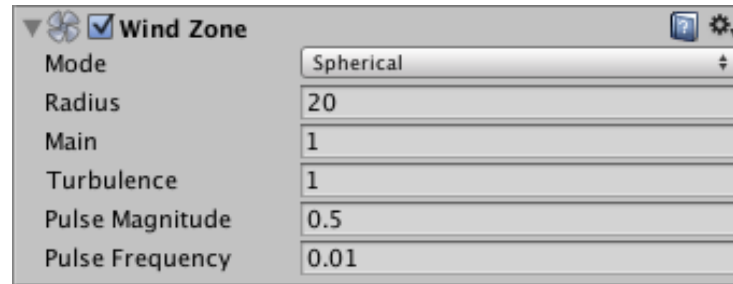


Trees



# Tree Wind

- Affects trees and particles (but not grass)



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

# Making Your Own Trees

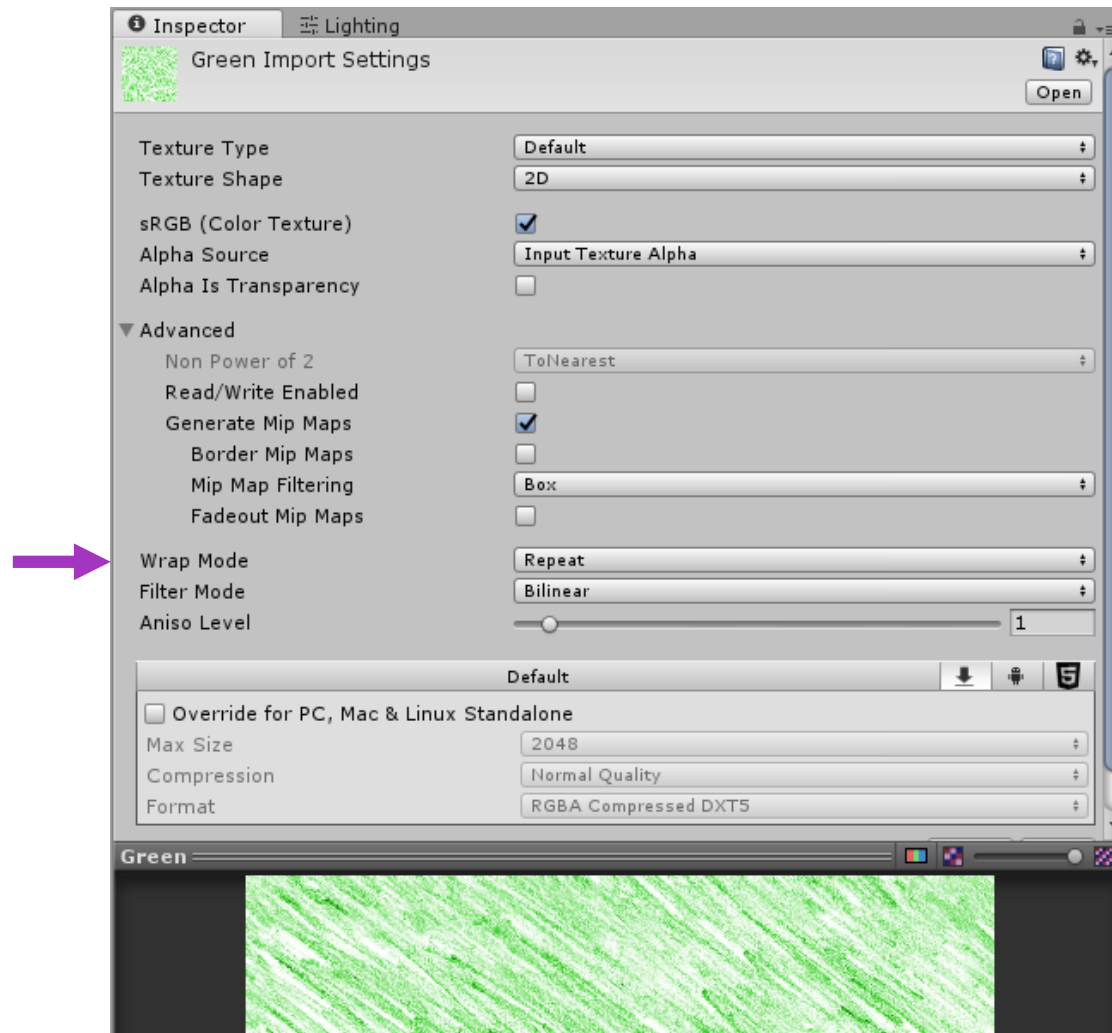
- See [video tutorial](#)

# Textures

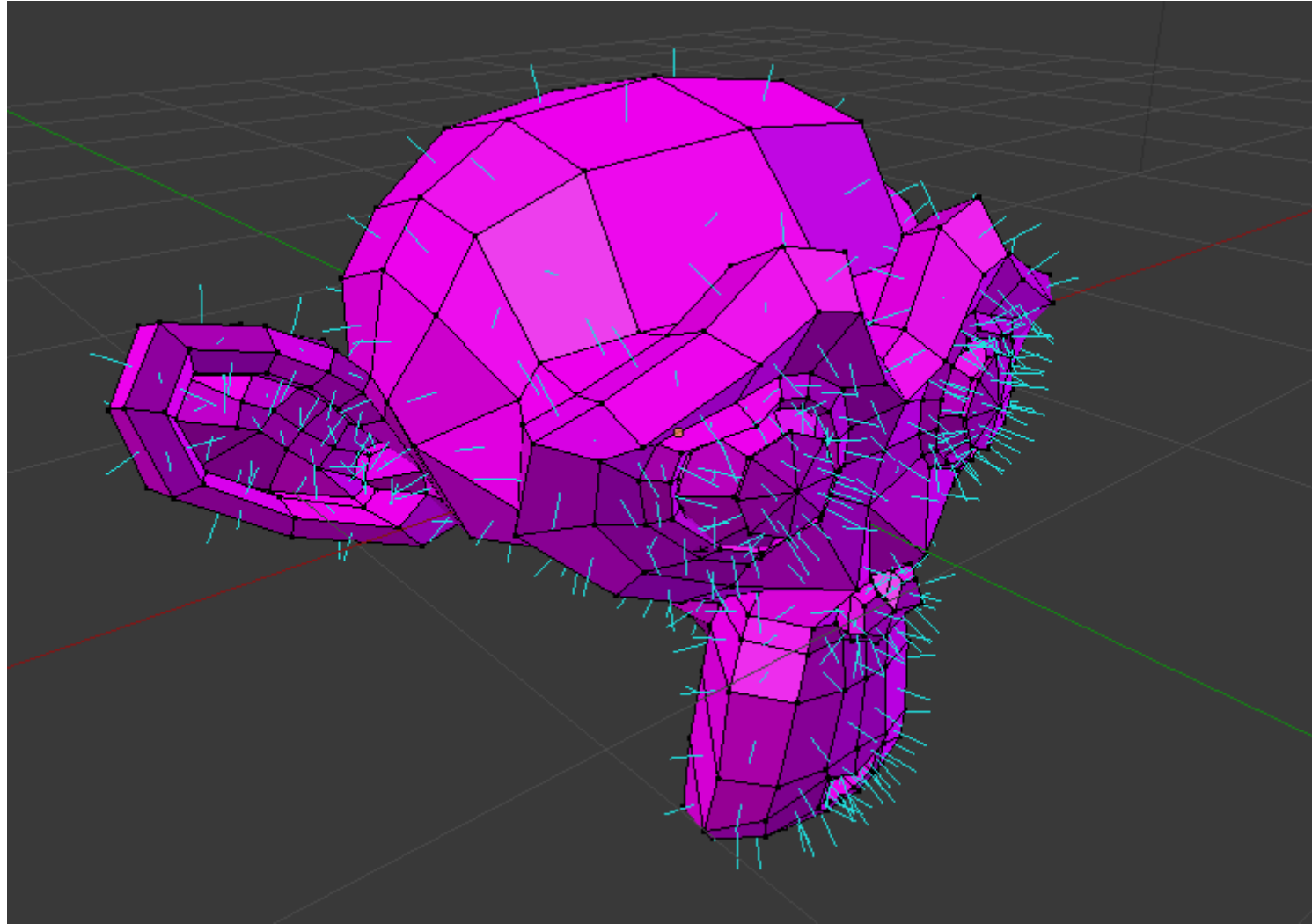
# Free Texture Resources

- Textures
  - [Textures.com](https://www.textures.com) - seamless and non-seamless textures
  - [Free Seamless Textures](https://www.free-seamless-textures.com) – small selection of seamless textures
  - [Max Textures](https://www.maxtextures.com) – seamless textures are labeled
  - [Good Textures](https://www.goodtextures.com) – seamless and non-seamless
- Patterns
  - [Subtle Patterns](https://www.subtlepatterns.co) – subtle patterns, can be recolored in Photoshop
  - [The Pattern Library](https://www.thepatternlibrary.com) – small, curated collection of designs
  - [Pattern Nico](https://www.patternnico.com) – pattern maker, using simple icons

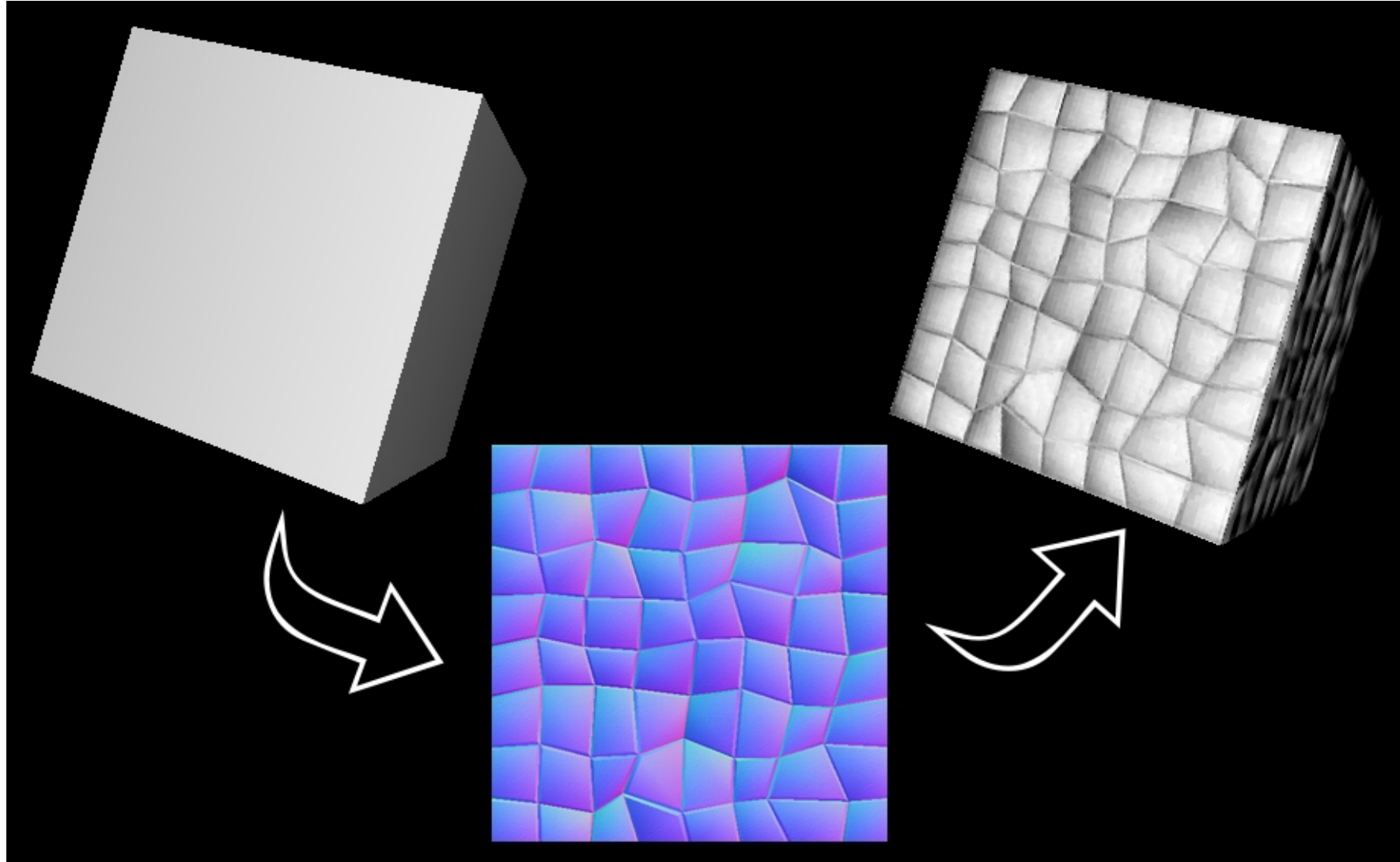
# Tile Texture Import



# Normal Map Textures



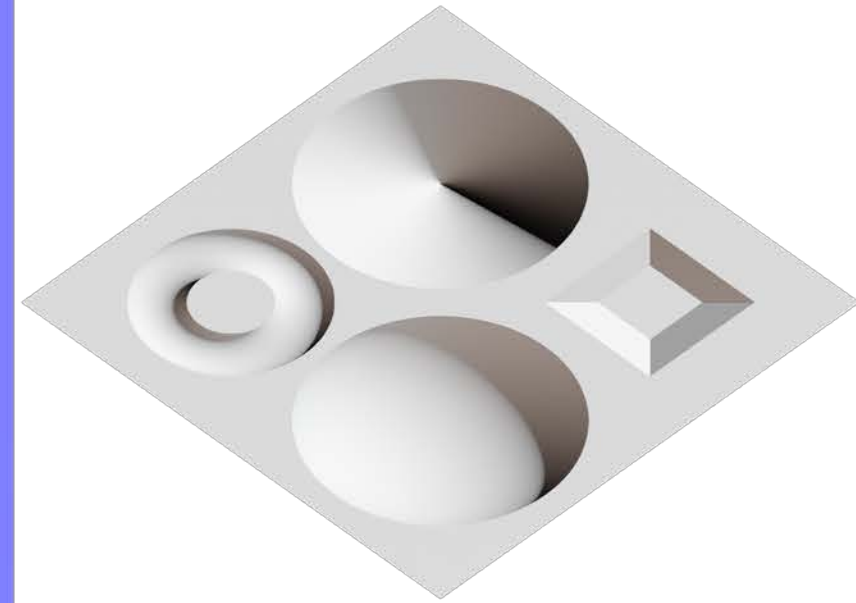
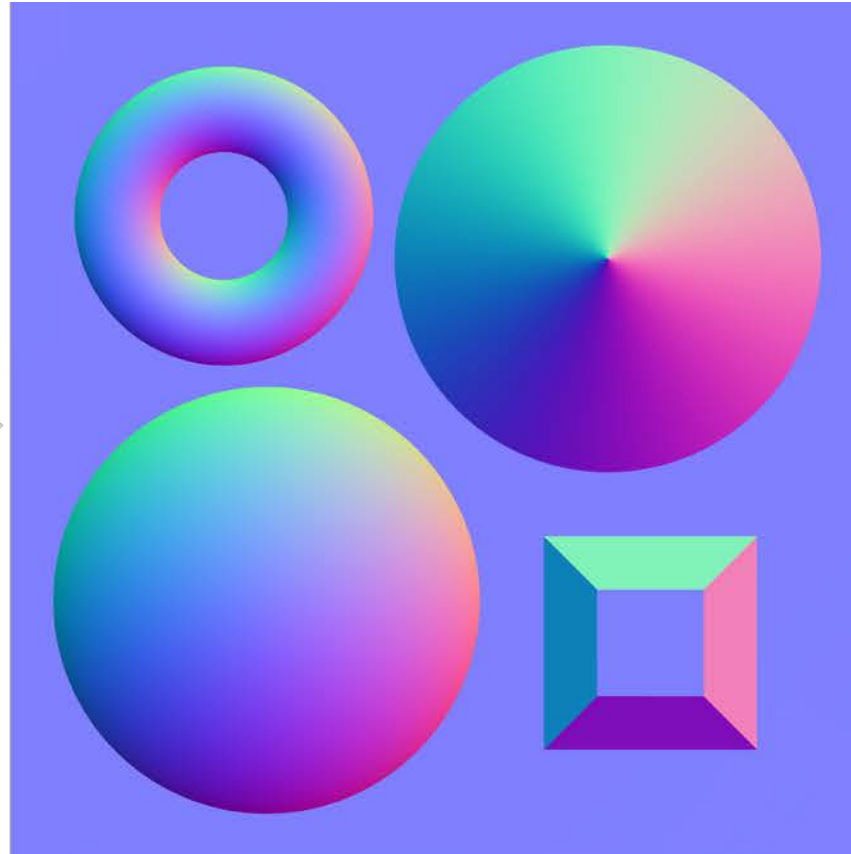
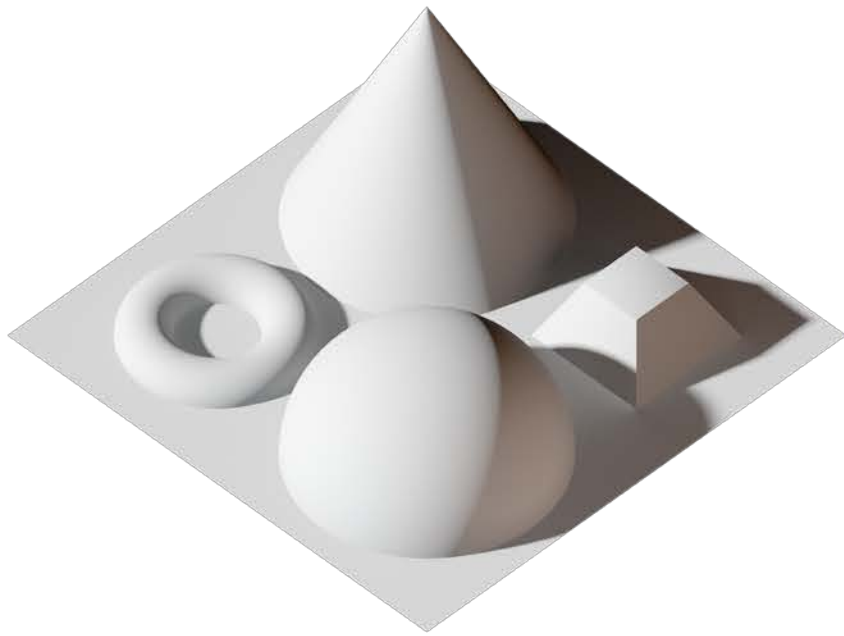
# Normal Map Textures







# Normal Map Textures

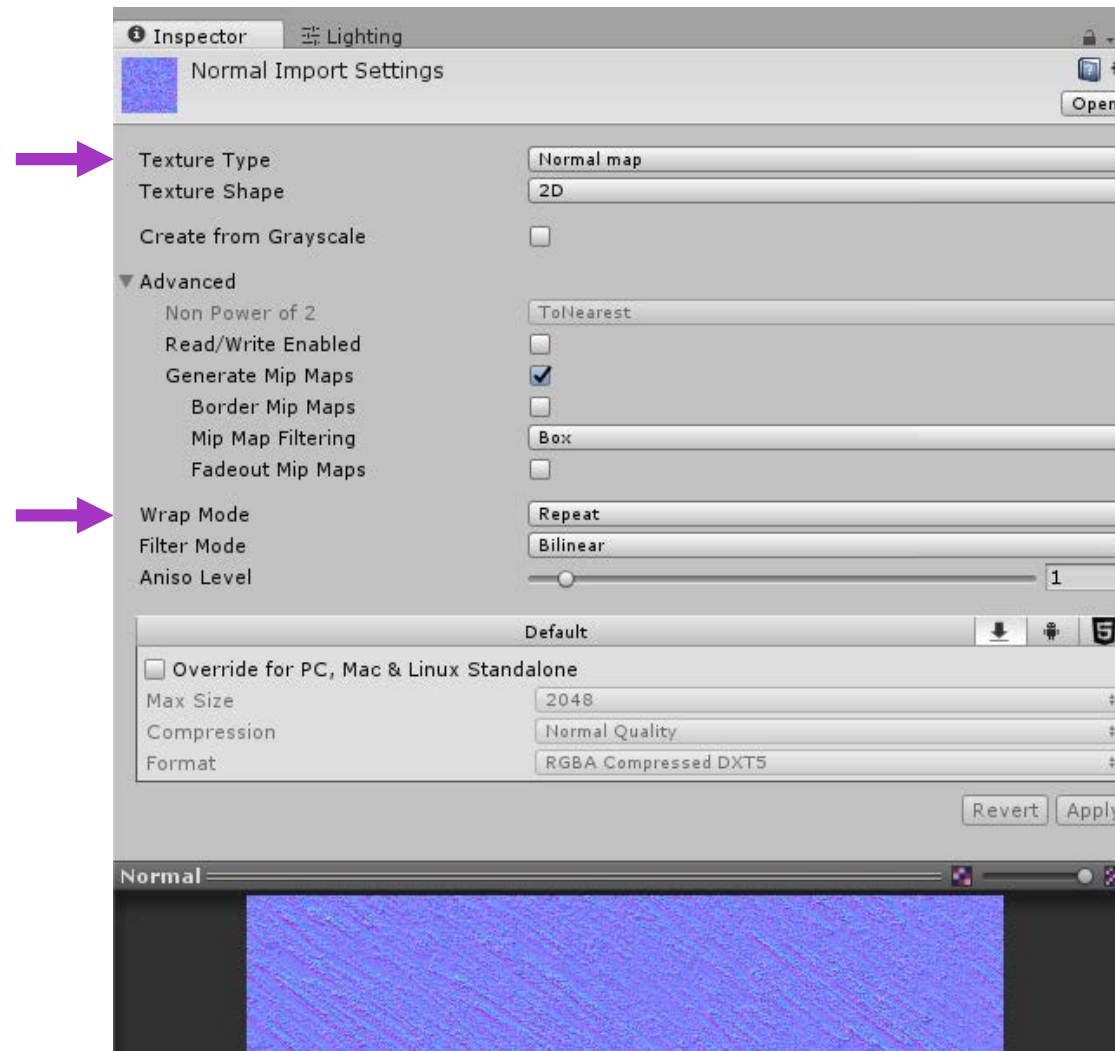


# Generating Normal Map Textures

- 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)



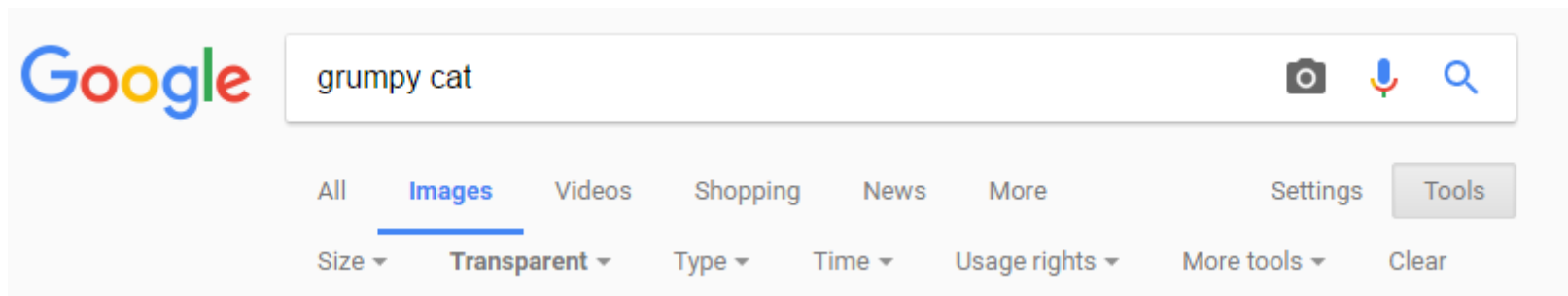


# Terrain Grass

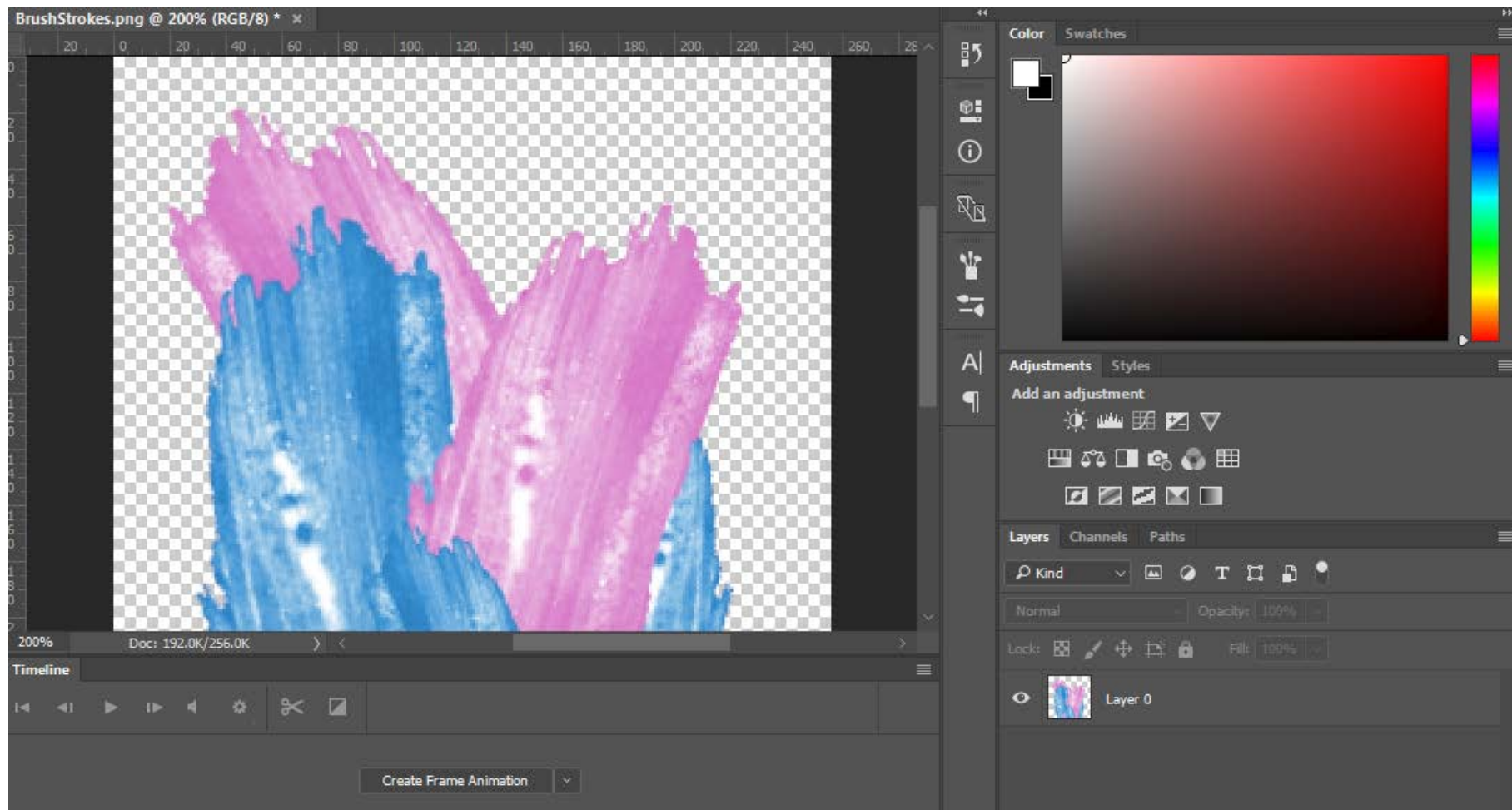


# Finding Transparent Images

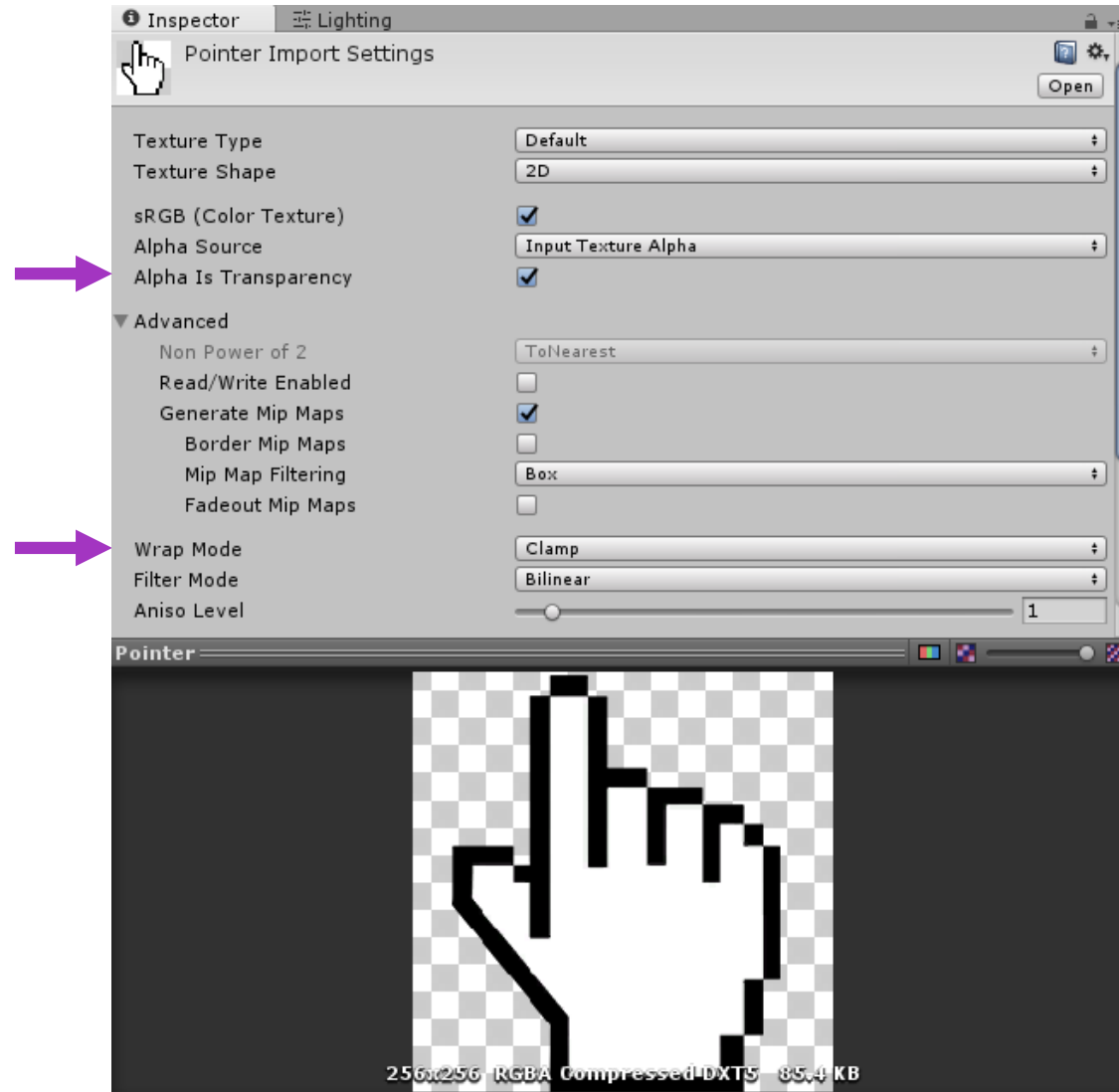
- [nobacks.com](https://nobacks.com)
- [stickpng.com](https://stickpng.com)
- [pngimage.com](https://pngimage.com)
- [pixabay.com](https://pixabay.com)
- Or, Google tools:



# Making Transparent Images



# Billboarding "Grass" Import





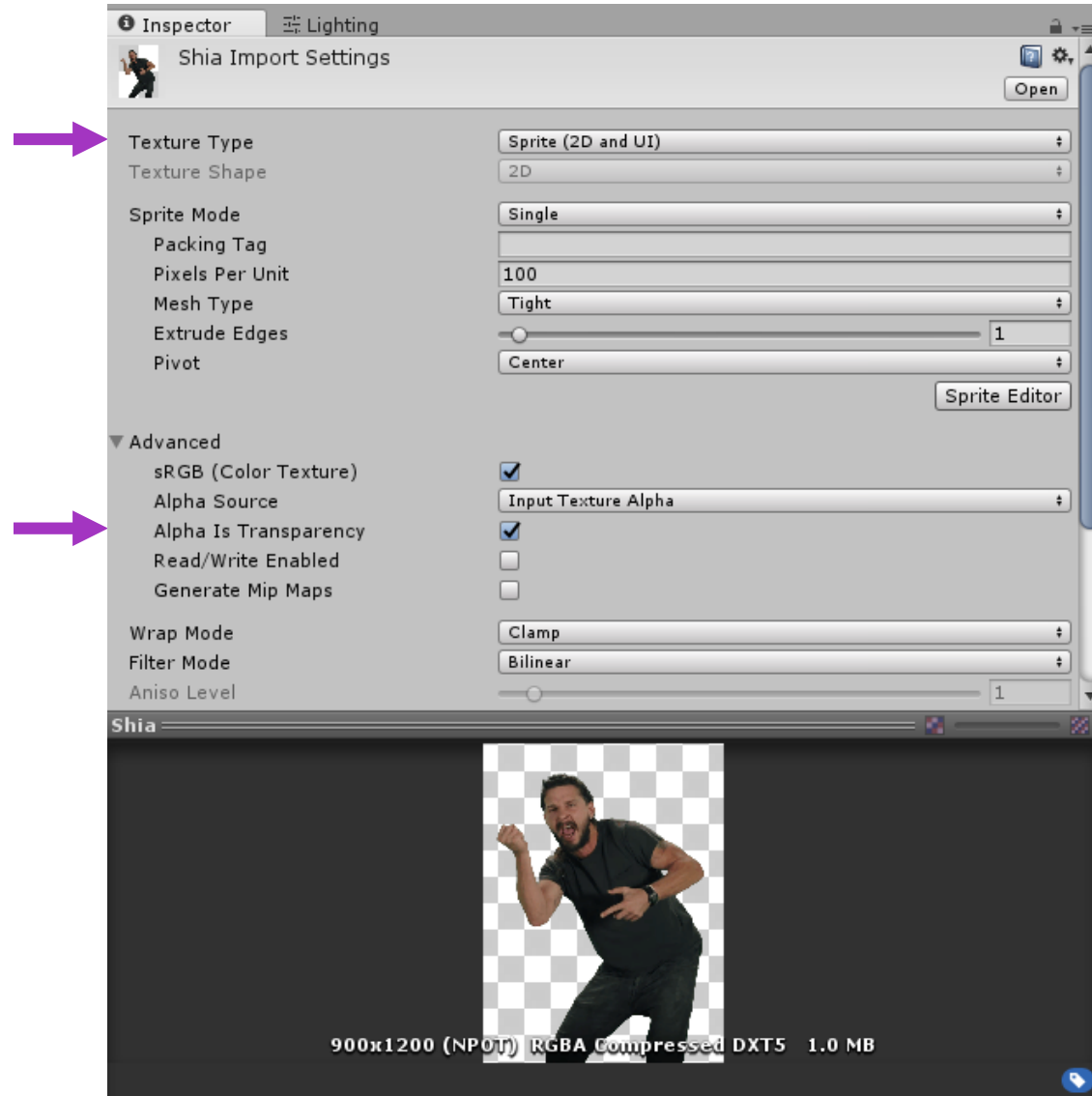


# Billboarding Sprites

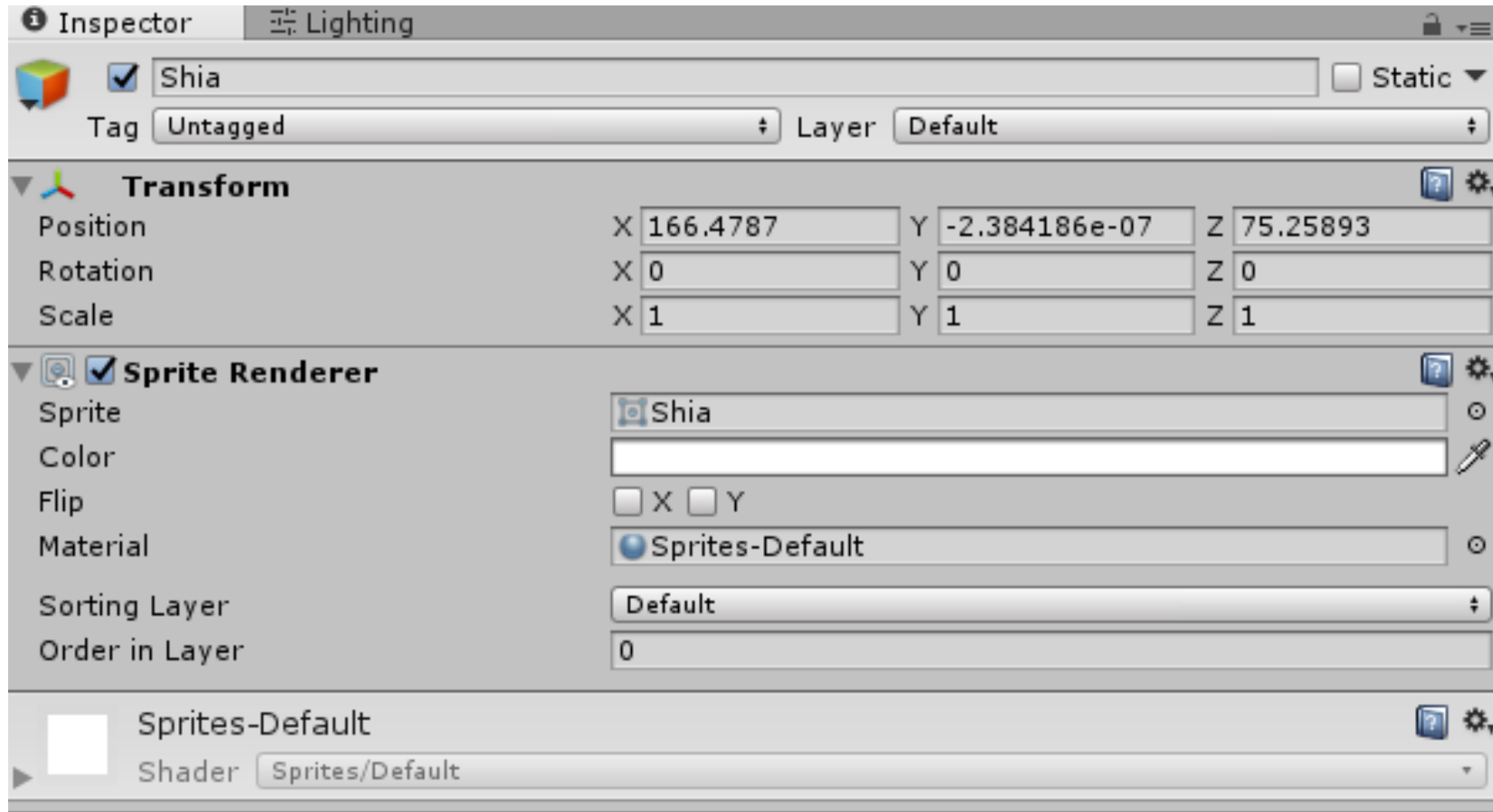
# Sprites

- 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

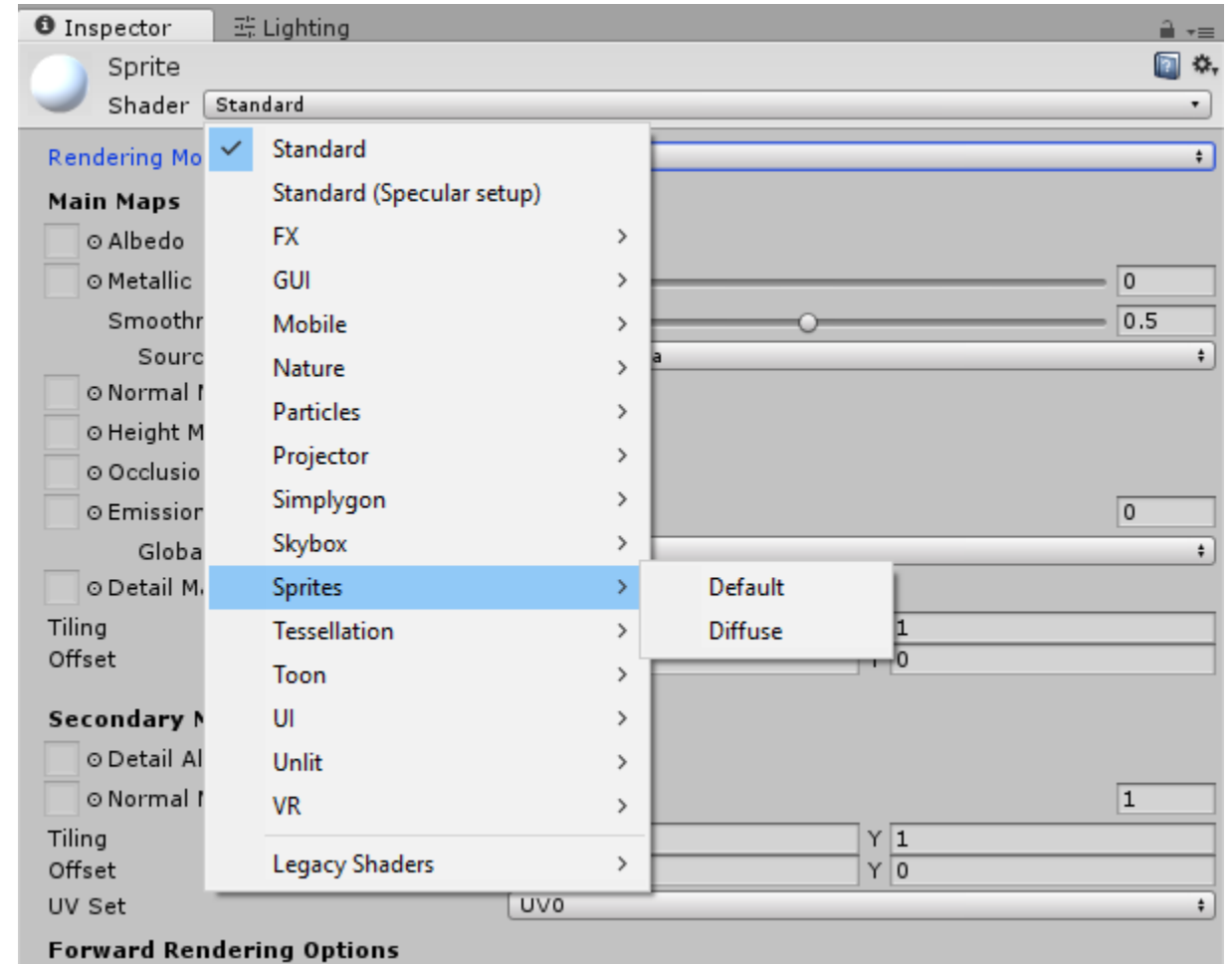


# Sprites



# Sprite Materials

- Default – no light
- Diffuse – affected by light



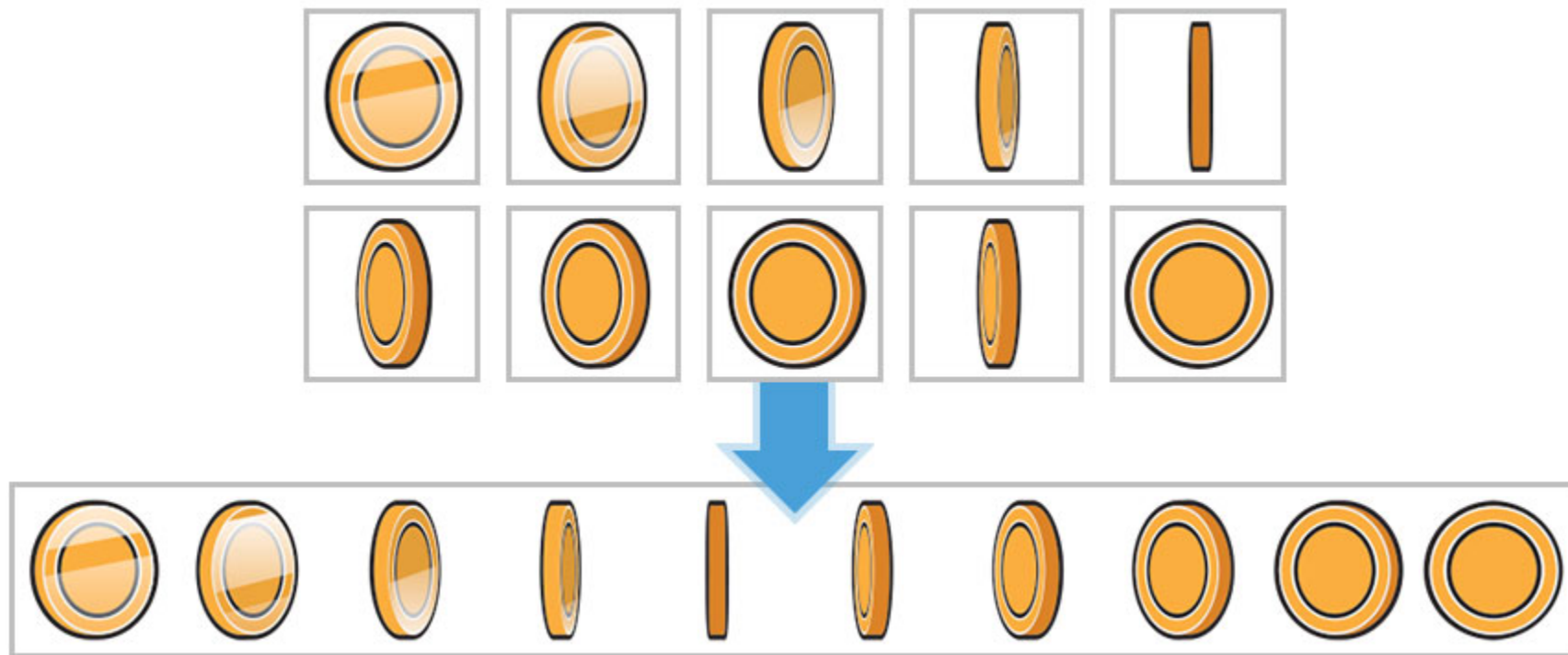
# Sprite Billboarding

- How? Scripts!
- Community scripts: [here](#)

# Animated Sprites



# Spritesheet

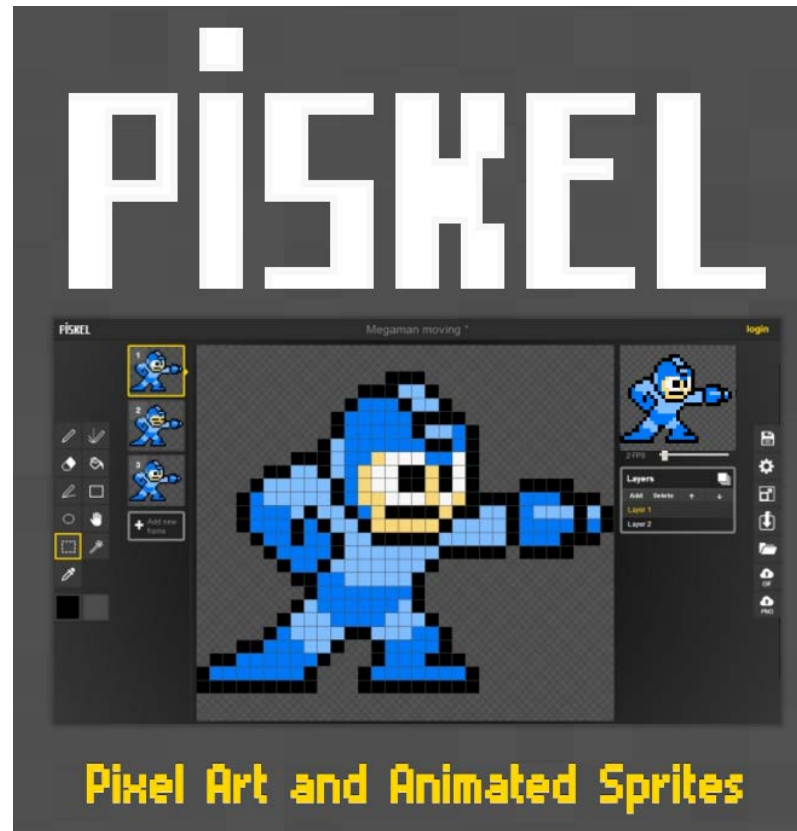




# Free Spritesheets

- [Itch.io](https://itch.io)
- [OpenGameArt](https://opengameart.org)

# GIF to Spritesheet



<http://www.piskelapp.com/>

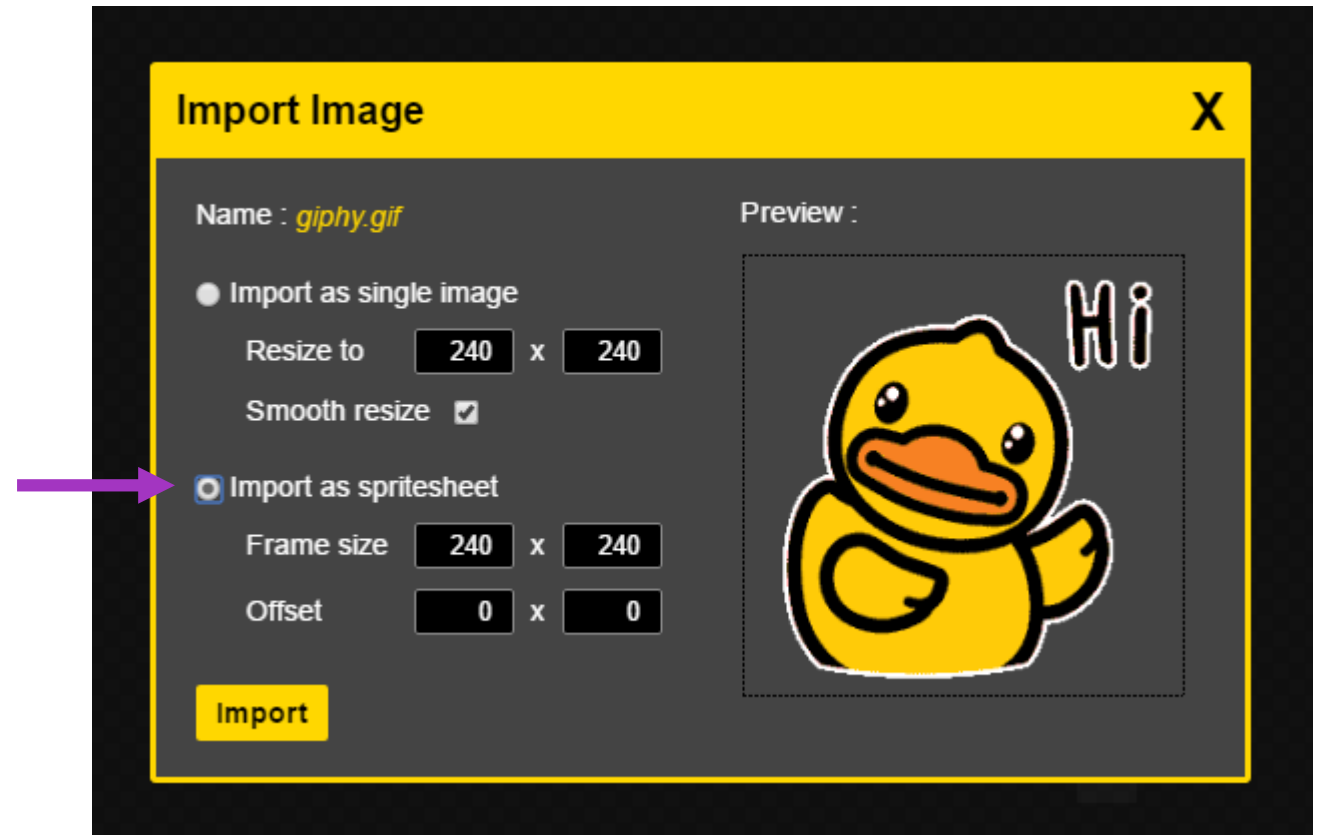
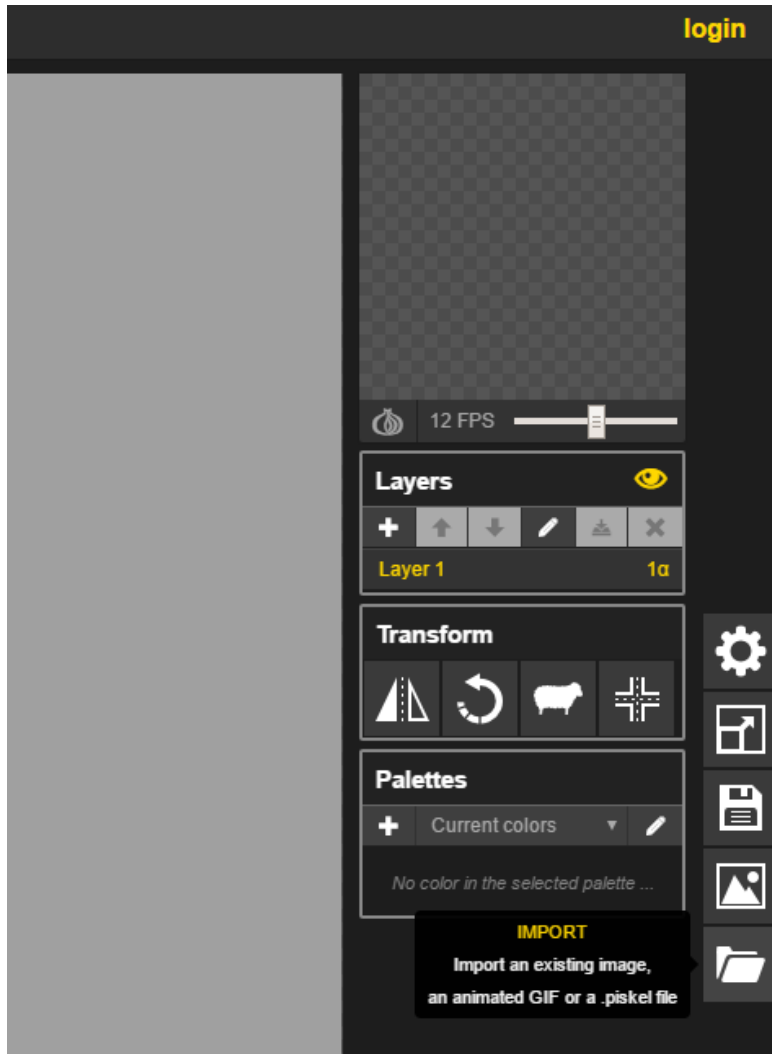
# Transparent Animated GIFs

- [giphy.com/stickers](https://giphy.com/stickers)
- Search stickers by using “cat sticker” or “robot sticker”

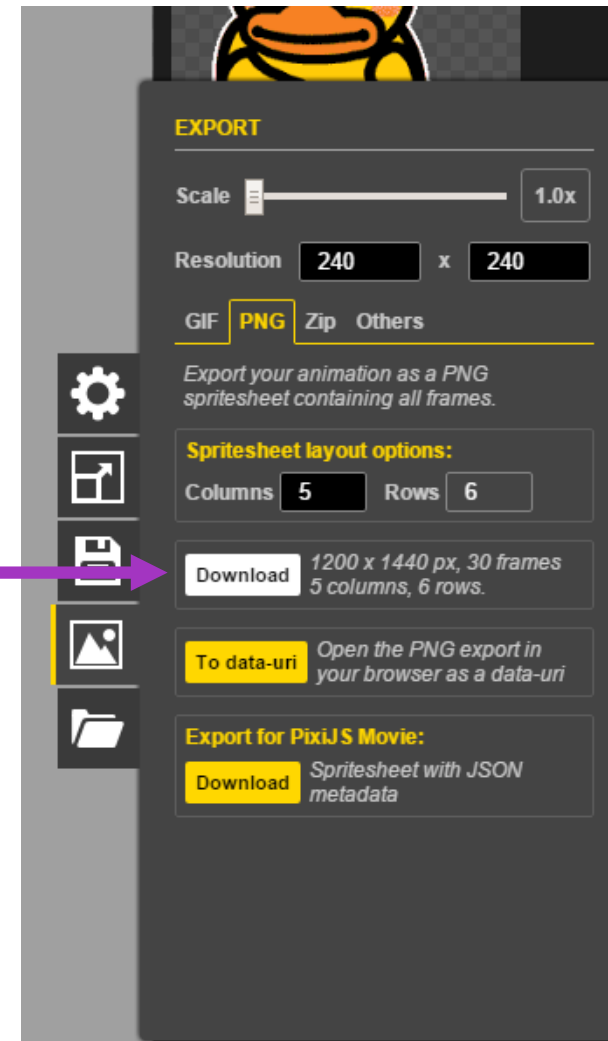
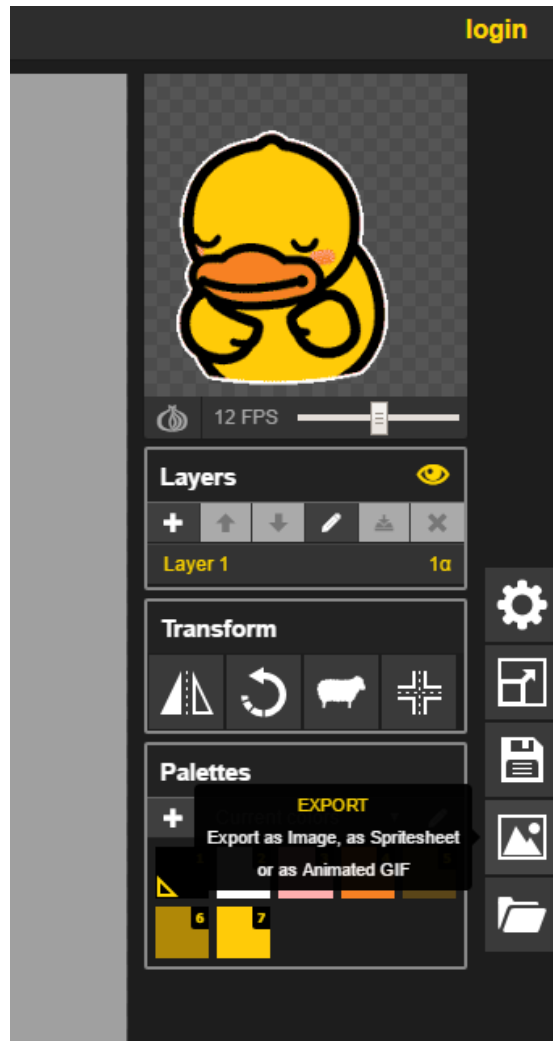
# GIF to Spritesheet

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

# Piskel Import



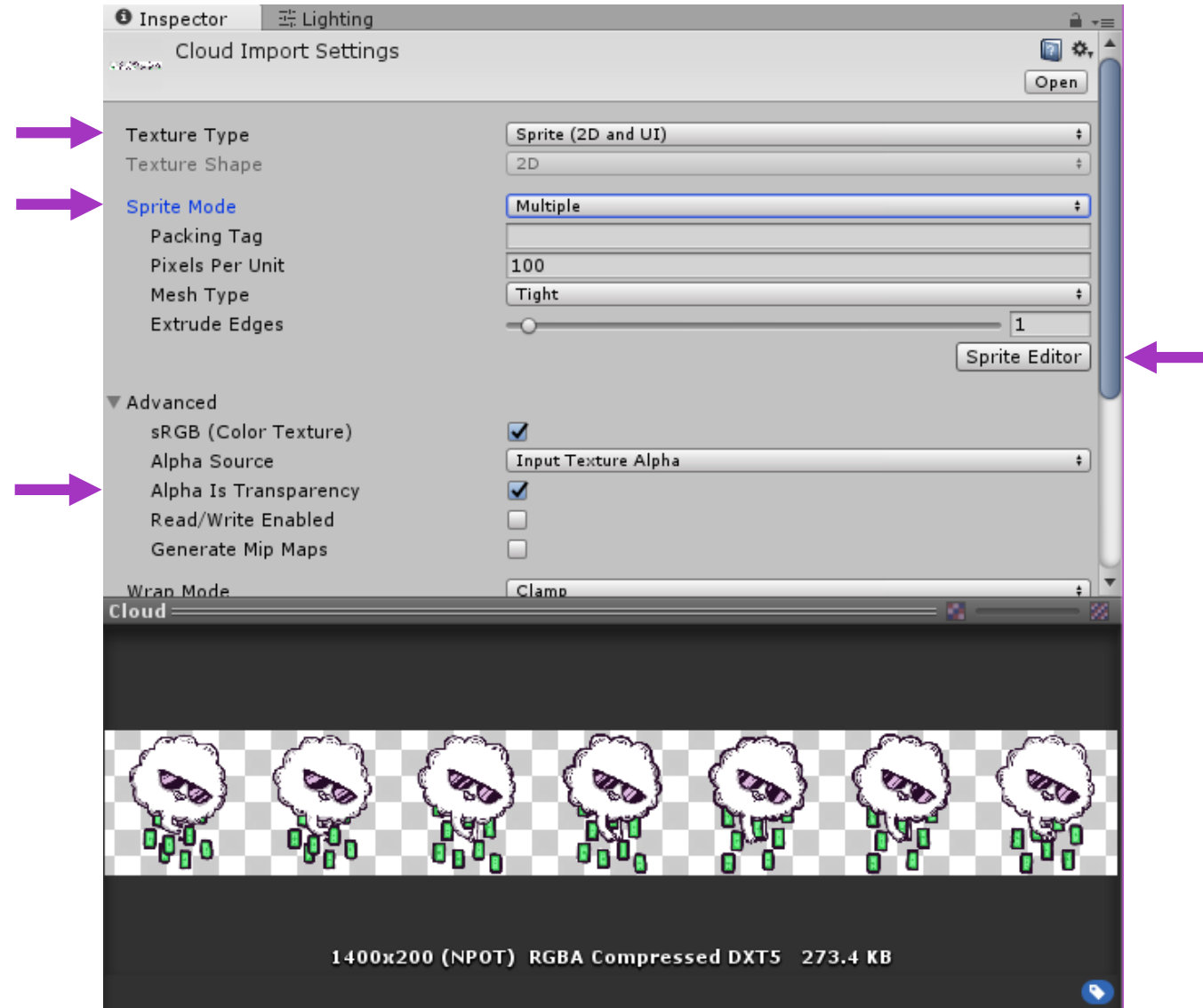
# Piskel Export



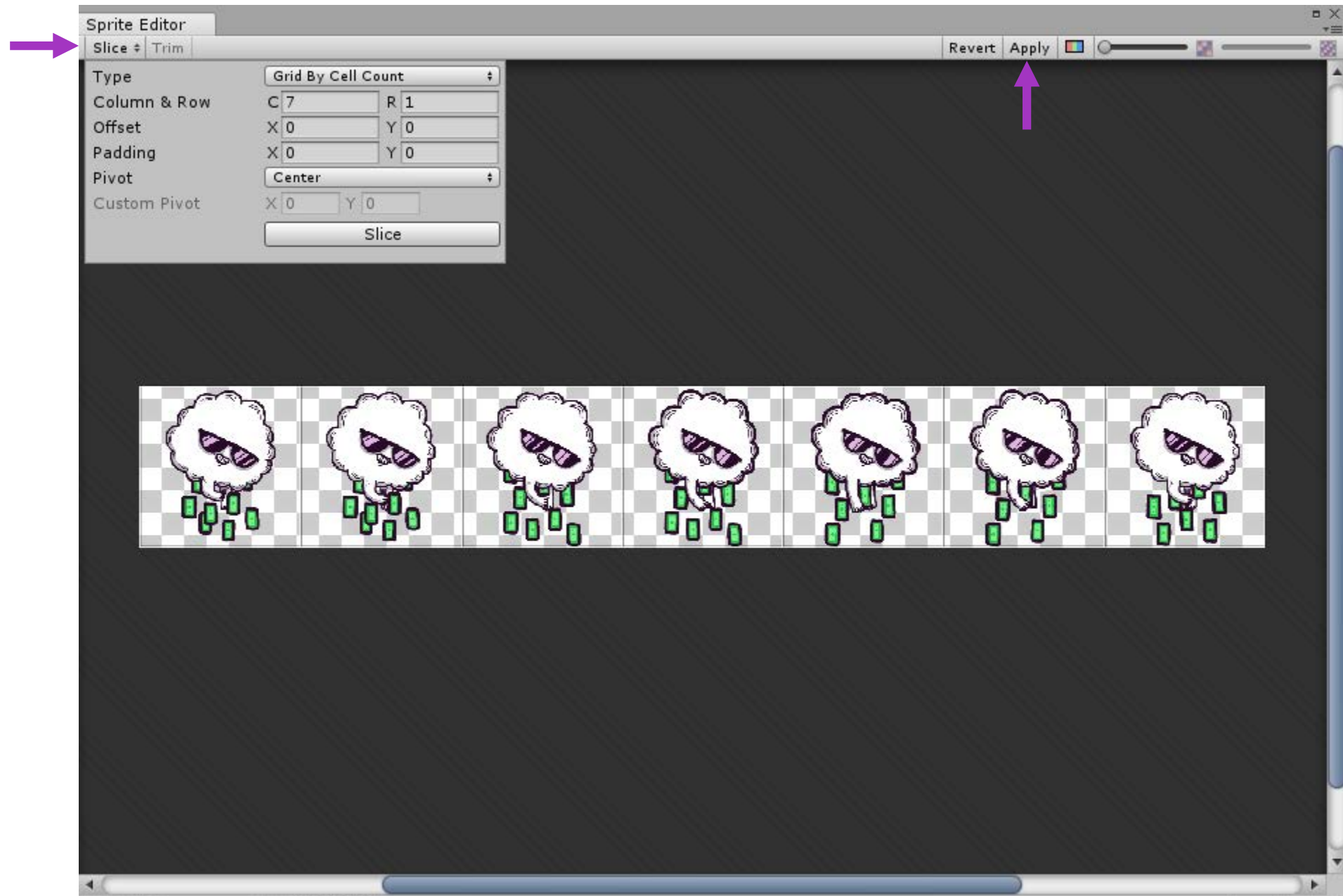
# Optional Step

- 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

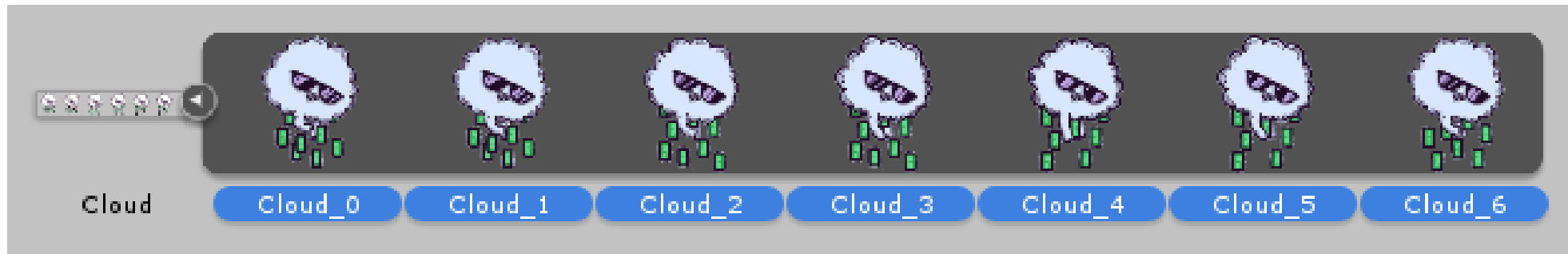






# Add Animated Sprite to Scene

- 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

