Sketchfab Lighting

Lighting and presenting assets in Sketchfab

Revision: 001

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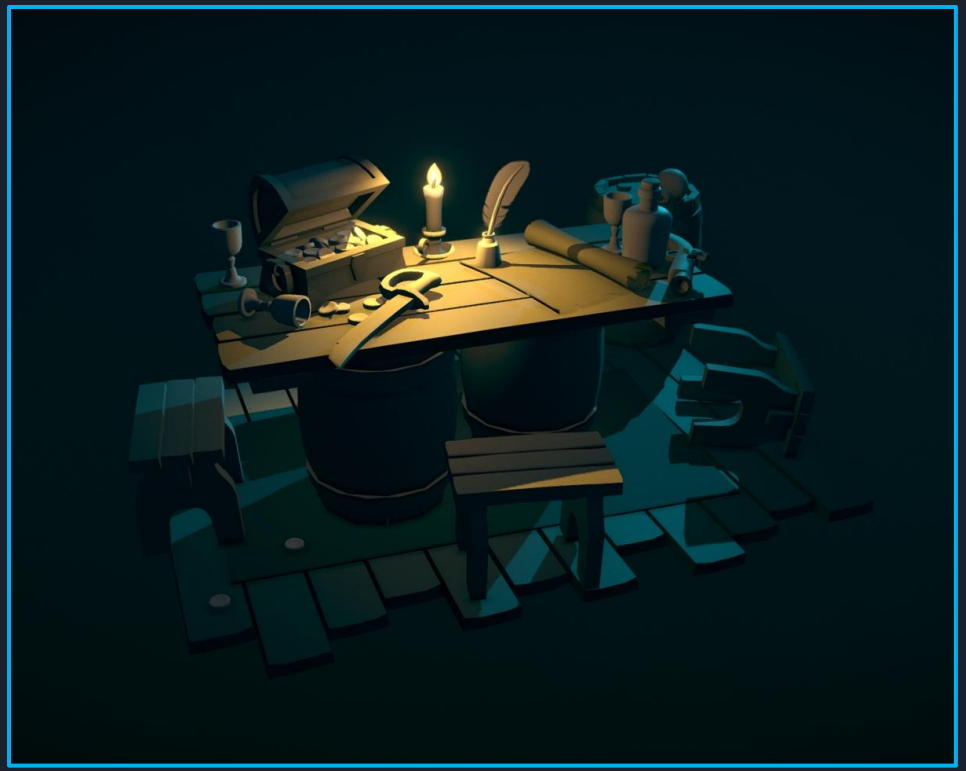
Sketchfab Introduction | Contents



This lesson is intended to give artists a brief introduction to lighting inside of Sketchfab. This lesson will cover the following:

Sketchfab Lighting | Planning

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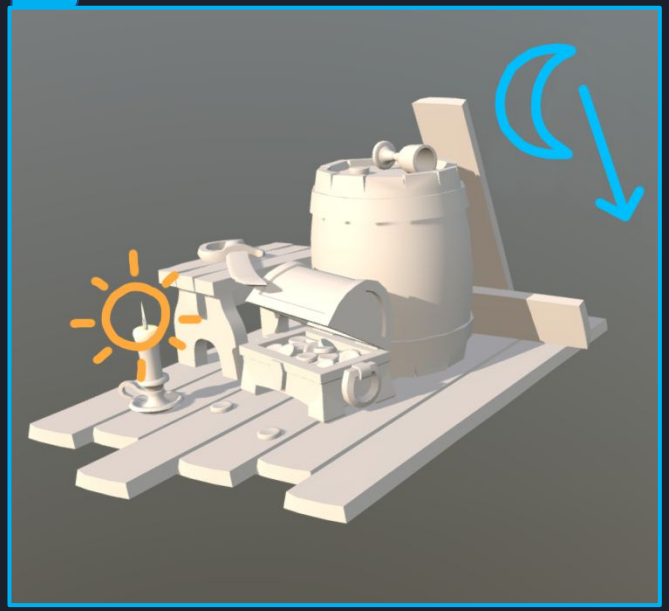

Before lighting a scene, it is important to consider the following:

1. Gather reference and determine the atmosphere of the scene and what you hope to achieve with lighting and post processing filters.
2. List the practical light sources that exist in the scene and determine how they may affect the lighting and atmosphere.
3. Determine the technical limitations of the platform and how it may affect the scene lighting. Sketchfab only supports 3 real-time lights, a single environment light and point lights do not cast shadows.
4. Consider the colour palette of the assets and how it may affect the lighting in the scene.

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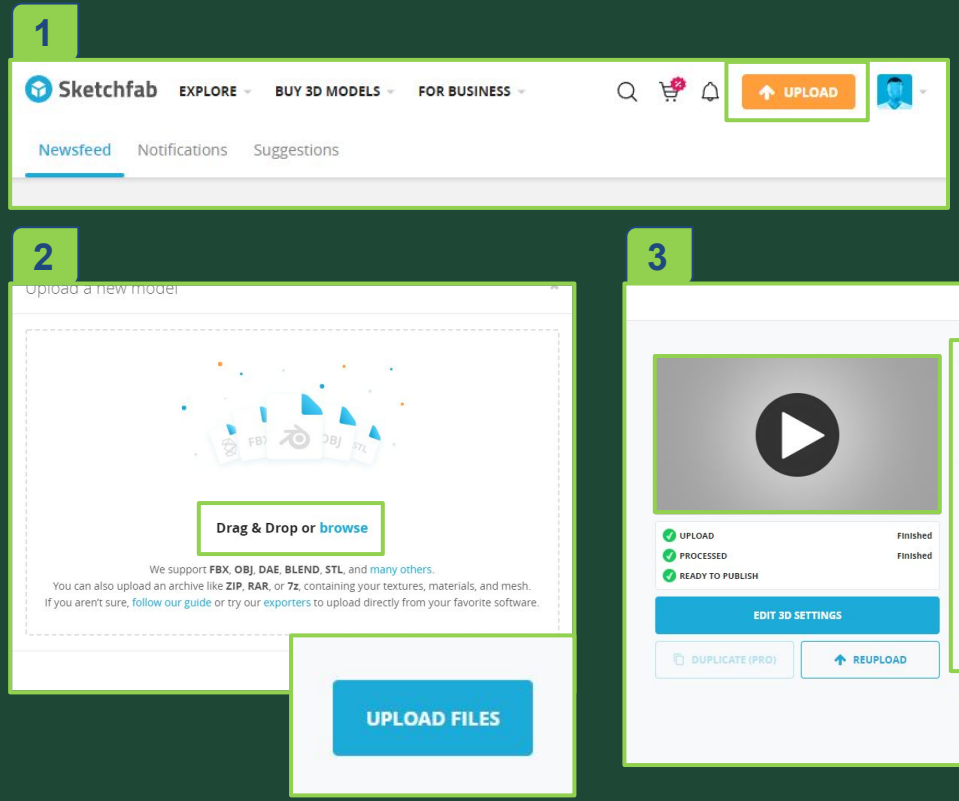
Sketchfab Introduction | Uploading Scene



Before lighting the scene, we must first import the model and textures into Sketchfab.

1. Log into Sketchfab and click the orange **Upload** button at the top right of the browser.

1. In the upload a new model screen, drag and drop or browse for the LightingScene.fbx and Candle_Emission.tga files and click the **Upload Files** button.

1. Once the model has been uploaded, it is important to check it for any errors by pressing the play button at the top left and ensure that you give the scene an appropriate title and description.

2. After checking the model press the **Edit 3D Settings** button.

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Sketchfab Introduction | Inputing Textures

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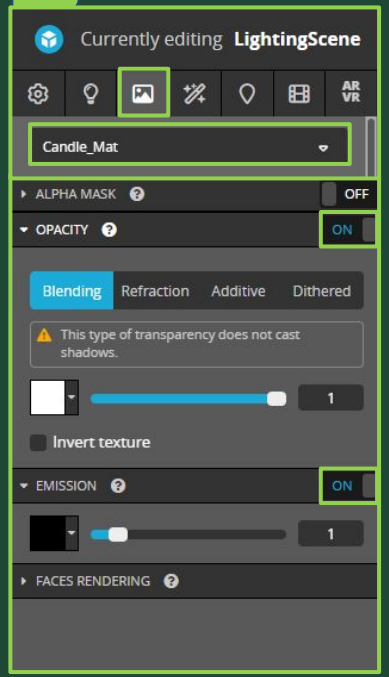

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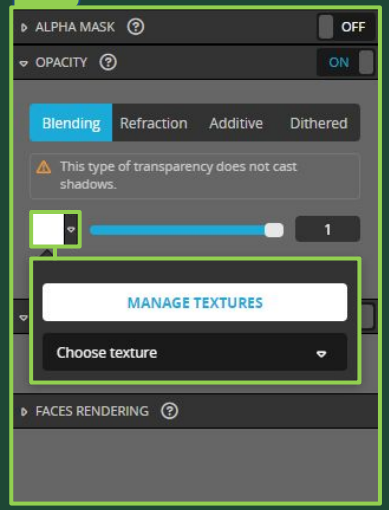

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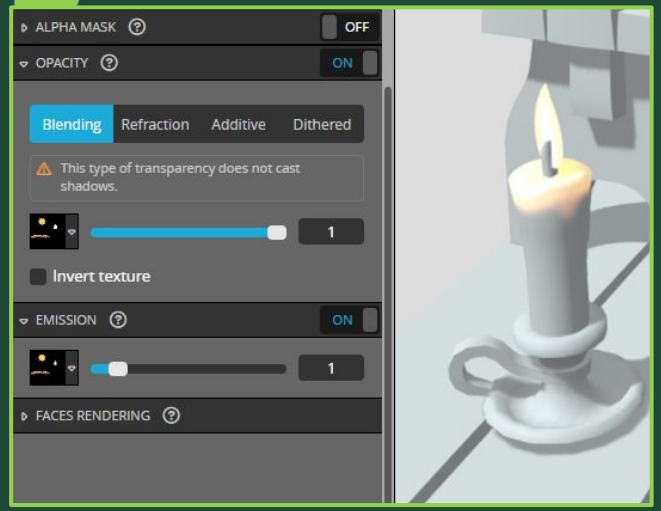

The candle flame in the scene is a practical light source, before lighting the scene we must first input the Candle_Emission texture into the relevant sections of the candle material.

1. Click on the Materials tab and ensure that the Opacity and Emission dropdowns are open and enabled.
2. Click on the opacity map thumbnail under the Opacity dropdown and select the imported Candle_Emission texture. If the texture was not imported with the scene, select manage textures and import the texture.
3. Insert the Candle_Emission texture into the emission map slot and ensure that the opacity and emission is working correctly in the scene.

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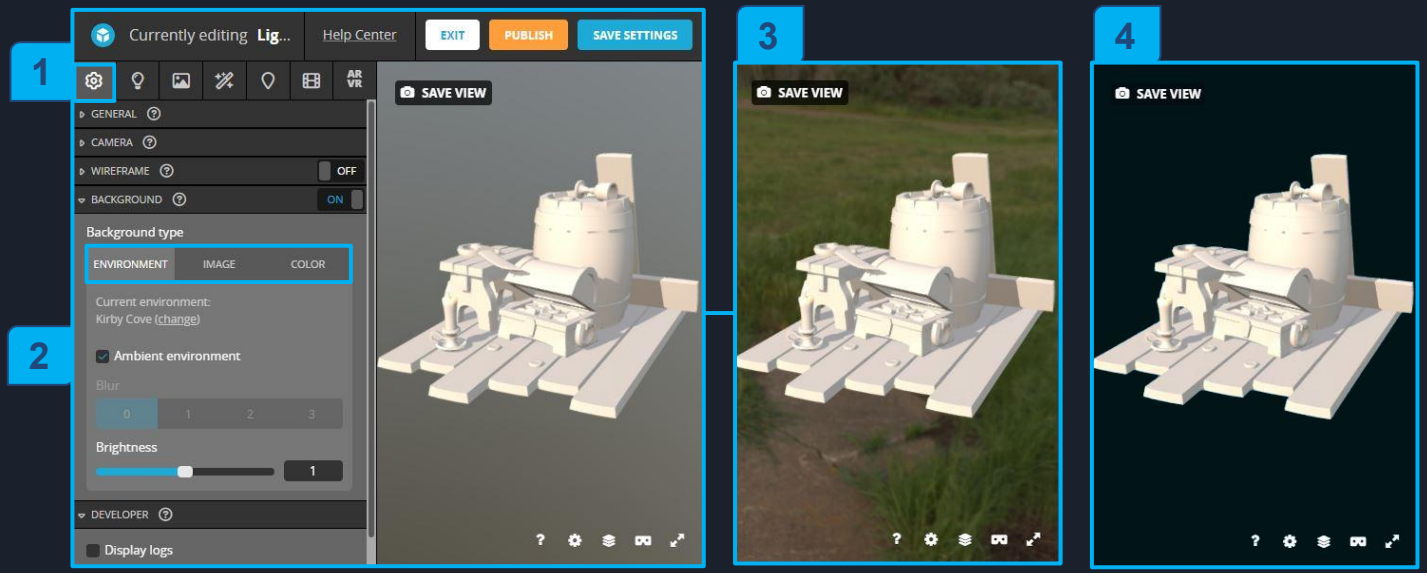
Sketchfab Lighting | Backgrounds



Generally, the first step in lighting a scene is adjusting the background to align with the desired atmosphere.

1. Background settings can be accessed in the scene tab when editing 3D settings.
2. Selecting Environment will set the environment HDRI (High Dynamic Range image) map as the scenes background. With Ambient environment enabled an ambient approximation of the image will be used.
3. With Ambient environment disabled the HDRI image will be visible, and the amount of blur and the brightness can be adjusted.
4. Preset background images or a flat colour can be chosen in place of the environment.

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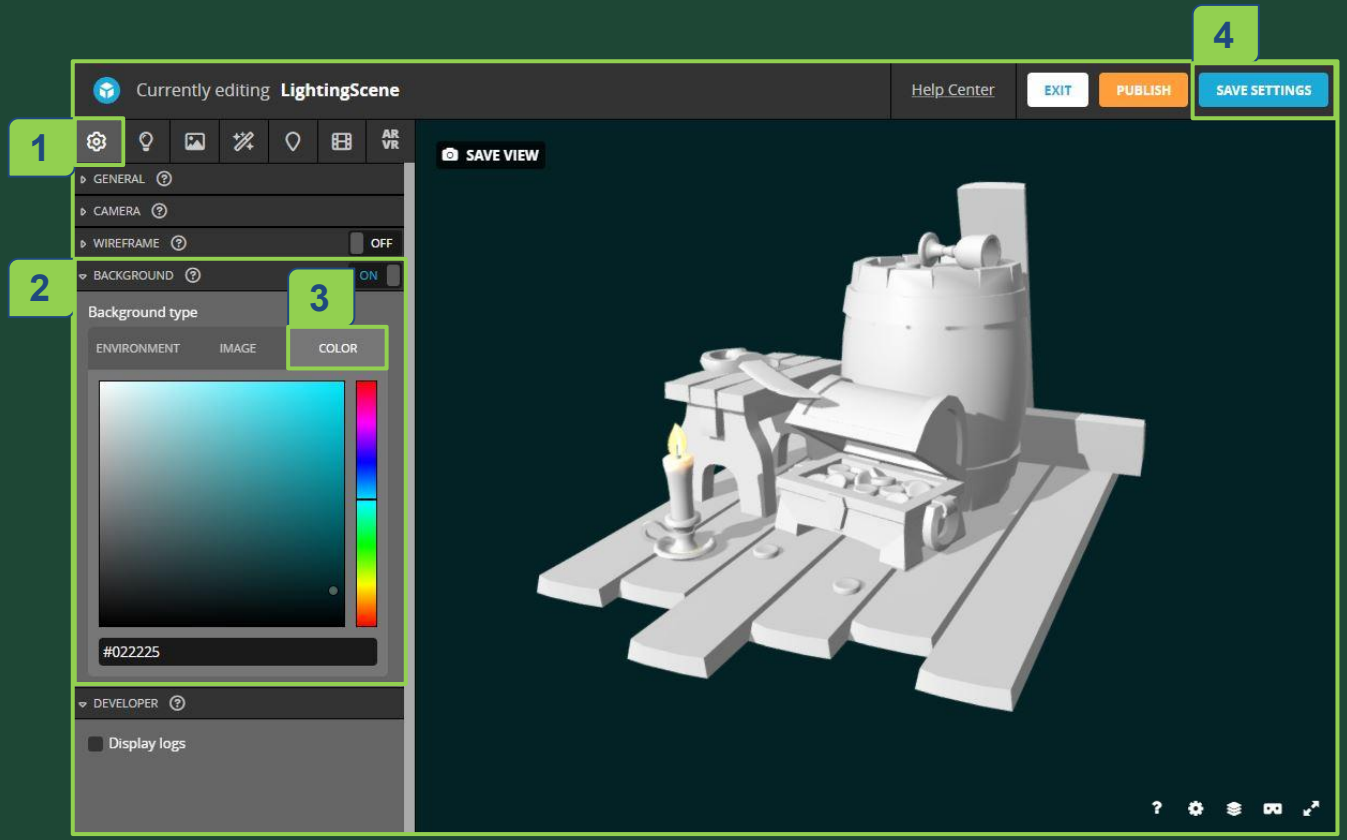
Sketchfab Introduction | Background Setup



To setup the scene background:

1. Click on the Scene tab, represented by the cog icon.
2. Open up the background dropdown and ensure that it is enabled.
3. Select the **Color** tab and pick an appropriate background colour in-line with the reference in the planning slide.
4. Press the **Save Settings** button at the top right of the editor, to save the changes.

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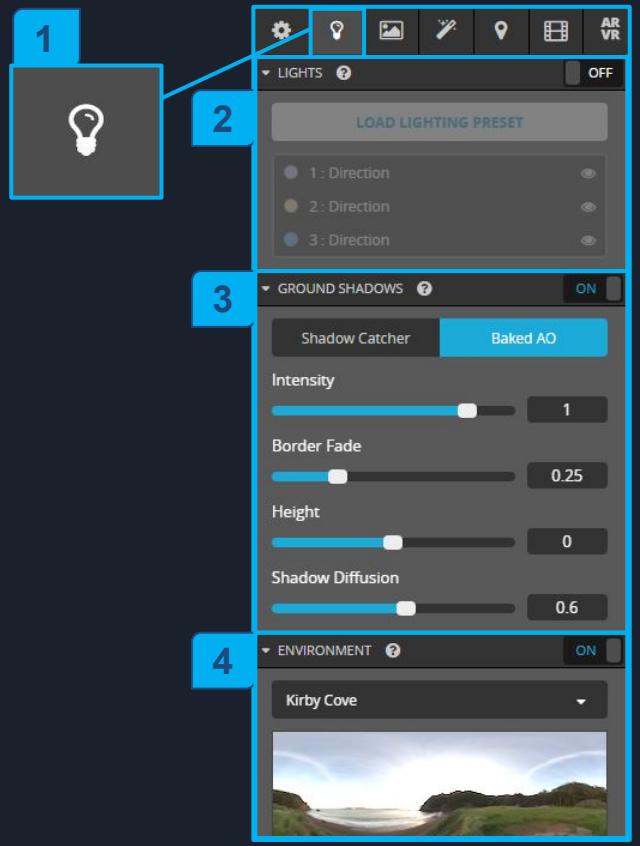
Sketchfab Lighting | The Lighting Tab



The lighting tab, allows scene lighting settings to be toggled and modified.

1. The lighting tab can be accessed by clicking on the light bulb icon.

1. Lights allows real-time lights to be added to the scene (Maximum of 3) and light settings to be adjusted.

1. Ground shadows creates a real-time or baked shadow catcher under the model, which can be adjusted with various settings.

2. Environment allows HDRI image to be changed and environment lighting settings to be adjusted.

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Sketchfab Lighting | Light Types

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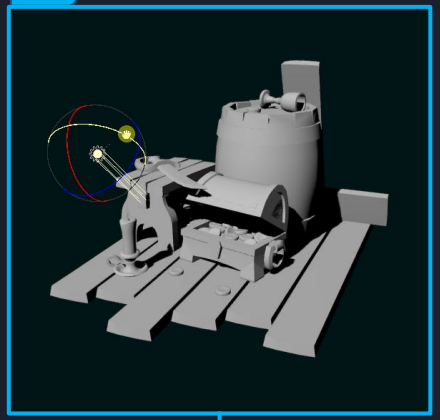

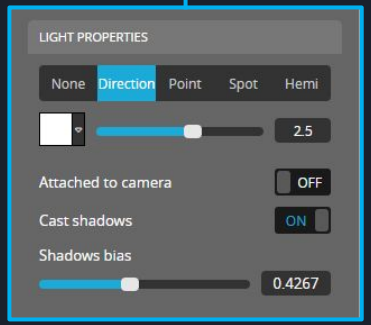

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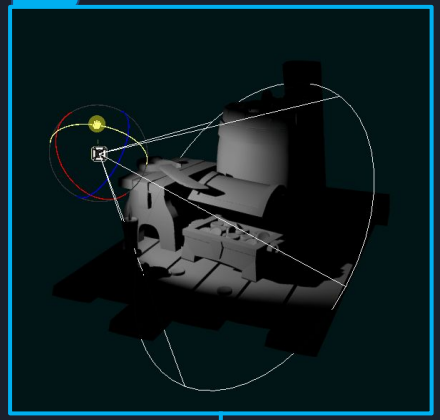

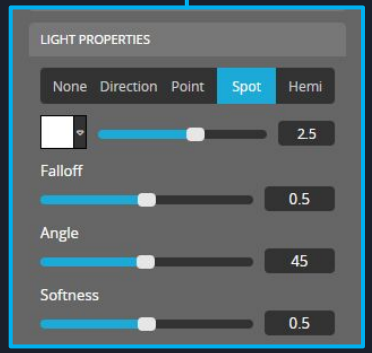

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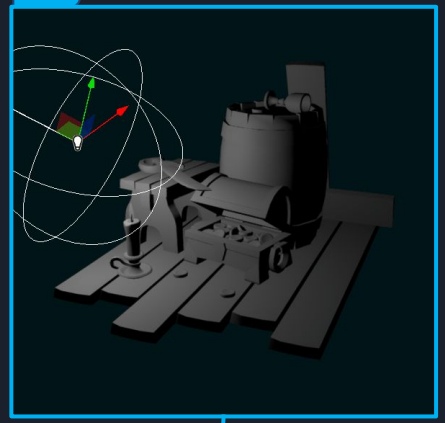

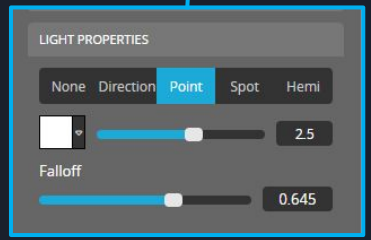

In Sketchfab there are various types of lights that can be used to light a scene, these lights are common in most real-time engines.

1. Directional lights emit an infinite light source in a single direction, regardless of the position of the light.

1. Spot lights emit an adjustable cone of light in a specified direction with falloff.

2. Point lights emit light from a single point in space in all directions with falloff.

Directional lights in Sketchfab can be attached to the camera, meaning that the lighting will be consistent regardless of the point of view.

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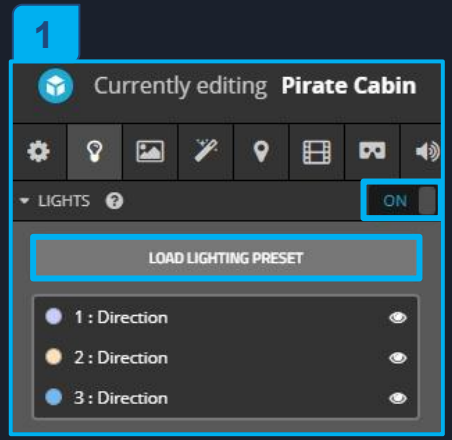
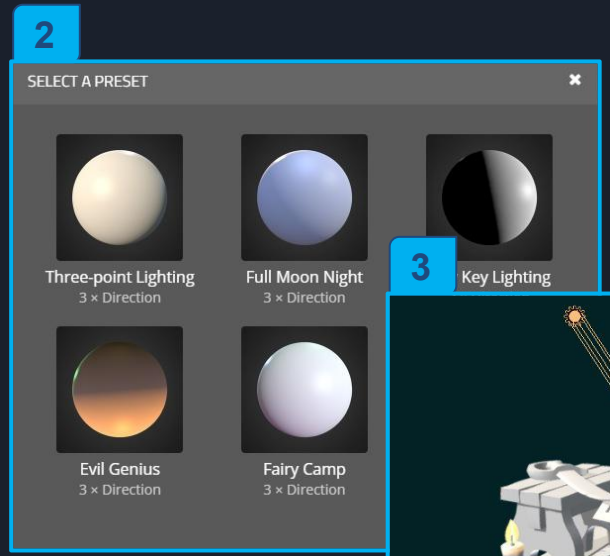
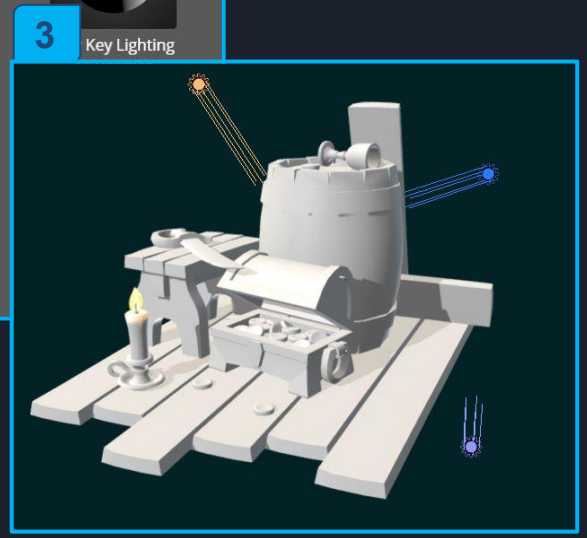
Sketchfab Lighting | Lighting Presets







Lighting presets give artists a starting point when lighting a scene. While yielding decent results out of the box, the presets are limited and should really only be used as starting point.

1. To access the lighting presets panel the light must first be turned **ON**.
1. The lighting preset panel lists the available presets and includes thumbnail examples.
1. Once the preset has been selected it will create the required lights, adjust the light settings and add them to the scene.

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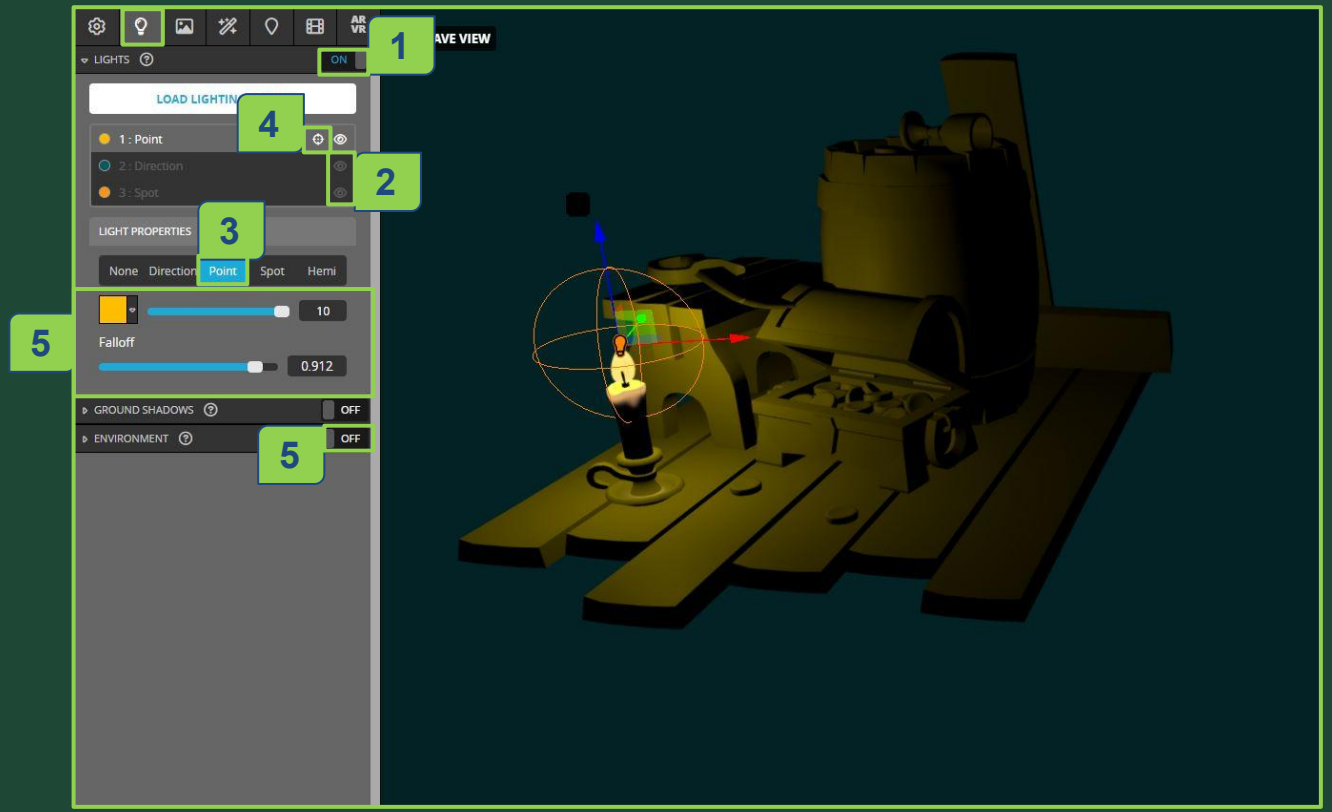
Sketchfab Introduction | Practical Light



The candle is the primary practical light in the scene.

1. Under the lighting tab, turn **ON** the lights.
2. Turn off lights 2 and 3 by pressing the eye icon next to the lights.
3. Select light 1, in the light properties set the light type to **Point**.
1. Reset the position of light 1 by clicking on the crosshair icon, that will be visible when hovering over the light in the light list. Move the light just above the candle in the scene.
2. Turn **OFF** environment, this will make it easier to adjust the settings for the light.
3. Select light 1, adjust the colour, intensity and falloff to align with the lighting reference.

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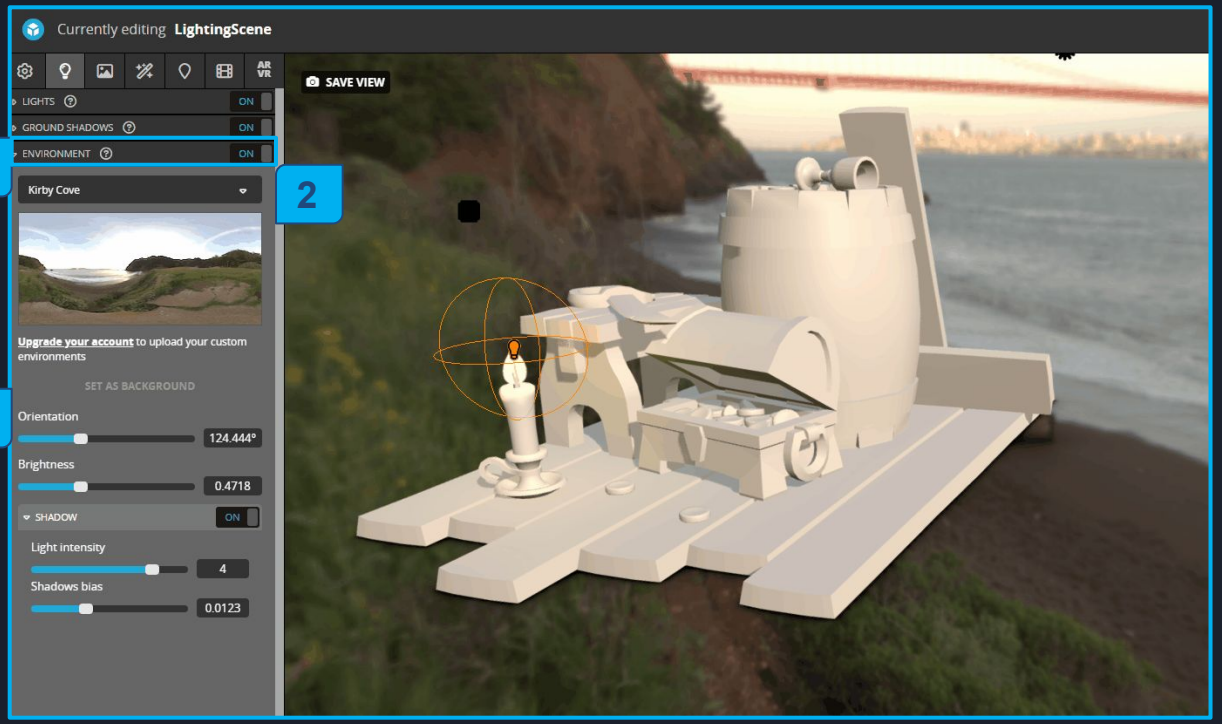
Sketchfab Lighting | Environment Lighting



Environment lighting is ambient lighting that is derived from a 360° high dynamic range image.

1. Environment lighting can be accessed under the environment dropdown in the lighting tab and can be toggled on and off.

1. Various HDRI maps can be selected via the dropdown, the chosen map will effect the colour and intensity of the ambient light in the scene and the background if visible.

1. The orientation and brightness of the environment can be adjusted and real-time shadows can also be enabled and adjusted.

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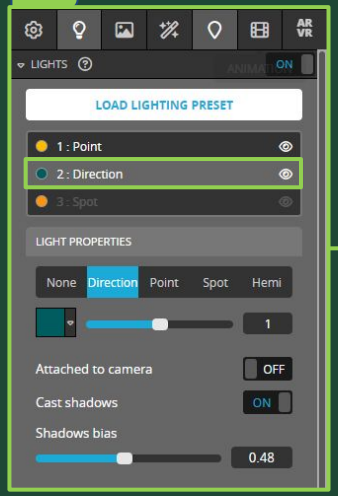
Sketchfab Introduction | 3 Point Lighting

1



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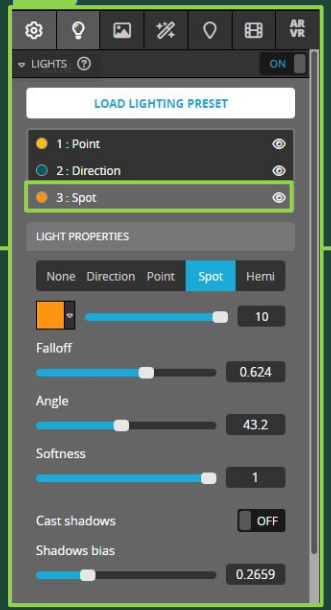

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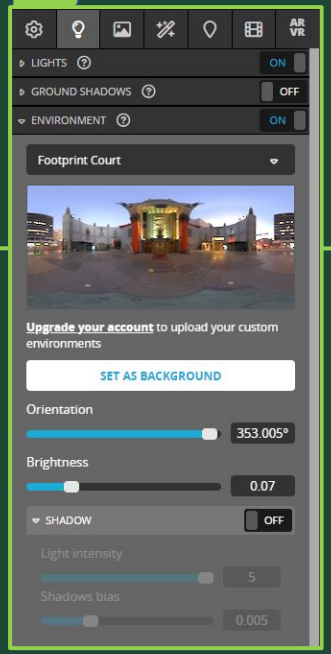

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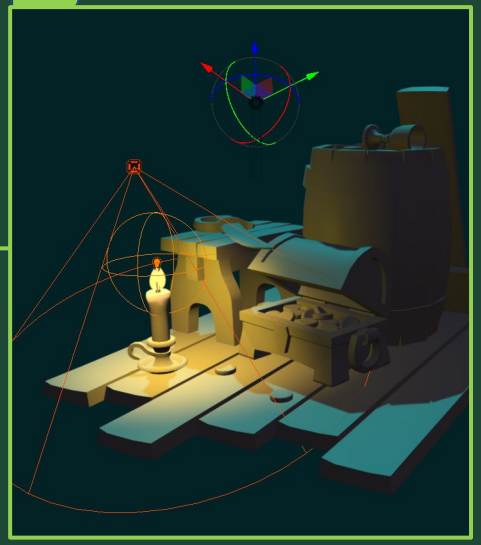

We will next add a key light to represent the candle light, a rim light to represent the moon light and a fill light using the environment light.

1. Turn on light 2, set the light type to **Direction**, adjust the position and orientation of the light to align with the lighting plan and adjust the colour.

2. Turn on light 3, set the light type to **Spot**, position it over the candle to simulate the candle light. Adjust the colour and settings to align with the lighting plan.

3. Turn on the Environment light, select the **Footprint Court** HDRI map from the dropdown list and reduce the brightness to 0.07 and turn off the shadow.

4. With all three lights in place, adjust the settings until the desired results are achieved.

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Sketchfab Lighting | Shadows

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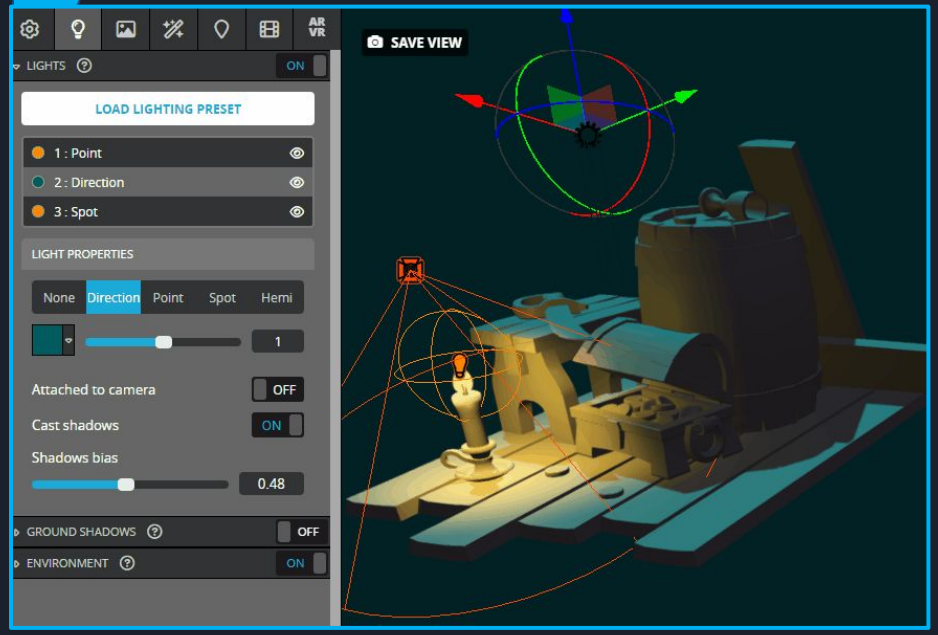

2

Direction lights, spot lights and the environment light are capable of casting real-time shadows.

1. Shadows can be toggled on and off for each light in the light properties and environment panel.

1. Shadow bias affects the accuracy of the cast shadows, the lower the value the more accurate, but low values may also result in shadow bias artifacts, including visible lines and flickering.

The type of light and distance from the object can also affect the quality of the shadows and required shadow bias settings.

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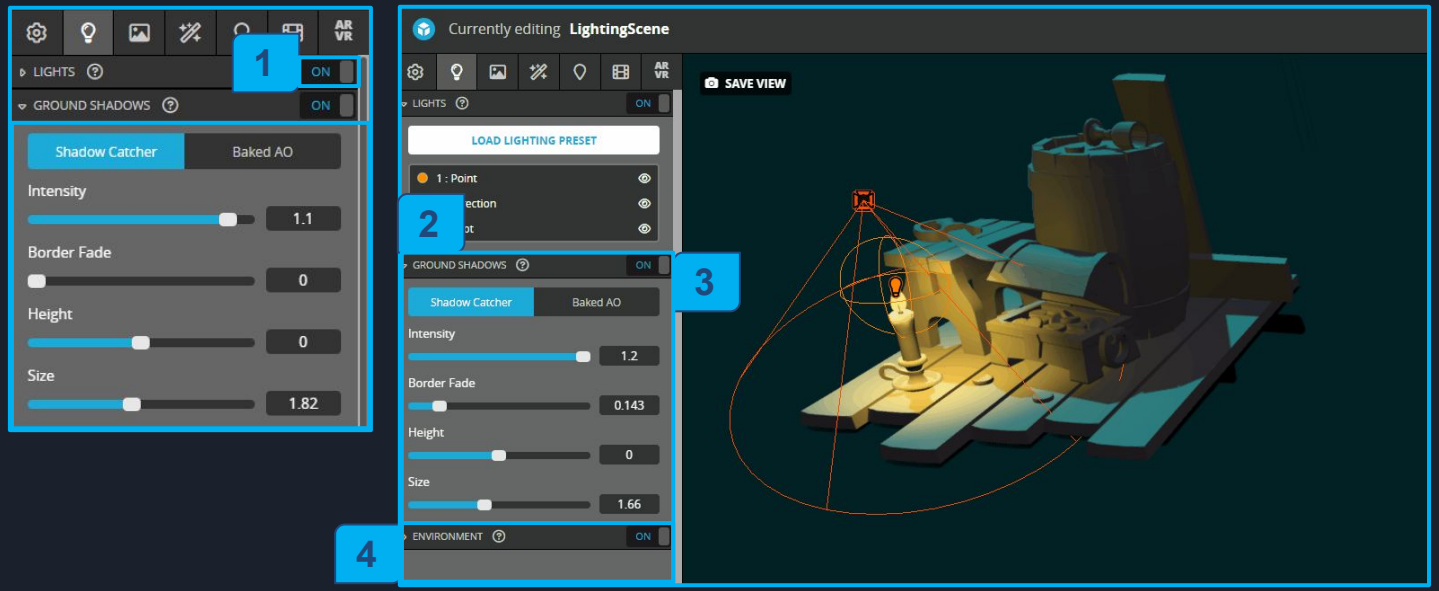
Sketchfab Lighting | Shadow Catcher



A shadow catcher is an invisible plane that is placed under a model to catch shadows from real-time lights in the scene.

1. To use a shadow catcher, it must first be toggled **ON.**

1. In the ground shadow panel, there are various settings that can be used to adjust the real-time shadows on the plane.

2. Switching to Baked AO will bake ambient occlusion onto the plane, when enabled there are various settings that can be adjusted to refine the results.

1. When Baked AO settings are changed it will re-render the shadows.

The shadow catcher can only be used when using the lit shading mode.

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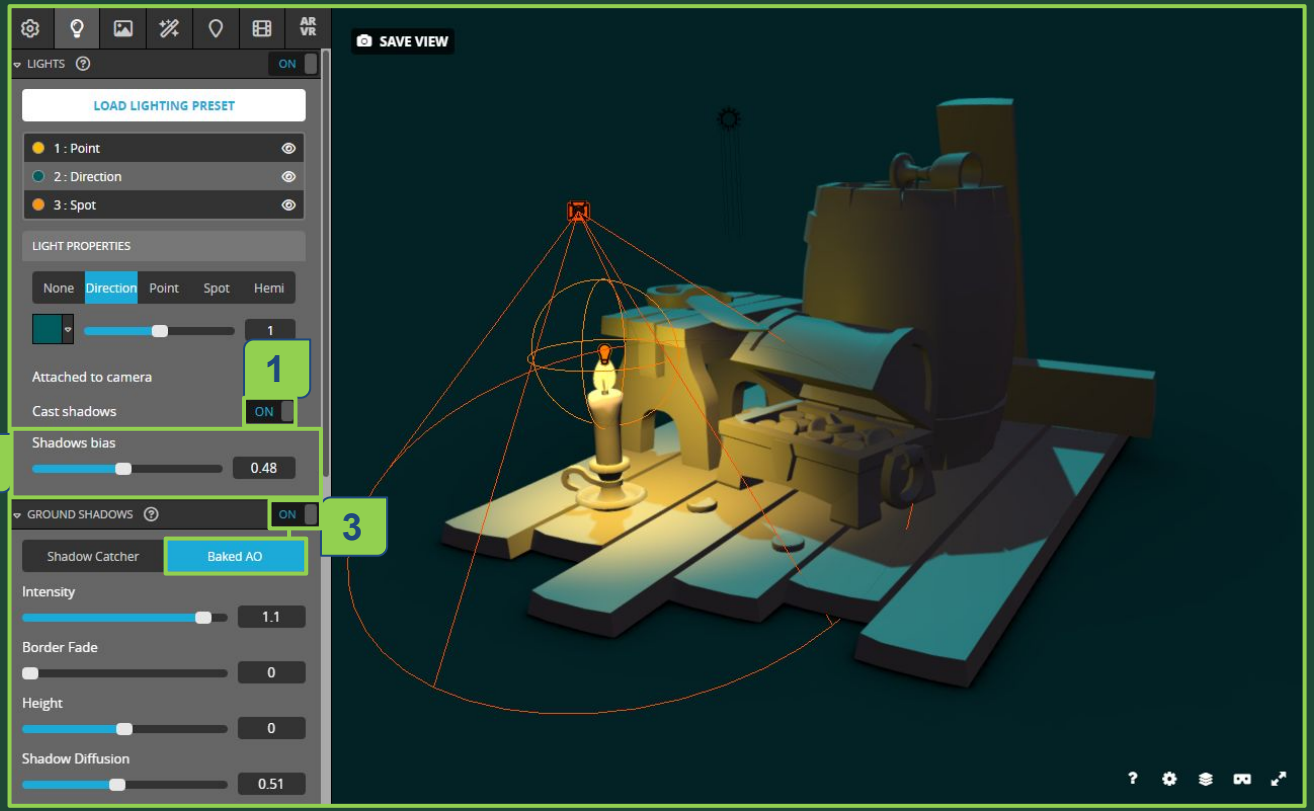
Sketchfab Introduction | Adjusting Shadows



Next we will enable/disable and adjust the shadows in the scene.

1. Select light 2 (the direction light), turn cast shadows ON.
2. Adjust the shadow bias slider until there are minimal visual shadow artifacts.
3. Under the ground shadows dropdown, turn ON the ground shadows and select Baked AO.
4. Adjust the baked AO settings until satisfactory results are achieved.

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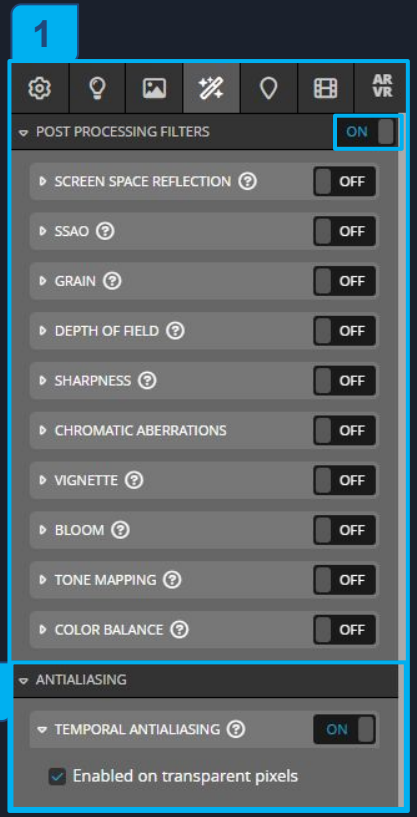
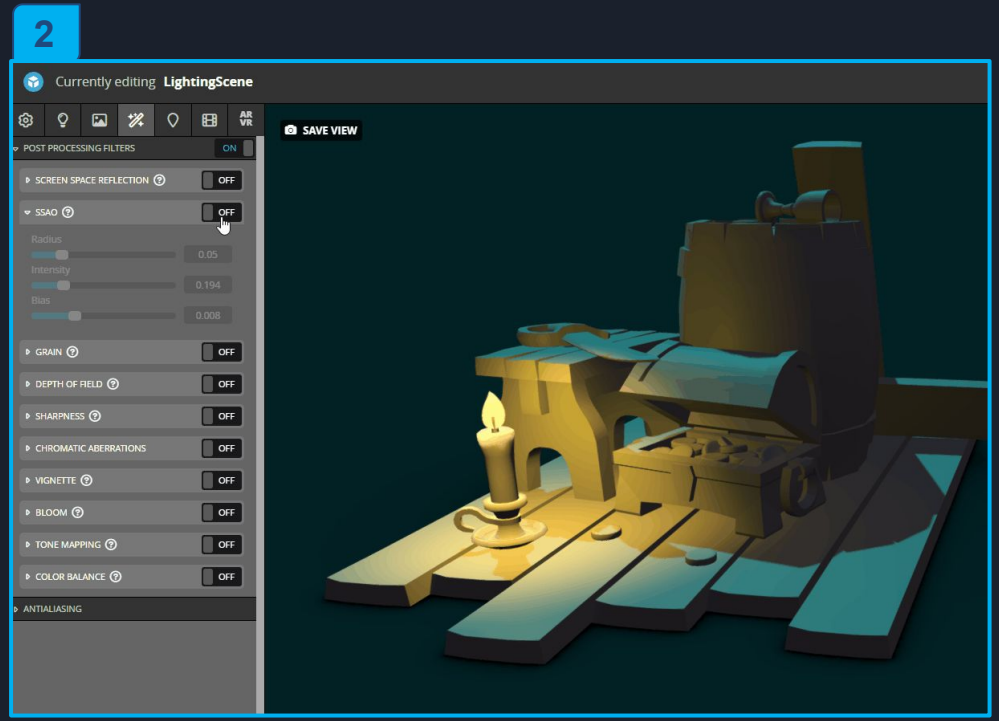
Sketchfab Lighting | Post Processing Filters





Post processing filters are full screen visual effects that can be applied to a scene in Sketchfab.

1. Post processing filters can be accessed via the post processing filters tab and must be enabled by turning them on.

1. Each filter can be toggled on and off and will have various settings which can be adjusted.

1. Temporal Antialiasing is on by default and can be toggled off.

The best way to learn how to use post processing filters is through experimentation, when adjusting the settings a good rule of thumb is less is more.

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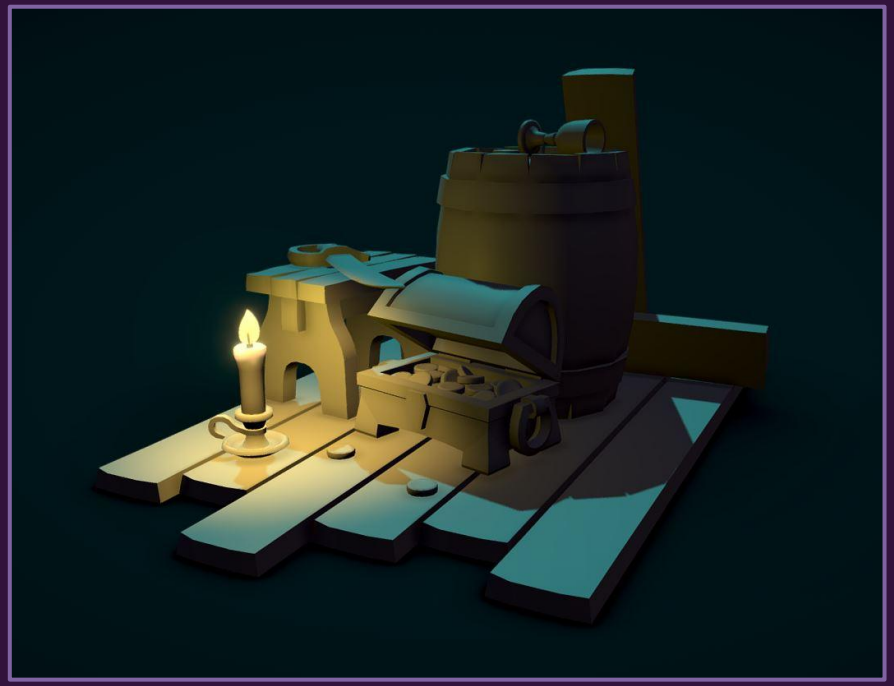
Exercise|Scene Lighting

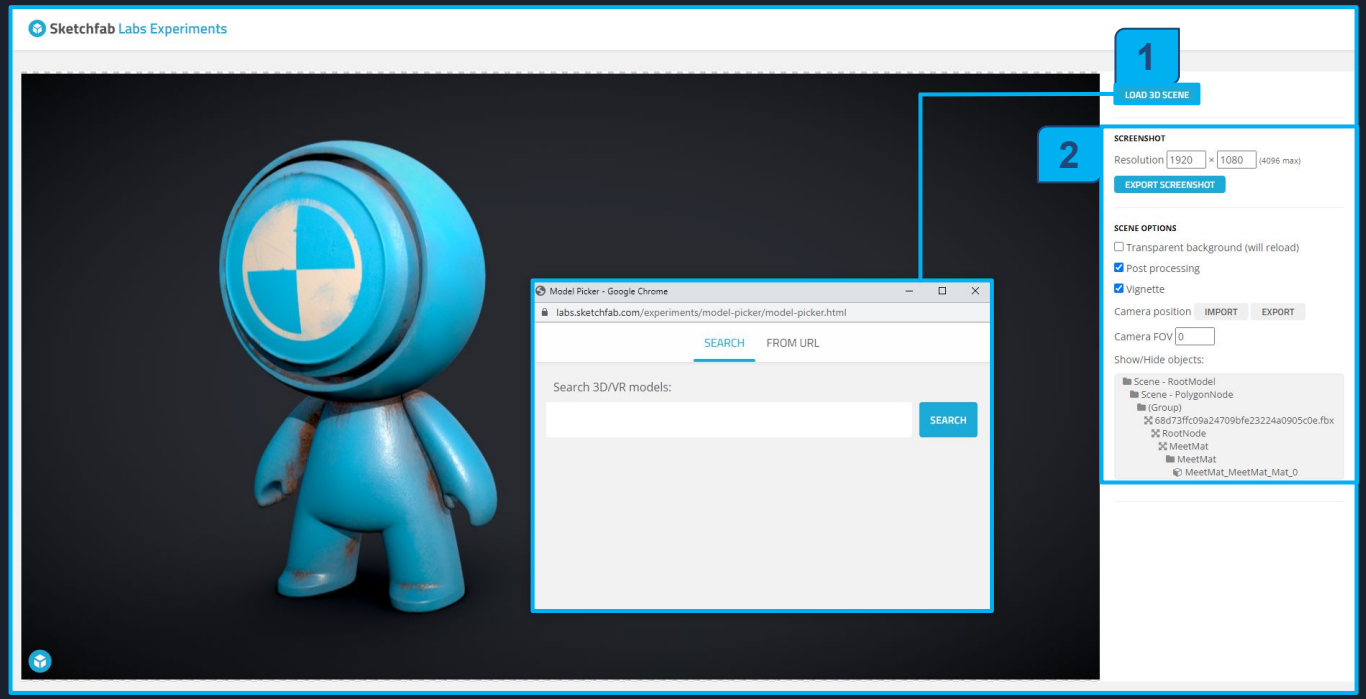


Post processing filters can be used to emphasise atmosphere/mood and is an important part of presenting a finished asset or scene.

1. Utilising the provided scene, adjust the lighting and use post processing filters to improve the atmosphere of the scene.

   You have 10 minutes

Sketchfab Lighting | Screenshots



Screenshots is a tool developed as part of the Sketchfab Labs Experiments, it allows high resolution renders to be taken from a Sketchfab scene. Screenshots is not part of the standard Sketchfab toolset and can be found at:

https://labs.sketchfab.com/experiments/screenshots/

1. The scene must first be loaded, either by searching for or inserting the URL of the Sketchfab scene.

1. Once the scene has been loaded the desired resolution can be set and various scene options can be adjusted.

1. Exported screenshots will be exported in .png format.

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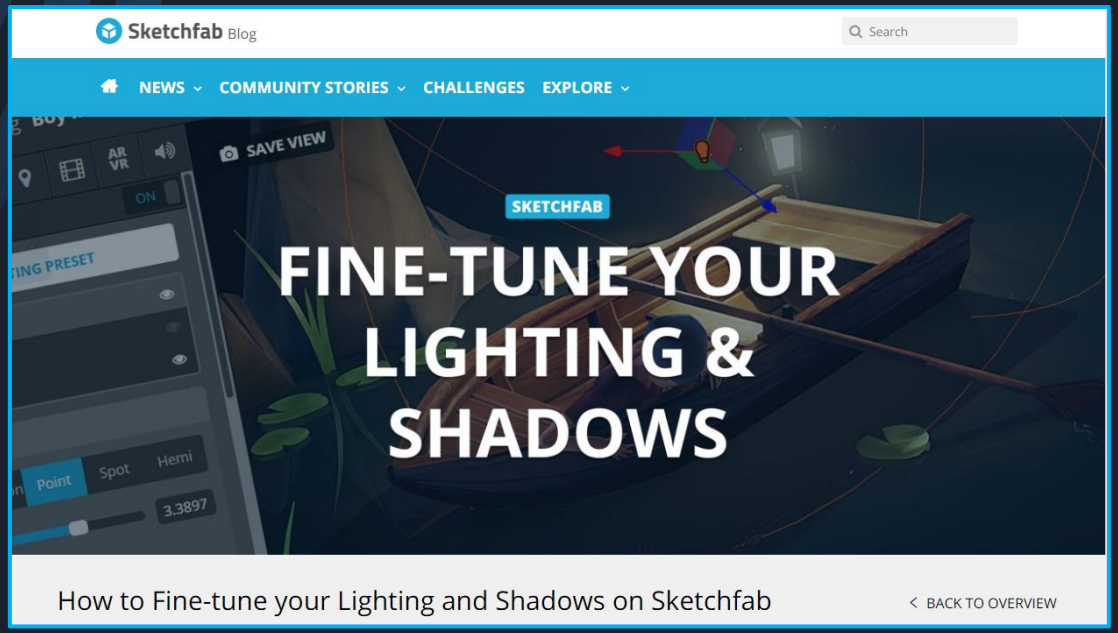
Sketchfab Lighting | Summary



The Sketchfab website includes documentation and tutorials to help you achieve the best results.

Today you have learned how to light a scene using lighting and post effects in Sketchfab.

Complete:

You can now use lighting and post effects to present assets and scenes in Sketchfab.

Usability:

These tools can be used to present assets and scenes online or in your professional portfolio.

What next:

Continue to develop your skills by researching and creating lighting setups for different assets and scenes.