Worrying Too Much About Materials?
Start With a Clean Slate!
AV2659

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Autodesk Consulting

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Class summary

"I wish I could easily develop materials or better yet understand how it was created."

"Where do I need to go in the material editor to assign an image? Ok now that I'm done how do I get back to the main menu?"

-Common statements by new 3ds Max users

Key learning objectives

At the end of this class, you will be able to:

- Know the difference between the Compact Material Editor and the Slate Material Editor.

- Navigate the Slate Material Editor in 3ds Max and/or 3ds Max Design.

- Explain wiring of node based material hierarchies.

- Easily organize materials in the Slate Material Editor.

About Your Presenter

General Information:

- Over 15 years experience in the Architecture Industry.
- BA Architecture (University of Illinois, Chicago)
- AAS Computer Graphics (American Academy of Art)

At Autodesk:

- Have been with Autodesk Consulting for 5 years.
- Specialization in BIM and Design Visualization
- Have worked with many AEC firms educating customers in both BIM and Design Visualization:

AECOM   **HDR**   **HKS**   **JACOBS**   **nbbj**   **SOM** SKIDMORE, OWINGS & MERRILL LLP

About Your Presenter

Outside of Autodesk:

- Chairs the Chicago Chapter of the Computer Graphics Society.
  - Non-Profit organization dedicated to the pursuit of Digital Art
  - Mentors students and professionals in the latest digital art techniques:
    - Modeling, Compositing, Digital Concept Art.

The Material Editor

"I wish the material editor was easier to use. It's rocket science."

- A long time ago
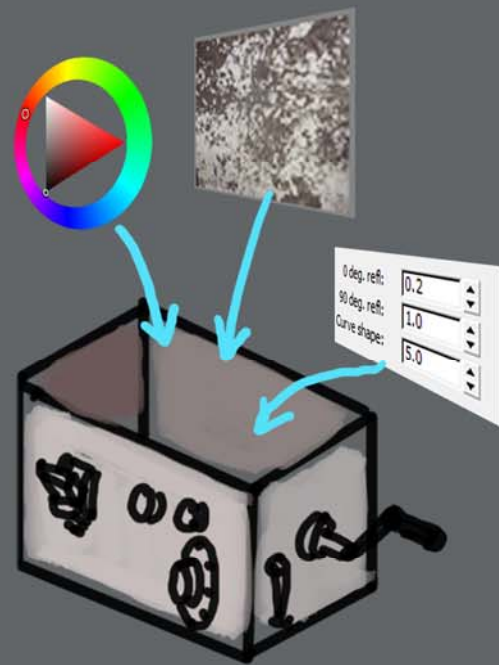 Marcus learning 3DS max 4.0

General Terms

- **MATERIALS** :- VERY GENERIC TERM
  - LOOK , COLOR, FEEL
  - TRANSPARENCY , REFLECTIVITY
  - SPECULARITY , TEXTURE

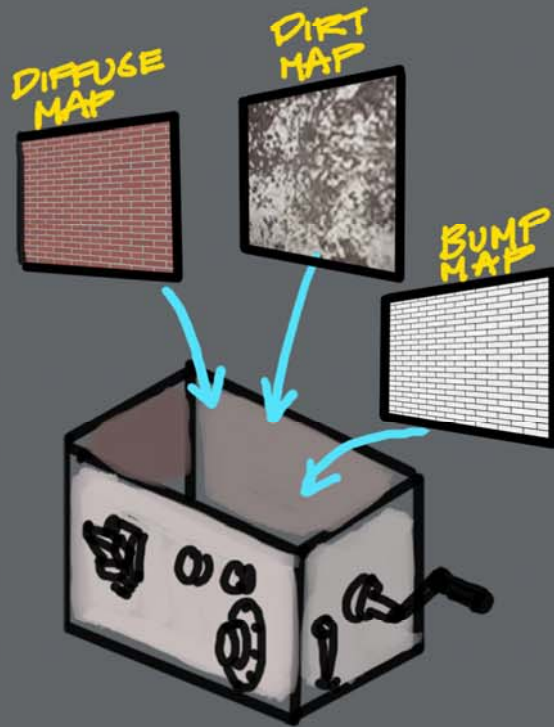* REALLY NOTHING MORE THAN A FANCY TERM FOR A CONTAINER THAT HAS FLIPS, CONTROLS, DIALS AND CAN REFERENCE IMAGE FILES!

0 deg. refl: 0.2
90 deg. refl: 1.0
Curve shape: 5.0

The Material Editor

... so 3ds Max has TWO Material Editors

(Compact Material Editor)

(Slate Material Editor)

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The Material Editor

... so 3ds Max has TWO Material Editors

(Compact Material Editor)   (Slate Material Editor)
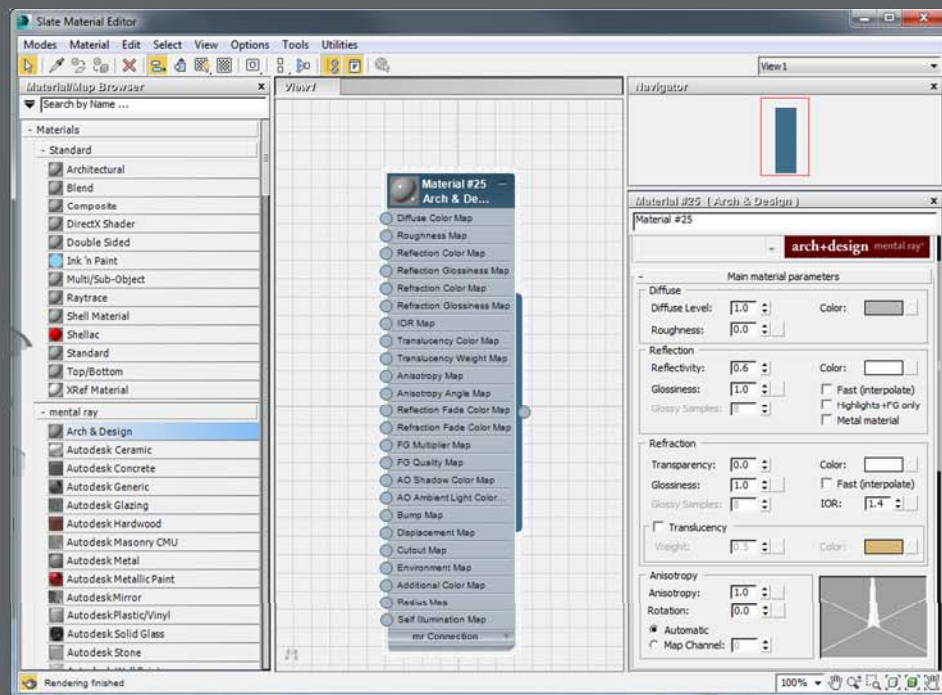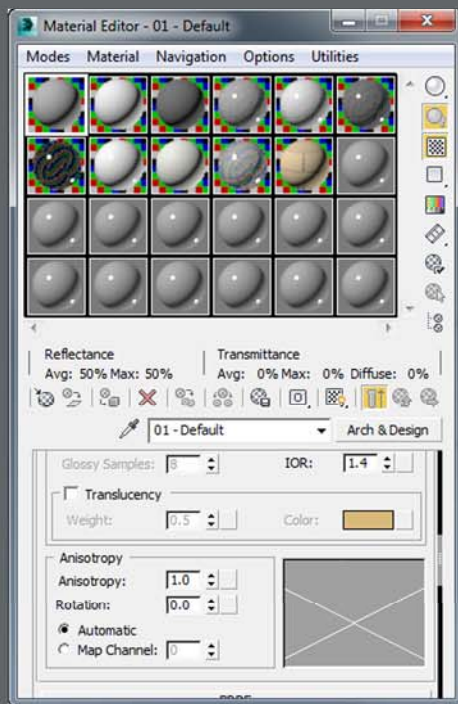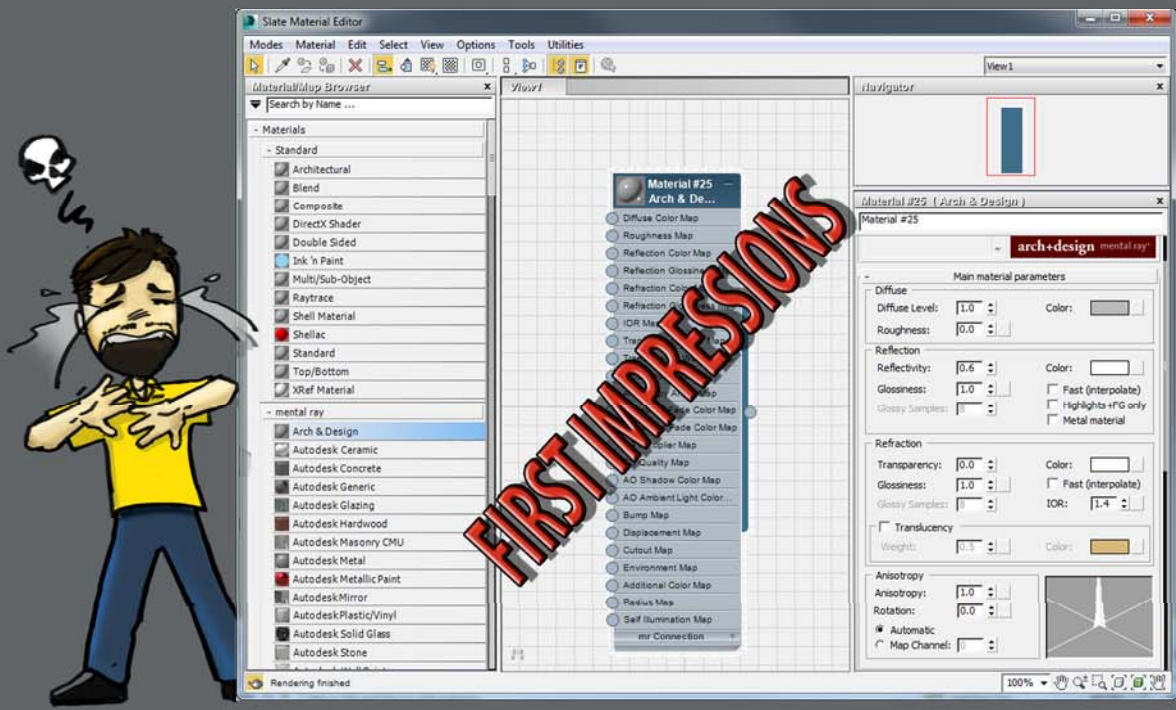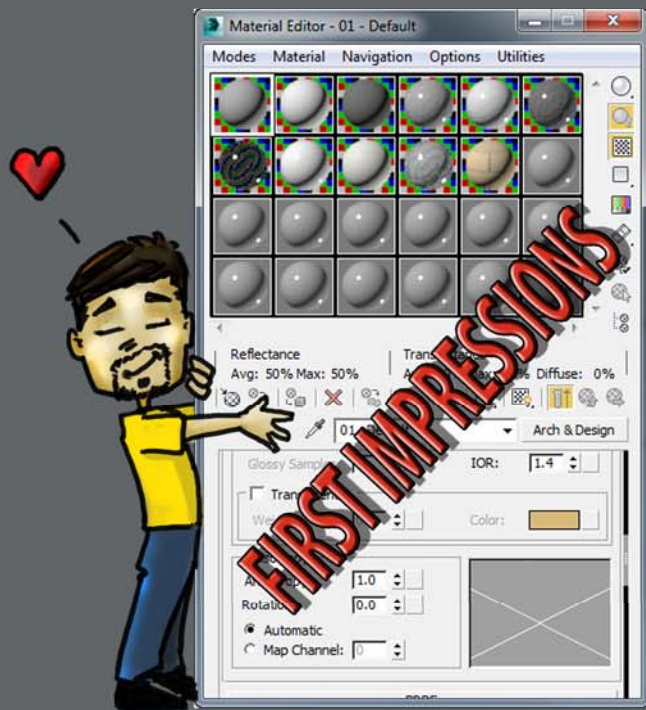
THE MATERIAL EDITOR
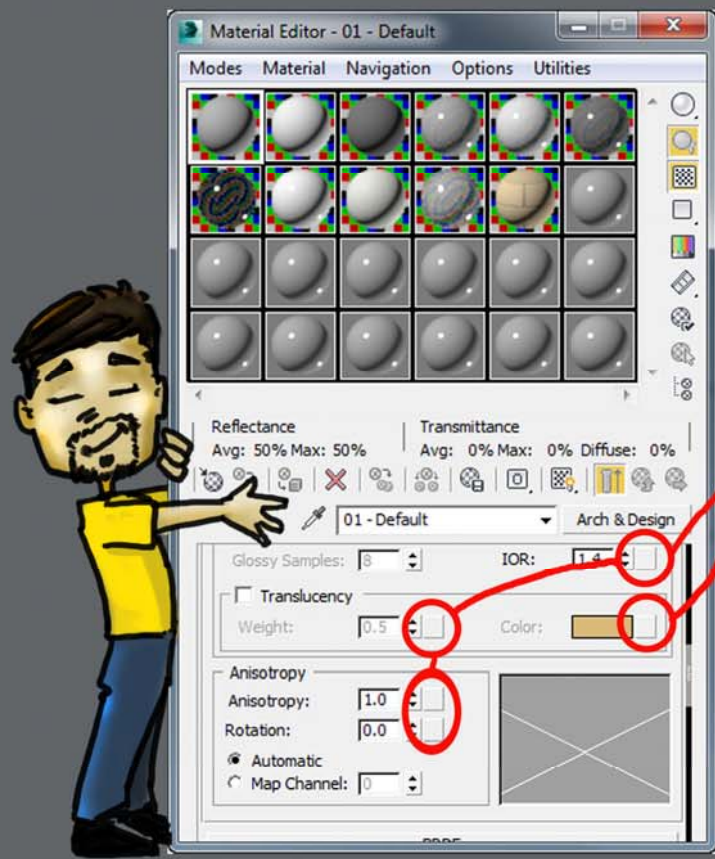
COMPACT MATERIAL EDITOR:

- THE LEGACY MATERIAL EDITOR
- NOT MUCH HAS CHANGED WITH THE GRAPHIC INTERFACE.

- ASSIGNING MAPS, UNDERSTANDING WHERE MAPS ARE ASSIGNED A MAJOR MENTAL CHALLENGE.

- UNDERSTANDING HOW SOMEONE ELSE CREATED A MATERIAL CAN BE EVEN A GREATER CHALLENGE.
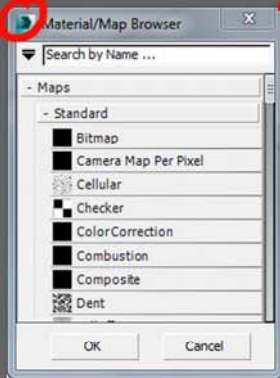
THE MATERIAL EDITOR

SLATE MATERIAL EDITOR:

- FIRST INTRODUCED IN 3DS MAX 2011

- INTRODUCES A NODE BASED MATERIAL WORKFLOW

- ALLOWS FOR A GRAPHIC MATERIAL REPRESENTATION THAT ALLOWS FOR A MORE COMPREHENSIVE UNDERSTANDING OF A MATERIAL, ITS CONSTRUCTION & DEPENDENCIES
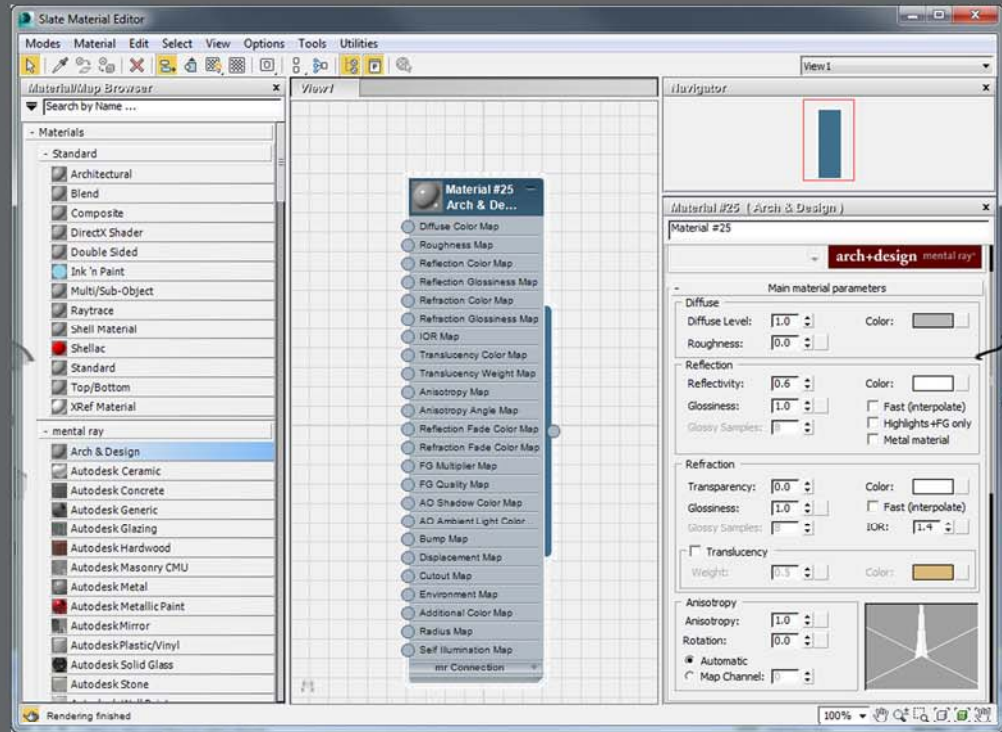
"IT'S NEW, THEREFORE SCARY; NO SIR, I DON'T LIKE IT!"

— RANDOM USER FROM MY TRAVELS

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THE MATERIAL EDITOR

TOOL BAR

NODE ELEMENT

Modes | Material | Edit | Select | View
Compact Material Editor...
Slate Material Editor...

! CAN TOGGLE B/W
• COMPACT & SLATE
MATERIAL EDITORS

Slate Material Editor

Modes Material Edit Select View Options Tools Utilities

View1

Material/Map Browser

Search by Name ...

- Materials
  - Standard
    - Architectural
    - Blend
    - Composite
    - DirectX Shader
    - Double Sided
    - Ink 'n Paint
    - Multi/Sub-Object
    - Raytrace
    - Shell Material
    - Shellac
    - Standard
    - Top/Bottom
    - XRef Material
  - mental ray
    - Arch & Design
    - Autodesk Ceramic
    - Autodesk Concrete
    - Autodesk Generic
    - Autodesk Glazing
    - Autodesk Hardwood

Rendering finished

View1
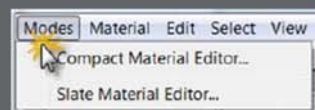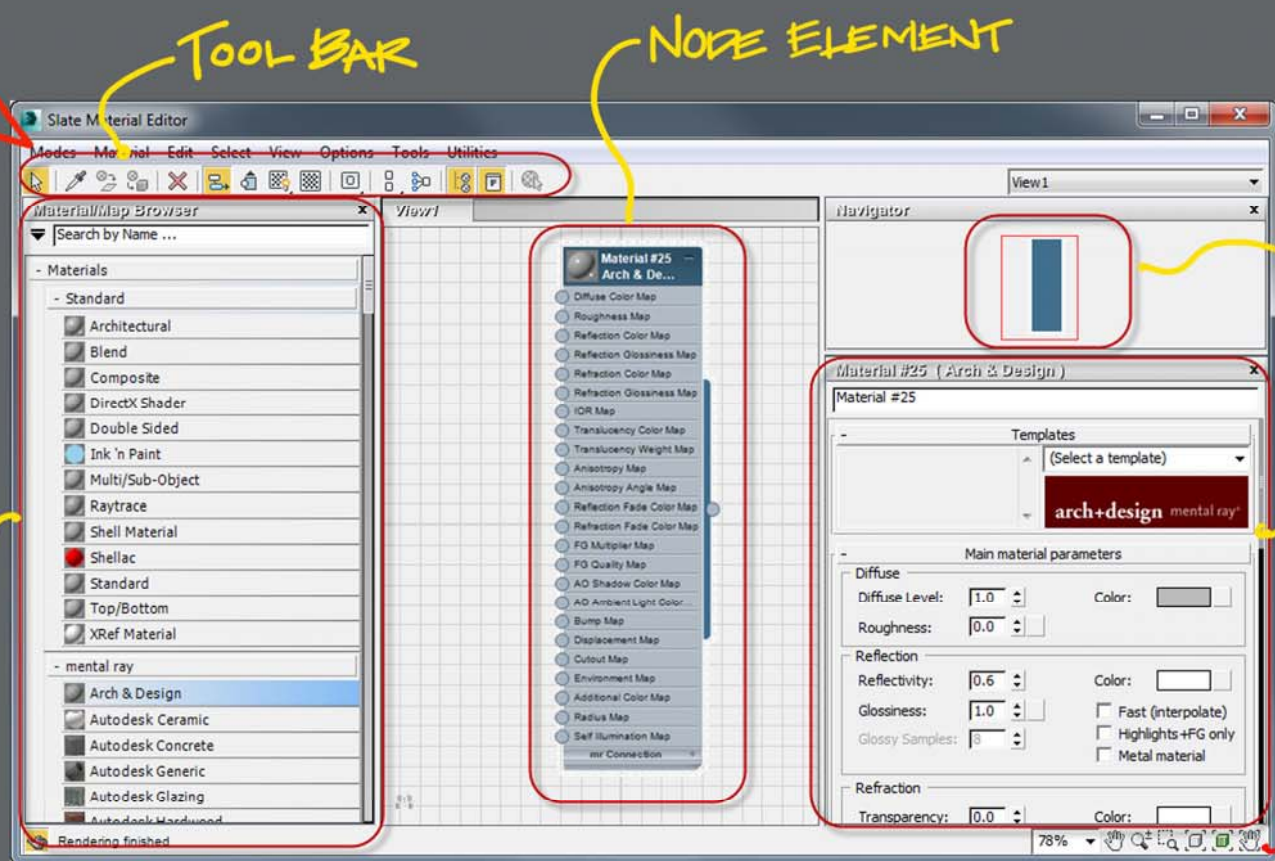
Material #25
Arch & De...
- Diffuse Color Map
- Roughness Map
- Reflection Color Map
- Reflection Glossiness Map
- Refraction Color Map
- Refraction Glossiness Map
- IOR Map
- Translucency Color Map
- Translucency Weight Map
- Anisotropy Map
- Anisotropy Angle Map
- Reflection Fade Color Map
- Refraction Fade Color Map
- FG Multiplier Map
- FG Quality Map
- AO Shadow Color Map
- AO Ambient Light Color...
- Bump Map
- Displacement Map
- Cutout Map
- Environment Map
- Additional Color Map
- Radius Map
- Self Illumination Map
- mr Connection

Navigator

MATERIAL NAVIGATOR

Material #25 (Arch & Design)

Material #25

Templates

(Select a template)

arch+design   mental ray

Main material parameters

Diffuse
Diffuse Level: 1.0   Color:
Roughness: 0.0

Reflection
Reflectivity: 0.6   Color:
Glossiness: 1.0   ☐ Fast (interpolate)
Glossy Samples: 8   ☐ Highlights+FG only
                          ☐ Metal material

Refraction
Transparency: 0.0   Color:

PARAMETER
EDITOR

MATERIAL/MAP
BROWSER

! MATERIAL VIEW
• TAB NAVIGATION
TOOLS

78%

Material Node Workflow

"Can you read a Visio diagram?"

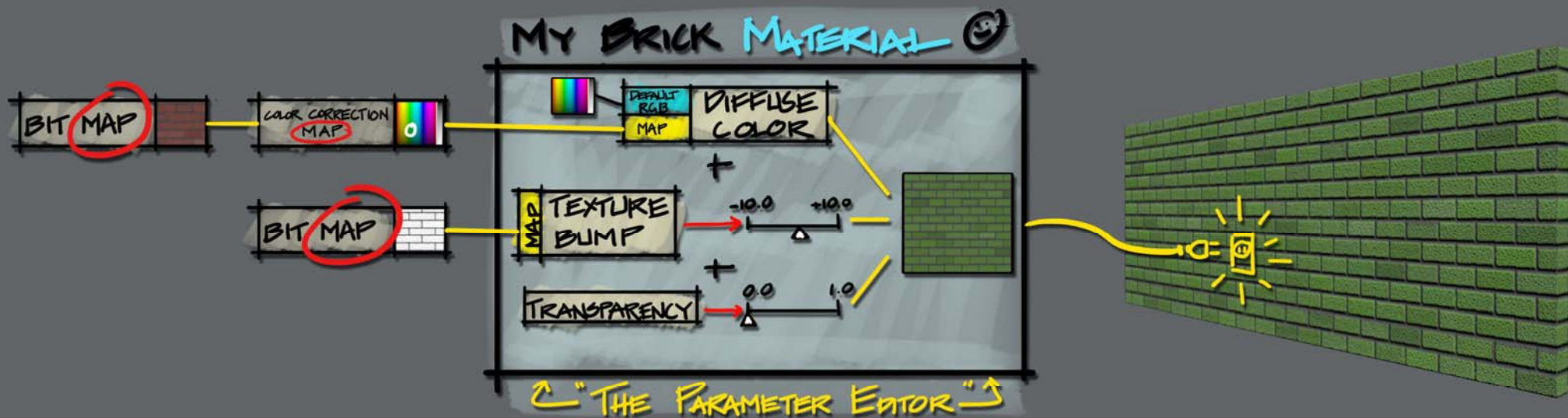A: Yes - Good you already have a general understanding of the workflow!

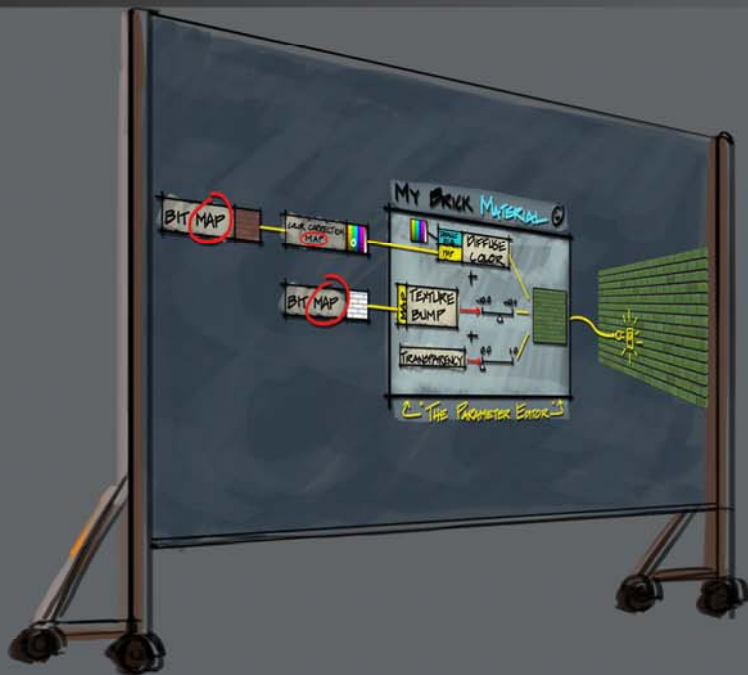B: Nope - That's ok. We'll start from the beginning!

Material Node Workflow

What does Slate exactly do?

It's like a Visio™ diagram, but for materials.
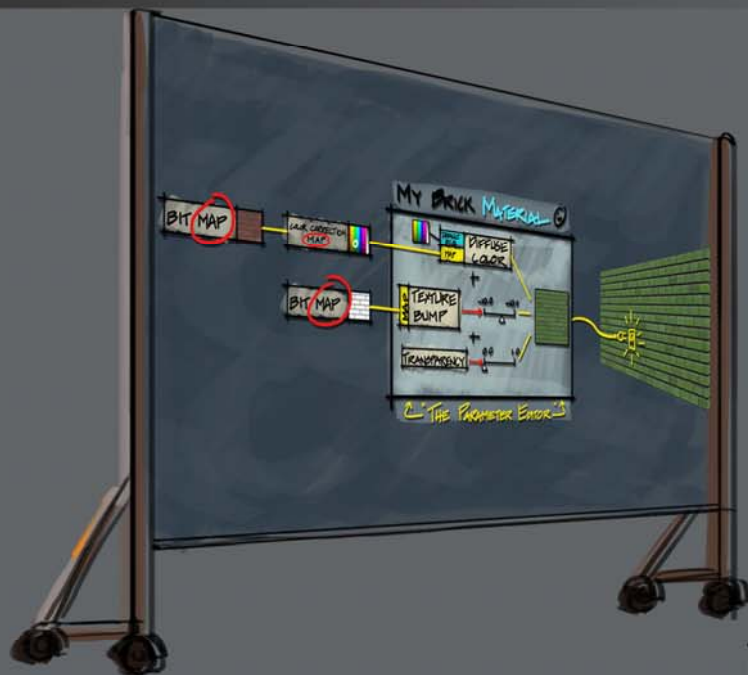
My Brick Material

BIT MAP

COLOR CORRECTION MAP

BIT MAP

DEFAULT RGB MAP

DIFFUSE COLOR

+

MAP

TEXTURE BUMP

-10.0   +10.0

+

TRANSPARENCY

0.0   1.0

"The Parameter Editor"

Material Node Workflow

Material Developed in Slate

Material Node Workflow

Material Developed in Slate

My Brick Material
Arch & Design

Map #16 — Bitmap

Map #18 — Color Cor...
Map

Map #17 — Bitmap

Diffuse Color Map
Bump Map

My Brick Material

BIT MAP

BIT MAP

COLOR CORRECTION MAP

DIFFUSE COLOR

TEXTURE BUMP

TRANSPARENCY

"The Parameter Editor"

Basic Node Object
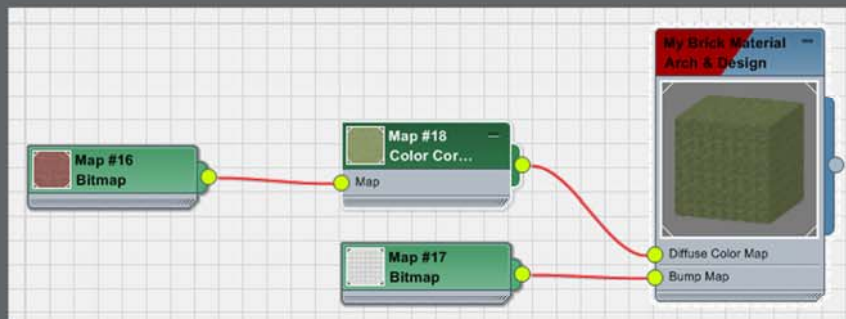
OUTPUT

INPUT

NODE WIRE
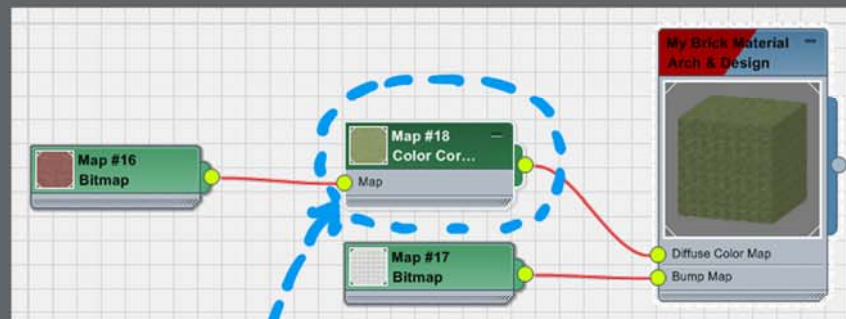
* All Nodes have outputs
Not all nodes have inputs

Material Node Workflow

Material Developed in Slate

My Brick Material

Bit Map · Color Correction Map · Diffuse Color · Texture Bump · Transparency
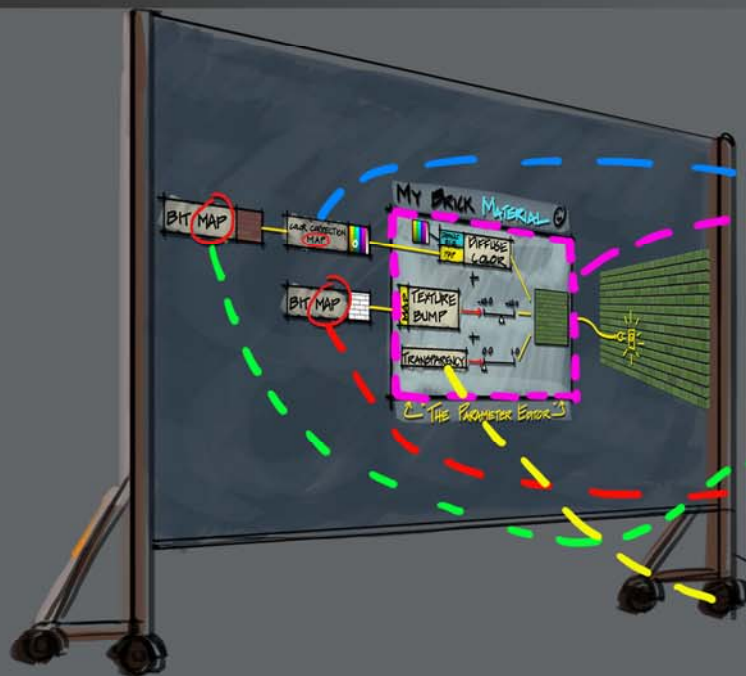
— The Parameter Editor —

"That makes too much sense, I still think it's sorcery" – 3DS Max Student

Map #16 Bitmap

Map #18 Color Cor... · Map

Map #17 Bitmap

My Brick Material Arch & Design · Diffuse Color Map · Bump Map

My Brick Material (Arch & Design)

My Brick Material

Refraction
Transparency: 0.0   Color:
Glossiness: 1.0   ☐ Fast (interpolate)
Glossy Samples: 8   IOR: 1.4

☐ Translucency
Weight: 0.5   Color:

Anisotropy
Anisotropy: 1.0
Rotation: 0.0
◉ Automatic
◯ Map Channel: 0

BRDF
◯ By IOR (fresnel reflections)   Reflectivity vs. Angle

Parameter Editor

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Material Node Workflow

MY BRICK MATERIAL

BIT MAP — COLOR CORRECTION MAP — DIFFUSE COLOR

BIT MAP — TEXTURE BUMP — TRANSPARENCY

"The Parameter Editor"

BASIC NODE OBJECT

OUTPUT
INPUT
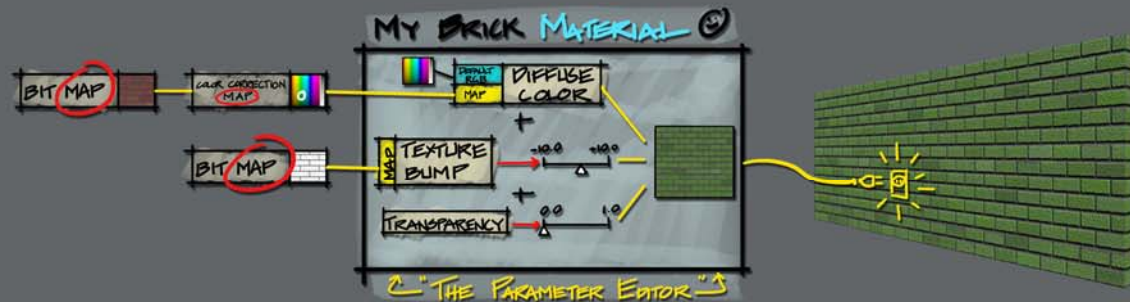NODE WIRE

- General understanding of Slate
- Know the difference b/w materials & maps
- Understand the concept of wiring
- Really like the doodles in the presentation!

Material Node Workflow

MY BRICK MATERIAL

BIT MAP — COLOR CORRECTION MAP — DEFAULT RGB MAP — DIFFUSE COLOR

BIT MAP — MAP TEXTURE BUMP

TRANSPARENCY

"THE PARAMETER EDITOR"

BASIC NODE OBJECT

OUTPUT

INPUT

NODE WIRE

✓ - General understanding of slate
✓ - Know the difference b/w materials & maps
✓ - Understand the concept of wiring
✗ - ~~General understanding of the presentation!~~
   └ Not required for the purpose of this class!

SIGH!...

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"With Great Power comes Great Responsibility!"
-Stan Lee

Practical Demonstration

- Creating a Material in Slate
- Organizing Materials in Slate

Questions and Answers

- Know the difference b/w the Material Editors
- Navigate the Slate Material Editor in 3ds Max
- Explain wiring of node based material hierarchies
- Easily organize materials in the Slate Material Editor