



I n t r o d u c t i o n

Blender lets you give many different materials to a single object. The purpose is dual :

- you can get very simple meshed objects, with a very complex materials assembly that will make your simple mesh look far more furnished ;
- for highly detailed or complex modelling steps, you can create many sets of vertices in order to edit them, select them or delete them with greater ease.

Let's take again our good ol' sphere and see what can be done with it.




MATERIAL INDICES

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Step 1 :


We will first create the many different materials that we will need in this tutorial.

Call the Material Buttons (**F5-KEY**) and click on the  icon to create a new material. It can prove very important to give it a self-explanatory name, either if you want to name it by the material purpose (ex: wood) or by the set of vertices you gather altogether (ex: left_arm). Just click on the name of the material to change it. A red cursor appears and lets you modify the entry. You can now type in the name you want.



Now that we know how to create a new material and how to rename it, we will create and rename four of them !

Click on . A new default material appears. Name it 'Red' and modify the R, G and B sliders in order to get **R 1.000, G 0.000** and **B 0.000**.

Click on  again and rename the new material 'Green'. Modify the sliders in order to get **R 0.000, G 1.000** and **B 0.000**.

Start again and create 'Blue' (**R 0.000, G 0.000** and **B 1.000**) and 'Grey' (**R 0.800, G 0.800** and **B 0.800**).



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Step 2 :

Call the Edit Buttons (**F9-KEY**). You will see the following set of buttons, that enables you to work with material indices. We will make a brief tour of these before putting them at use, in the next step.



First of all, please pay a look to the material name currently active : 'Material' in this example. You already understand the interest in giving to materials self-explanatory names, because if you don't, you'll have trouble to find your way through them, even if there's a small previsualization window of the associated material, in the first row, on the left, which displays the default 'light grey' of Blender.

The **1 Mat : 1** button states that the object has **1** defined material (the first number) and that the material number **1** (the second number) is defined as the active material. On our way through this tutorial, we will add many materials to the same object, and we will see the number on the left increase and show the corresponding number of materials available for the object. The number on the right (the active material) can be changed by clicking on the left side of the button (in order to diminish its index by one) or on the right side (in order to increase its index by one), thus defining the active material. Important note : the material index is limited to 16 for a given object. This means that you can't assign more than 16 different materials to the same object ! But everything is cool : 16 is well enough for us poor guys.

The **New** button creates a new material (the previous button thus become something like 3 Mat: 3). Call immediately the Material Buttons (**F5-KEY**) to rename the material and give it a different color (and perhaps other material properties).

The **Delete** button erase the index of the active material. The material still exists and be reused elsewhere, either with another object or with another material index for the same object : the same material can be reused as many times as needed in the material indices of the same object.

The next button needs you to select the faces of the object you want to assign materials at. To do this, please select your object (right mouse buttons), enter the edit mode (**TAB**) and select the vertices belonging to the same set or family, according to your will (**B-KEY** one time in order to get a boxed selection, **B-KEY** two times to get a circular selection). In fact, what is selected and memorized by Blender are the faces connecting these vertices.

The **Assign** button assigns the material corresponding to the active index to the faces connecting the selected vertices.

As we said before, material indices also prove useful in the modelling of complex meshes. Try to think that you are modelling a human head ; you certainly would like to be able to gather the vertices shaping the ears, the lips or the nose into coherent sets. If you gave different material indices to these different parts of the head, then things will be easy ! Enter the edit mode (**TAB**) and make use of the two following buttons :

The **Select** button adds to the active selection the vertices belonging to the faces assigned to the active material index. For example, if you created a material index named 'Nose' and assigned the vertices belonging to the nose to this material index, then you can recall anytime the selection simply by clicking on this button !

The **Deselect** enables the opposite. Suppose that you have selected all the vertices of the face, and you want to duplicate them all except those belonging to the ears. You just have to select all the vertices of the human face (**A-KEY**), to activate the proper material index, and to click on **Deselect** !

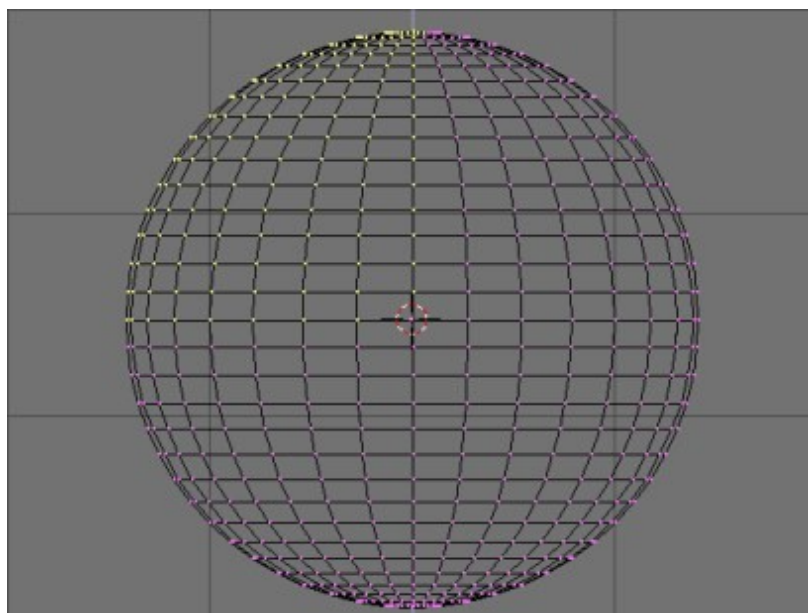
As a final word, the **?** button returns the material index belonging to a selected face or vertex.



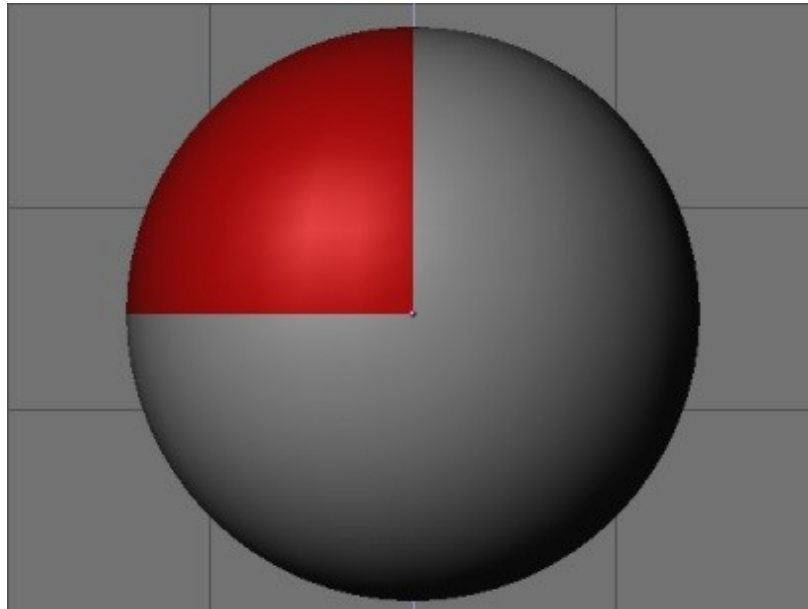
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Step 3 :

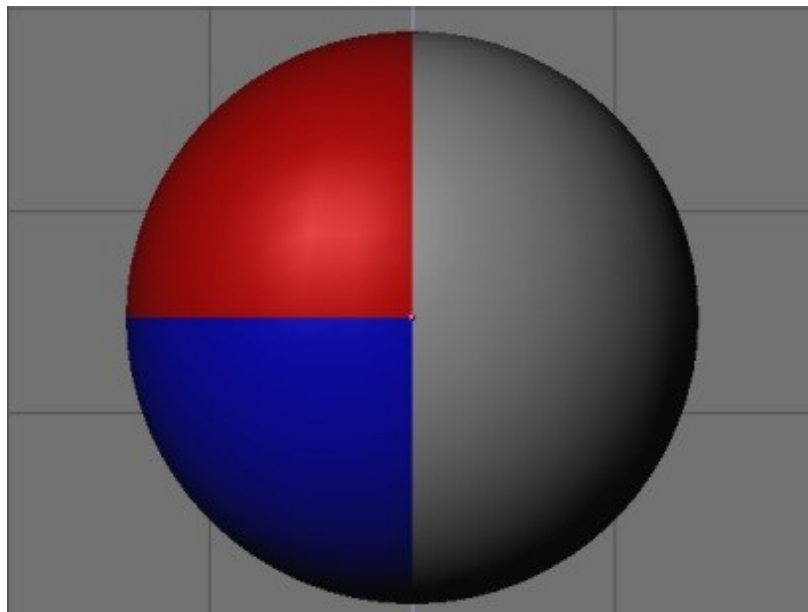
Let's get back to our sphere model. Select it (right mouse button) and enter edit mode (**TAB**). In front view (**NUM-1**), select the left half of the sphere (**B-KEY**, once, with the left mouse button). Toggle to the side view (**NUM-3**) and deselect the lower half of the previous selection (**B-KEY**, once, but with the right mouse button, this time !). Your selection should look like that.



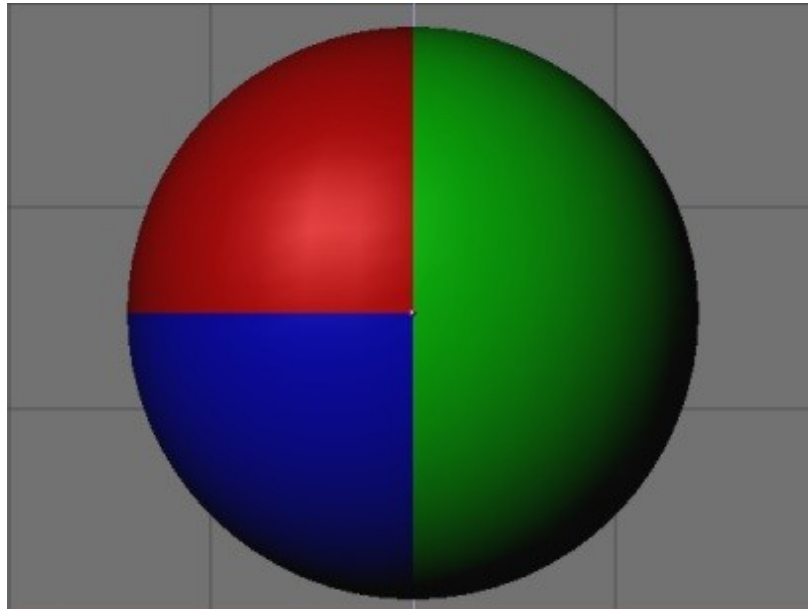
In the Edit Buttons (**F9-KEY**), click on the **New** button that we saw in the previous step. The material index should increase from 1 Mat: 1 to 2 Mat: 2. In the Material Buttons (**F5-KEY**), select the material created previously and called 'Red', and then go back into Edit Buttons (**F9-KEY**). Click on the **Assign** button. Select the shaded visualization mode (**Z-KEY**) and check whether Blender has correctly assigned the 'Red' material to the selected faces.



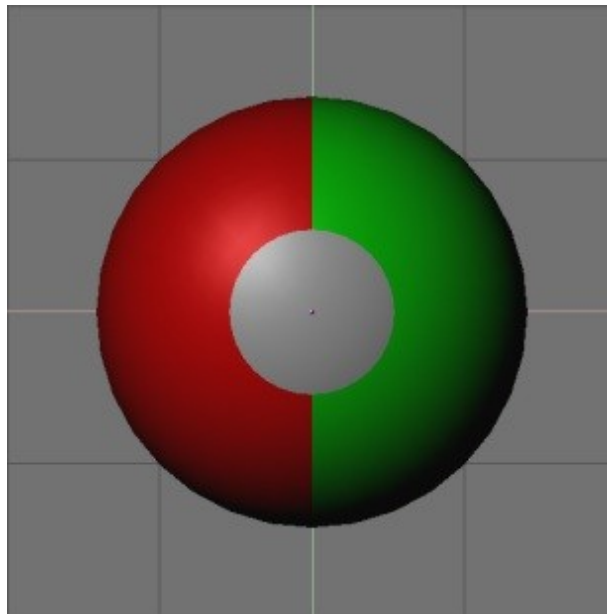
Leave the shaded visualization mode (**Z-KEY** again) and deselect all the vertices (**A-KEY** until there's no yellow vertices left). In front view (**NUM-1**), select the left half of the sphere (**B-KEY**, once, left mouse button). Toggle to the side view (**NUM-3**) and deselect the upper half of the previous selection. In the Edit Buttons (**F9-KEY**), click on the **New** button. The material index should increase from 2 Mat: 2 to 3 Mat: 3. In the Material Buttons (**F5-KEY**), select the previously created 'Blue' material, and go back to the Edit buttons (**F9-KEY**). Click on the **Assign** button. Select the shaded visualization mode (**Z-KEY**) and check whether Blender has correctly assigned the 'Blue' material to the selected faces.



Leave the shaded visualization mode (**Z-KEY** again) and deselect all the vertices (**A-KEY** until there's no yellow vertices left). In front view, (**NUM-1**), select (**B-KEY**, once, left mouse button) the right half of the sphere. In the Edit Buttons (**F9-KEY**), click on the **New** button. The material index should increase from 3 Mat: 3 to 4 Mat: 4. In the Material Buttons (**F5-KEY**), select the previously created 'Green' material and go back to the Edit Buttons (**F9-KEY**). Click on the **Assign** button. Select the shaded visualization mode (**Z-KEY**) and check whether Blender has correctly assigned the 'Green' material to the selected faces.



You should now be familiar with the use of indices material, but let's try a last move. Leave the shaded visualization mode (**Z-KEY**). In top view (**NUM-7**), select (**B-KEY**, twice !) many rings of vertices. In the Edit Buttons (**F9-KEY**), click on the **New** button. The material index should increase from 4 Mat: 4 to 5 Mat: 5. In the Material Buttons (**F5-KEY**), select the previously created 'Grey' material and go back to the Edit Buttons (**F9-KEY**). Click on the **Assign** button. Select the shaded visualization mode (**Z-KEY**) and check whether Blender has correctly assigned the 'Grey' material to the selected faces.



Here we are near total completion of this tutorial ! Before jumping to the next step and have some fun with all these features, let's clean our material indices. In the Edit Buttons (**F9-KEY**) we note (thanks to the 5 Mat: 5 button) that we have five material indices. However, we only use four of them : Red, Blue, Green and Grey ! In fact, the first index is the standard index number attributed to our default base material of the sphere, just before we started adding indices. As this material is not useful in our case, we are about to delete it. Click on the left part of the 5 Mat: 5 button until you get 5 Mat: 1. The name of the material to be deleted should appear obviously at the top of the set of buttons, be sure to check it before erasing anything. Click on **Delete**. The button now displays 4 Mat: 4 and if you check the indices by clicking on the right part of the button, you should see each of your four materials appearing at their new index number.

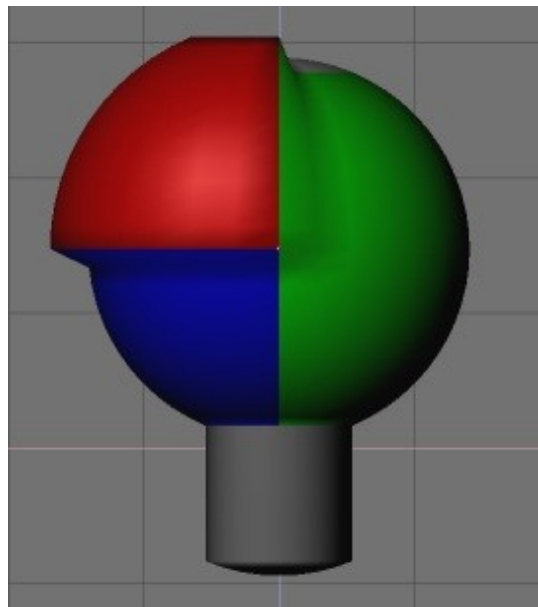


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Step 4 :

We are almost at the end of our study about the material indices in Blender. The only left thing to see is how material indices can be useful during the modelling of an object.

Select your sphere (right mouse button) and enter the edit mode (**TAB**). Call the Edit Buttons (**F9-KEY**). Click on the **n Mat: n** button until you get the material index attributed to the 'Red' material (for example). Click on the **Select** button. Now click on the **S-KEY** and move your mouse cursor in any direction. Confirm the change by pressing the **ENTER-KEY** when you are satisfied. Deselect all the active vertices (**A-KEY**). Click on the **n Mat: n** button until you get the material index attributed to the 'Grey' material. Click on the **Select** button. Toggle to the front or side view (**NUM-1** or **NUM-3**). Deselect all the vertices belonging to the upper hemisphere of the object. Press the **E-KEY** and extrude the selection toward the bottom of your screen. You should get something like this.



Well, that's right ! This object looks like nothing in particular, but the purpose of this step wasn't to model anything, but only to see how we could use the material indices for 'selective selection' of vertices from the same family. Now, you can tweak all your materials exactly as you do every day, and give them textures, transparency, etc. according to your needs !