

An HDRI Background is a 360 degree panoramic image that contains lighting and texture information for our scene. We use HDRI backgrounds primarily for lighting purposes. They can provide realistic and naturalistic lighting scenarios that are difficult to recreate without them.

HDRI stands for High Dynamic Range Imaging. This means that the image contains more data than a traditional jpeg or png file type.

Remember that background images affect the lighting, shading, and reflections of an object as can be seen in this image below:



HDRI images can be made of custom real world locations by you using third party software and quality camera equipment, or better yet premade HDRIs can be downloaded from the internet. The file extension for an hdri image can be either filename.hdri or filename.exr. Stick with the .hdri format for our blender purposes. The .exr format is somewhat outdated and more difficult to use.

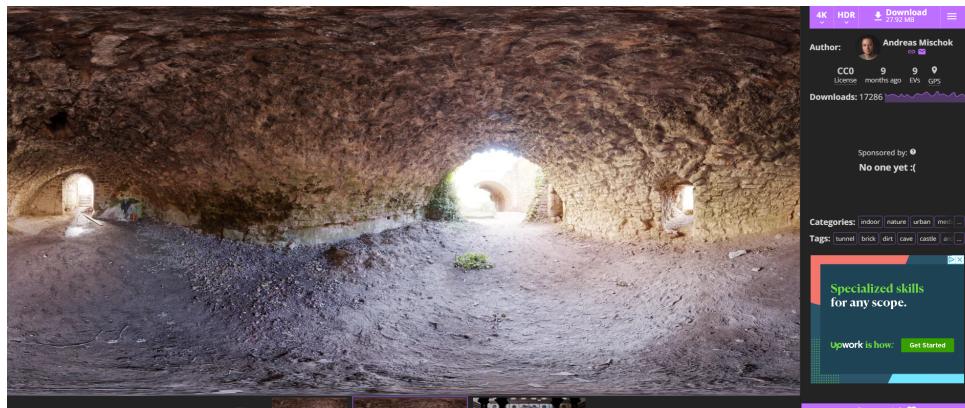
Important note: a 360 degree panorama made using your smartphone will not provide the additional lighting data needed for an HDRI and is insufficient in creating realistic lighting shadows. HDRI is a special format that contains *additional* information in the image about lighting.

Let's find an HDRI to download from the internet.

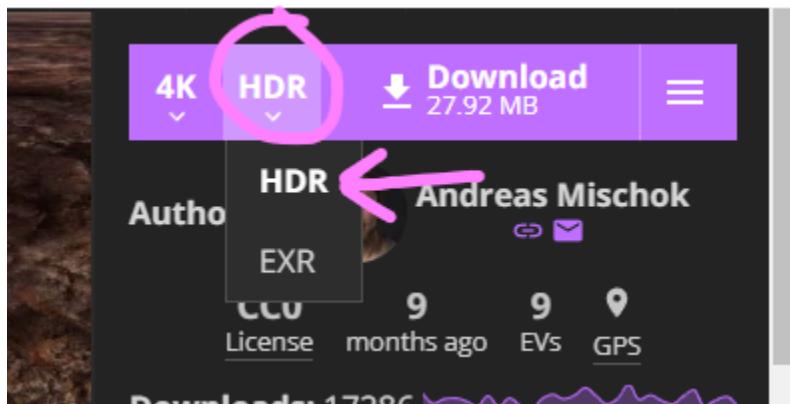
Visit <https://polyhaven.com/> for a good selection of free HDRIs that can be downloaded without needing to create an account.

Browse the HDRIs on their website and find one with interesting lighting.

Here is one that I found:



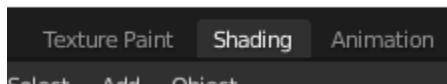
Make sure that the format is available in HDR by clicking the dropdown



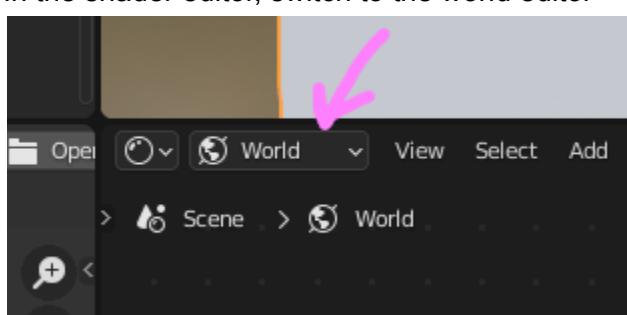
Next, select the size of the image. 4k should be sufficient, but smaller sizes are available if a smaller file size is needed.

Click the download button

Open a new blender scene and add a floor plane beneath the cube and scale it up so the cube sits on the plane  
Next, switch to the shading editor viewport by clicking the shading tab at the top of the screen

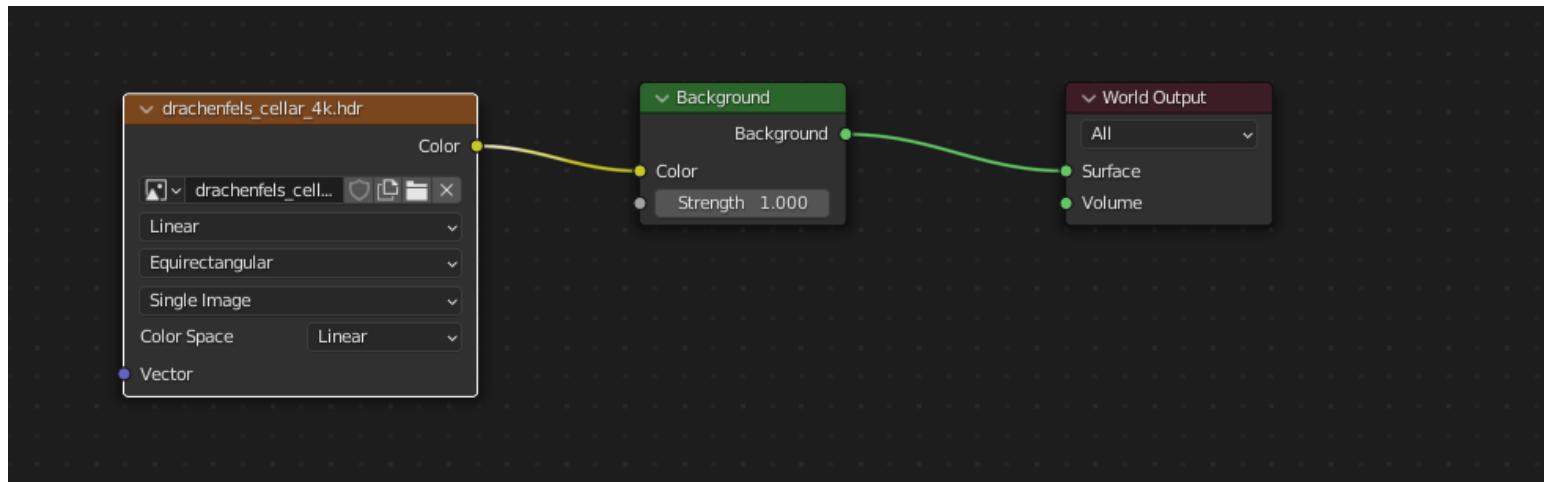


In the shader editor, switch to the world editor



Lets add a environment texture node to our world: shift + a → texture → environment texture

Connect it to the background and open the HDR image downloaded from the internet within the environment texture

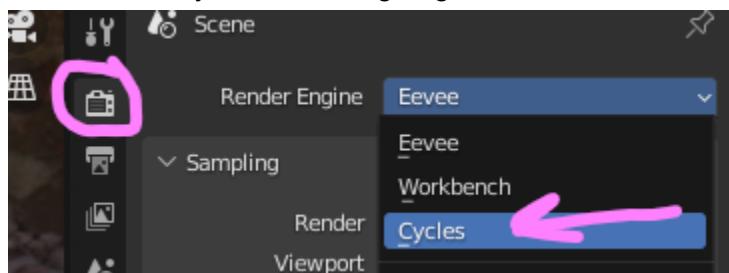


Now switch your scene to rendered view

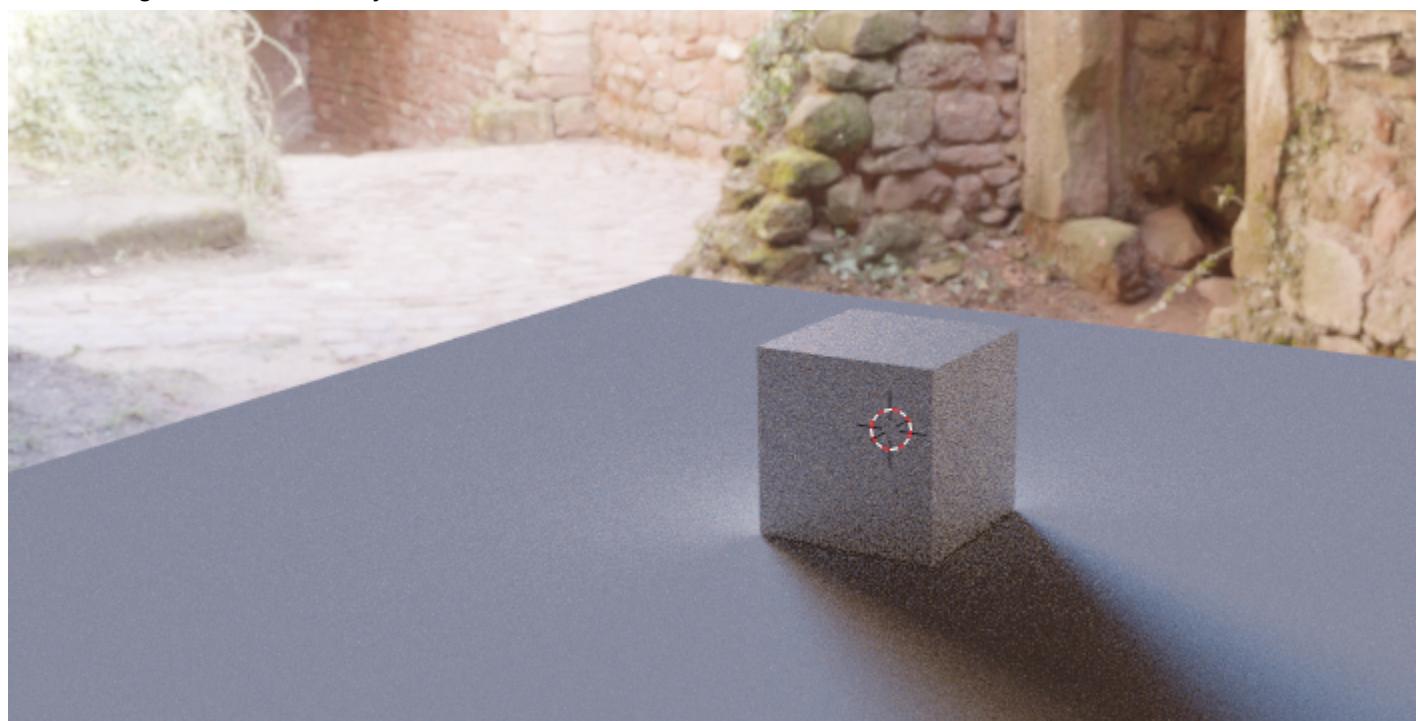


And you will see the background image is visible in the scene. To see the lighting effects, we must use the cycles rendering engine.

Switch to the cycles rendering engine.



The HDRI is now providing all of the lighting for our scene. We can delete the “light” object in our hierarchy  
Click the light in the hierarchy and delete it



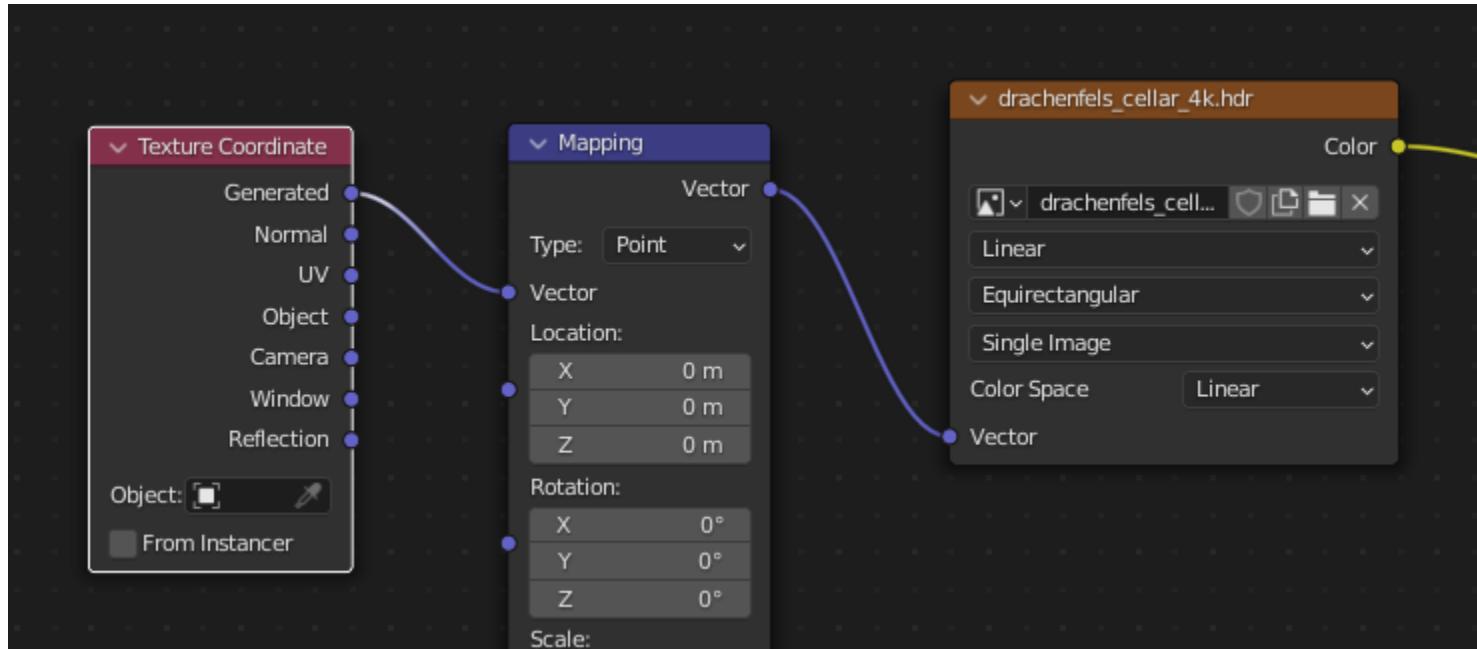
The HDRI is now set up.

To rotate the HDRI around the scene, we can set up a texture coordinate and vector mapping node  
Shift + a → input → texture coordinate

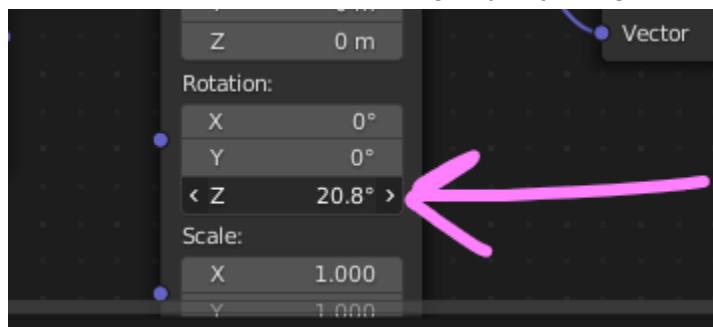
Shift + a → vector → mapping

Connect these generated output from the texture coordinate node to the vector input of the mapping node

Connect the vector output of the mapping node to the vector input of the environment texture



Now we can rotate the HDRI image by adjusting the Z rotation on the mapping node



Your HDRI is now set up