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CSC 322
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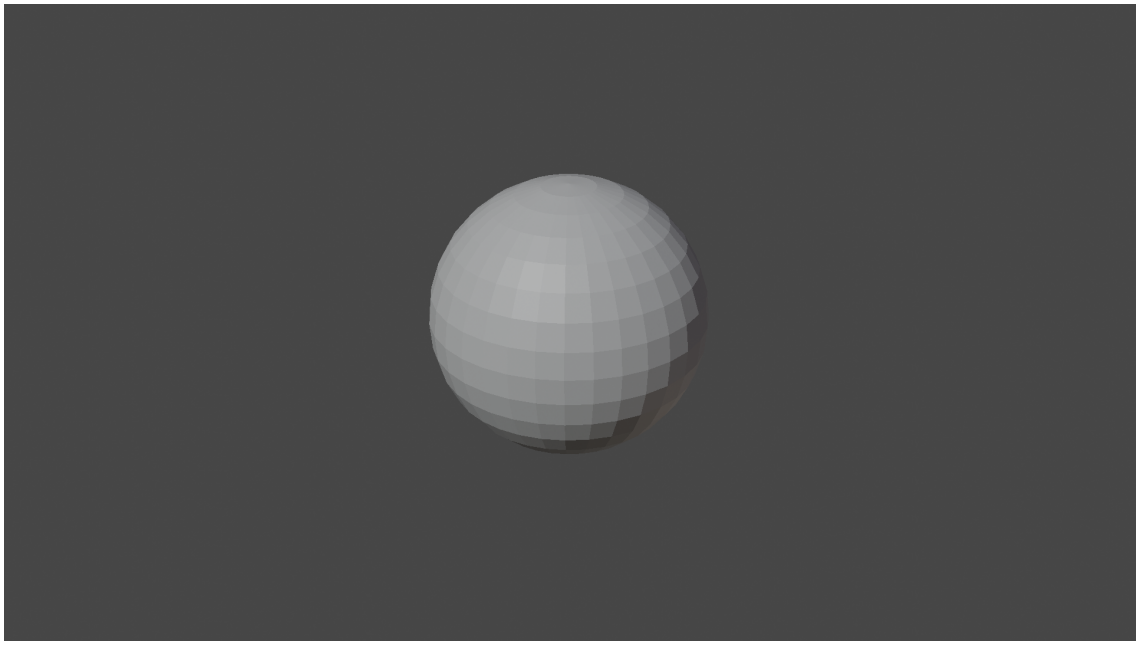
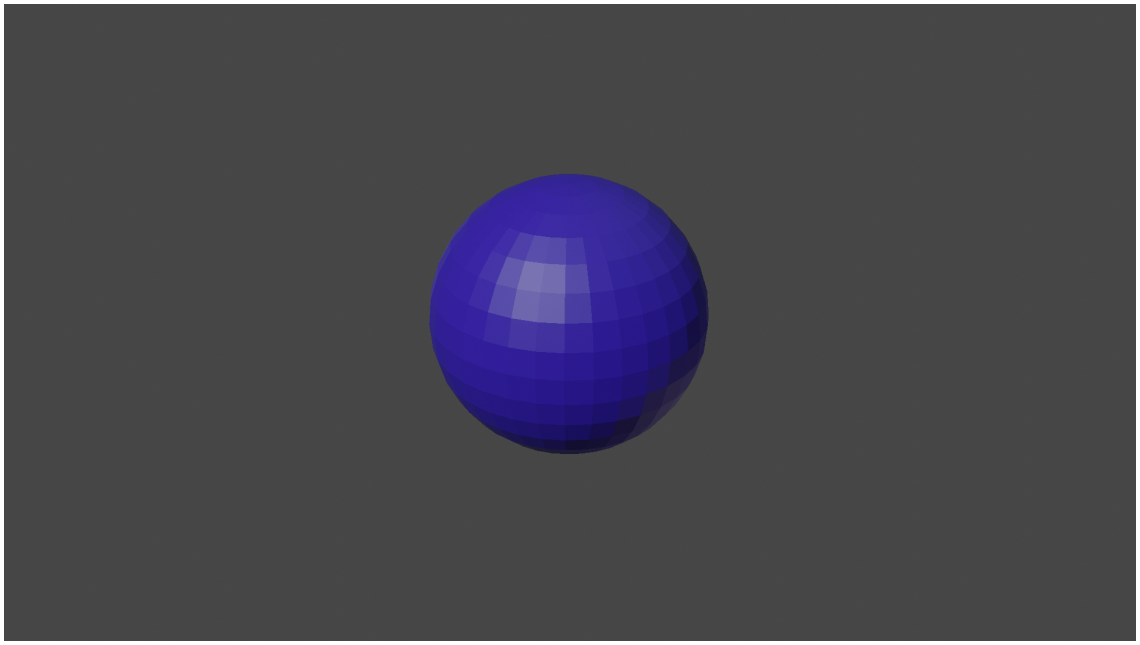
Blender Basics

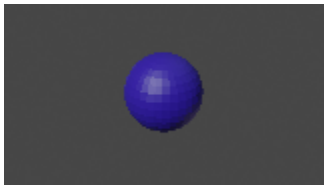
Checkpoint 0: Downloaded and Ran Blender
Checkpoint 1: Default Sphere



Checkpoint 2: Colored Sphere

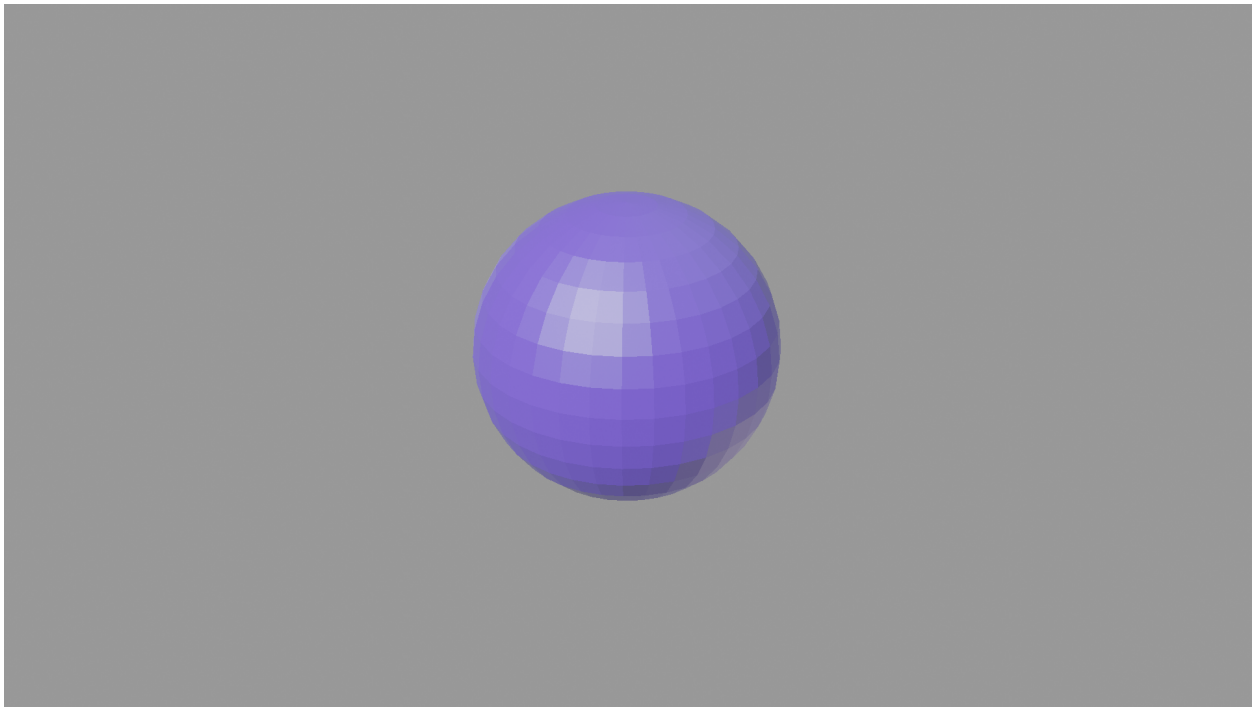


Checkpoint 3: 160x90 Resolution Image



Checkpoint 4: Changing the resolution made the image much smaller and blurrier. A higher resolution makes the image larger and more clear, while a smaller resolution makes the image blurry.

Checkpoint 5: Gamma changed from 1 to 2.5



Checkpoint 6: The image in checkpoint 5 with the higher gamma appears to be brighter. The gamma effects not only the sphere but the background as well.

1. How does light interact differently with different objects in real life? Give 3 examples.
    a. Light reflects off water
    b. Light comes from things like fire, lamps, sun, electricity.
    c. Light is absorbed by dark things and reflected by light things

2. Why do objects appear to have different colors to our eyes?
    Because different objects absorb and reflect light differently, giving them the appearance of having different colors. How an object absorbs and reflects light is what creates its color

3. What is the advantage of using YUV color space?

   YUV color-spaces are a more efficient coding and reduce the bandwidth more than RGB capture can.

4. How are colors added differently for lights compared to paint? What does R+G+B equal to in each case?

   Paint and your color printer use the absorption of different wavelengths of light in order to create colors. The more colors you mix, the closer you get to black. Computer monitors use the addition of different wavelengths of light in order to create colors. The more colors you mix, the closer you get to white.

5. Why are green screens green?

   The bright green of green screens is a tone that rarely shows up on humans, so it is easy to separate them based on color.

6. Why is tone mapping needed for HDR images?

   Dynamic tone mapping is used to make flat HDR images look punchy and full of detail. Tone mapping deals with reducing the tonal values within an image to make them suitable to be viewed on a digital screen.

7. What's the relationship between the wavelength of the light and the color of the light? Why is the wavelength of 700nm associated with red, and 400nm associated with purple?

   Wavelength is associated with energy. The shorter the wavelengths and higher the frequency corresponds with greater energy. So the longer the wavelengths and lower the frequency results in lower energy. The energy equation is E = hv. Color Description Light of any given combination of hue and saturation can have a variable brightness (also called intensity, lightness, or value), which depends on the total amount of light energy present.