

# 2D Game Design in Unity

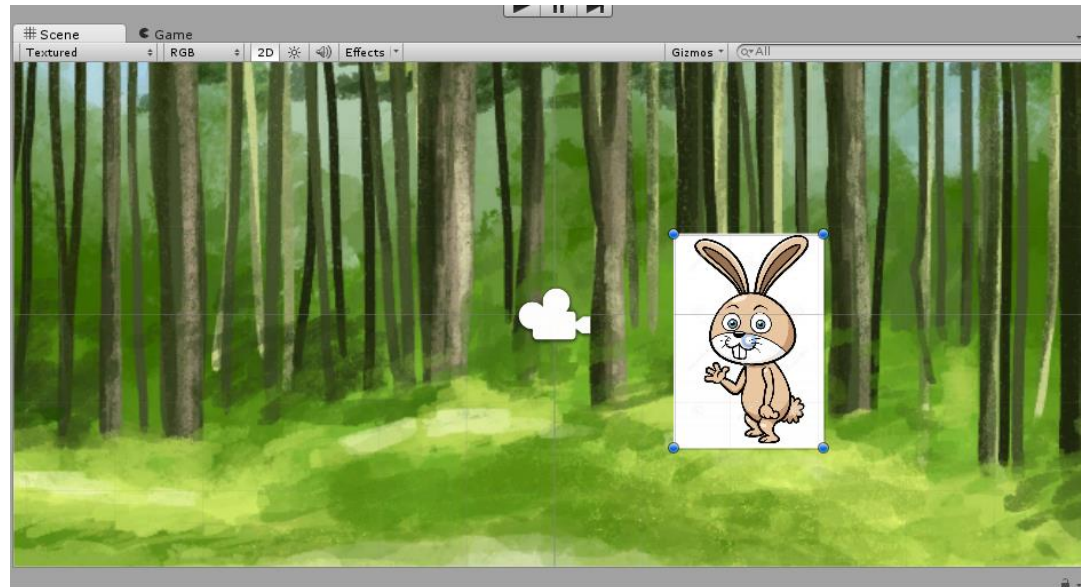
Lab 2 - Character sprites + concept sketches

# Reminder

- ▶ Before creating your level, determine the type/genre of game you want to make
- ▶ Plan all the important stuff on paper. Draw sketches.
- ▶ Determine the aesthetic and atmosphere, because they will dictate your art style and music (remember, rules can be broken!)
- ▶ Use the references at the end of this powerpoint

# Types of Sprites

- ▶ In a 2D game, the art you use is called a Sprite.
- ▶ Your sprite must be **PNG** image filetype, to allow transparency
- ▶ If for example the sprite of your character does not have transparent a BG, you will have something like this:



# Types of Sprites (Cont.)

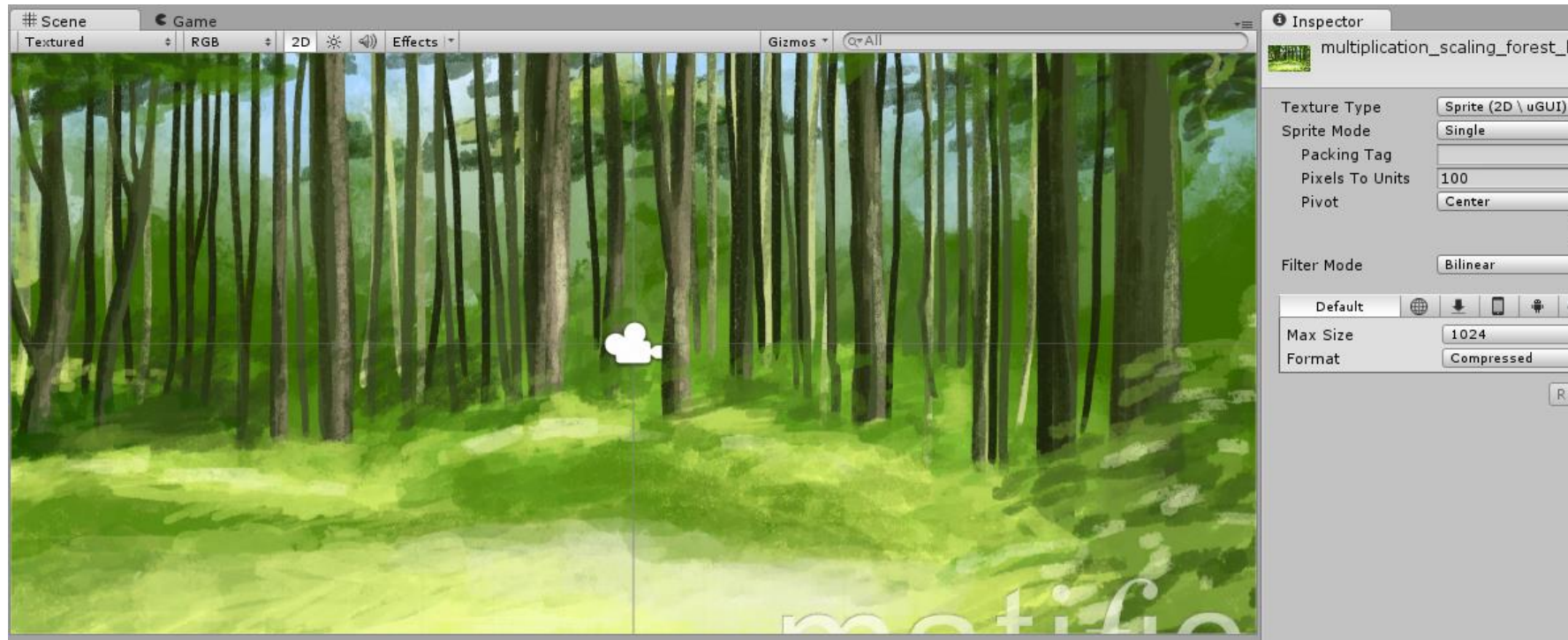
- ▶ But if your sprite has a transparent background, it will have gray and white checker marks as seen below:



- ▶ Now *this* can be used in designing your level without problem

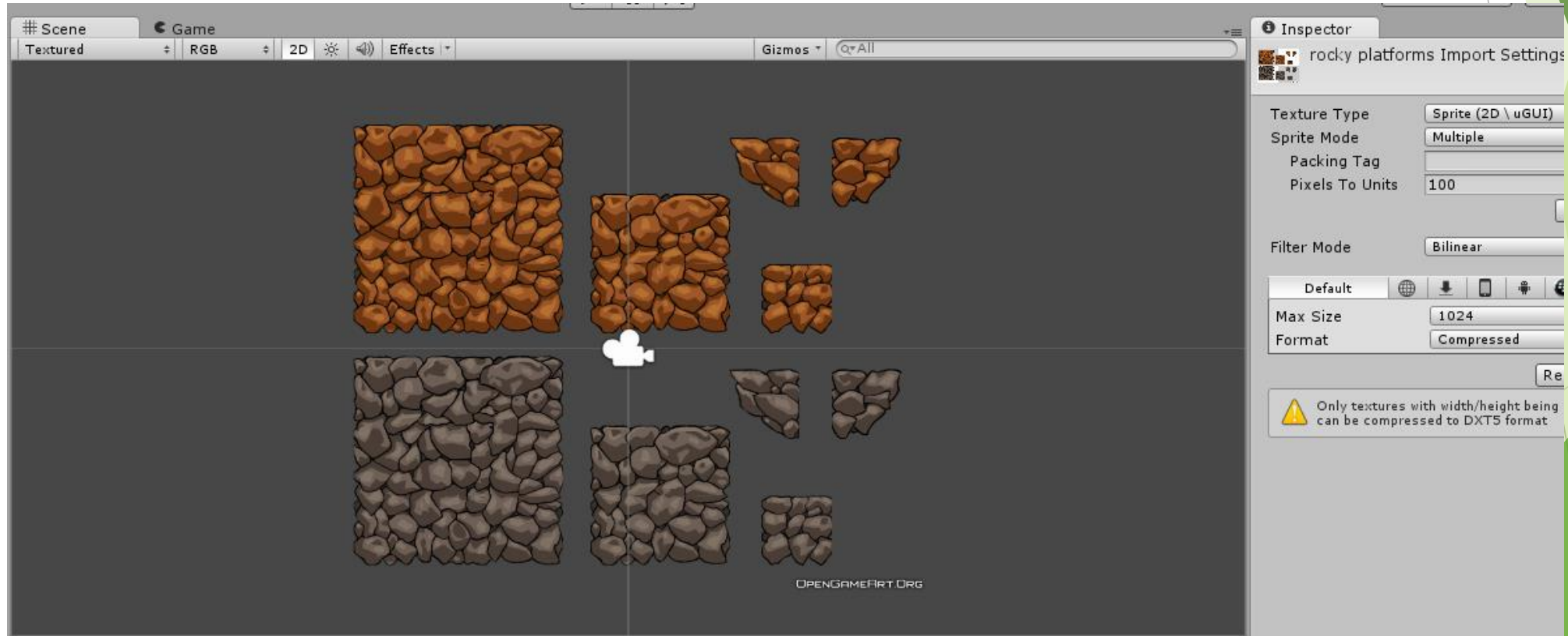
# Types of Sprites (Cont.)

- ▶ A sprite in Unity can be 2 modes: single or multiple
- ▶ If a sprite is only 1 image, then make sure its mode is *single*



# Types of Sprites (Cont.)

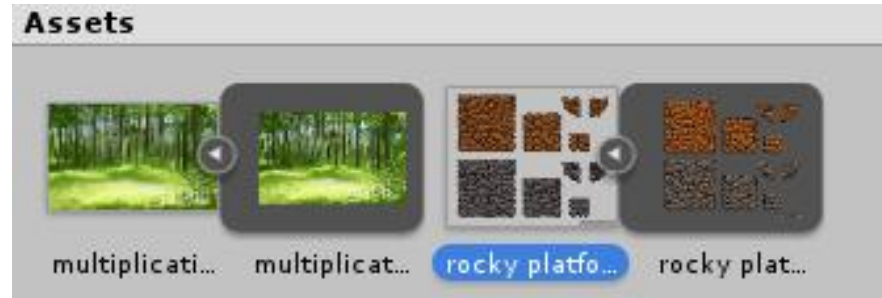
- If a sprite is several images, make sure its mode is *multiple*





# Types of Sprites (Cont.)

- ▶ Have you noticed that whenever you add a sprite to your assets pane, a copy of that sprite appears next to a small arrow?
- ▶ Unity does that automatically. It does not actually use the original copy of your sprite. It creates a *GameObject* out of the sprite and uses that instead.



# Sprite Editor

- ▶ We want to cut up the Rocky Platforms sprite, which consists of many little drawings, into separate pieces so we can use them
- ▶ How do we go from this



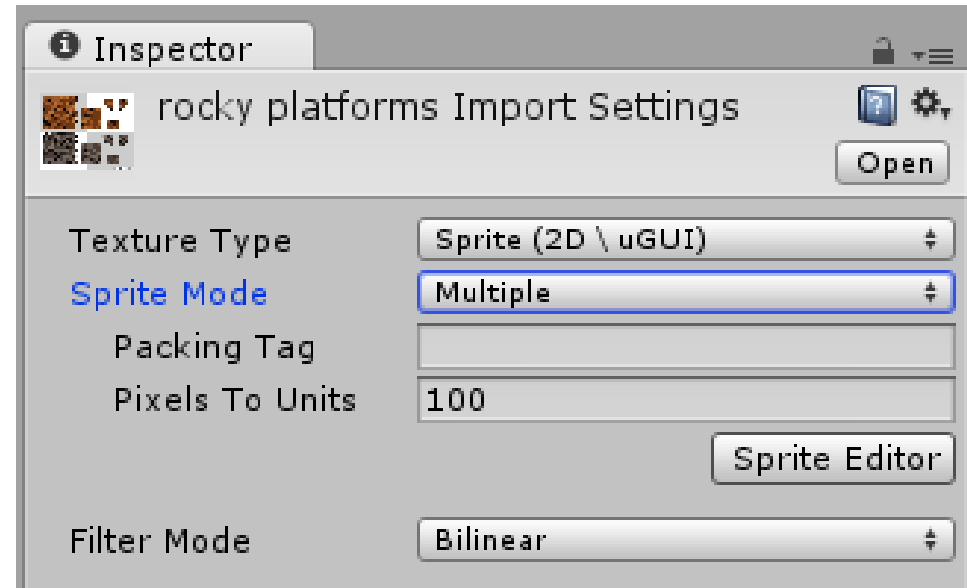
- ▶ To this?





# Exercise #05 - Slicing Sprites

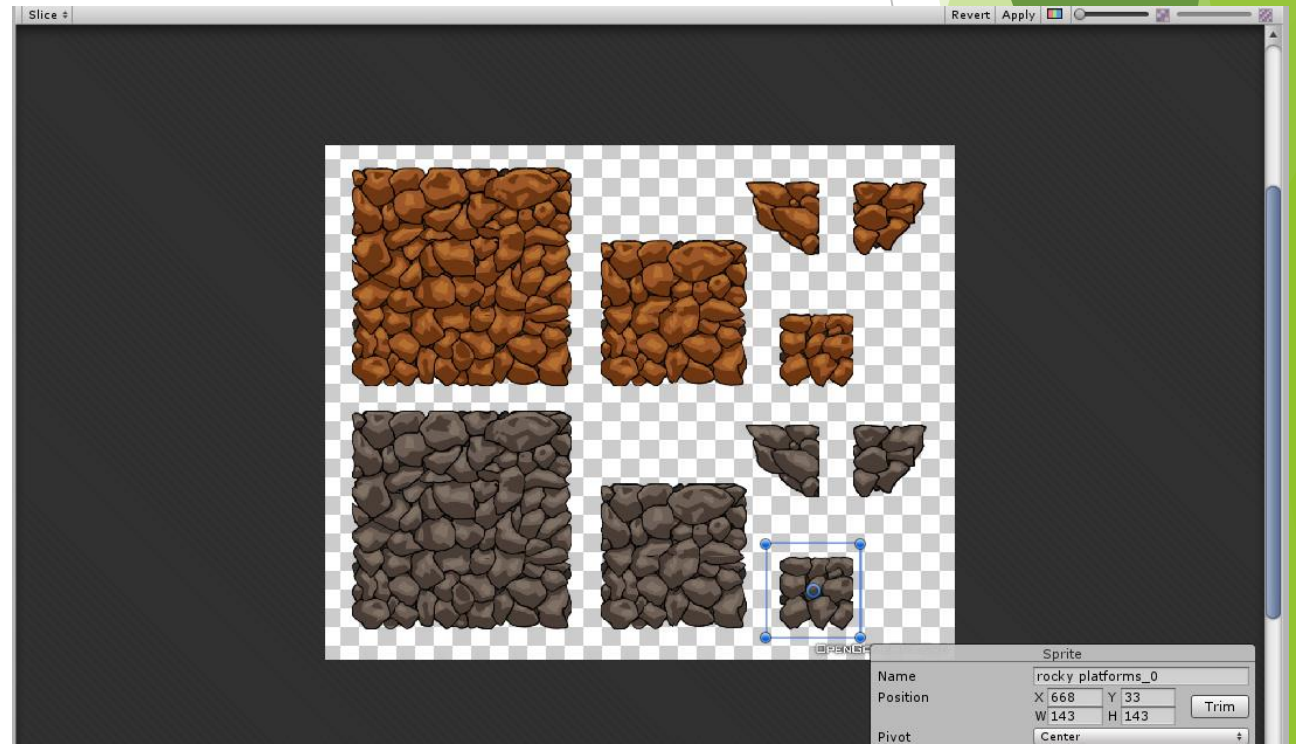
- First, click the **Sprite Editor** button in the Inspector pane



# Exercise #05 - Slicing Sprites (Cont.)

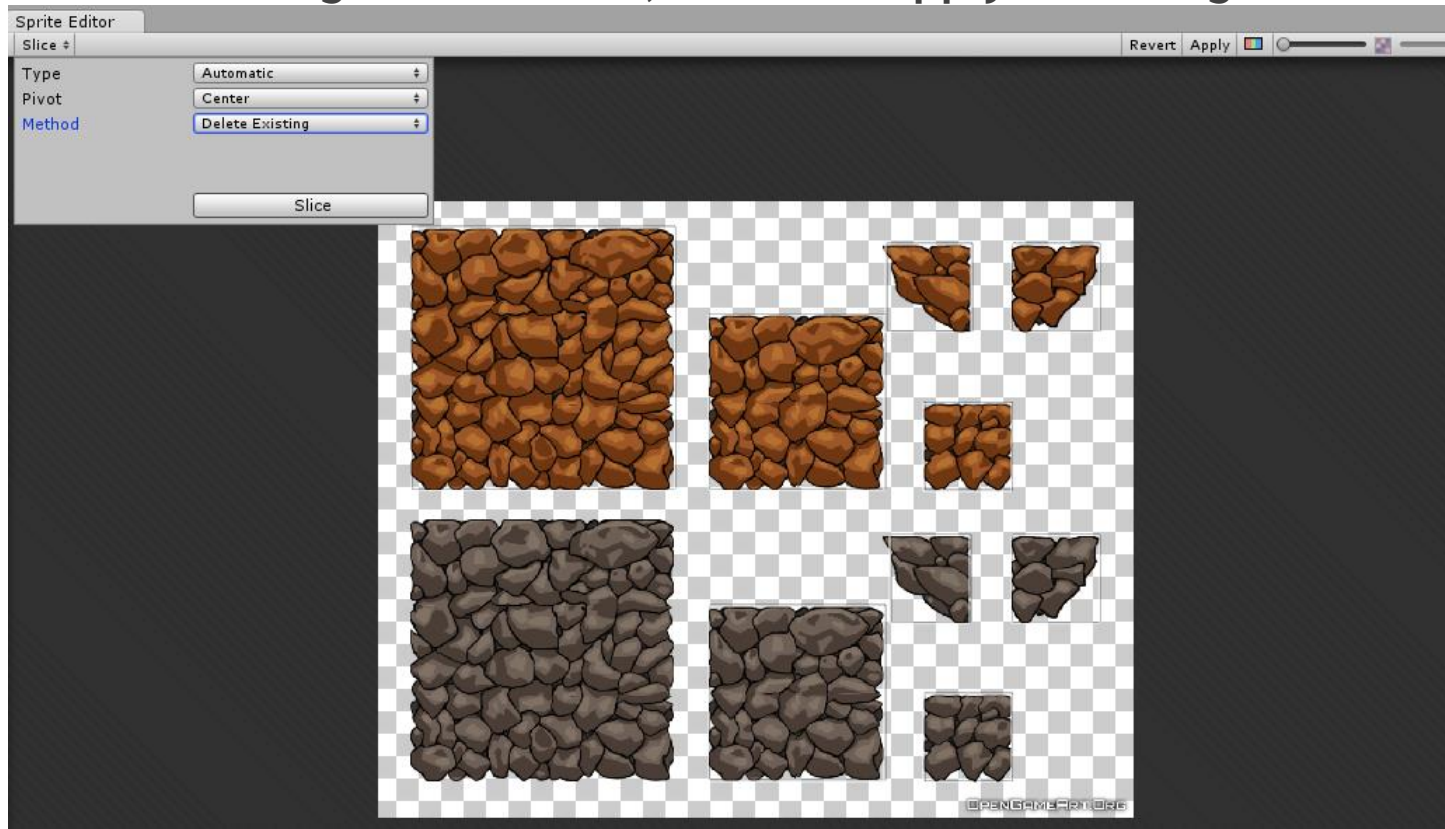
- ▶ Use the mouse to drag a blue square shape around one rocky platform. Keep the pivot unchanged for now
- ▶ A window will appear bottom right prompting you to adjust the dimensions of the blue box if needed. Once you're done, click Trim.

*NOTE: In newer versions of Unity, you don't need to draw the blue square; just opening the sprite editor will cut them to pieces for you.*



# Exercise #05 - Slicing Sprites (Cont.)

- ▶ Repeat this with all the other platforms
- ▶ You'll notice a faint square outline around each platform when you're done
- ▶ Go to Slice on the top left of the window
- ▶ Make sure these settings are selected, and click **Apply** on the right



# Prefabs

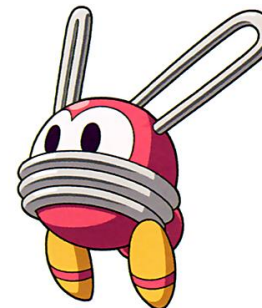
- ▶ A prefab is a master entity of a GameObject that you can use in your game endlessly. In other words, creating a prefab is like creating a template that contains all the characteristics of something (ex: an enemy or a bullet), and that template can be used to create many copies. That saves a lot of time.

# Exercise #06 - Create a Prefab

- ▶ To create a prefab, first create a folder in the Project pane under Assets and name it PrefabsFolder
- ▶ Right-click the folder and choose Create > Prefab
- ▶ Rename that new prefab (e.g. Enemy)
- ▶ Select the GameObject you want to turn into a prefab from the Hierarchy pane and drag and drop it to the prefab you created
- ▶ If it turns blue, then it has been created successfully

# Exercise #07 - Design a Character

- ▶ Use a pencil and paper or a graphics tablet to sketch down the outline of the characters that will appear in your game. Examples of characters:
  - ▶ The protagonist
  - ▶ The main antagonist
  - ▶ The antagonist's minions
  - ▶ Small enemies (not directly related to main antagonist)
  - ▶ Non-playable characters (e.g. a wise old man who gives you the map, etc.)
- ▶ In 2D games, simple designs generally work best





# Exercise #08 - Design Level Layout

- What does a level in your game look like? Draw a general outline of level 1 from start to finish. It doesn't have to be detailed, only broad lines to describe how it looks and where the player is supposed to move

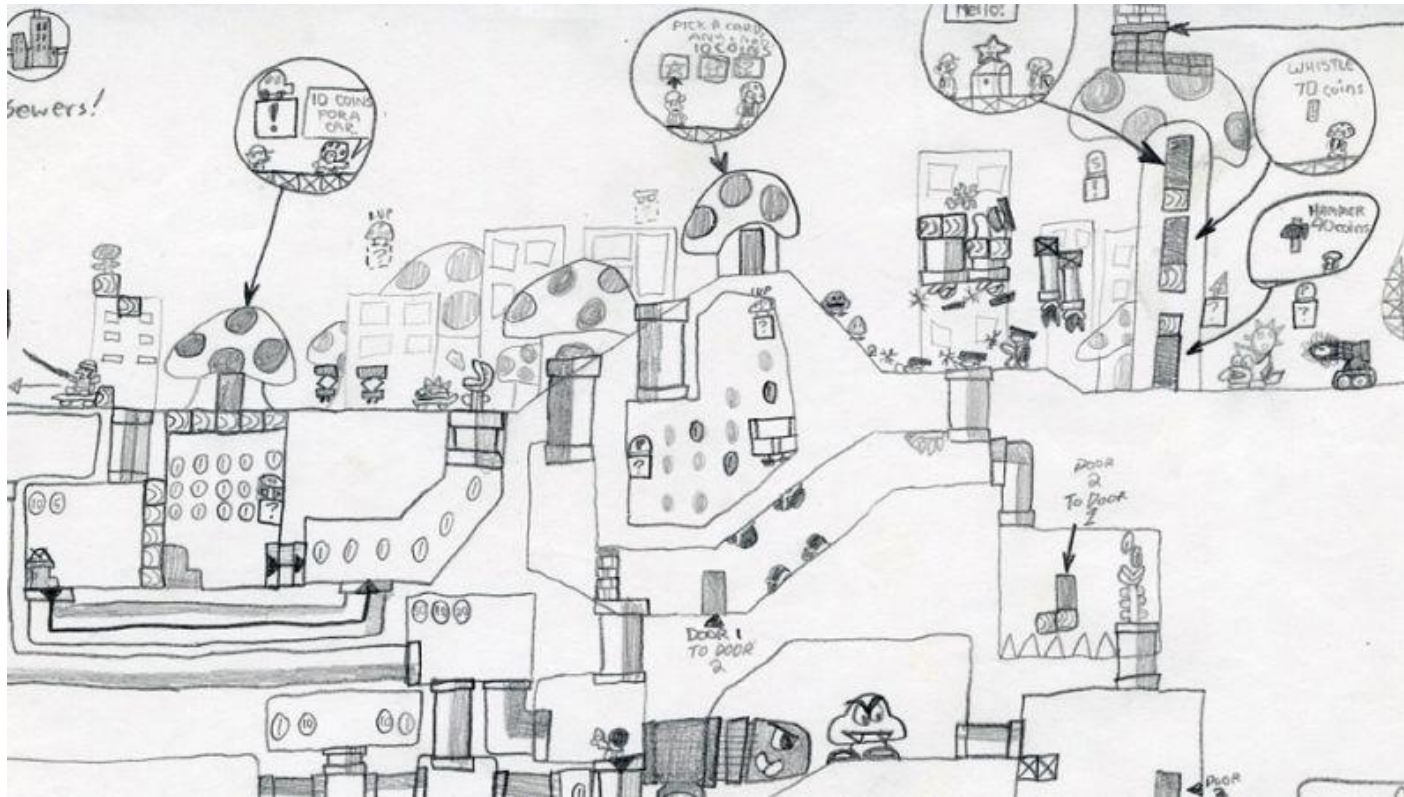


Image Source: <http://kotaku.com/5902193/scott-pilgrims-creator-designed-this-adorable-mario-level-when-he-was-a-kid>



# For Next Week!

- ▶ Next lab we will be creating the Player Character and giving him/her basic movement
- ▶ Prepare a sprite sheet of your character containing the poses and movements he/she will need in the game (e.g. idle, walk, run, die) and bring it with you
  - ▶ If unable, go online and search for a suitable, HIGH-RESOLUTION sprite sheet to use in next week's lab
  - ▶ [OpenGameArt.org](http://OpenGameArt.org) is a good resource for free 2D art

# Game of the Week: Professor Layton and the Curious Village



# Useful References:

- ▶ Johnson, M., Hasankolli, R., & Henley, J. A. (2014). *Learning 2D Game Development with Unity: A Hands-on Guide to Game Creation*. Pearson Education.
- ▶ **How to make a 2D Platformer - Unity Tutorial by Brackeys.** URL retrieved from: <https://www.youtube.com/playlist?list=PLPV2Kylb3jR42oVBU6K2DIL6Y22Ry9J1c>
- ▶ **Beginning Level Design by Tim Ryan.** URL retrieved from: [http://www.gamasutra.com/view/feature/131736/beginning\\_level\\_design\\_part\\_1.php?page=1](http://www.gamasutra.com/view/feature/131736/beginning_level_design_part_1.php?page=1)
- ▶ **Becoming a Level Designer and Env. Artist Part 1.** URL retrieved from: [http://www.worldofleveldesign.com/categories/level\\_design\\_tutorials/becoming-level-designer-environment-artist-part1.php](http://www.worldofleveldesign.com/categories/level_design_tutorials/becoming-level-designer-environment-artist-part1.php)
- ▶ **The Level Design Analysis Playlist by Sunder.** URL retrieved from : <https://www.youtube.com/playlist?list=PLHKJTKyEfjmGegraWzCJYjbJYnlbOHi-y>
- ▶ **100 Level design Ideas and Locations.** URL retrieved from : [http://www.worldofleveldesign.com/categories/level\\_design\\_tutorials/100\\_level\\_design\\_ideas/100\\_level\\_design\\_ideas\\_and\\_locations.php](http://www.worldofleveldesign.com/categories/level_design_tutorials/100_level_design_ideas/100_level_design_ideas_and_locations.php)