

# Basic 3D animation using Blender

SKANI101x



IIT BOMBAY

# Material

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# Outline

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- Material
- Material Properties
  - Add Material
  - Preview
  - Diffuse Shaders
  - Specular Shaders
  - Transparency
  - Mirror
  - Delete Material
- Multiple Material

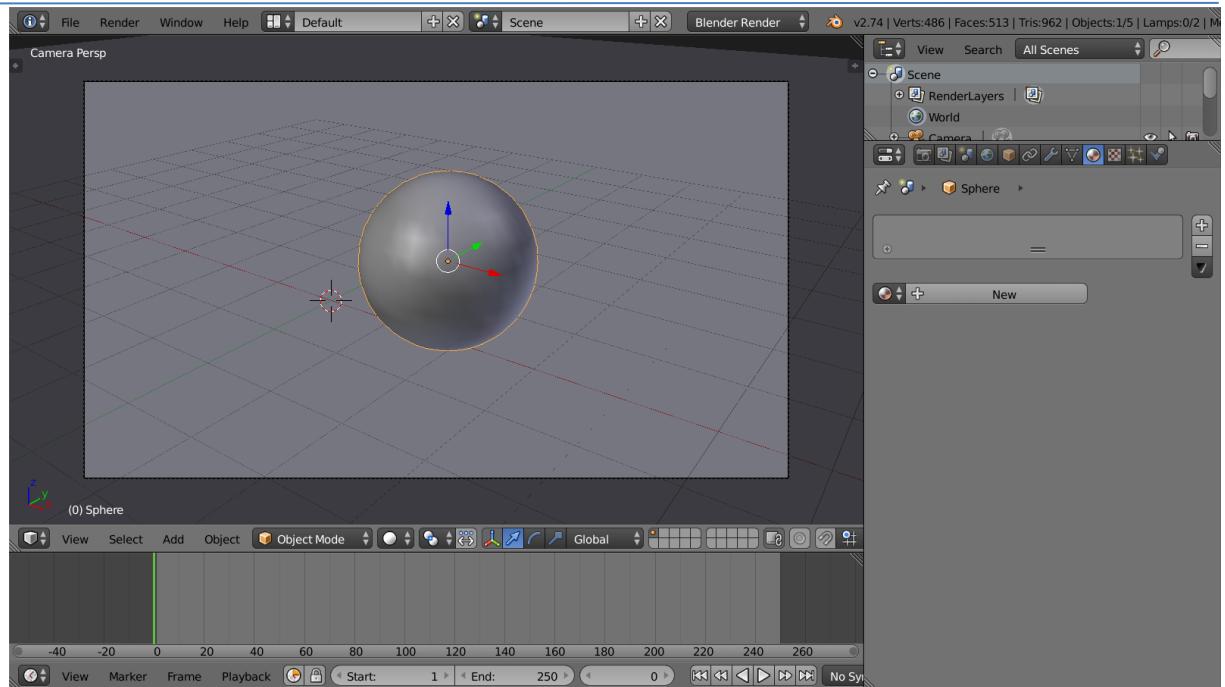
# Material

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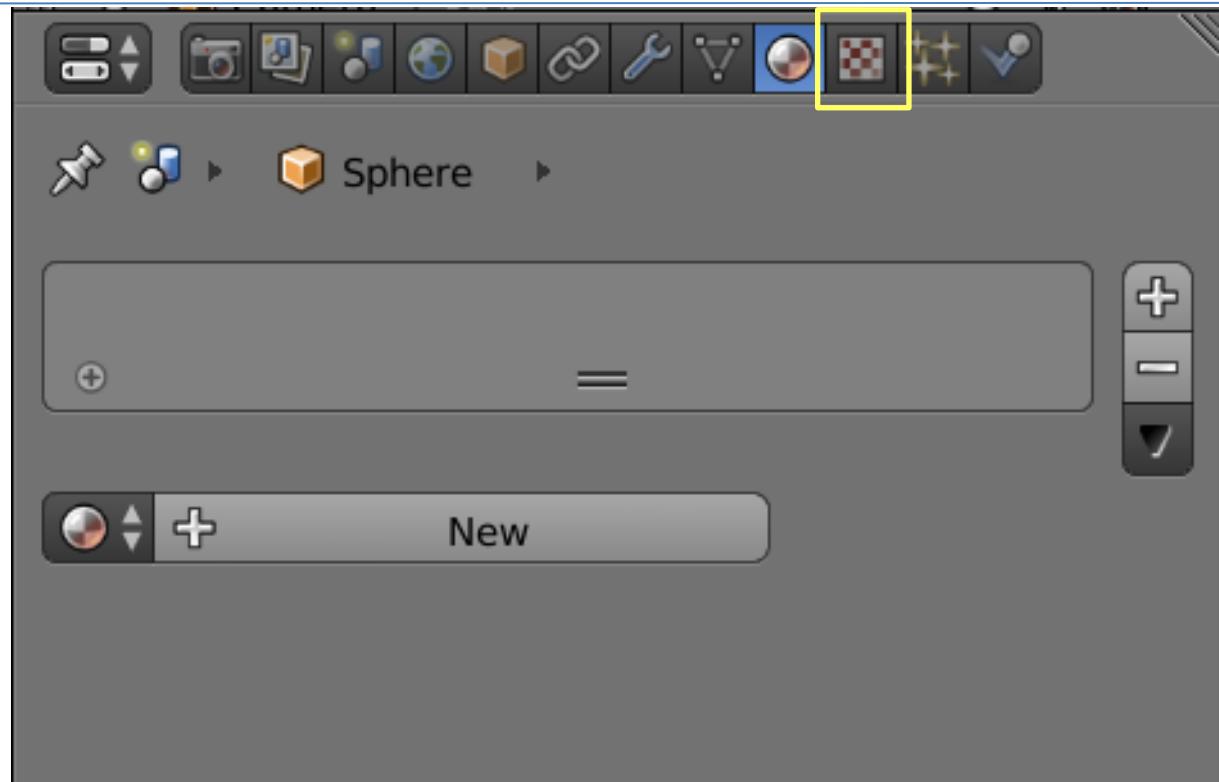
- Defines the artistic qualities of the substance that an object is made of
- Shows the substance an object is made of
- Paints the object with different colours
- Usually, the substance is represented by its surface qualities (colour, shininess, reflectance, etc.) but it can also exhibit more complicated effects such as transparency, diffraction and sub-surface scattering.
- Typical materials are: brass, skin, glass, cloth etc.

# Start a material blend file

- Download and open material.blend file

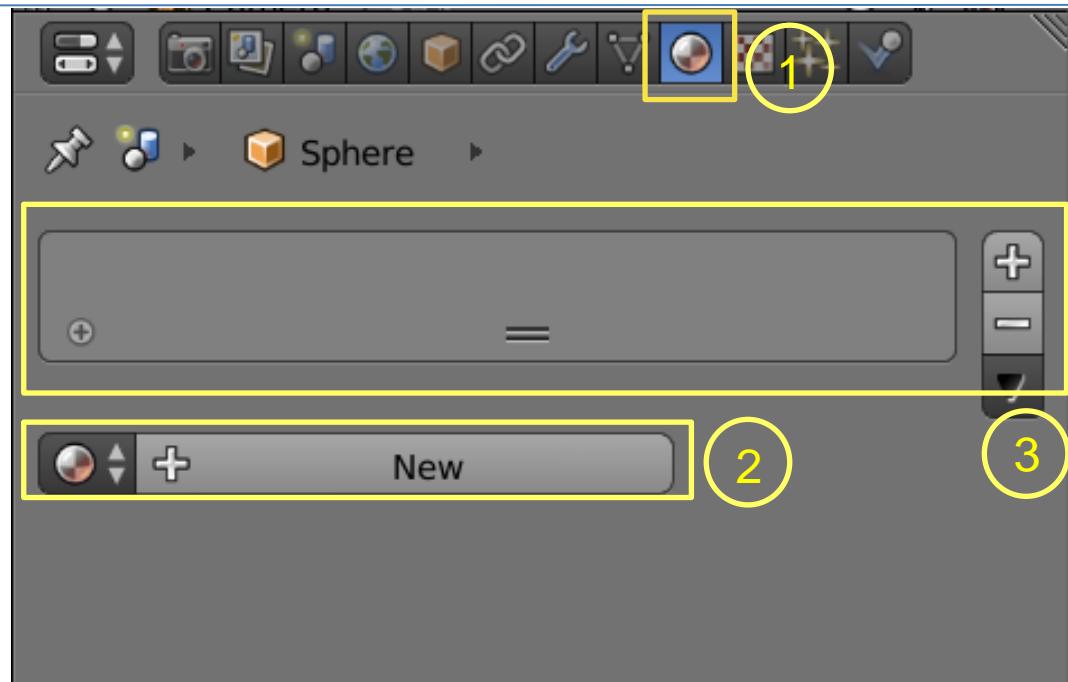


# Material Properties



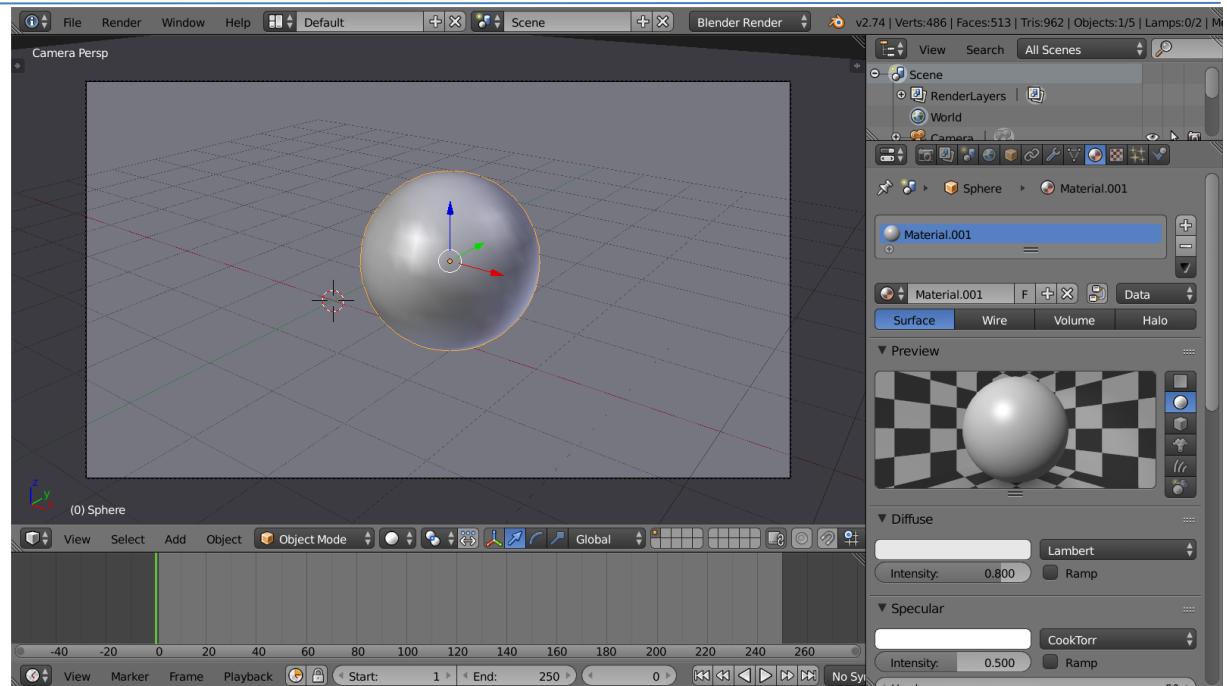
# Material Properties

- Select the object (Right click)
- Click on the Materials button in the Properties Panel Header (1)
- Active Material (2). Initially empty, asking for ‘New’
- Object Material Slots (3) - this window shows the “slots” for the material (or materials) that this object data contains
- To add a new material, click ‘+’ in the Active Material box



# Add new Material

- Click on New button  
Material properties  
window
- Every time a new  
Object is created it has  
no material linked to it



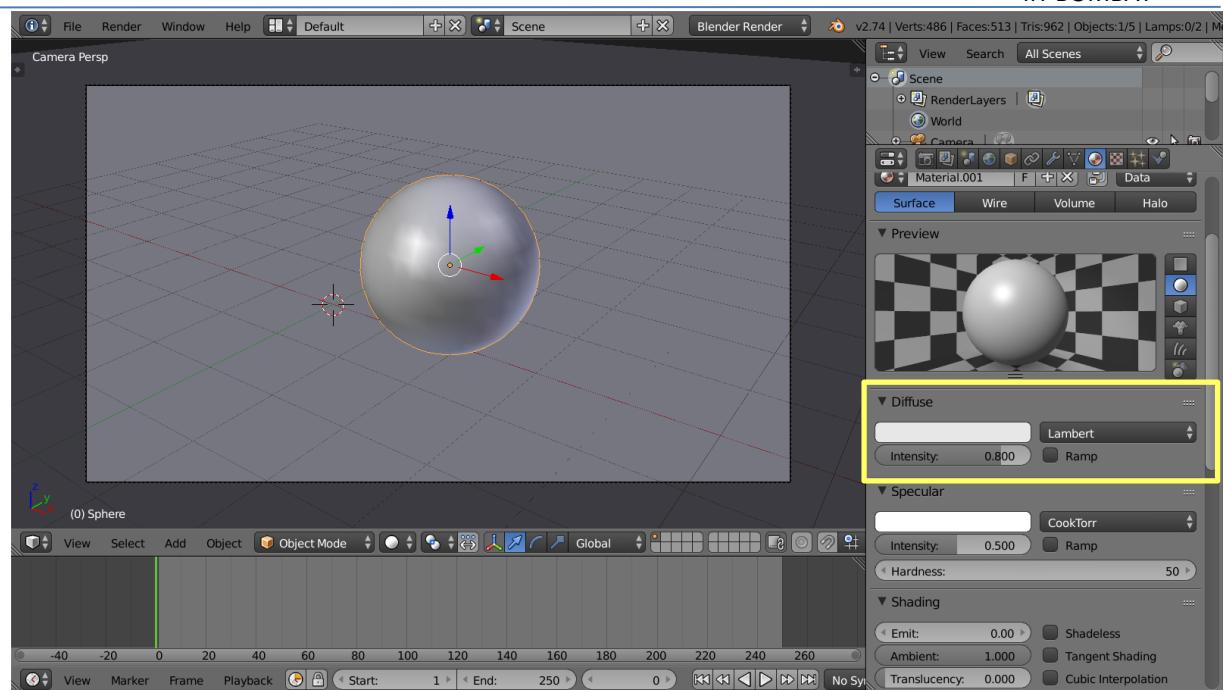
# Preview

- It shows the current material mapped on several basic objects



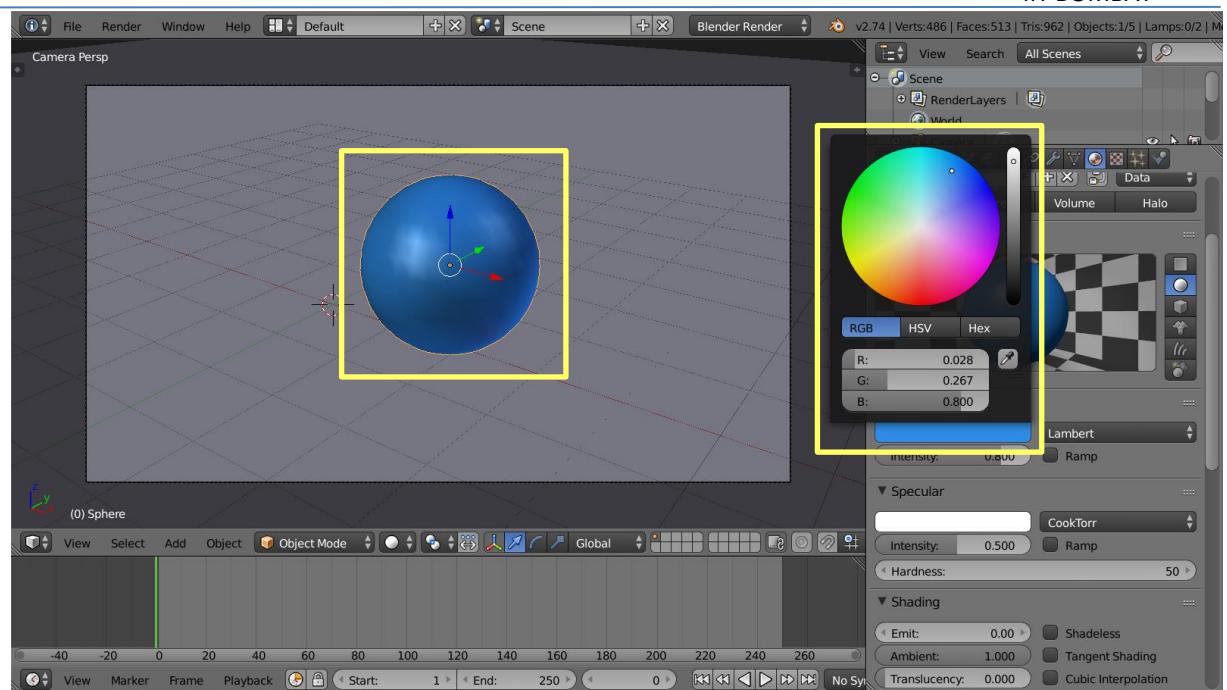
# Diffuse Shaders

- The basic colour of the material, together with different models for dispersion



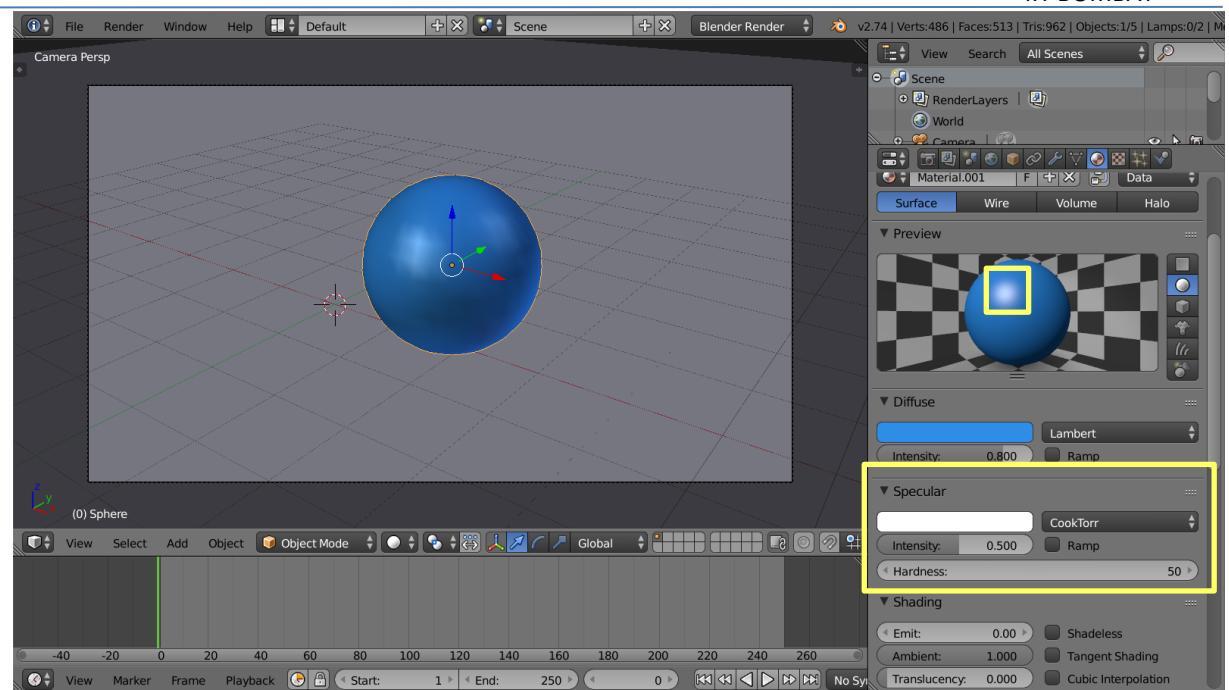
# Change Diffuse Shader

- Click on colour bar in Diffuse Shader panel
- It will open the colour palette
- Select any colour



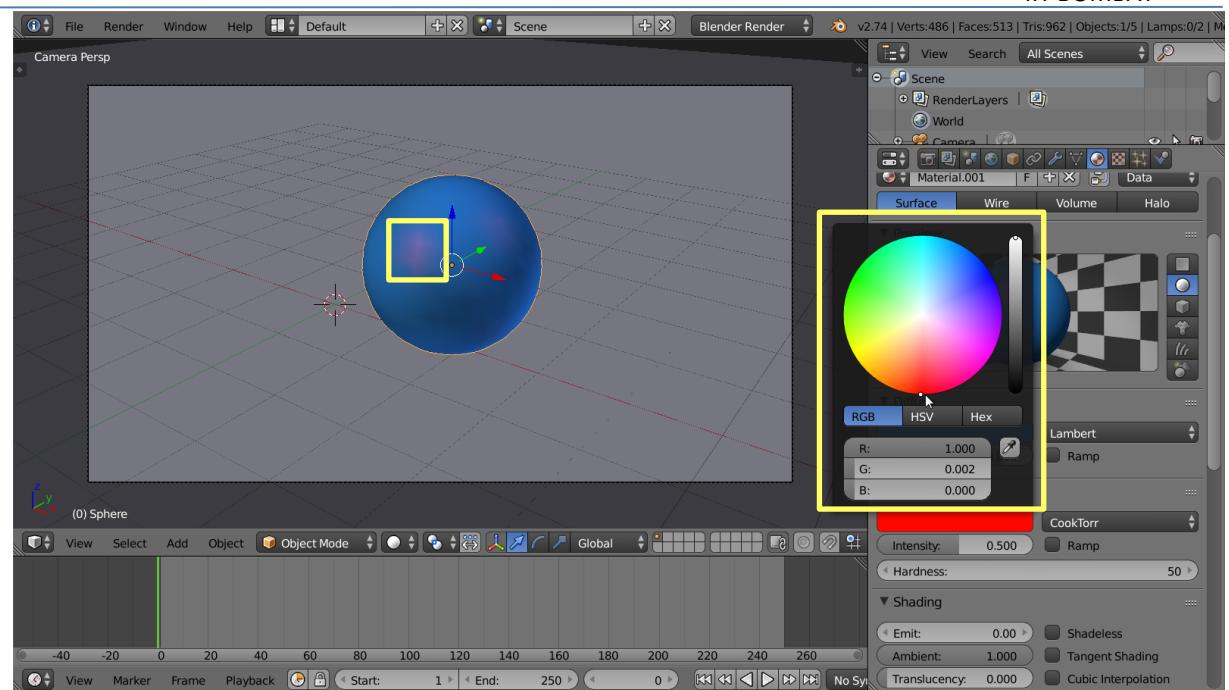
# Specular Shader

Specular shaders create the bright highlights that one would see on a glossy surface, mimicking the reflection of light sources.



# Change Specular Shader

- Click on the colour bar in Specular Shader panel
- It will open the colour palette
- Select any colour

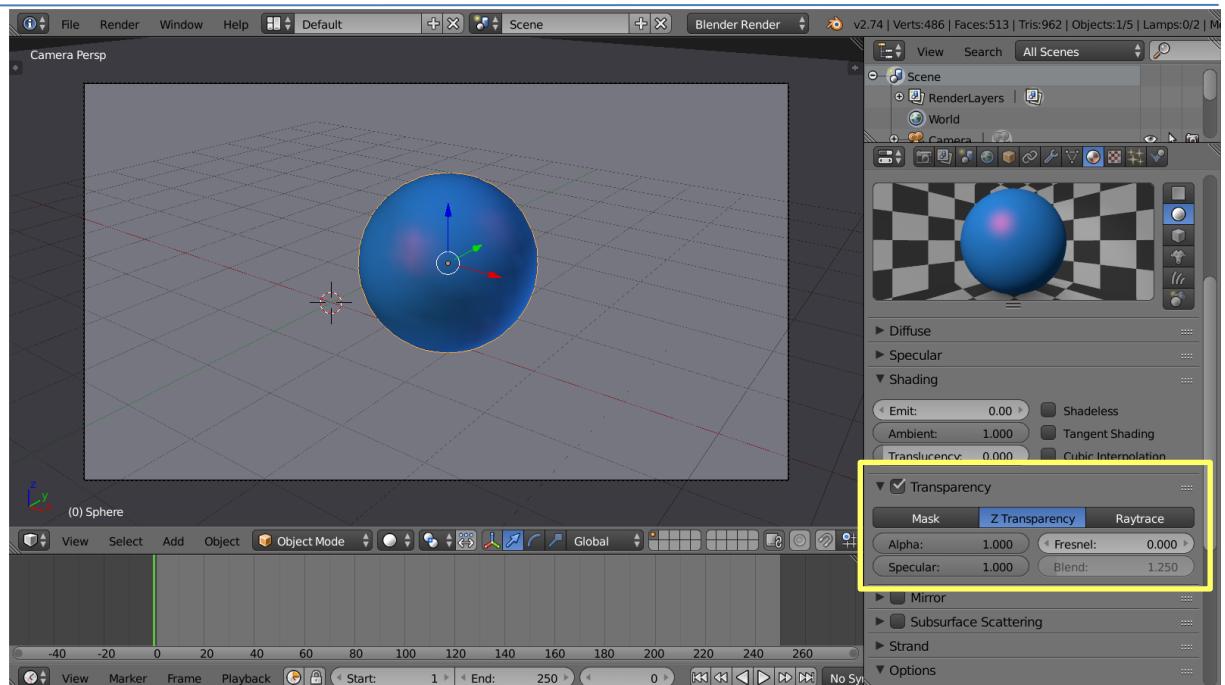


# Transparency

Materials in Blender can be set to be transparent, so that light can pass through any objects using the material.

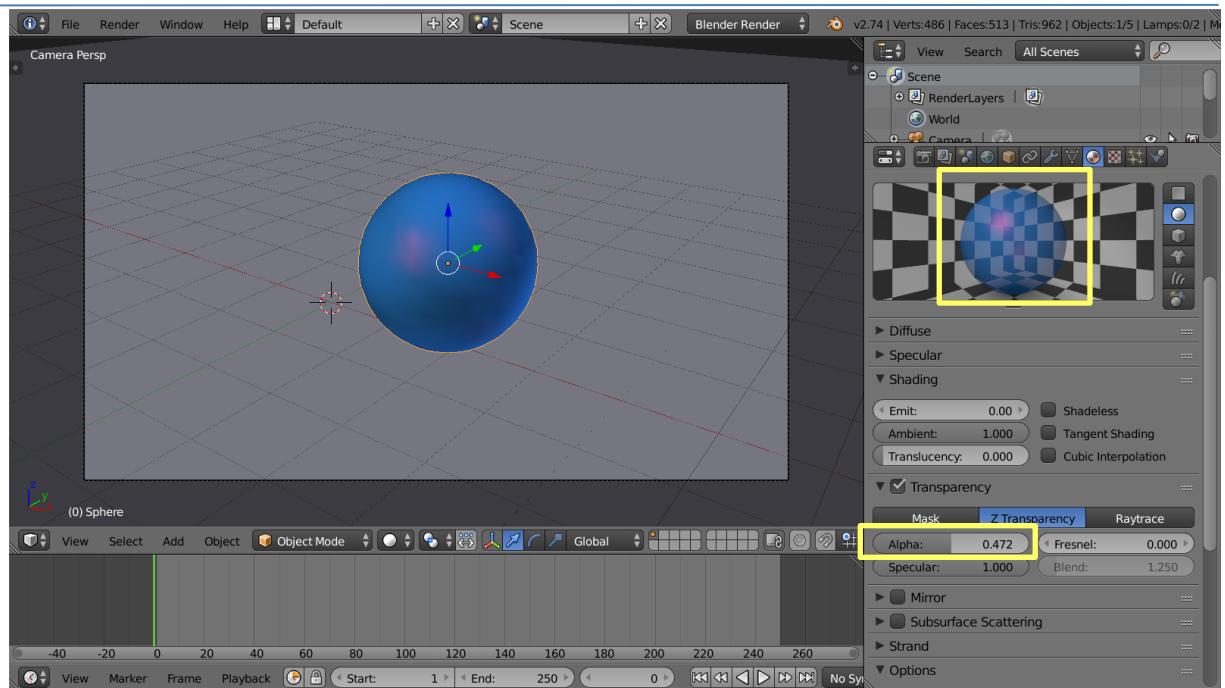
Transparency is controlled using an 'alpha' channel.

By default, this option is disabled.



# Change Alpha

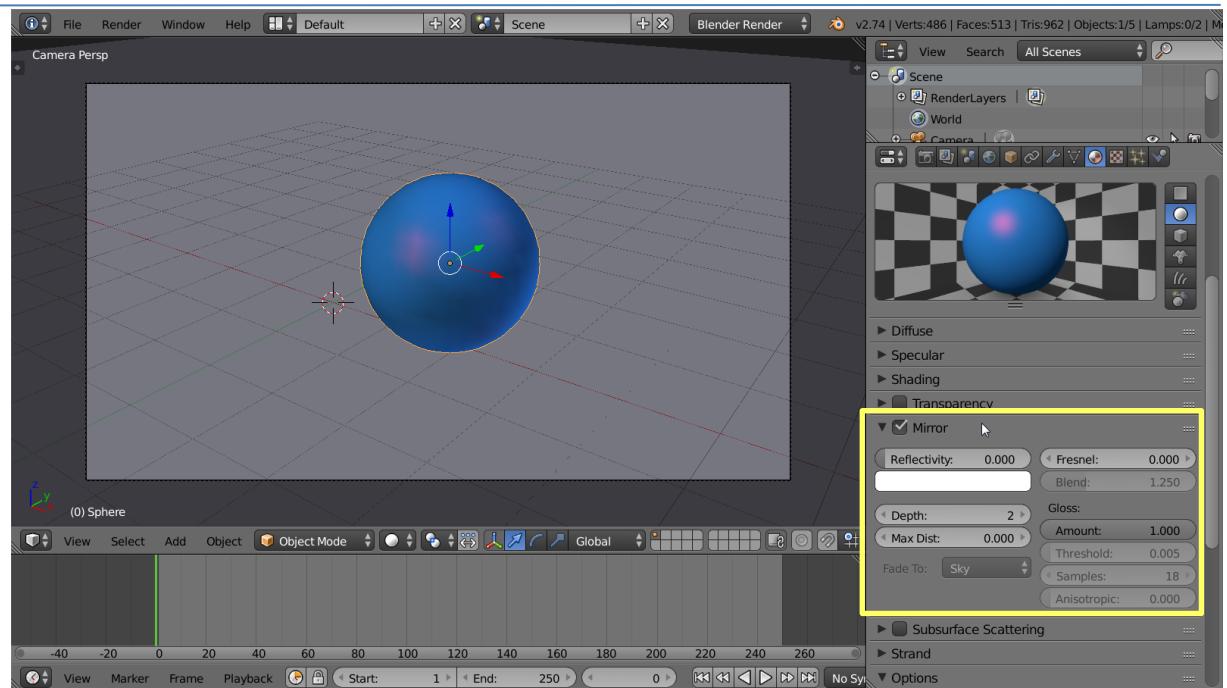
If Alpha is set to 1, then  
the surface is fully  
opaque



# Mirror

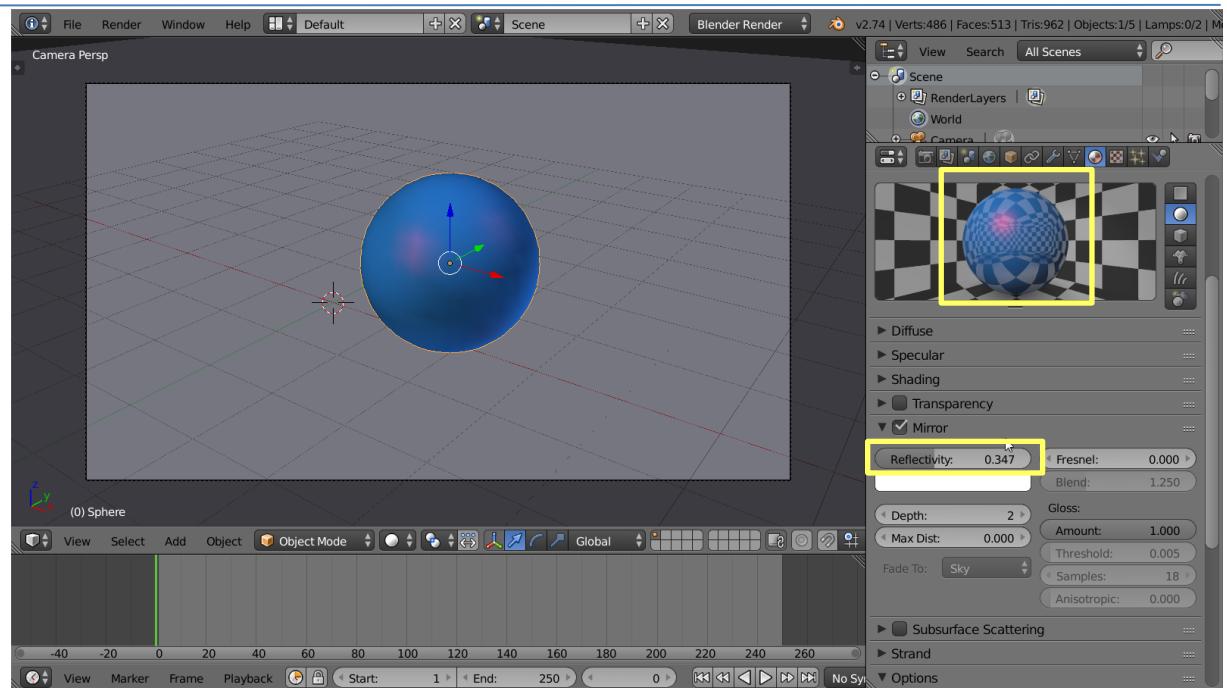
Mirror reflections are computed in the Blender Render using ray tracing.

Ray tracing can be used to make a material reflect its surroundings, like a mirror.



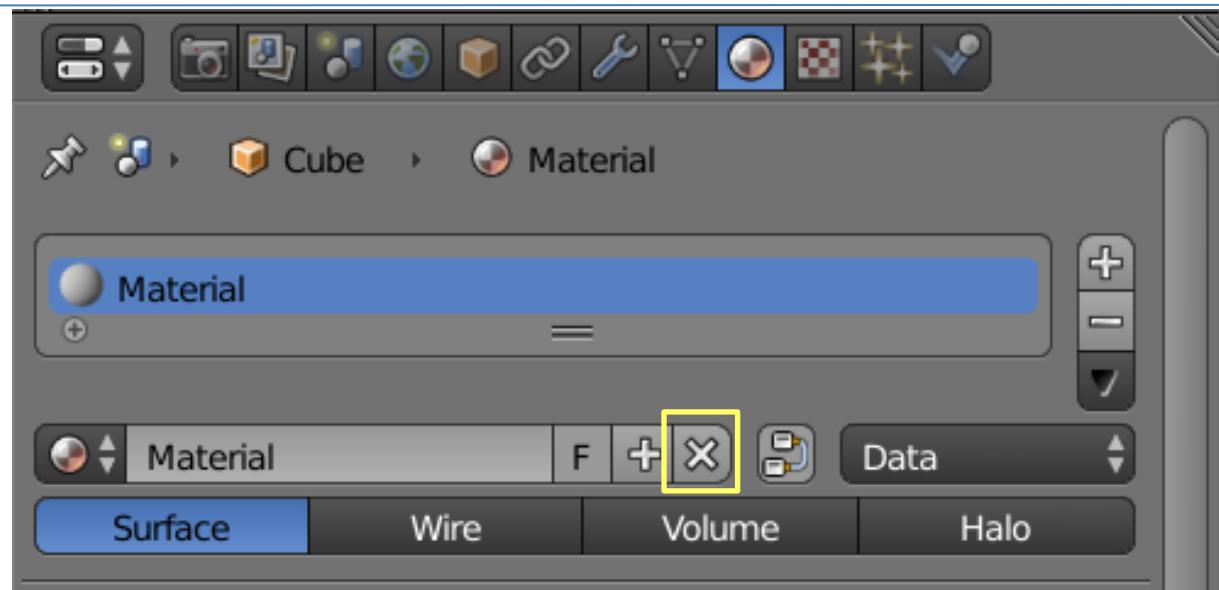
# Change Reflectivity

If reflectivity is set to 1.0,  
it gives a perfect mirror



# Deleting a Material

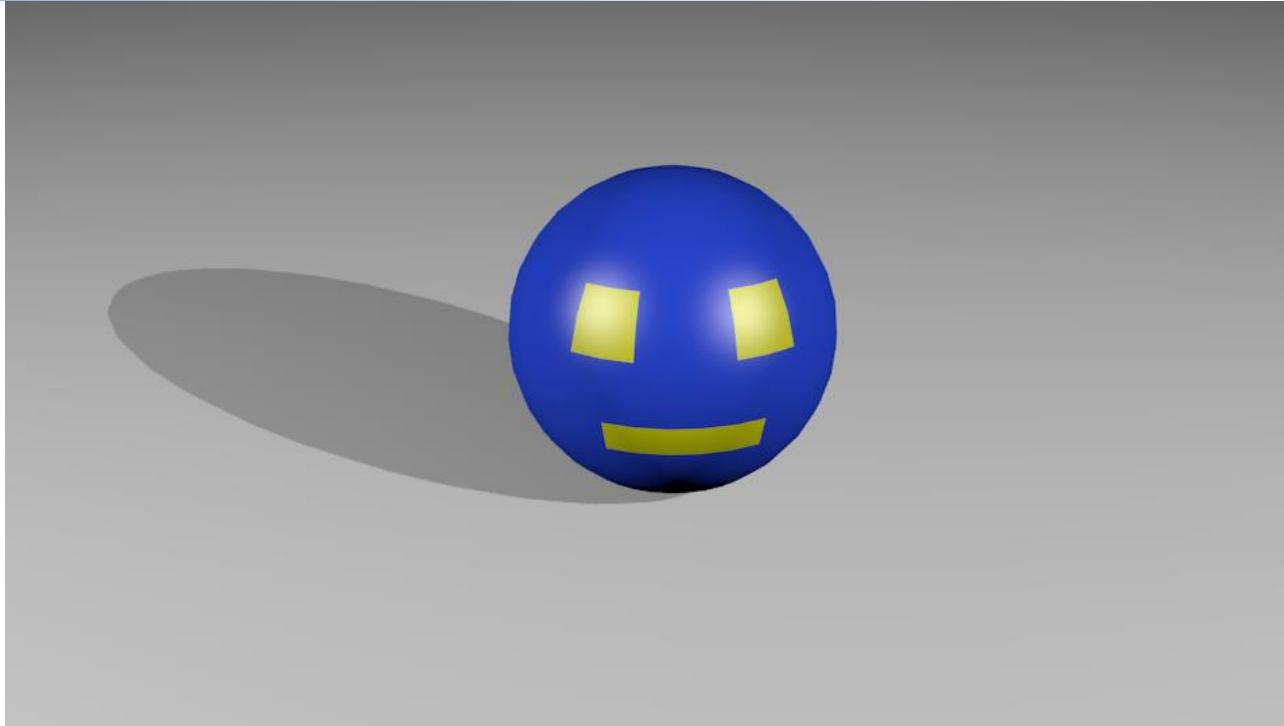
Select the material and click on 'X' in the available Materials List entry.



# Multiple Materials

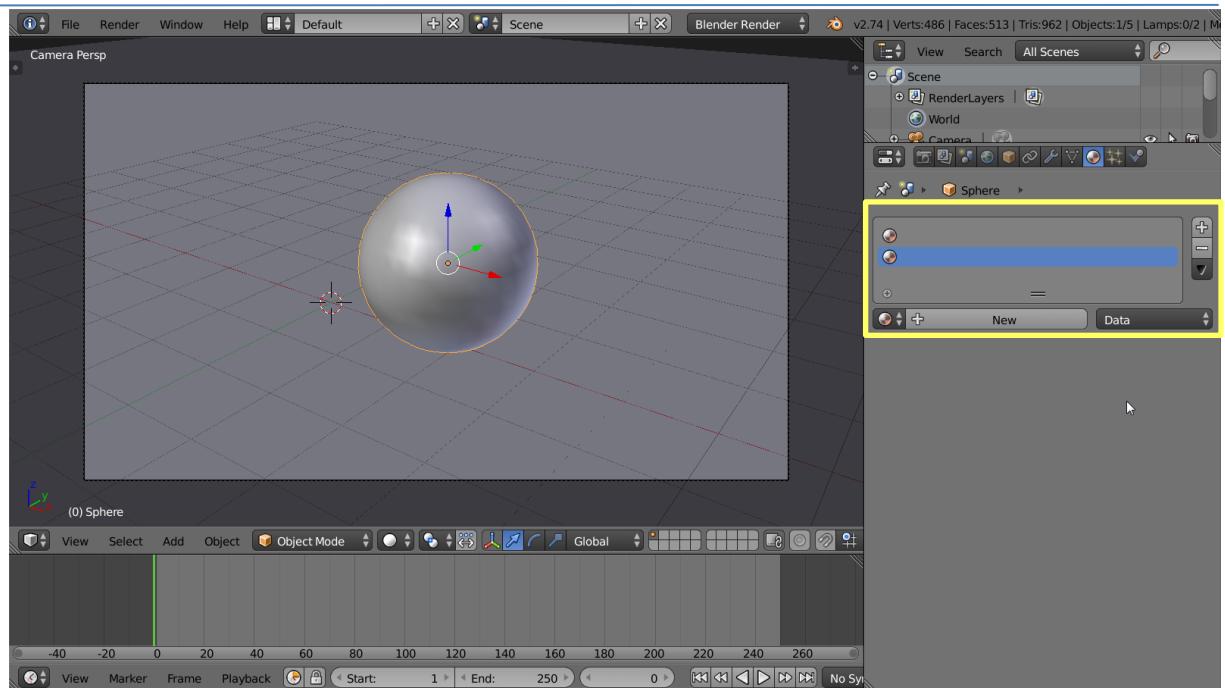
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# Create a Smiley!



# Step 1: Create new Materials slots

- Click on ‘+’ button in Active Material panel
- Create two slots



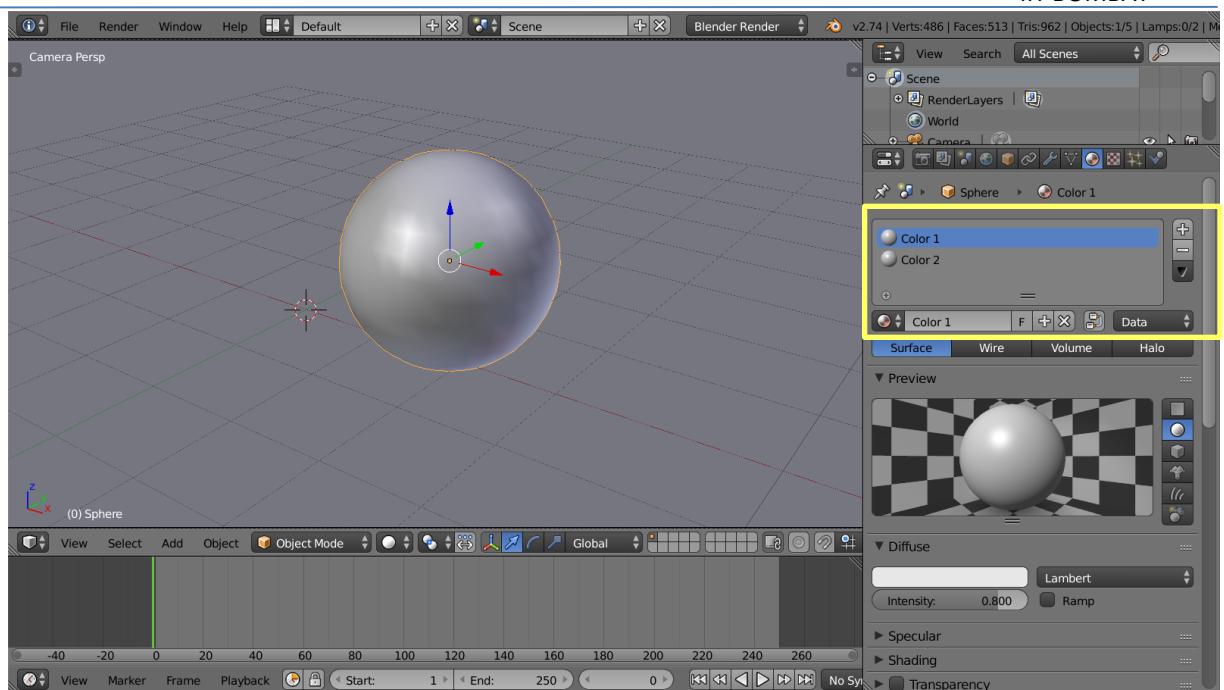
# Step 2: Add new Material

- Click on ‘New’ button to create new material
- Repeat the process for the second material slot



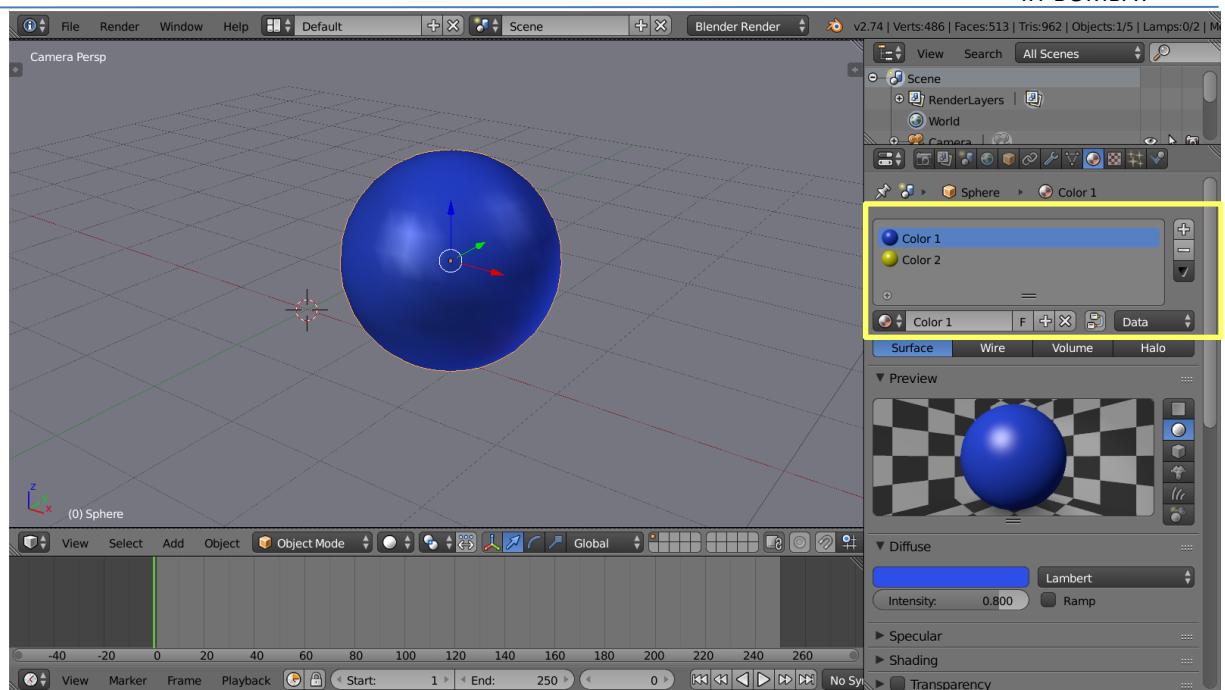
# Rename Materials

- Rename both the materials as Colour 1 and Colour 2



# Step 3: Change Diffuse Shaders

- Change the Basic colour of both the materials by changing Diffuse Shaders
- Repeat the process for the second material slot



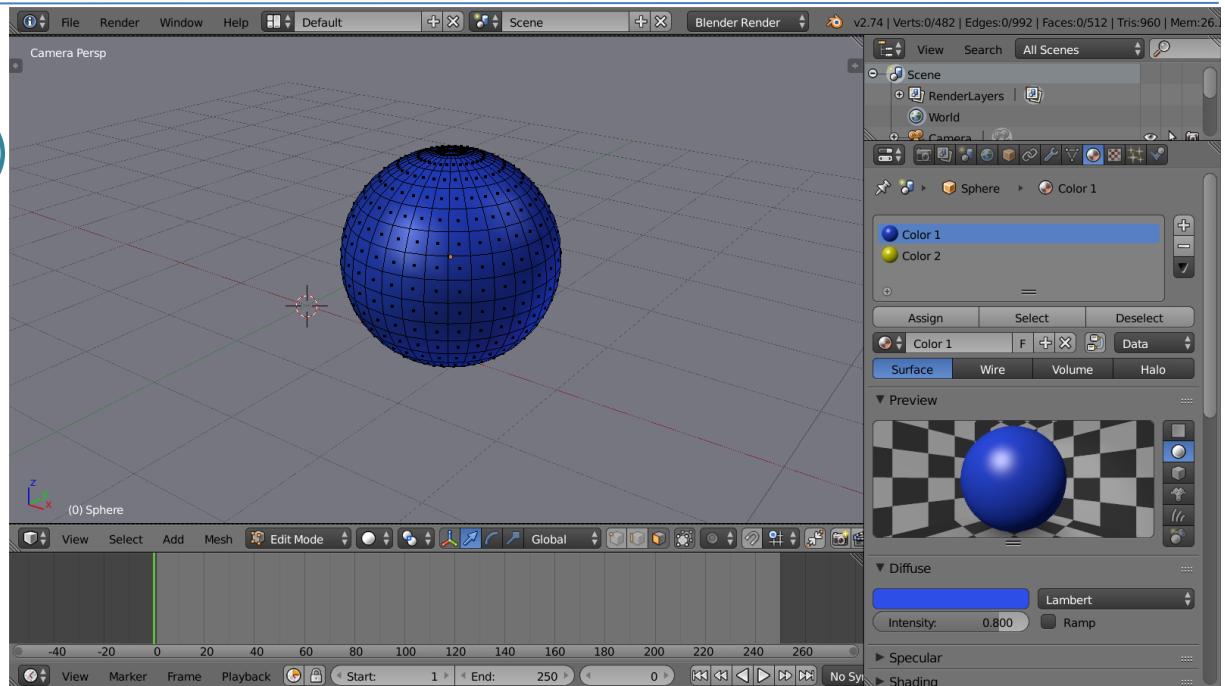
# Tip



- The first material which is added to any object is default material, it's applied to entire surface of the object
- To apply the second material to the same object, it needs to be applied in the Edit mode, by selecting the surface of the object and assigning the material

# Step 4: Edit mode

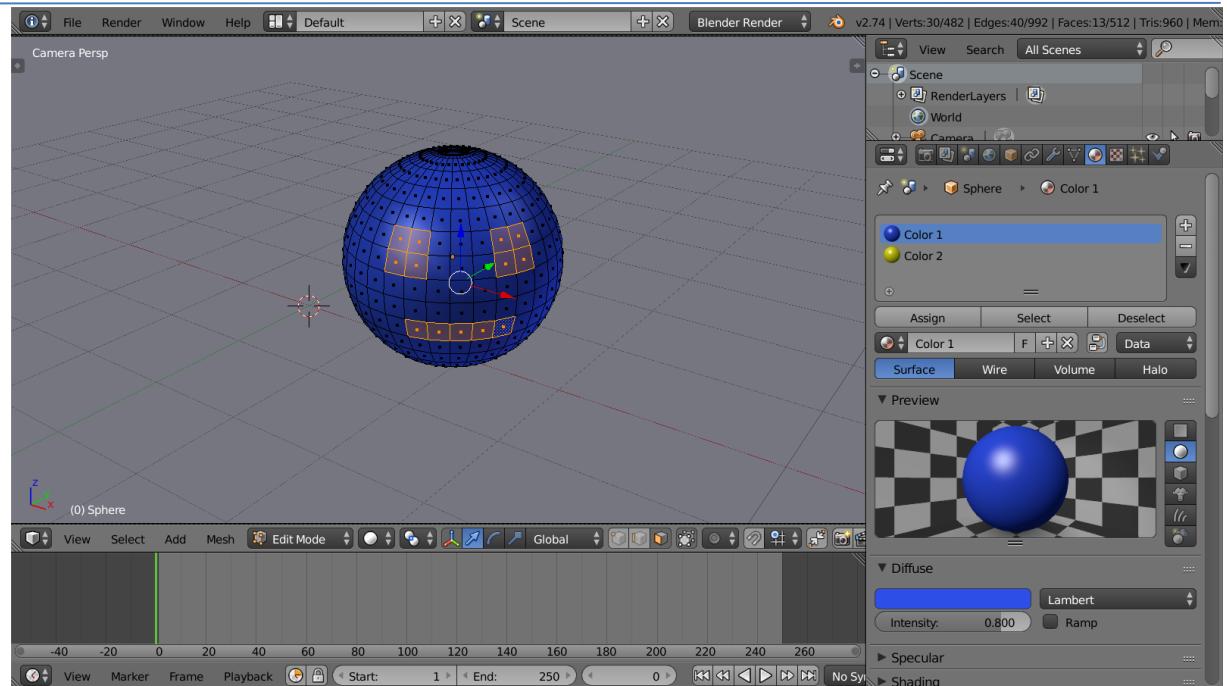
- Edit mode (Tab)
- Deselect the vertices (A)
- Face selection mode (Ctrl + Tab)



# Step 5: Select faces

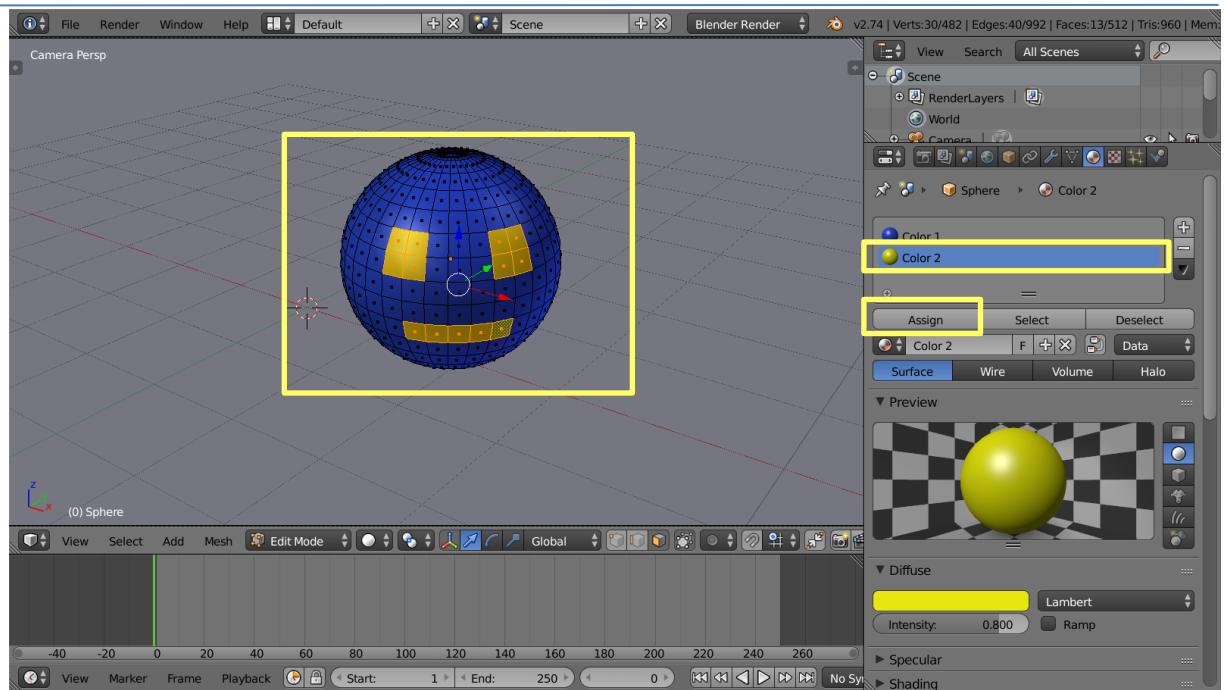
Select the surface on which the second material needs to be applied.

- Select multiple faces  
(Shift + Right click)



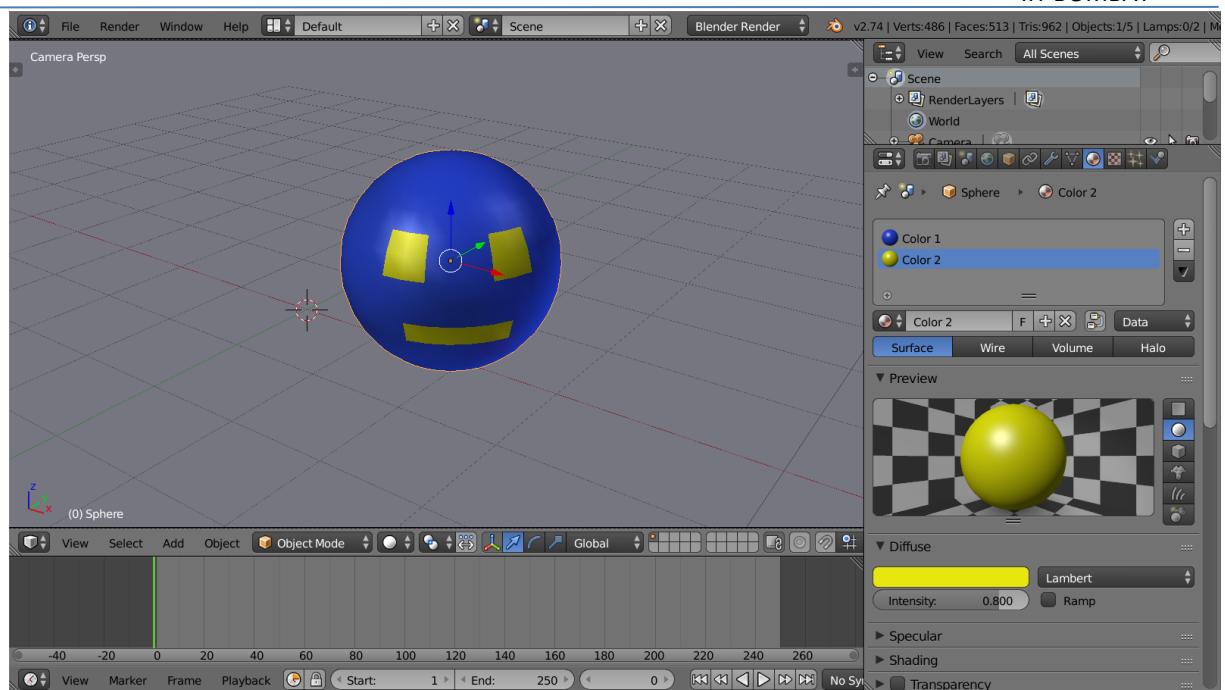
# Step 6: Assign material

- Select the second material
- Click on ‘assign’ option below the Active material window



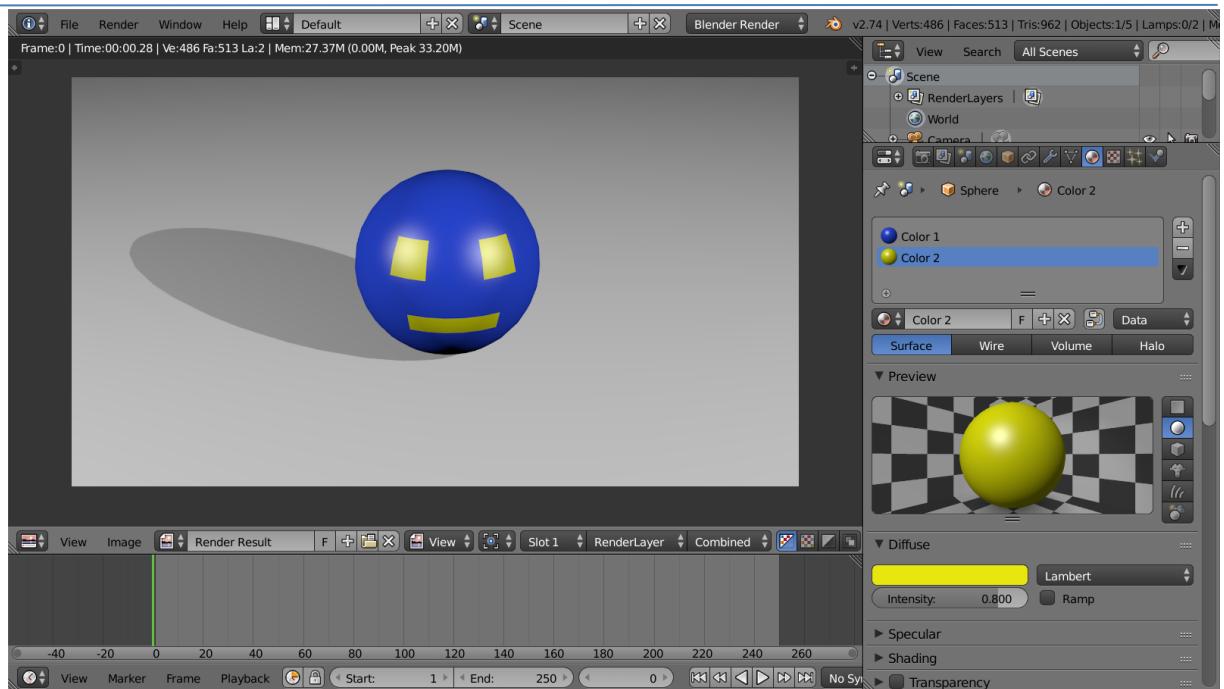
# Object mode

- Object mode (Tab)



# Render

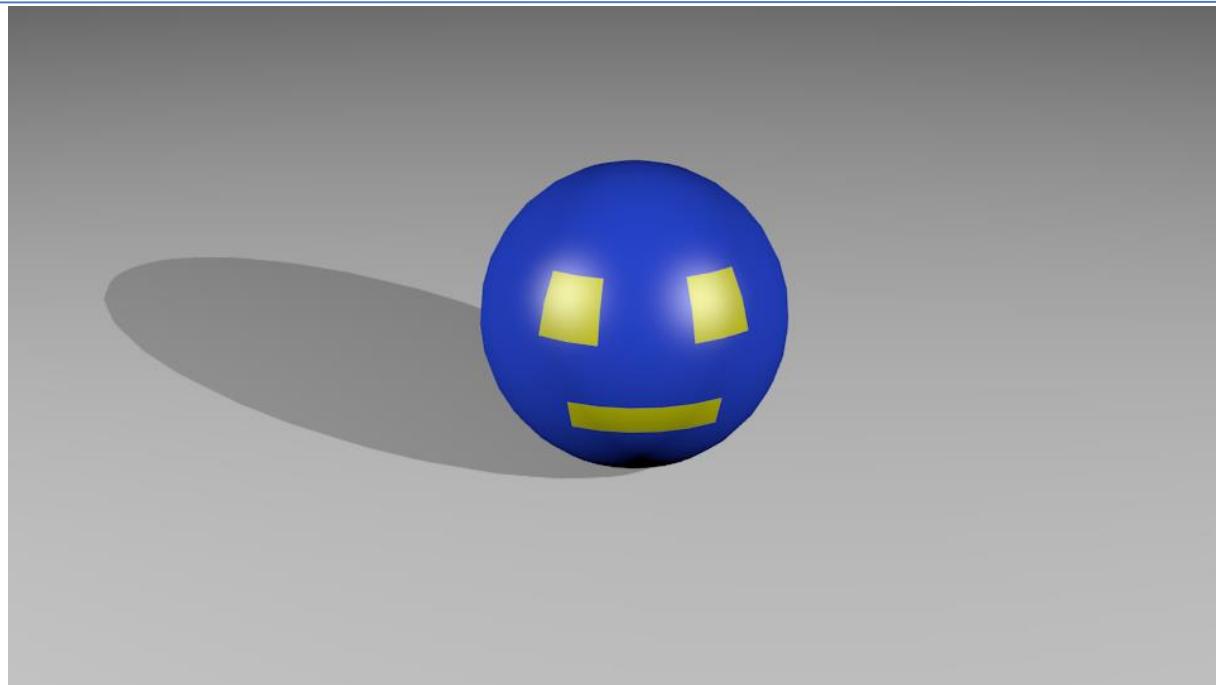
- Render (F12)
- Save render file (F3)



# Smiley

The Smiley is ready!!

Follow the steps to add  
more materials and  
colours.



# Next session

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## Texture