture of the MAX 3 interface. Ask students to label the five main regions of the interface as you point them out and explain their features:

- The File Menus
- The Tab Panel and the Main Toolbar
- The Command Panels
- The Viewports
- The Status Bar, Locks and Controls

2. Show how to access the major modules:

- The Material Editor
- The Track View
- The Schematic View
- Video Post
- The Render dialog box

3. Show some of the special features of the interface:

- Right-click menus
- Flyouts
- Rollouts
- Scrolling panels
- Spinners

4. Show how to manage files, contrasting the use of the following commands:

- Open and New
- Exit and Reset
- Save and Save As
- Merge and Replace
- Import and Export

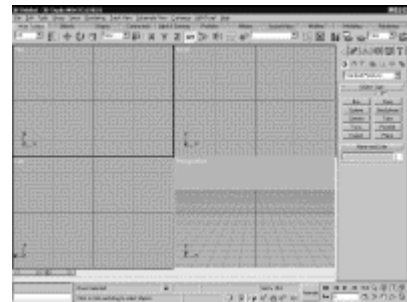
5. Show how the Online Help files work. Topics not in the Contents or Index may turn up by doing a Search.

HOMEWORK

Exercises:

Complete the handout by labeling the icons in the Main Toolbar, the Create panel, and the Status Bar, Locks and Controls area. Then label the following features of the viewports: the grid, the label, the background, the world axis and the boundary. Use the book, the tooltips, and the Online Help files for reference.

You may download the file **VQS1.max** to print and handout:



Online Help:

- *Using 3D Studio MAX*
- *Overview of 3D Studio MAX*

Read the last eight topics, starting with *The 3D Studio MAX Window*.

For next week:

Read Chapter 2, *Navigation and Display*.

Chapter 2

Navigation and Display

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Topics

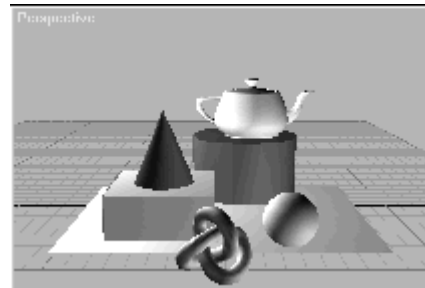
- Coordinate Systems
- The Home Grid
- Orthogonal vs. Perspective Views
- Changing Views and Viewport Layout
- Display Modes
- Viewport Window Controls
- Custom Grids and Snaps

1. Discuss the Cartesian system of measurement and how it relates to 3D coordinate systems. Draw the axes and origin on a board or create them in MAX. Compare and contrast the world coordinate system and local coordinate systems.
2. Create wireframe planes in the the Front, Top and Left viewports to represent the home grid. Show how the orthogonal views align to the home grid and the world coordinate system. Compare this to viewing the center of the classroom from the front, back, left, right, top, and bottom.
4. Compare how axonometric and perspective views display objects and grids using parallel and converging perspective. Create a wireframe box and ask students to watch for distortions of angle and scale. Change views from orthogonal to User to Perspective to Camera. Increase and decrease the camera focal length. Then check Orthogonal Projection.
5. Demonstrate how to change the viewport layout and swap layouts using the Viewport Configuration dialog box.
6. Change the viewport and object display modes using the right-click viewport label and the Display command panel. You might also wish to show the object right-click Properties Display menu. Then show how to hide and freeze objects.
7. Show how to select an object. Demonstrate the viewport window controls for axonometric and perspective views.
8. Explain how grids work as construction planes. Create an object on each plane of the home grid. Create, orient, and activate a custom grid, and create some objects on that grid.

HOMEWORK

Exercises:

Work through the exercises in Chapter 2, *Navigation and Display*. **Download** the scene file **VQS2.max** to use for practice.



Online Help:

- *Using 3D Studio MAX*
- *Viewing and Navigating 3D Space*
- *Precision Aids*

Read all topics listed under each heading. Then read all the topics that pertain to hiding and freezing objects in:

- *Using 3D Studio MAX*
- *Selecting Objects*

For next week:

Read Chapter 3, *Creating Objects*.

Chapter 3

Creating Objects

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Topics

Primitives
Parameters
Mesh Components: vertex, edge, face
Spline Components: vertex, segment, spline
Explicitly-defined Objects
Object Components
Object Creation

1. Review the concepts of 3D space and answer any questions about navigation and display.
2. Explain the concepts of primitives and parameters. Draw diagrams of the components of mesh and spline objects.
3. Show how to create each type of the mesh objects from the simplest to the most complex. Explain the axis tripod. Note common parameters, esp. among radial and angular forms.
4. Examine the vertex and face count of a curved mesh object in the Object Properties dialog box. Close the dialog box and increase the number of segments in the object so that it appears smoother. Then re-open the Object Properties dialog box and see how the added complexity affects the count. Repeat this after creating a low-polygon version of the object by decreasing the number of segments. To see the structure, change the display or uncheck Smooth.
5. In the same way, create each type of spline object and define the nature of their basic components. Note the difference between open and closed splines, and briefly explain their use in modeling and animation.
6. Demonstrate how to change the name and color of an object from five of the six command panels and from the object Properties dialog box.
7. Show how to make the splines renderable. Render a scene and save the image from the Virtual Frame Buffer. Show how to view an image file, and how to print it from a 2D program.

HOMEWORK

Exercises:

Work through the exercises in Chapter 3, *Creating Objects*. Then create a still life of mesh primitives and splines, assigning each object a color that you like. Render the most interesting views you can find and bring the image files to class.

Extra Credit: Add lights and shadows to your scene as in the scene file below. See Chapter 11, *Lights* or merge lights into your still life from **VQS3.max** using File>Merge.



Online Help:

- Using 3D Studio MAX
- Basics of Creating and Modifying Objects

Read the first four topics on creating objects.

For next week:

Read Chapter 5, *Selecting Objects*.

Chapter 5

Transforming Objects

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Topics

Transforms
Reference Coordinate Systems
Transform Constraints and Gizmos
Precision and Alignment
Cloning, Mirroring and Arrays
Distributing Objects Along a Path

1. Answer questions on anything so far. Give Quiz #1.
2. Demonstrate the three object transforms. Show how to constrain axes using the restrict axis icons in the Main Toolbar and by using the transform gizmo.
3. Show how to transform multiple selections and groups. Demonstrate rotation around a selection center vs. individual axes. Lock a selection and transform it.
4. Change the reference coordinate system to local and show how this affects object transforms. Explain the other systems, relating them to the two basic systems of world and local.
5. Show how to transform objects using Transform Type-Ins. Note the difference between the Absolute and Offset entry.
6. Discuss precision, and why it is important. Show how to snap transforms and align objects.
7. Demonstrate cloning. Give a simple explanation of copies, instances and references. Briefly explain object data flow.
8. Explain bilateral symmetry, and ask why you might want to mirror objects (e.g. modeling people).
9. Continue the discussion of cloning by making snapshot arrays and arrays of 1, 2 and 3 dimensions. Make a spiral staircase, a wheel, a row of columns, a lattice of molecules.
10. Demonstrate the Spacing Tool, emphasizing the four basic parameters. Make a necklace, distribute simple shrubbery along a path, decorate a window, take suggestions.

HOMEWORK

Exercises:

Work through the exercises in Chapter 5, *Transforming Objects*.

Create a plaza using mesh primitives, splines, transforms, the mirror command, arrays, and the spacing tool. Include buildings with exterior trim, highly simplified plants, a fountain, and walkways. Use a combination of symmetrical and asymmetrical design. Find several attractive vantage points from which to render your scene. Bring your image files and .max scene file to class.

Extra Credit: Look up the Spray particle system in the online documentation. Add a particle emitter to the fountain to make it gush water. Bring your image files and .max scene file to class.

Online Help:

- Using 3D Studio MAX
- Using Transforms
- Creating Copies and Arrays

Read all topics.

For next week:

Read Chapter 6, *Animation*.

Chapter 6

Animation

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Topics

[Keys and Keyframing](#)
[Animation Controllers](#)
[Parametric vs. Transform Animation](#)
[Animation Playback](#)
[Acceleration](#)
[Time Configuration](#)
[Cycling](#)
[Linking](#)

1. **Return and review Quiz #1.** Answer any questions about transforms. Critique the images of the plaza. Discuss overall composition, symmetry, and the placement of objects.
2. Show a few short 2D animations. Discuss how traditional cel animation is created. Compare this to keyframing with animation controllers in 3D.
3. Create a parametric animation and a transform animation. Demonstrate how to play back an animation, and how to change the playback speed and direction. Optional: Create a walk-through animation using a camera and a path controller.
3. Show how to manipulate keys in the track bar and the trajectory. Demonstrate the key right-click menu commands.
4. Turn on a position trajectory and open the Key Info dialog box. Discuss how keys and animation controllers store and interpolate key values. Show how to change an object's acceleration near a key, especially easing in and easing out. Show how to change controllers from the Motion panel. Observe how this affects the object's trajectory and speed.
6. Explain frame rates and time codes. Show what happens when you add frames to an animation vs. rescaling time.
7. Create a simple animation. Demonstrate what happens when you change the Parameter Curve Out-of-Range types.
8. Demonstrate linking. Show how to use dummy objects and how to unlink objects. View a hierarchy in the Schematic

HOMEWORK

Exercises:

Work through the exercises in Chapter 6, *Animation*.

Create an animation of a merry-go-round. Use simple objects in place of the horses. Pay special attention to the timing. Use a Parameter Curve Out-of-Range type to make the merry-go-round keep turning. Add any variations you think of to make it look interesting. Bring the .max file to class.

Extra Credit: Read about cameras and path controllers, pp. 273 - 276. Add a roller coaster and other objects to the scene. Link a camera to the last car so that it follows the roller coaster from behind and above. Send the roller coaster through a tunnel.

Online Help:

Look up the following headings in the Online Help files Content section:

- Using 3D Studio MAX
 - Animation Concepts and Methods
 - Working with Controllers

Read all of the animation topics, and as much of the controller topics as you are ready to absorb.

For next week:

Read Chapter 7, *Modifying Objects*.

Chapter 7

Modifying Objects

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Topics

Modifier Stack
Modifier Components: gizmo, lattice, center
Object Complexity
Modifier Stack Commands
Editable Objects
Modifier Types
 Geometric (Axial Deformation)
 Surface Displacement
 Free-From Deformation
 X-Form
 Surface Complexity
 Surface Rendering
 Spline Modifiers

1. Answer any questions about animation. Play back the merry-go-round projects note all creative innovations.
2. Explain the concept of the modifier stack. Emphasize the power and flexibility of the ordered list. Compare the capabilities of the modifier stack to the updating transform matrix.
3. Review the components of mesh and spline objects. Explain complexity, and how to increase it parametrically.
4. Demonstrate the geometric modifiers. Show how to manipulate the modifier stack, edit, and collapse it. Explain the concept of an explicitly defined (editable) object.
5. Displace the surface of a plane using Noise, Ripple and Wave. Show also: Displace, PathDeform and Spherify.
6. Show how to place a transform in the stack. Review object data flow (p. 127) and draw a diagram of the steps.
7. Modify the surface complexity of an editable object. Unsmooth and resmooth faces. Display and flip face normals.
8. Create 3D mesh objects from splines using the Lathe and Extrude modifiers. Compare extruding text to beveling text.

HOMEWORK

Exercises:

Work through the exercises in Chapter 7, *Modifying Objects*.

Create an art gallery filled with sculpture. For the room, make a large box and flip the normals. Place a carpet on the floor. Create vases and place them on pedestals. Use the Taper (curved) as well as Lathe modifier. Create some free-form sculptures that hang on the walls or sit on the floor. Decide whether forms should be suspended or supported. Consider whether a surface should be concave or convex. Group objects together for more elaborate pieces.

Extra Credit: Create some kinetic sculptures by animating a few of the pieces in your art gallery, or by creating new ones. Animate creation parameters, modifier parameters and transforms. Experiment with the simple position controllers, such as the Linear, Path, Noise, and Surface controllers.

Online Help:

- Using 3D Studio MAX
- Basics of Creating and Modifying Objects

Read the first nine topics up through and including Editing the Stack.

For next week:

Read Chapter 8, *Editing Objects*.

Chapter 8

Editing Objects

CLASSROOM

Topics

Editing tools:

- Select Modifiers
- Edit Modifiers
- Editable Object Commands

Sub-Object Selection

Modifying Sub-Objects

Transforming Sub-Objects

Mesh Editing Levels:

- Object
- Vertex
- Edge
- Face

Spline Editing Levels:

- Object
- Vertex
- Segment
- Spline

1. Answer questions about modifiers. Critique the sculpture galleries and kinetic sculptures. Look for well-designed forms, good placement, and good presentation vantage points.
2. Explain sub-object editing, and when it is used. More importantly, explain when it is not needed.
3. Describe the differences between the main editing tools. Explain why you would use one tool instead of another.
4. Demonstrate sub-object selection at each sub-object level. Show how to volume select and soft select sub-objects. Explain what it means to pass a selection up the modifier stack. Apply modifiers and transforms to the selections.
5. Demonstrate mesh editing. Use the Insert key to change levels and see which commands are available at each.
6. Demonstrate spline editing. Use the Insert key to change levels and see which commands are available at each.

HOMEWORK

Exercises:

Work through the exercises in Chapter 8, *Editing Objects*.

Create a low-poly sea monster using less than 200 polygons. Give it fins, a crest, a simple head, a dangerous tail. Start with a box and build the rough form by extruding and transforming polygons. Collapse or weld vertices that you don't need. Save the low poly version. Then Save As and name a new version. Apply a MeshSmooth modifier. Add high-poly details such as eyes (spheres), teeth (cones) and tentacles (cylinders). Bring both files to class.

Extra Credit: Animate the sea monster. Make it slither along a path using a PathDeform modifier. Make the tentacles wave. If it bites something, make the prey explode. Try space warps like Wave and Bomb using the Online Help for reference.

Online Help:

- Using 3D Studio MAX
 - Basics of Creating and Modifying Objects
 - Modifying at the Sub-Object Level
 - Using the Stack at the Sub-Object Level

For more details, look up "editable mesh" and "editable spline" in the Index.

For next week:

Read Chapter 9, *Compound Objects*.

Chapter 9

Compound Objects

CLASSROOM

Topics

Operands
Boolean Operations:
 Union
 Subtraction
 Intersection
 Cut
Fixing Booleans
Animating Booleans
Connect Objects
Scatter Objects
ShapeMerge
Terrains
Conform Objects
Loft Objects
Morphing

1. Answer any questions about sub-object editing. Critique the low polygon and high polygon sea monsters. Which one seem more convincing? What other tools would be helpful?
2. Create a Boolean object from simple mesh objects. Demonstrate each of the operations and explain what they do.
3. Describe possible pitfalls of Boolean operations. Show how to avoid them or fix them if necessary.
4. Show how to animate a Boolean operation.
5. Explain the difference between Connect and ShapeMerge. Demonstrate each.
6. Create Scatter, Conform, and Terrain objects.
7. Explain the principle of lofting and relate it to extruding. Demonstrate lofting a shape along path using Get Shape and Get Path. Show how to create lofts from multiple cross-section shapes. Show how to adjust, edit, and animate lofts.
8. Explain the concept of morphing. Create seed and target objects. Demonstrate a simple morph animation.

HOMEWORK

Exercises:

Work through the exercises in Chapter 9, *Compound Objects*.

Create a chess set: a pawn, rook, knight, bishop, queen and king. Use lofting to model the basic forms. Use Boolean operations to sculpt the details and put together parts that needed to be lofted separately. Clone enough pieces to make a white set and a black set, and assign the those colors to the sets. Arrange the pieces on a board and along side of it as if a chess game were in progress. Later on, you will learn to give the board a checker pattern with a mapped material. For now, clone and group a set of black planes and a set of white planes to create the board pattern.

Extra Credit: Look up loft deformations. One of the easiest to learn is Scale. Fit more difficult, but it is very powerful. Use these tools make a simple character by lofting its arms and legs and linking them to the body. To learn about animating the character, look up “bones” and “inverse kinematics.”

Online Help:

- Command Panels
- Create Panel
- Geometry
- Compound Objects

For next week:

Read Chapter 10, *Cameras*. Study for Quiz#2.

Chapter 10

Cameras

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Topics

- Camera Types
 - Target
 - Free
- Creating Cameras
- Aiming Cameras
- Changing Camera Types
- Activating a Camera View
- Adjusting Cameras
 - Focal Length
 - Field of View
 - Clipping Planes
 - Environment Ranges
- Camera Placement
- Aligning and Matching
- Camera Viewport Controls
- Animating Cameras

1. Answer questions about anything so far. Give Quiz #2.
2. Critique the chess sets and answer any questions on compound objects.
3. Explain the advantages of each type of camera. Create and aim one of each. Change the camera from one type to another.
4. Show how to look through a camera by activating a camera view.
5. Demonstrate the adjustments you can make to a camera.
6. Explain the concepts of camera placement. Show how you align and match a camera to a view. Show how to match a camera to a background image. Explain why this is done.
7. Demonstrate the camera viewport controls. Refer to the chart on p. 269.
8. Show how to animate a camera parametrically and with transforms. Show how to assign a camera to a path.

HOMEWORK

Exercises:

Work through the exercises in Chapter 10, *Cameras*.

Open the scene file you made of the merry-go-round. Add cameras to represent the point of view of a) a child watching b) the operator in the (still) center of the merry-go-round c) a child riding a horse d) bird circling slowly overhead. For c and d, animate the cameras by linking them to the horse and to a dummy object, respectively. Bring images and the scene files to class.

Extra Credit:

Create a walk-through animation of a simple house. The house will need four simple cut-out holes to represent a front door, a back door, and a window. You will enter from the front door and leave from the back door. Move the camera at a walking pace as if you are walking through the scene. Keep the camera at eye level. Pause to look at out the window. Add a background image (pp. 341-342) to make the view more interesting and render it.

Online Help:

- Command Panels
 - Create Panel
 - Cameras
 - Using Cameras

For next week:

Read Chapter 11, *Lights*.

Chapter 11

Lights

CLASSROOM

Topics

- Light Types
 - Omni
 - Spot
 - Directional
- Creating Lights
- Changing Light Types
- Creating a Sunlight System
- Adjusting Illumination
 - On/Off
 - Exclusion
 - Intensity
 - Color
 - Hotspot and Falloff
 - Attenuation
 - Decay
 - Projector Maps
- Volumetric Lighting
- Casting Shadows
 - On/Off
 - Shadow Types
 - Shadow Color
- Light Placement
- Light Viewport Controls
- Animating Lights

1. **Return and Review Quiz #2.** Answer questions about cameras. Critique the walk-through animations.
3. Explain and create the different types of lights. Show how to position and aim them. Demonstrate changing light types.
4. Show how to set up a Sunlight System and a Volume Light.
5. Adjust the illumination and shadow parameters. Refer to the descriptions on p. 284 and p. 292.
6. Discuss placement. Demonstrate light viewport controls.
7. Show how to animate a light with a LookAt controller.

HOMEWORK

Exercises:

Work through the exercises in Chapter 11, *Lights*.

Open the scenes that you made of the plaza, the chess game, and the art gallery. (Feel free to improve on them before you begin.) In the plaza, light the scene as if it were a bright sunny day. Add a projector map to create the illusion of a leafy canopy. In the chess game, use shadows to create a sense of drama or mystery. Place the key light at a low angle to imitate a candle. Keep the fill light to the barest minimum intensity so that the pieces are barely discernable from the shadows they cast. In the art gallery, provide accent lighting for each of the sculptures. Render images of each scene with an eye to composition.

Extra Credit: Make a smoky room using volumetric lighting (pp. 349; also the Online Help files) Experiment with the noise and size of the fog. Render out an image of the scene. Animate the phase and render a short movie (pp. 333-340), time permitting.

Online Help:

- Command Panels
- Create Panel
- Lights
- Using Lights

For next week:

Read Chapter 12, *Maps and Materials*.

Chapter 12
Maps and Materials

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Topics

- Material Editor Interface
- Material Hierarchies
- Sample Slots
- Material Libraries
- Assigning Materials
- Creating Basic Materials
- Creating Mapped Materials
- Mapping Projections
- Reflections

1. Answer questions about lights. Look over the lighting projects and critique them for effectively setting a mood.
2. Discuss the nature and purpose of materials.
3. Show the main features of the Material Editor interface. Demonstrate the features of the sample slots, including activation, magnification, sample shape, and background. Show how to navigate and increase the slots in the palette.
4. Demonstrate how to browse a material library. Open a material library and load a mapped material. Use the Material/Map Navigator to view its material tree.
5. Show how to assign a material to an object. Be sure to turn on Show Map in Viewport.
6. Assign a few more materials to other objects. Then create a custom library of all materials in the scene.
7. Create a basic material and assign it to an object. Explore the basic parameters and qualities of different shaders.
8. Show how to add texture, bump, and opacity maps. Explain the different map types. Show examples of 2D and 3D maps. Show how to apply mapped materials and adjust the maps.
9. Give a brief overview of material types and show examples of each. Demonstrate creating reflections with the raytrace material, reflection mapping and the flat mirror map.

HOMEWORK

Exercises:

Work through the exercises in Chapter 12, *Maps and Materials*.

Create the materials and assign them to the following scenes. Render views of each.

- Replace the checkerboard in the chess scene with a square plane. Create black and white checker mapped material and assign it to the plane. Set the checker to 8 x 8.
- Add materials to your sculpture gallery. Include a pattern for the rug and texture for the walls and ceiling. Assign a material to each sculpture: wood, metal, reflective, etc. Adjust the size, tiling and position of maps.
- Merge the plaza and the merry-go-round scenes to create a carnival. Move objects as needed. Assign materials to each object.

Extra Credit:

Animate the parameters of a material. Create several material preview animations.

Online Help:

- Material Editor
- Designing Materials

Plus any other topics that interest you.

For next week:

Read Chapter 13, *Rendering and Special Effects*.

Chapter 13

Rendering and Special Effects

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Topics

Rendering Still Images
Rendering Animations
Changing Background Color and
Adding Background Images
 To the Environment
 To a Viewport
Atmospheric Effects
 Fog
 Volume Fog
 Volume Light
 Combustion
Render Effects:*

- Blur
- Brightness/Contrast
- Color Balance
- Depth of Field
- File Output
- Film Grain
- Lens Effects

1. Review the concepts of Maps and Materials. Answer any questions that arise. Critique the rendered images of the scenes. Consider the effectiveness of materials from the standpoint of realism, imagination, and ingenuity of application. View and critique extra material preview animations.

2. Review the concept of rendering. Show how set parameters for rendering and saving still images and animations.

3. Change the environment background color and image. Change the viewport background to match. Set viewport color in the Color panel of the Preference Settings dialog box. Set environment background color in the Environment dialog.

4. Demonstrate the four atmospheric effects. Use the camera Environment Range settings to control the density of Standard Fog. See Online Help for good Combustion settings.

5. Explain the concept of the Effects Stack. Demonstrate each of the render effects and their main parameters.

HOMEWORK

Exercises:

Work through the exercises in Chapter 13, *Rendering and Special Effects*.

Add at least one atmospheric effect and one render effect to the scenes of the chess board, the carnival, the art gallery, and the sea monster. Possibilities include depth of field blurring and combustion for the chess set and a candle, layered fog for ground fog at the carnival and film grain to make it age, standard fog and color balance to indicate murky underwater depths surrounding the sea monster, volume lighting and lens effects for a smoky gallery with a glittering sculpture. Render out an animation 30 seconds to 2 minutes in length. Render a Quicktime movie with Sorensen for the best compression to quality ratio. If you have plenty of space, render an uncompressed .avi file.

Extra Credit:

Add animated materials to the scene objects or environment background.

Online Help:

- Rendering
- Render Effects
- Environment and Environment Effects

* Note that Render Effects are not fully covered in the book. Fortunately, the Online Help files on this topic are quite good.

Complete all projects. Study for Quiz #3.