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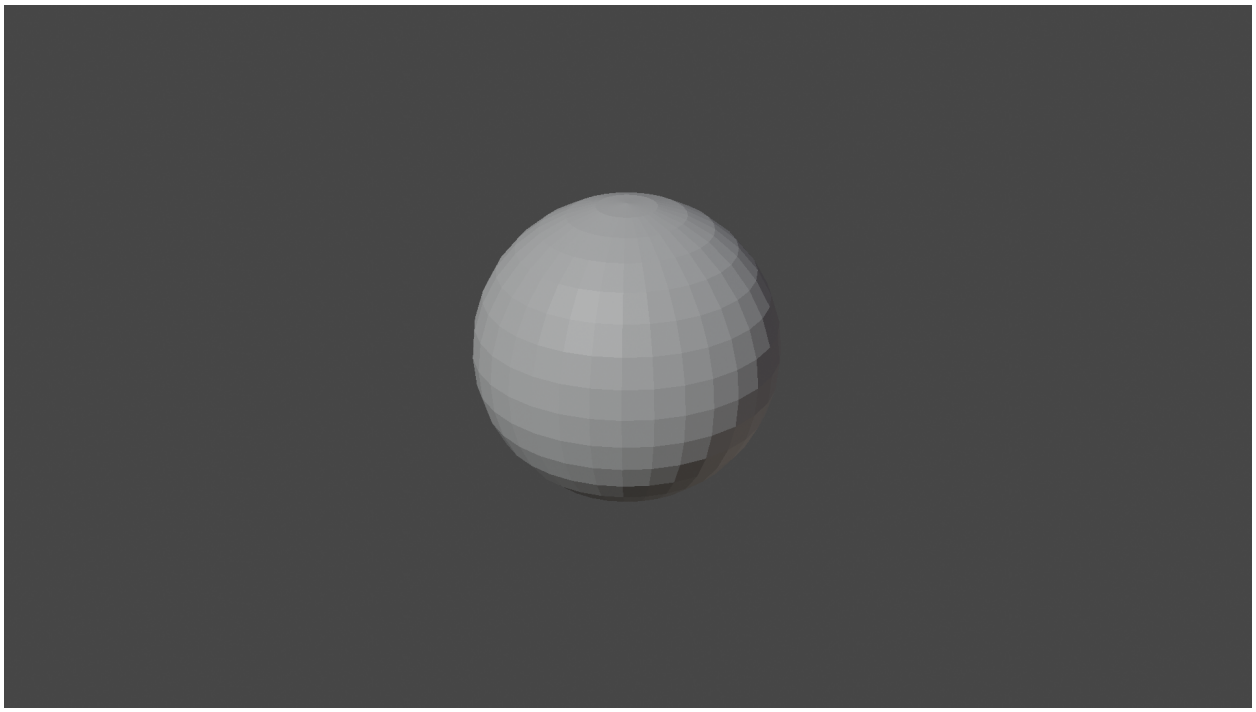
CSC 322

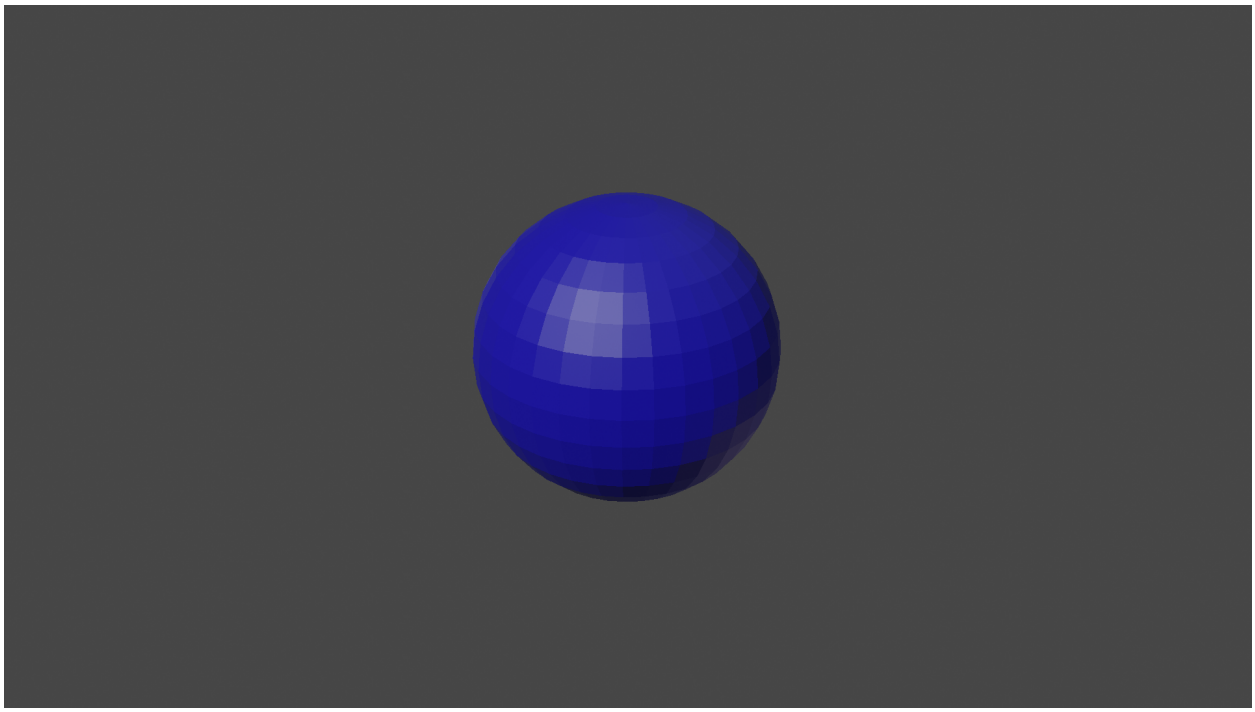
11/15/21

Blender Activity #1

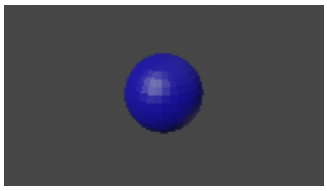
Checkpoints:

1. 

2.

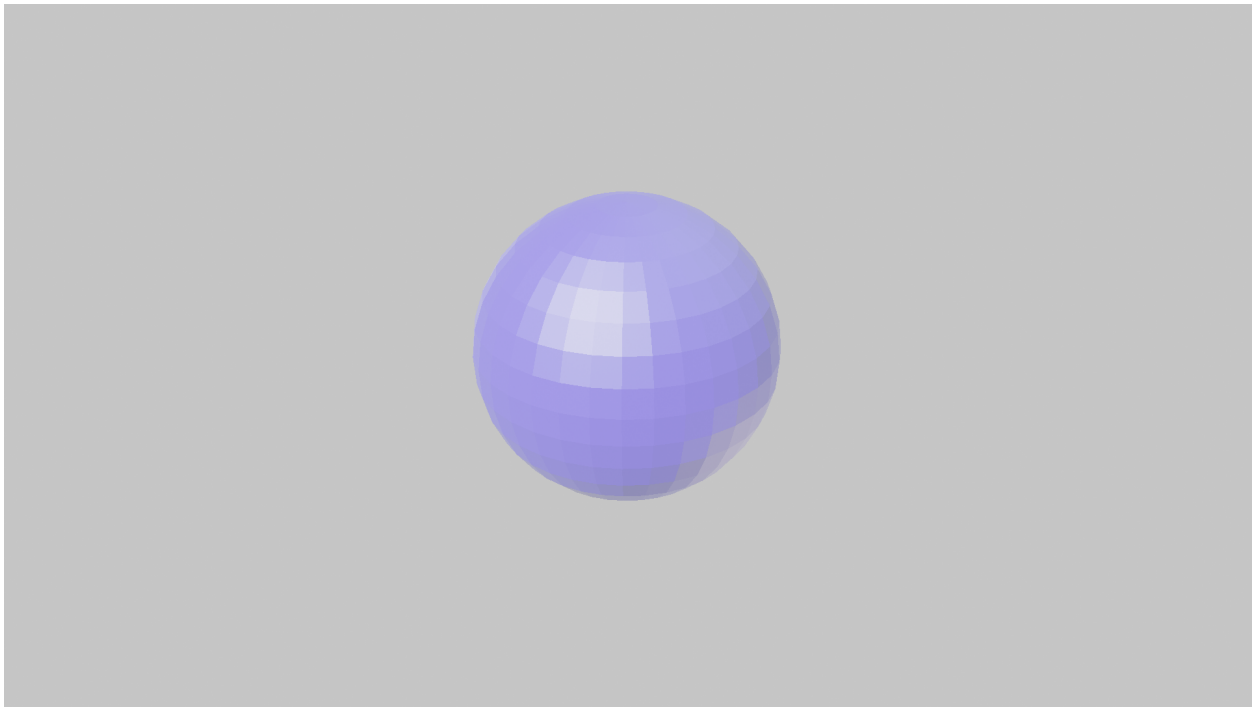


3.



4. Changing the resolution made the image take up less pixels, so it appears smaller and less detailed.

5.



6. Changing the gamma value resulted in a much brighter image, as all the colors of both the object and the background have been made much lighter.

Questions:

1. Light interacts differently with different objects based on their reflectiveness - a mirror bounces off much more light than dirt, for example - their transparency - a pane of glass allows light through, while a brick wall does not -
2. The color we perceive an object to be is based on which wavelengths of light are reflected back to our eyes. Different wavelengths result in different colors, and different wavelengths bounce off different objects due to the objects absorbing certain wavelengths and bouncing back others. For example, light is perceived as white, but when it bounces off a blue ball, all colors but blue are absorbed and blue is reflected back to our eyes, so we see it as being blue.

3. The advantage of YUV color space is that it can take up much less space, resulting in a smaller file size. This is because one can shrink the chroma information without making the image seem different, due to our eyes' lesser sensitivity to changes in hue compared to changes in brightness.
4. Color for lights is an additive color palette, meaning that it becomes brighter the more color is added (since more color = more light = brighter). Color for paints is a subtractive color palette, meaning that it becomes darker the more color is added (since paint absorbs light). R + G + B for light is equivalent to the color white, while for paint it is equivalent to the color black.
5. Green screens are green because it is a color that is very distinct from that of any part of a person as well as being an unusual color for clothing (if green clothing must be worn, a blue screen is often used instead). Additionally, it is a very vivid color, so it is easy to distinguish for an editing program and as one of the three main RGB colors, it is picked up well by the camera and so is easily isolatable.
6. Cameras generally only have one dynamic range, meaning that they cannot get the high dynamic range needed for HDR photos. To resolve this, one needs to take several photos - usually one underexposed, one normal, and one overexposed - and then merge them together to create a HDR image. This process is called tone mapping and without it cameras are generally incapable of taking HDR photos.
7. The different energy levels of the different wavelengths of visible light activate different cells within the retina of the eye, which determines what color one sees. These wavelengths are associated with these colors as they are the colors seen when these wavelengths of light enter the eye.