# ΓΡΑΦΙΚΑ & ΕΙΚΟΙΝΙΚΗ ΠΡΑΓΜΑΤΙΚΟΤΗΤΑ

Διάλεξη #3

3ds MAX – Polygon Modeling

# 3ds MAX

## Basics --- Image Plane (1/3)



Copy the .png file to: …\3dsMax\Sceneassets\images

- Create a Plane Object
- Map an Image on this Plane and
- Use this as the guide to built a 3d Object

**STEPS**

- Set the Perspective mode to “Shaded”
- Create a Plane Object to **Top** Viewport
- Center the Object
  - Select the “Move” tool
  - Go to Transform Area and set all values to “0”.

https://www.autodesk.com/education/free-software/3ds-max

# 3ds MAX

## Basics --- Image Plane (2/3)



- Set the size of the Object
  - Go to Modify Panel - Parameters
  - Set Length=**0.3m** and Width=**1.2m**
    - (According to size of the Image we use)

- Load the Image
  - Select the Material Editor Tool from Main Toolbar
  - Material/Map Browser – Select "Standard" (Drag & Drop to View area)
  - Double Click on it (Material#25 Standard)
    - – Its parameters will appears to the right

- Rename it (Material#25 (Standard)) – eg. "imagePlaneSword"

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## Basics --- Image Plane (3/3)



- Connect a bitmap node
  - From “Blinn Basic Parameters” select **Diffuse** (it’s the primary color) and click the **button** (*its have no name*) right to it
    - This selection adds a map – it open the window “Material/Map Browser”
    - Double click on the highlighted **“Bitmap”**
    - This action will open a dial box which point to this directory of 3ds MAX file system: “C:\Users\Κώστας\Documents\3dsMax\sceneassets\images”
    - We choose the one we wish (*In this directory we place the bitmap images for materials*) (sword_imagePlane_2048x512.png)
    - A Bitmap **node** will appear in View area which is connected at the Diffuse Color
    - Set **“Self-Illumination”=100** (“*Blinn Basic Parameters*”)
    - Click the button “**Show Shared Material in Viewport**” (*Main toolbar in State Material Editor window*)
    - Get ready to assign the material to an Object….
    - Select the Object at any Viewport and then click the button “**Assign Material to Selection**” (*Main toolbar in State Material Editor window*)
    - Close the Material Editor
    - Go to Perspective View and Maximize (alt+w), ordit, zoom. The image applied to Plane.

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## Display properties – Improve & Freeze



- Improve display view
  - Click [+] in the Perspective View
  - Choose Configure Viewports -- Display Performance tab
  - Set "Texture Maps" = **2048pixels**
    - If the 3ds MAX doesn't respond RESET and ReLoad the scene

- Freeze (lock) the image
  - Select the Object (*Plane*)
  - RIGHT click – Choose Object Properties
  - Display Properties – Turn "Show Frozen in Gray" **OFF**
  - Interactivity – Turn "Freeze" **ON**
    - Now we can't select or move the object

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## Scene explorer (window) (1/2)



- A view of all the objects in the Scene
  - Hide objects, Freeze, organize in layers, hierarchies, …

- Tools (menu) – Scene Explores…
  - Objects in Gray-Light format can't be selected (Freeze)
  - The "lamp" icon indicated if an object is visible or not
    - by clicking we change the mode of the object – visible or not visible (hide)
  - Select an object by clicking on its name or by the "O" icon (this icon indicate also the type of the object – "O" indicates that the object is a polygon)

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## Scene explorer (window) (2/2)



- Scene Explorer – Customize – Configure Columns
  - A pop-up window will appear named “Configure Columns”
  - Choose e.g. “Color” or/and “Frozen” (double click)
  - A new column will displayed beside the objects in Scene Explorer window

- Drug a column from the Scene Explorer window
  back to
  Configure Columns pop-up window
  to eliminate it

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## Creating Primitives – Box & Cylinder (1/2)



- Analyze the model to simplest parts (*Primitives*)

- Create primitives
  - **Perspective** View (*blade, guard, O*)
  - **Left** View (*handle*)
    - Create a Box object for “blade” & “guard” model
    - Create a Cylinder object for “ handle ” & “ O ” model

- Center all Objects to x axis
  - use Move Tool and Transform area coordination's
    - Set for each Object in Perspective View **y=0**

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## Creating Primitives – Box & Cylinder (2/2)



- Center all Objects one another – z axis
  - Define "blade box" **height = 0,01m**
    - Center by place half above – half below the x axis **BOX**
    - **Front View** – Transform area **z=-0,005m**

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  - "handle cylinder" - **Front View** – Transform area z=-0m
    - Define "handle cylinder" **radius = 0,015m** **Cylinder**

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  - Define "guard box" **height = 0,05m**
    - Center by place half above – half below the x axis **BOX**
    - **Front View** – Transform area **z=-0,025m**

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  - Define "cylinder-O" **height = 0,03m**
    - Center by place half above – half below the x axis **Cylinder**
    - **Front View** – Transform area **z=-0,015m**

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## Details of a model (level of details) (1/2)



- What it structs a model
  - Polygon or mesh or poly-mesh models consists of straight lines

- Too may straight lines slow down the computer or the game or the movie we want to render
- The Goal: We want to bend a polygon
  - We must segment the object wisely
    - (not too many – not too little and to the right direction).

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## Details of a model (level of details) (2/2)



- Select the object (handle) - use Wireframe - Viewport
  - Go to its "**Parameters**" – **"Length Segs:" - increase to 24**

- If we add segments to other dimension (axes) – level of details
  - it will only slow down the computer
  - we must add segments **only** to the axis we want to curve the object

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## Modifier - Effect



- Modifier stuck
  - Layer based interface
  - we can add different effects to each layer

- Modify Panel – Modifier List – choose "**Taper**"
  - At Modifier stuck – bottom to up we can see <Box>-<Taper>
  - Each layer in the stuck can be changed (parametric model)
  - Box: Parameters – Length Segs: xxx (24)
  - Taper: Parameters – Amount: xxx -- Curve:0
    - Taper Axis – choose **y -**
    - Symmetry – click it – **ON**
    - Effect – choose **x -**

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## Dependencies and Modifiers



- Dependencies – Data flows from bottom to top -use Top View+F3
  - Modifiers to right order

- Modify Panel – Modifier List – choose “Bend”
  - Modifier stuck – bottom to up <Box>-<Taper>-<Bend>
  - Bend: Parameters – Angle: xxx -- Curve:0
    - Bend axis – choose y -
- Modifier List – Drug and move a Modifier (eg Taper)
  - A different result is been produced
- Modify Panel – “Show end result on/off toggle” button
  - Display at Viewports the result from the Modifier selected at Modifier List to the bottom.
- Modify Panel – “Remove modifier from the stuck” button
  - Select the Modifier from Modifier List and click the button.

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## Collapse Modifiers (1/2)



- How 3ds MAX save the modifier stuck ?
  - **By simple instructions** not an object with its absolute position
  - Instructions are like this: eg make a box, No of segments, and a taper…
  - Every time we open the scene 3ds MAX runs a script of instructions and **re-create the model from scratch**
- Collapse the Modify stuck
  - **Convert the script instructions to an explicit object**.
  - We do that when our scene consist of
    - many objects which
    - Applied by many modifiers and effects

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## Collapse Modifiers (2/2)



- **Attention !!!**
  - If we collapse a scene or an object in fact **we delete the construction history**
  - Procedural (Parametric) **model begums an explicit object**

- **Back up before Collapse** the Modify stuck (Steps)
  - Back up the Scene (save to a specific version)
  - Collapse the Scene
  - Save the Scene using a different name or to a new version.

- **How to collapse a scene**
  - Right click to the top of Modifier stuck – choose **"Collapse All"**
  - This action converts the stuck to an new object called "Editable Mesh"
  - Convert to "Editable Poly" object
    - Right click on the object in any Viewport (this will show us the **"quad menu"**)
    - Choose at the bottom **"Convert To: "Editable Poly"**

# Ερωτήσεις




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