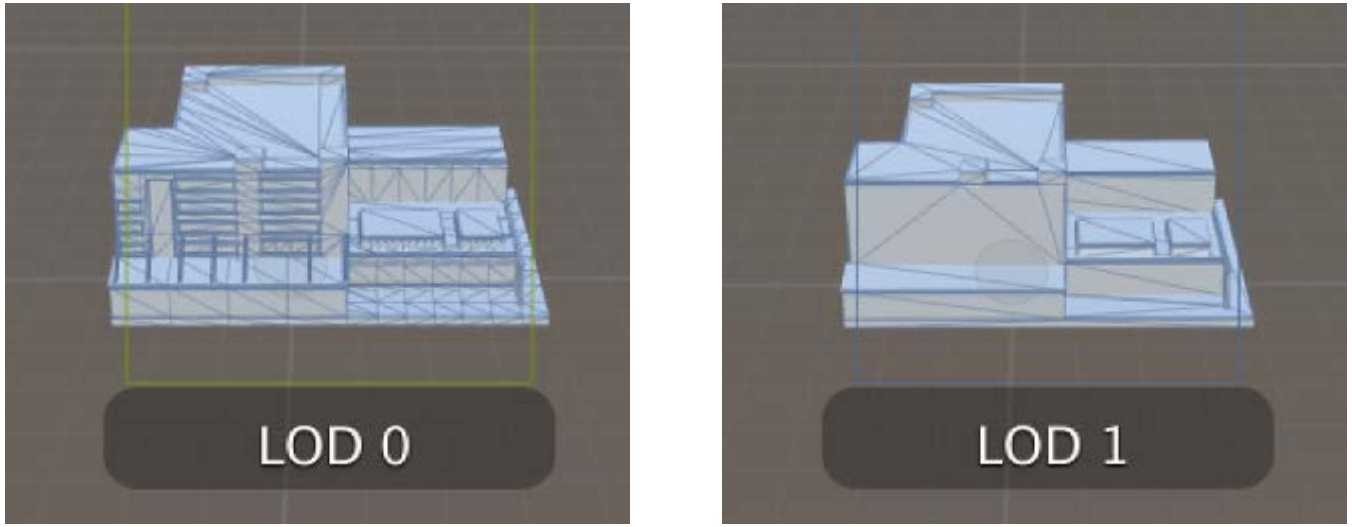
Tree Followup

Rotation Problem ☹

- Trees built with Unity Tree Editor don't have random rotation option: source
- The reason is that the trees don't have "LOD" (levels of detail)

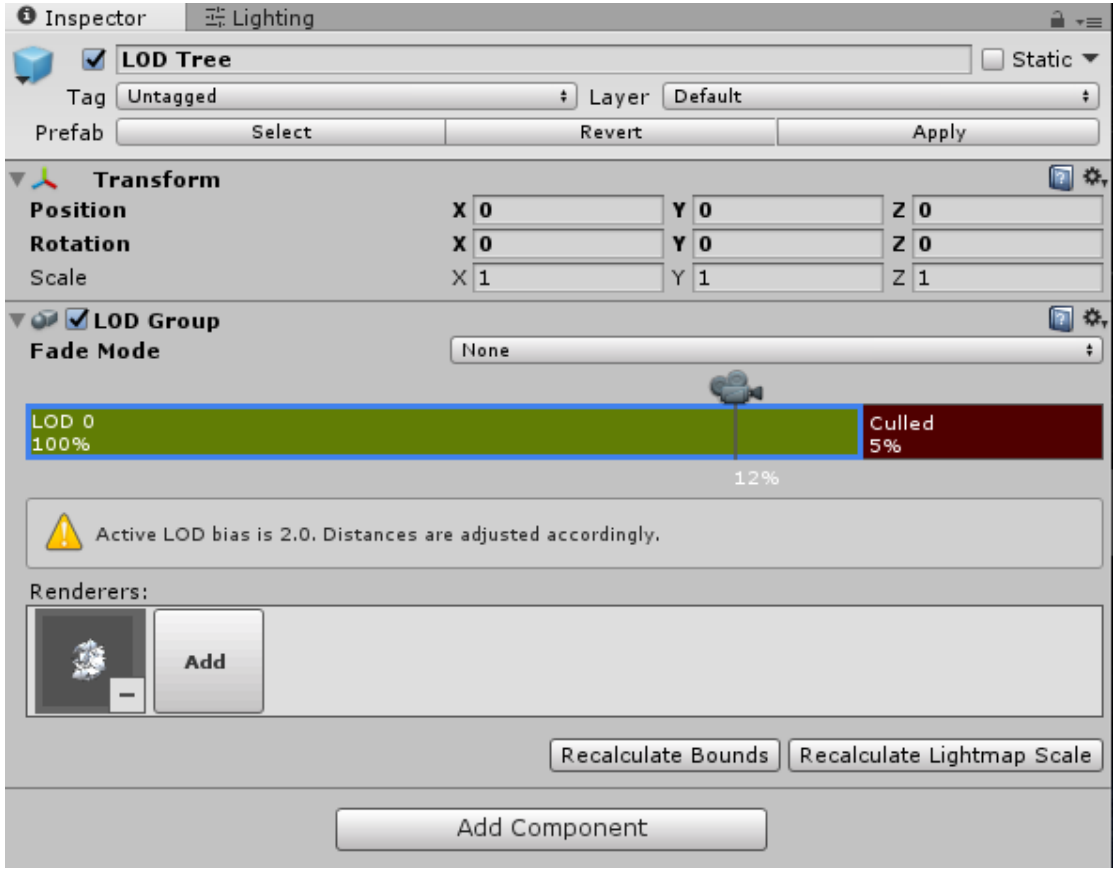


Solutions

1. Buy SpeedTree ($19/month)
2. Place trees manually (outside of terrain tool)
   - Works if you only have a few trees to place
3. Fake LOD on a tree
   - Works, but is computationally “expensive”

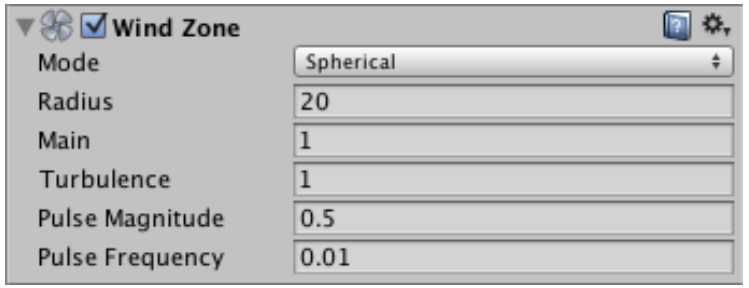
Faking LOD

1. Create empty object, “LOD Tree”
2. Add “LOD Group” component
3. Add tree prefab as child of empty
4. Set LOD 0 on empty to the tree
5. Turn the “LOD Tree” into a prefab
6. Use it in your terrain with random rotation
7. $$$ Profit $$$



Tree Wind

- Affects trees and particles (but not grass)



Property:	Function:
Mode	
Spherical	Wind zone only has an effect inside the radius, and has a falloff from the center towards the edge.
Directional	Wind zone affects the entire scene in one direction.
Radius	Radius of the Spherical Wind Zone (only active if the mode is set to Spherical).
Main	The primary wind force. Produces a softly changing wind pressure.
Turbulence	The turbulence wind force. Produces a rapidly changing wind pressure.
Pulse Magnitude	Defines how much the wind changes over time.
Pulse Frequency	Defines the frequency of the wind changes.

Hints

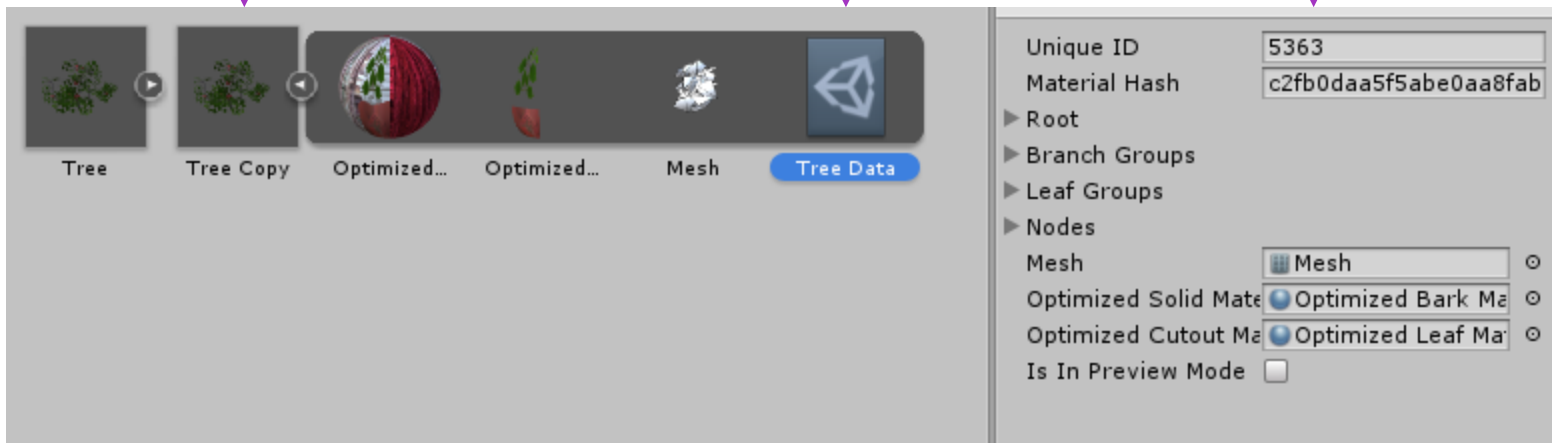
- To produce a softly changing general wind:
  - Create a directional wind zone.
  - Set Wind Main to 1.0 or less, depending on how powerful the wind should be.
  - Set Turbulence to 0.1.
  - Set Pulse Magnitude to 1.0 or more.
  - Set Pulse Frequency to 0.25.
- To create the effect of a helicopter passing by:
  - Create a spherical wind zone.
  - Set Radius to something that fits the size of your helicopter
  - Set Wind Main to 3.0
  - Set Turbulence to 5.0
  - Set Pulse Magnitude to 0.1
  - Set Pulse Frequency to 1.0
  - Attach the wind zone to a GameObject resembling your helicopter.
- To create the effect of an explosion:
  - Do the same as with the helicopter, but fade the Wind Main and Turbulence quickly to make the effect wear off.

Duplicating a Unity Tree

Duplicate with CTRL + D

Select the Tree Data

Change the ID on the copy



Making Your Own Trees

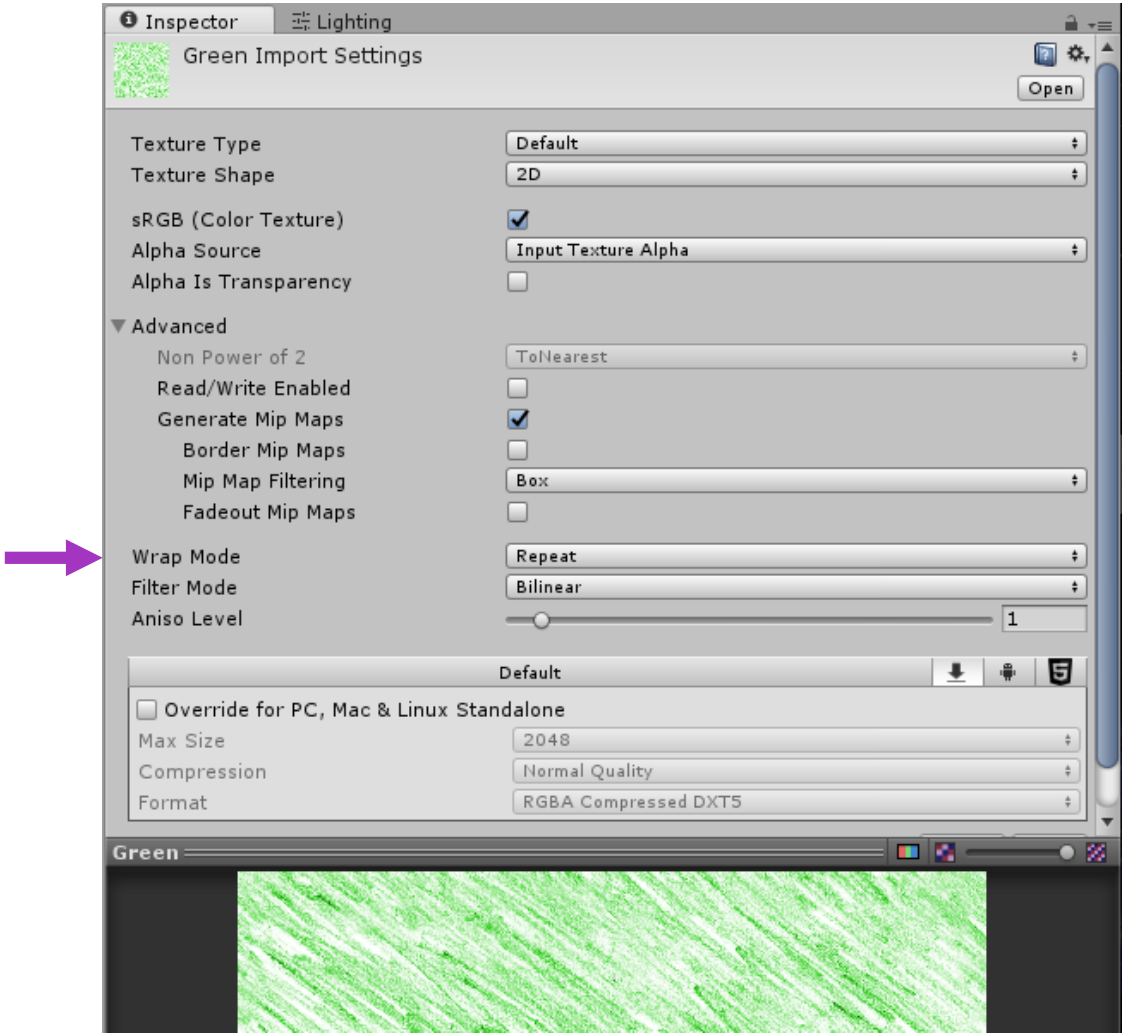
- See video tutorial

Textures

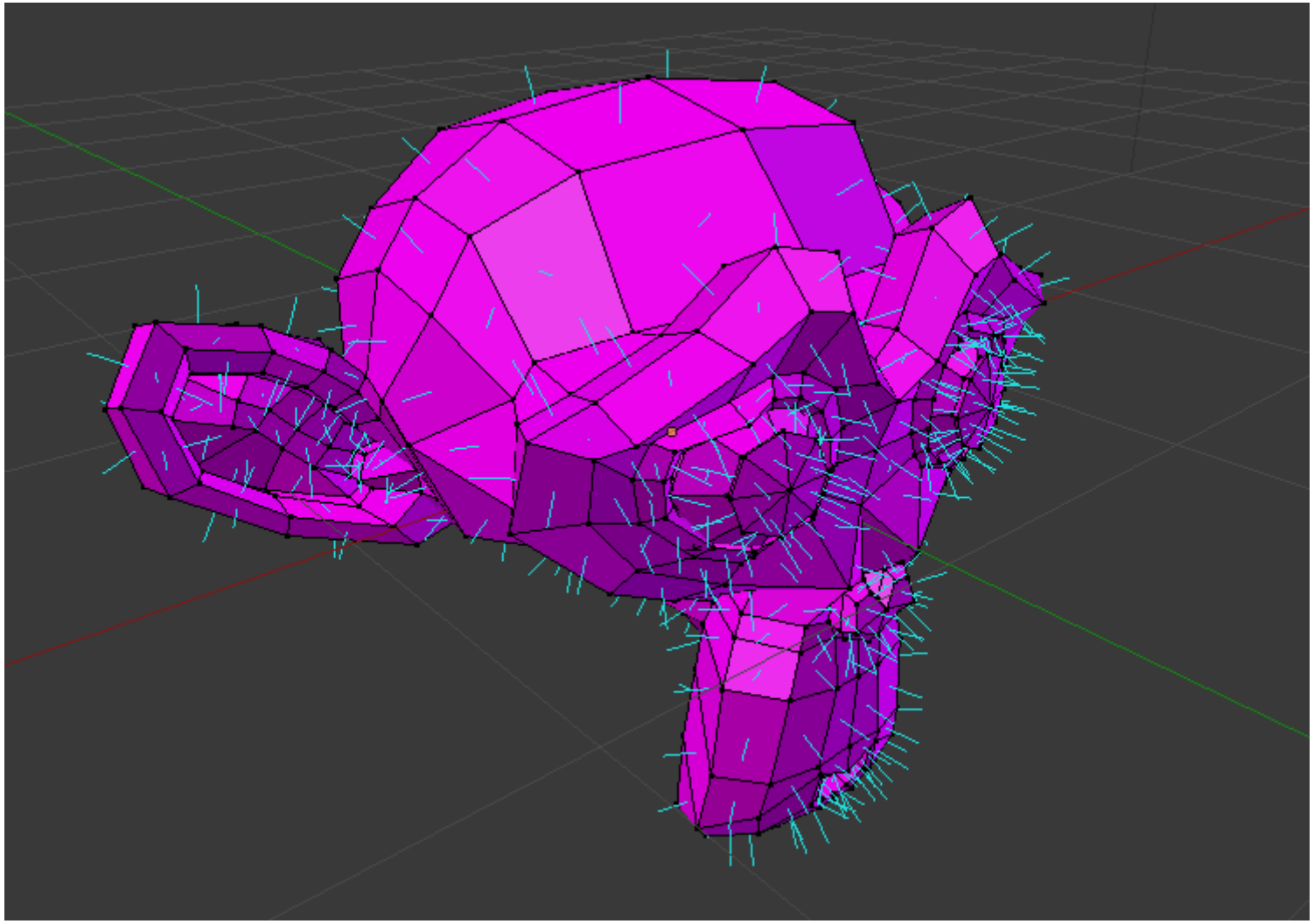
Free Texture Resources

- Textures
  - Textures.com - seamless and non-seamless textures
  - Free Seamless Textures – small selection of seamless textures
  - Max Textures – seamless textures are labeled
  - Good Textures – seamless and non-seamless
- Patterns
  - Subtle Patterns – subtle patterns, can be recolored in Photoshop
  - The Pattern Library – small, curated collection of designs
  - Pattern Nico – pattern maker, using simple icons

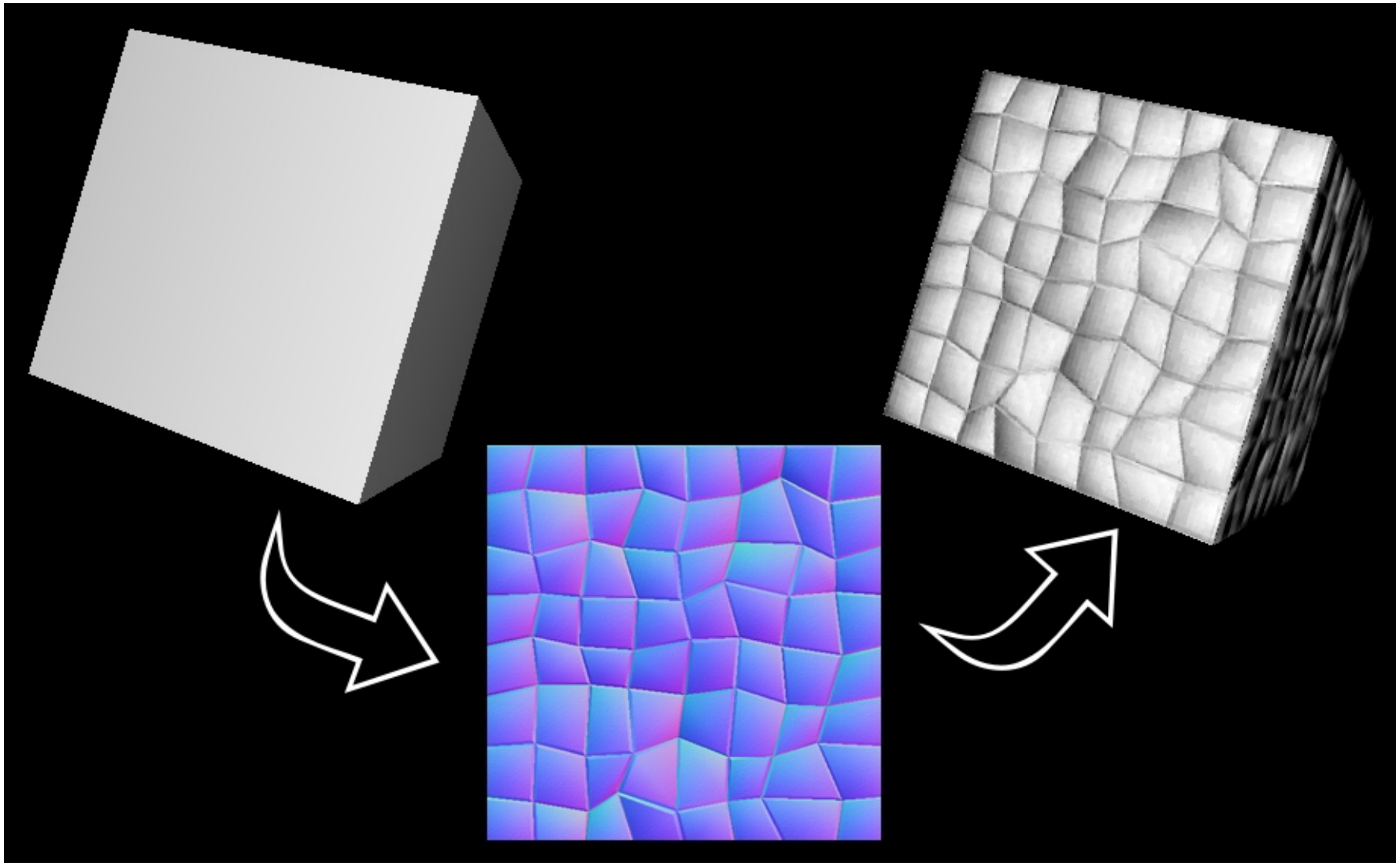
Tile Texture Import



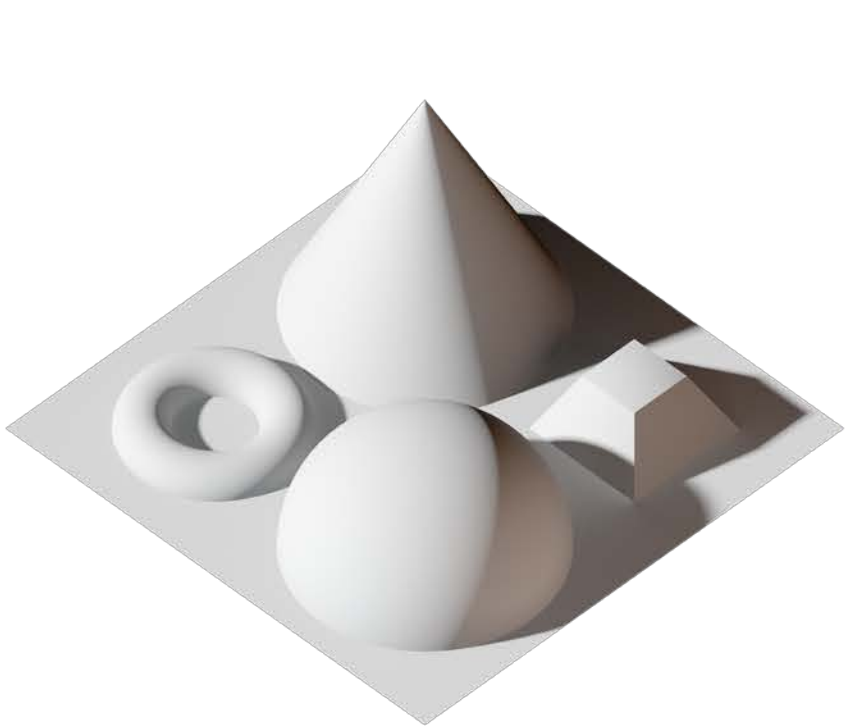
Normal Map Textures

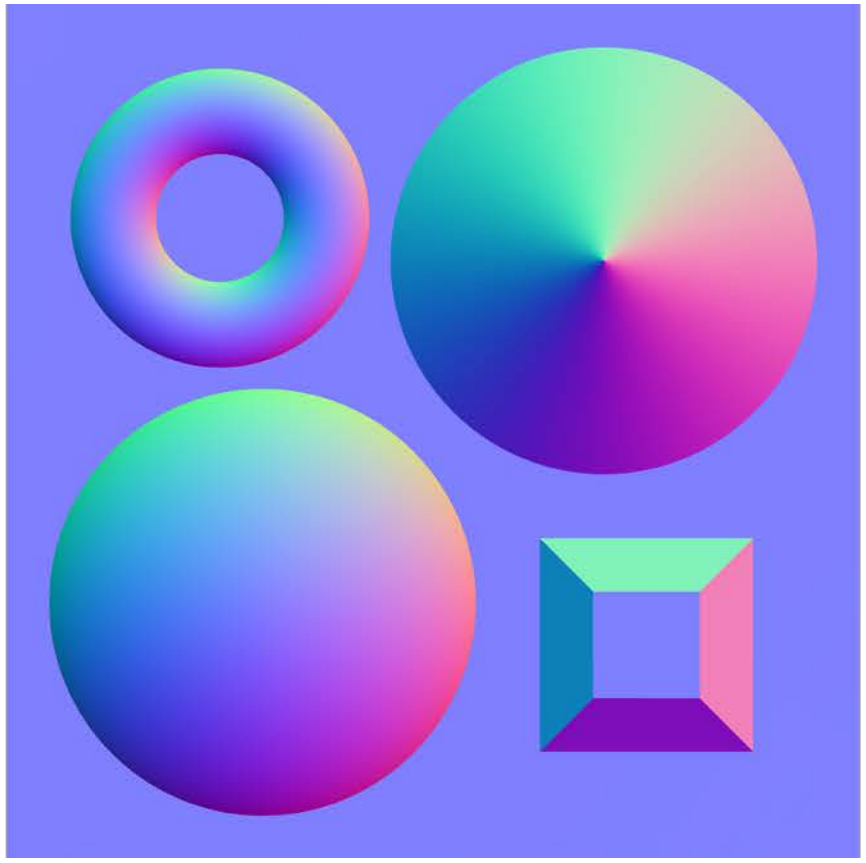


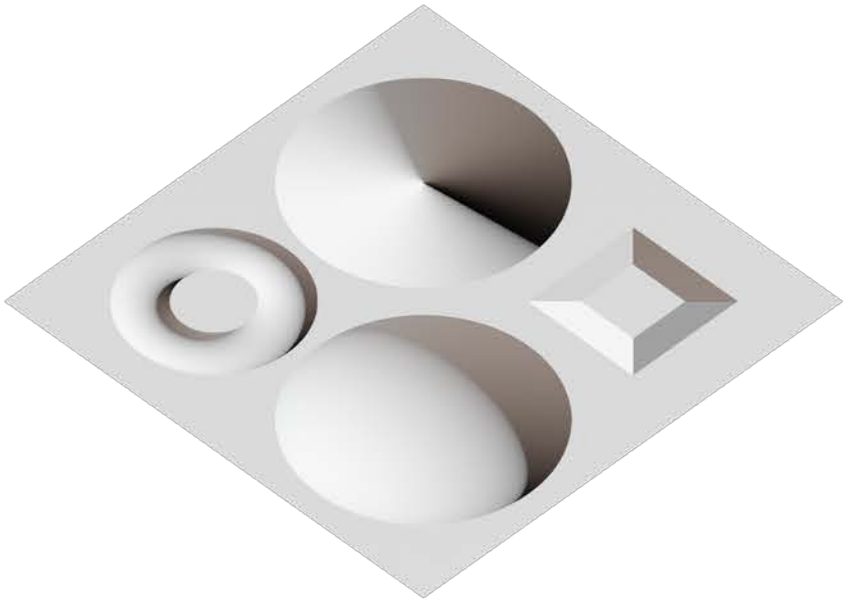
Normal Map Textures



Normal Map Textures





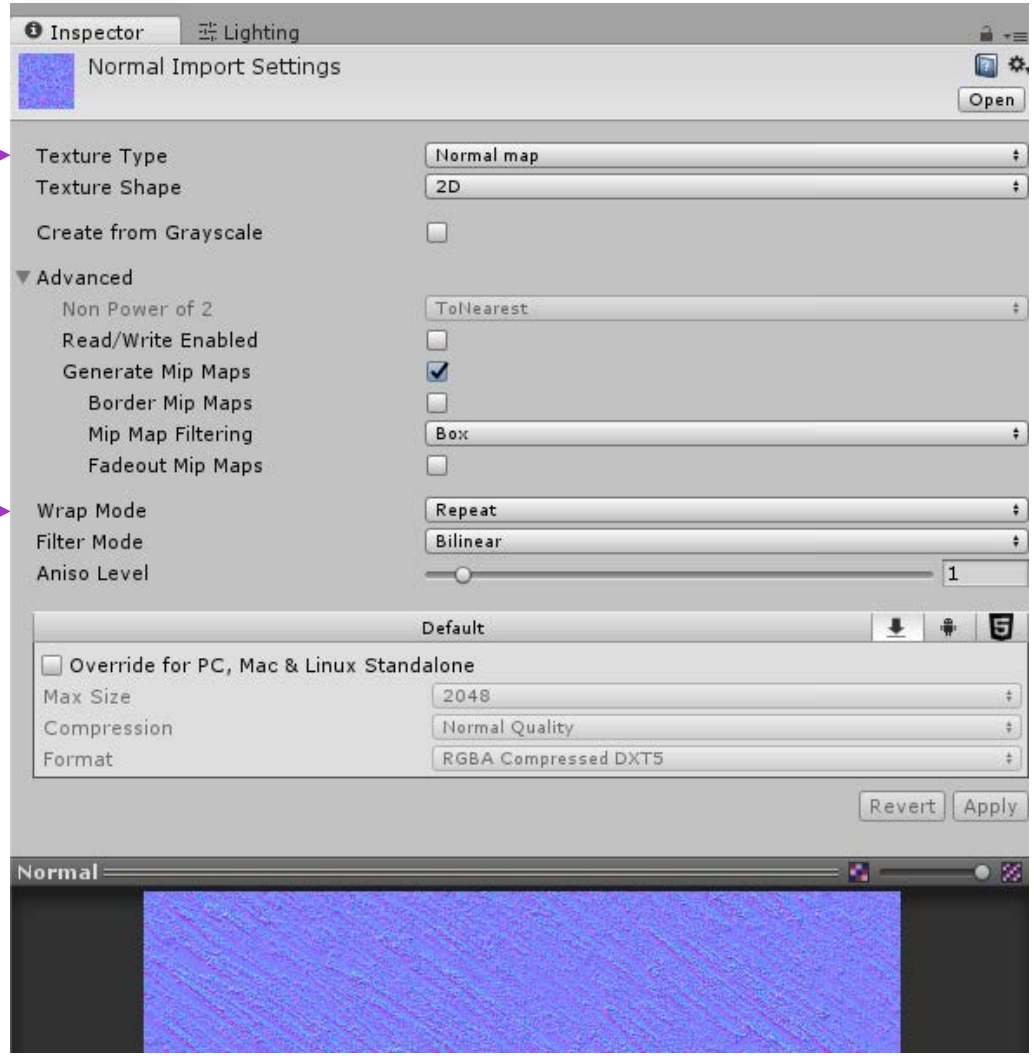


Generating Normal Map Textures

- Software packages exist to read an image and guess what the shape of the surface is
  - CrazyBump – free 30 day trial
  - Bitmap2Material – free for students, can be used inside Unity
- We'll use those later, but for now, online generators:
  - Smart Normal 2.0
  - Normal Map Online (in heightmap mode)

Normal Texture Import

(Only if normal is for a tile)

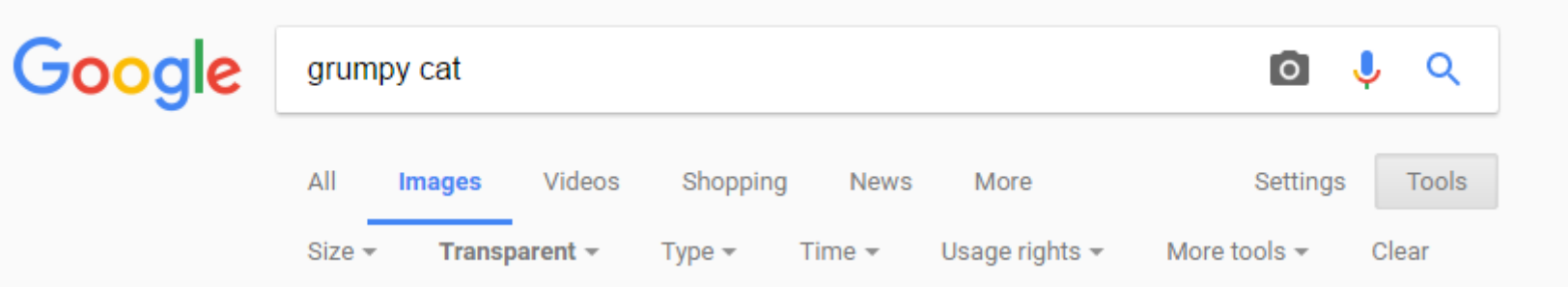


Terrain Grass

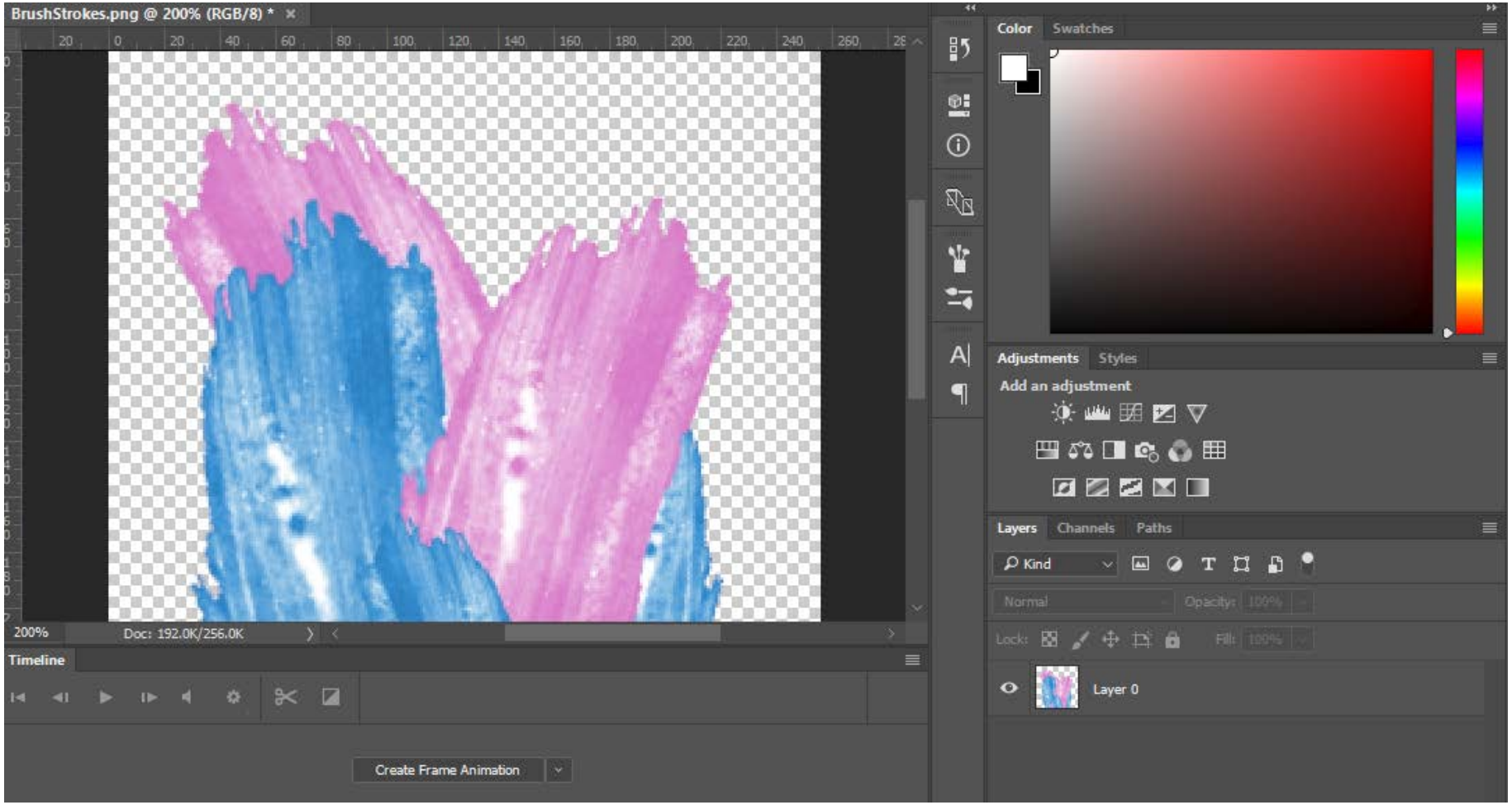

FLOOR
9
SCORE
8200
LIVES
3
HEALTH
100%
AMMO
8

Finding Transparent Images

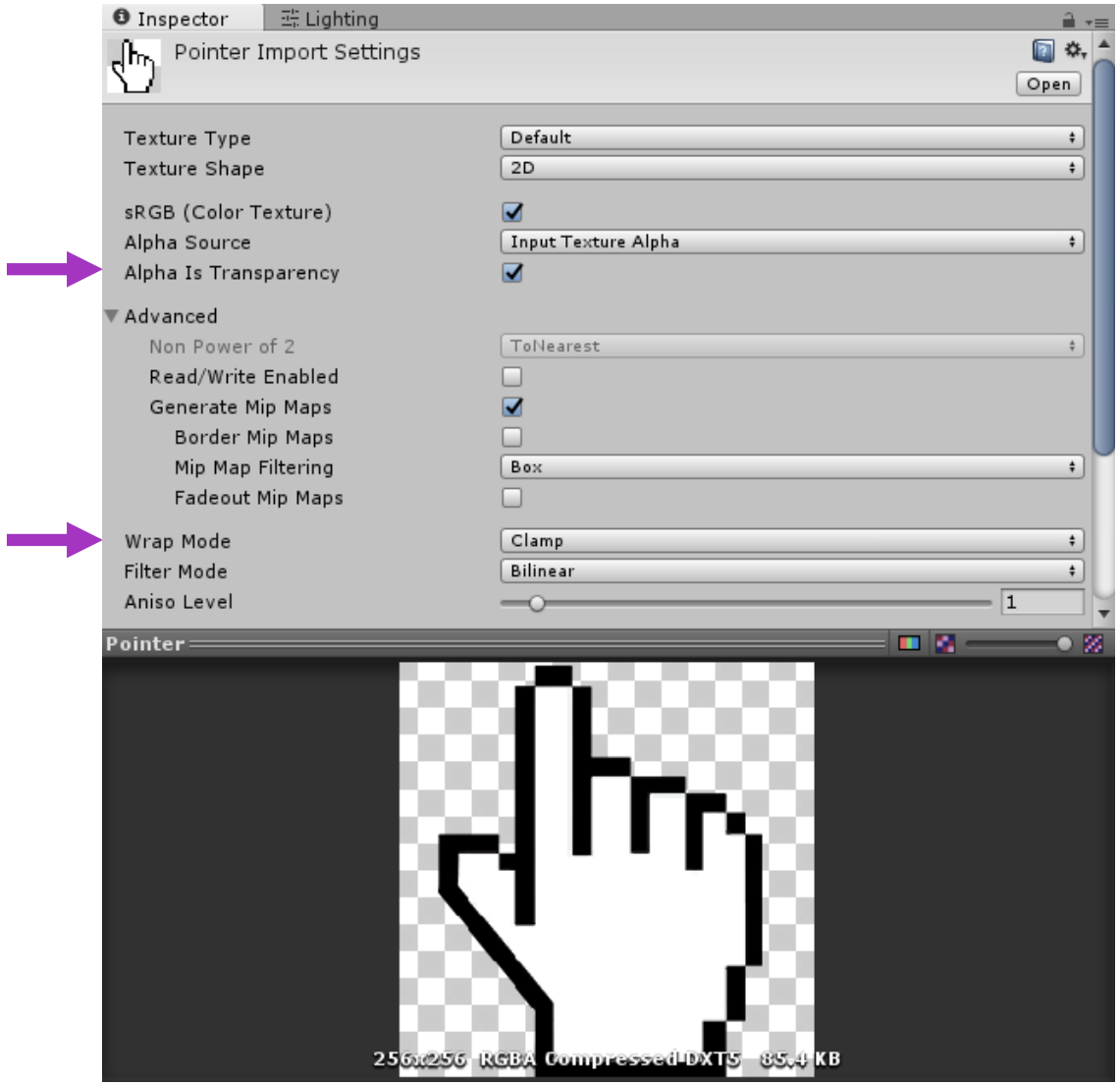
- nobacks.com
- stickpng.com
- pngimage.com
- pixabay.com
- Or, Google tools:



Making Transparent Images



Billboarding “Grass” Import

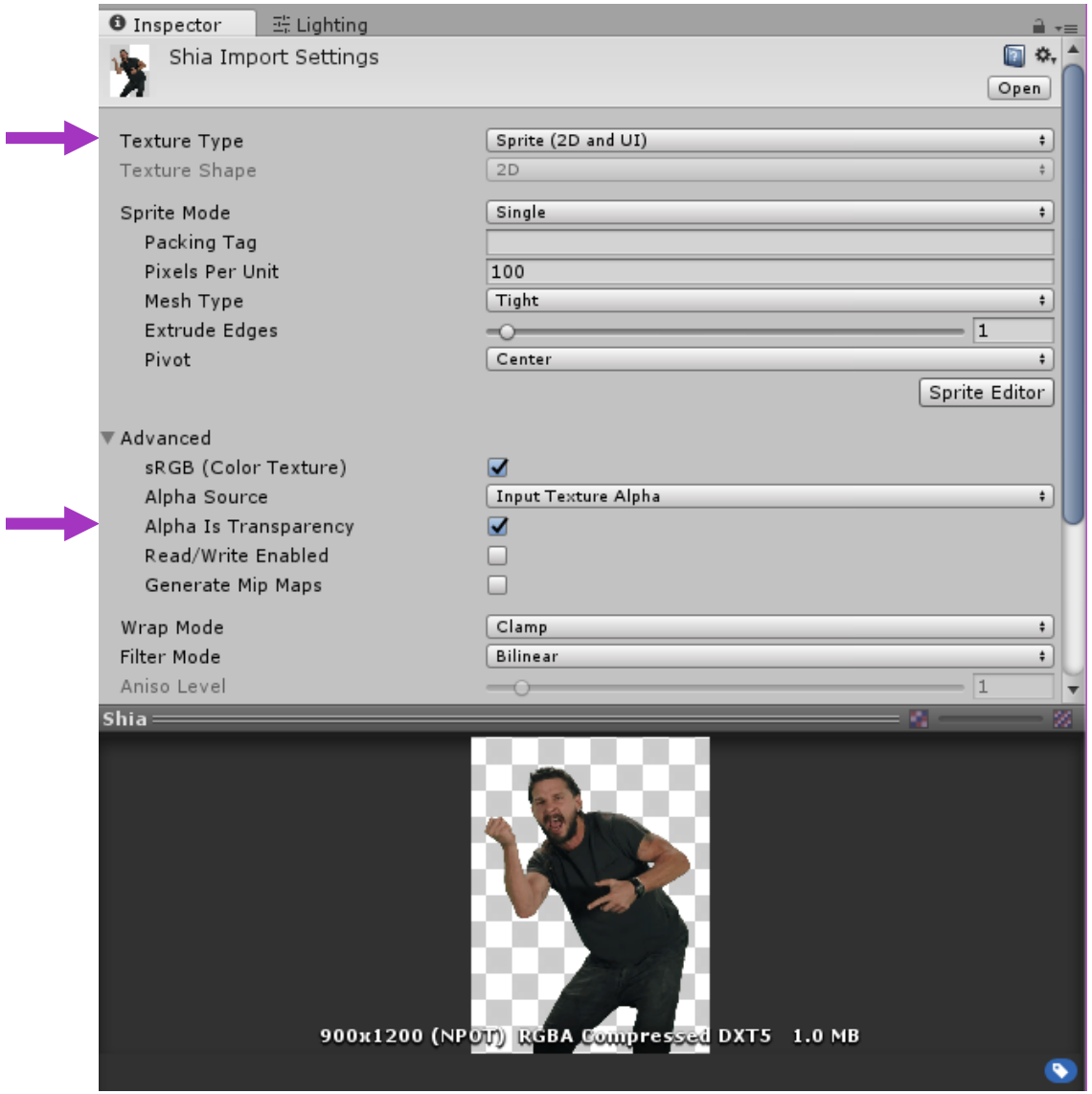


Billboarding Sprites

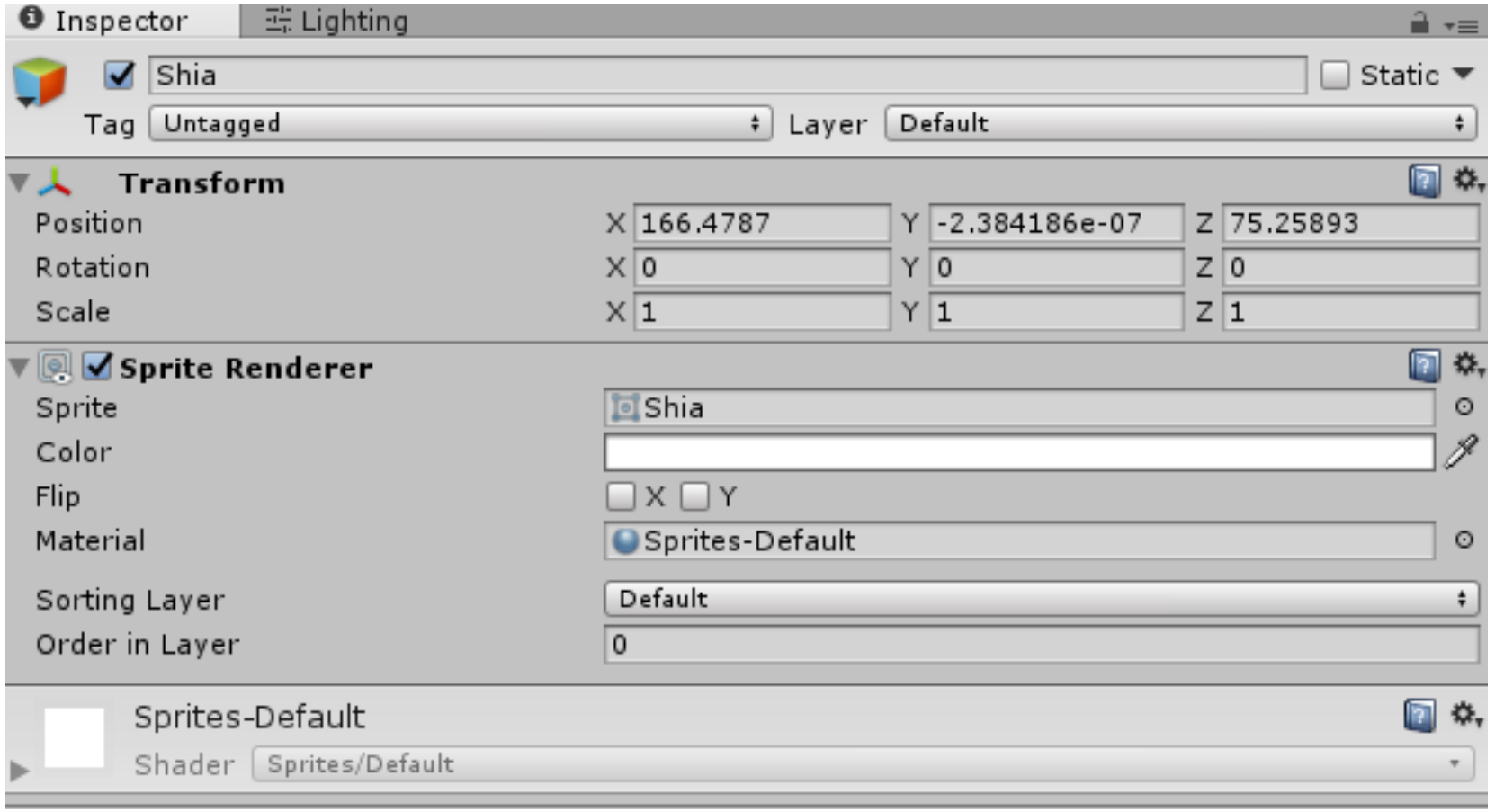
Sprites

- Sprites are 2D graphics objects
- Can be placed in 2D or 3D scenes
- Optimized to be faster than creating a textured 3D object
- References:
  - Manual
  - Video tutorials

Sprite Import

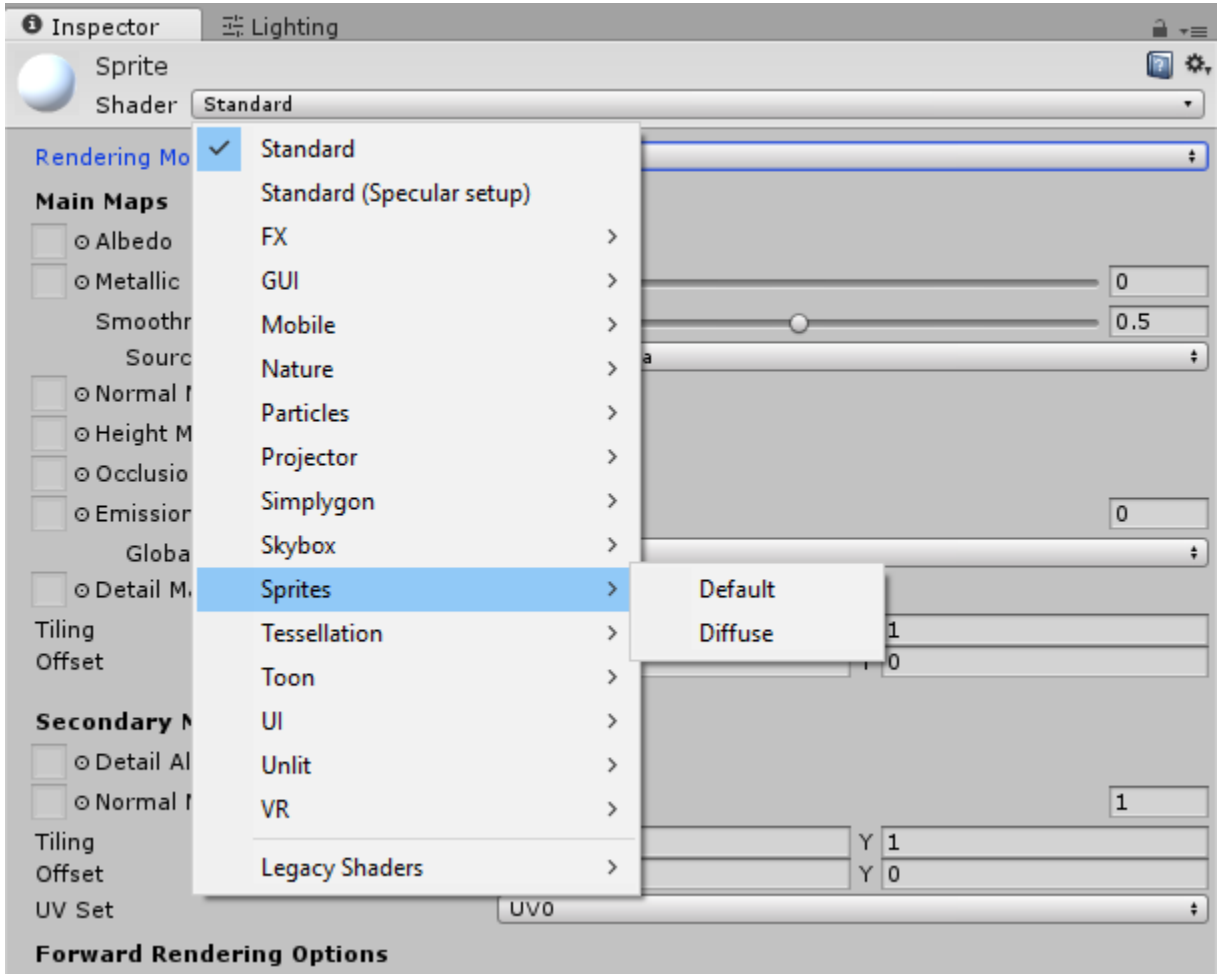


Sprites


Inspector
Lighting
Shia
Static
Tag
Untagged
Layer
Default
Transform
Position
X 166.4787
Y -2.384186e-07
Z 75.25893
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1
Sprite Renderer
Sprite
Shia
Color
Flip
X
Y
Material
Sprites-Default
Sorting Layer
Default
Order in Layer
0
Sprites-Default
Shader
Sprites/Default

Sprite Materials

- Default – no light
- Diffuse – affected by light

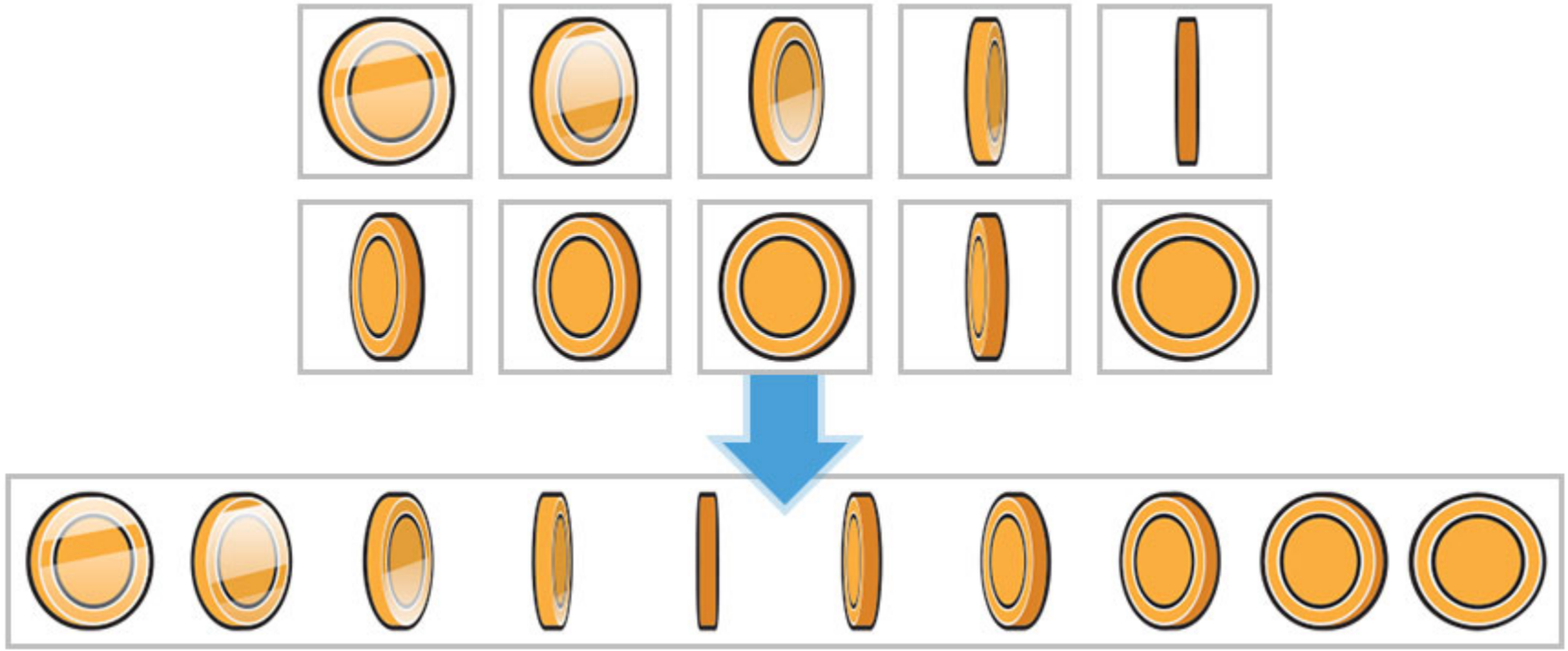


Sprite Billboarding

- How? Scripts!
- Community scripts: here

Animated Sprites

Spritesheet



http://www.williammalone.com/articles/html5-animation-sprite-sheet-photoshop/

Free Spritesheets

- Itch.io
- OpenGameArt

GIF to Spritesheet

http://www.piskelapp.com/

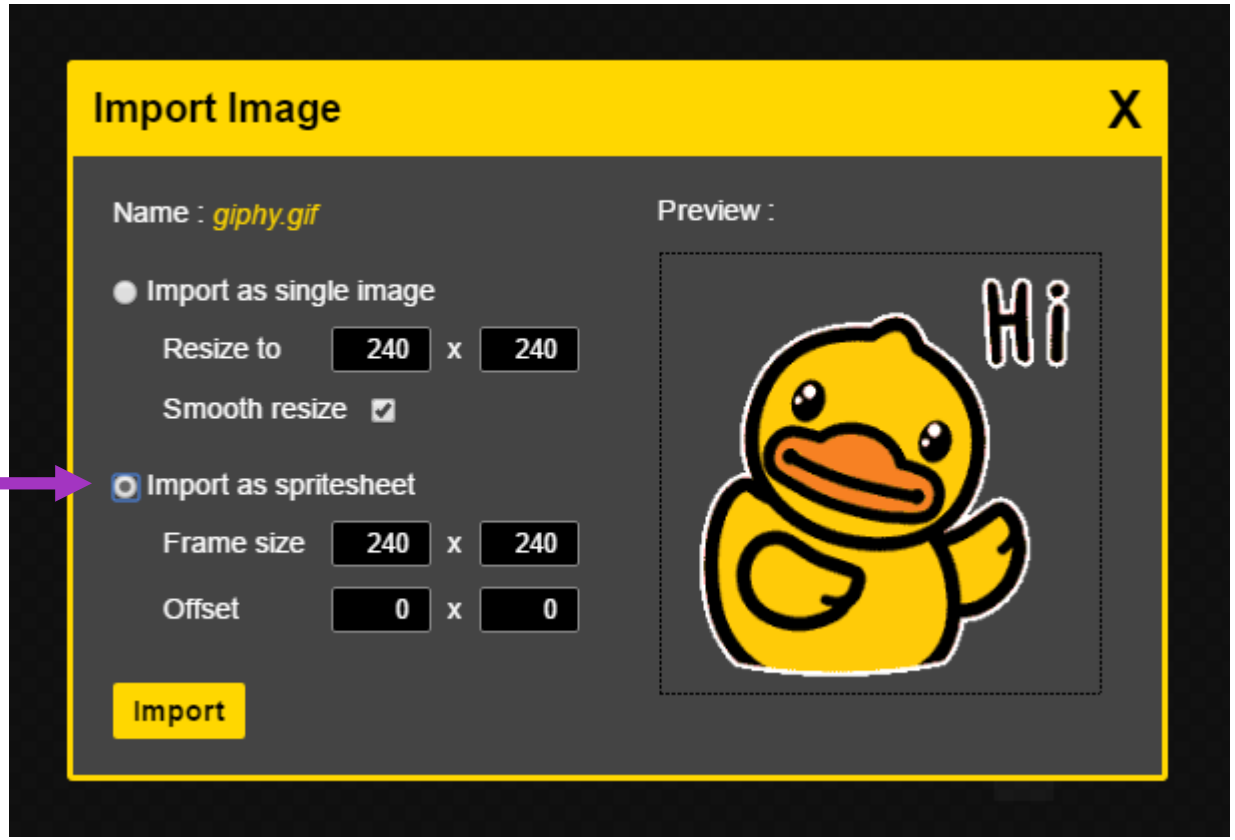
Transparent Animated GIFs

- giphy.com/stickers
- Search stickers by using “cat sticker” or “robot sticker“

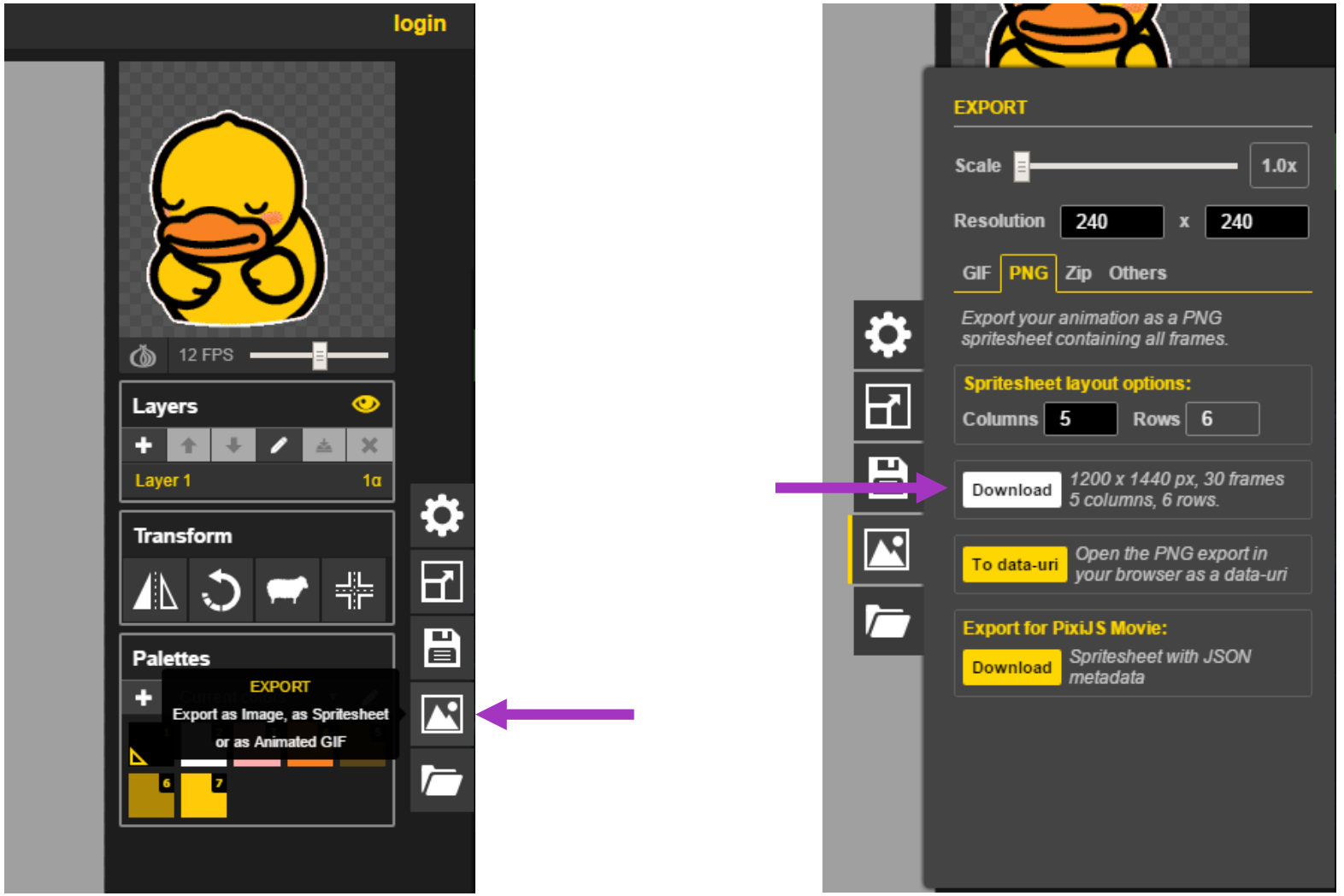
GIF to Spritesheet

1. Download a GIF
2. Import the GIF into piskel as a spritesheet
3. Export as a PNG spritesheet

Piskel Import



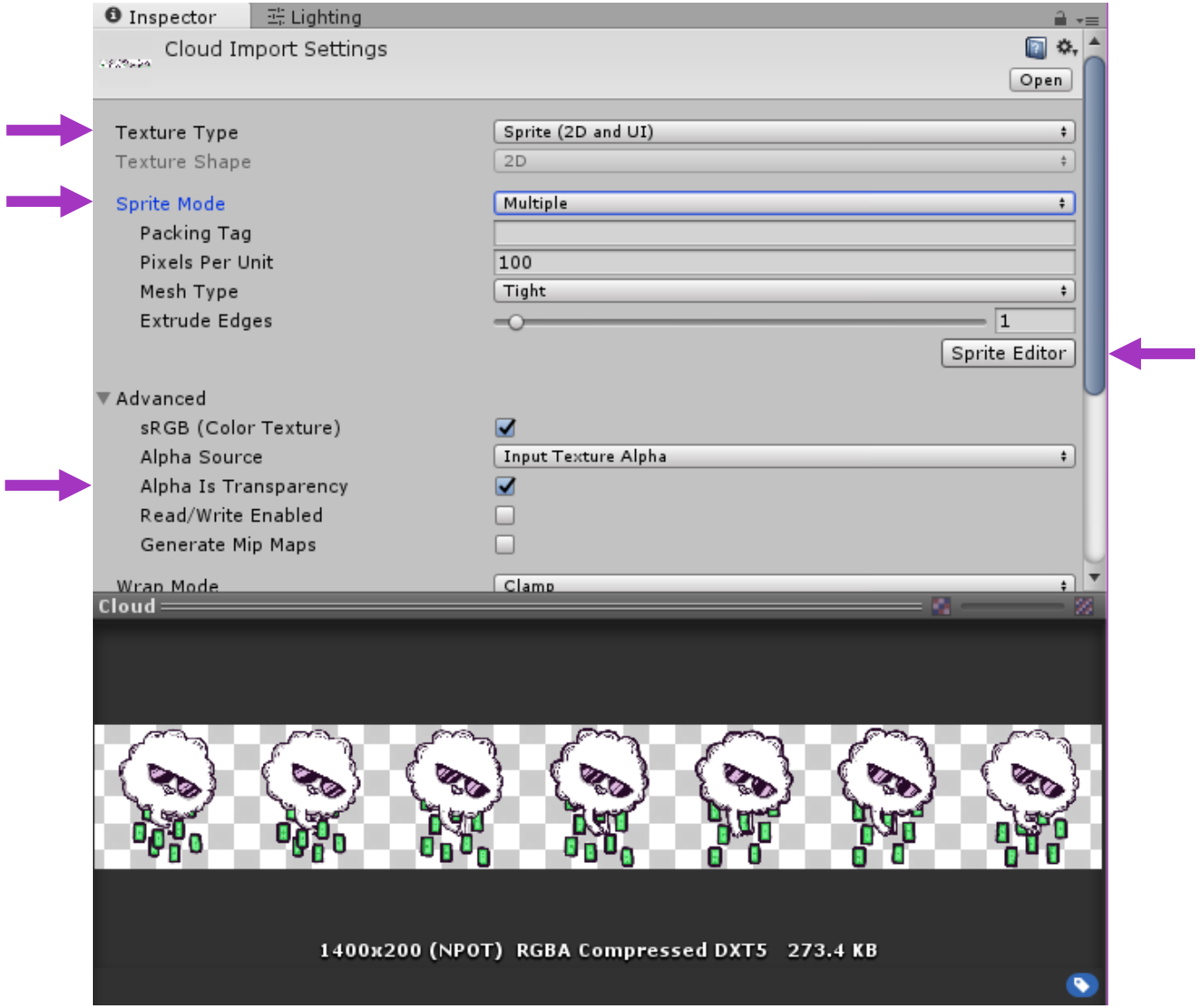
Piskel Export



Optional Step

- You can post-process your spritesheet in Photoshop or in the free pixlr online editor
- Examples:
  - Applying a filter
  - Adjusting the color

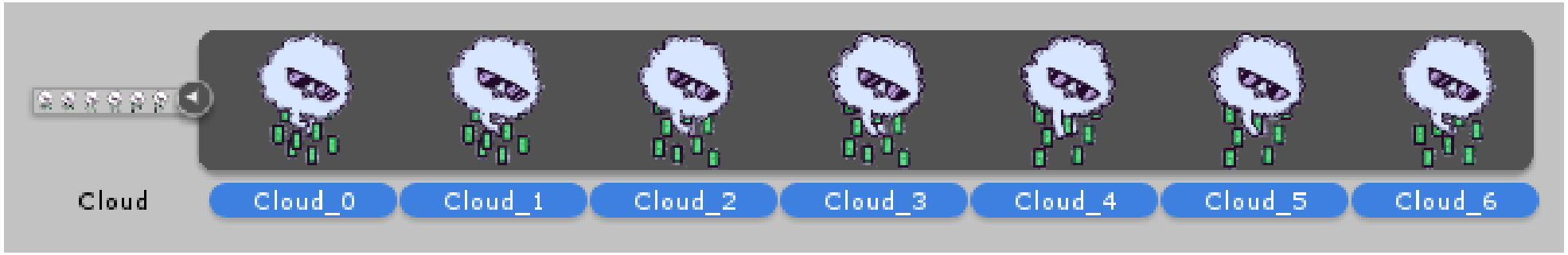
Unity Spritesheet Import




Sprite Editor
Slice
Trim
Revert
Apply
Type
Grid By Cell Count
Column & Row
C 7
R 1
Offset
X 0
Y 0
Padding
X 0
Y 0
Pivot
Center
Custom Pivot
X 0
Y 0
Slice

Add Animated Sprite to Scene

- Expand the spritesheet in the Project view
- Select the frames
- Drag and drop into the hierarchy view
- Save the animation when prompted



Adjusting Speed

Open the controller