Pixel Artist's Beginner Booklet

Chpt. 3

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Lets continue, and attempt something a bit more difficult, but first I would like to discuss some things pertaining to color palettes in this chapter of the beginner booklet. It is important to understand what is involved when choosing colors. I have mentioned in the past how limitations within hardware had caused graphic artists to use a limited amount of colors, which has helped to define the nature of pixel art today, but hardware today now allows a lot more colors, such as 16-bit(2^{16} colors) and 32-bit(2^{32} colors). Pixel art utilizes a restrictive mindset where color is limited to only what is necessary to produce a desired impression. Without getting too complicated in explaining this, which will be explained further in the intermediate booklet, it is common for pixel artists to use an indexed palette. What is an indexed palette? It is where the color of each pixel in an image is represented by a number, and these numbers correspond to a color in the palette. The more colors you use, the larger your palette becomes and the larger your filesize. Also, when I say color, I don't mean the generic red, orange, blue, green, yellow, and purple. Each pixel has 3 values which define it's color if you're working in rgb mode(red, green, and blue) and any alteration to any of these values changes its color.
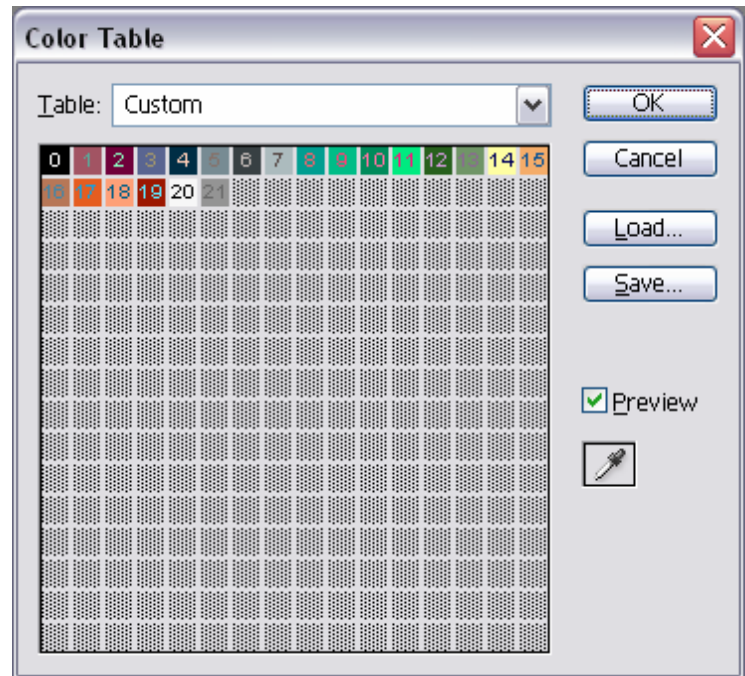
This is an example of an indexed palette with 22 colors. The colors are numbered started from 0 and go up to 256 for an 8-bit palette($2^8 = 256$). If you are creating graphics for a game, the organization of a palette could be crucial depending upon the hardware. But for a beginner, you should take note of that fact that any slight variation with colors classifies each variation as a unique color. As an example, take a look at the following image: These are 4 black pixels which have been zoomed in on. You may look at this and believe that each of the 4 pixels look the same considering each of them are black, but it is a fact that they aren't the same. Their rgb values from left to right are; (0,0,0), (14,14,14), (24,24,24), and (31,31,31). So even though your eye may not easily see the difference, the computer on the other hand will.

Now knowing that different colors may look the same, but aren't, it is important as a pixel artist to make sure that excessive colors aren't used anywhere in an image. If a color looks too much like another color in that it is hard to distinguish between them, then you should remove one type and keep the other. Doing so keeps the color count (amount of colors) and file size low and

more often than not, makes the image look better.

Here is an example of some pixel art using the color palette above. Each pixel has a number relating to its indexed color. Notice how colors seem solid and consistent, using only one type of color for a specific type of detail. When you use a limited amount of colors, it is easy to manage them than if you had a bunch of un-needed ones which you can't discern between.

With that being said, in this next chapter, we will create a slightly more difficult sprite character and also look at how specific pixels can alter the look of a graphic depending upon its position or color. Let us begin by first finding a sprite which we will use as a reference to our own. The reason for using a reference sprite, as mentioned earlier, is to allow us to have a tangible goal to which we may reach. I have chosen a sprite from the Final Fantasy VI game for the SNES system. Sprites on this system were allowed a maximum of 16 colors, with one being transparent. Let us first study the sprite, so that we understand what attributes make it look the way it is. This is an important process if we are intending to make something look similar.


Step 1 - study our reference:

This is Locke, and we can tell by looking at his sprite that he uses 12 unique colors. Two colors are very similar (the eyes and the black outline), which if the artist was thinking, could have saved an extra color by removing one of these. There could be a reason to why the artist did this though. It is possible that palettes were capable of being swapped, so that other sprites could make use of the same palette. Doing this would allow file space to be saved and would make sense for a separate color for the outline and a separate color for the eyes, because then these two features would not share a single color and you would then be allowed sprites with different colored eyes. Don't be too concerned about this though, at this point we are only concerned with reproducing a similar sprite.

Another thing which you may notice with the colors is that there are basically only 2 colors for each kind of color. For example; the jacket and pants are blue, and there are only 2 blue colors. The skin also uses only 2 colors, as well as the boots and gloves. The hair is also the same, with only two colors of green, but it also uses a white kind of color to suggest a shine. This white color is also used as part of the eyes and shirt. If we want to stay true to the style of this sprite as we make ours, we should consider this structuring of colors and do the same. Doing so will allow our sprite once its made to look as if it is sharing the same style as this reference sprite.

We should also take note of the image dimensions. This sprite is larger than the previous one we created. It is 16 pixels wide by 24 pixels high. In addition to this, we should do more measurements related to specific features which define the style. This will help give us guidelines to follow so that our sprite turns out similar. If you haven't noticed, I've overlaid some lines onto the Locke sprite to the left. The red lines define the space in which the head resides and we can tell that it is 13 pixels high, about half of the total height of the sprite. So when we make our sprite, the head of our character should be about 13 pixels high and fit within the same area roughly. The blue lines define the space in which the arms reside and are about 9 pixels in length. The yellow lines define the lengths of the legs, about 7 pixels long. Lastly, the green line specifies the eyebrow ridge. This line helps us figure out the placement of the eyes relative to the head.
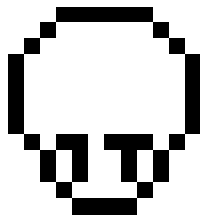
Step 2 - begin drawing our sprite:

Once we have a suitable understanding of what it is we want to do, we can proceed by creating a new file in our graphics program. This time, instead of setting our width and height to 16 pixels each, we'll set the width to 16 pixels and the height to 24 pixels. For the line-art (the line work or drawing) we'll use an rgb value of 0,0,0 respectively(black). Since we know that the head of our reference sprite is 13 pixels long, we can begin to shape our sprite's head in the same ratios. We also know that the eyebrows are on the 9th line from the top, so from there, we can pixel in our eyes. If we check our reference sprite, we can see that an eyebrow consists of either 2 or 3 pixels aligned horizontally, and the irises are 2 pixels aligned vertically beneath the eyebrows. As an example of how a single pixel makes a difference to how something looks, if we used only 1 pixel for each iris, the character would seem to be squinting. We could also move the eyes slightly to make it seem as if the character is looking in another direction.
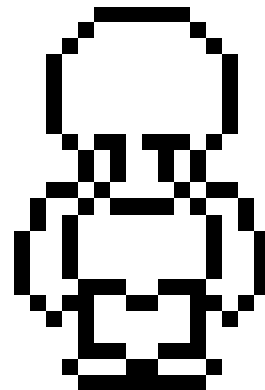
*Normal*   *Squinting*   *Look up & right*

Some other things which you could try are; making the character close its eyes, wink, or raise an eyebrow. Feel free to experiment to see how the pixels may affect the image.

Next we pixel in the body which includes the arms, and from what our reference suggests, they should be about 9 pixels long, and the legs which should be around 7 pixels long will fill in

the rest of the space. At the moment, I feel that the torso area looks a bit fat. This is due to the sides looking convexed next to the arms, so I will push a couple pixels on each side inwards to compensate this bulge, which will also make the arms look more buff in the process.

Before   *After*
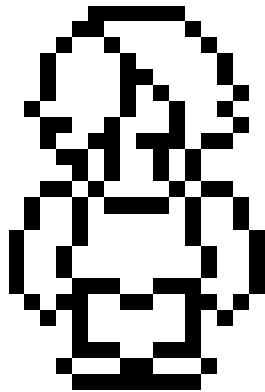
 Up till this point, the head has been a round blob, but now we must give it some hair unless we want to keep him bald. You could also give him a hat or some other type of accessory like a helmet to give the sprite some character (for instance; the reference sprite wears a headband). The line work for the sprite looks about done, but I feel he looks a bit boring, so I have given him some armor and shaped his body a bit more. If you haven't done so already, save your work!

Before   *After*
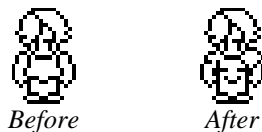
Step 3 - color:

 Here we begin to block in our base colors, by using the paint-can tool to fill in specific sections with relative colors. The face will obviously be some sort of skin tone, unless you want to make it an alien or something. I've chosen to make the hair red to give the character some flare, and the majority of the body is likely to be wearing armor, so a gray color should fit that. From this point, I went and added another color (brown) to signify leather. Using this color, I gave the sprite some leather boots, leggings, gloves, and some other details seen below.

Before   *After*

We now have 6 colors which we are using. Based upon the reference sprite, 4 of the colors may each have a similar color added. This would bring the total to 10, and if we are keeping true to the reference sprite which has a maximum of 12 colors it uses, we'd be left with 1 for the eye color, and the other for a multi-purpose highlight.

With the base colors filled in, we can begin adding secondary colors. First I use a darker shade of red on the hair to go over some of the black lines. When you have a lot of black lines running through the image, it could make the sprite look dark, segmented, and flat. This extra shade of red allows us to portray more detail within the hair. As with the hair, we also add another color for the skin, armor, and leather. I also altered the existing skin color a bit because I didn't like how it looked (it looked too peachy). The new skin color is used to define the shadowed areas to help give the face and arm some form, for instance; the hair is hanging over his forehead, so we would add some darker color pixels on the forehead near the hair to signify that the hair is casting some shadow on it.

Next we add another color for the leather boots and gloves, and in this case it is lighter than the current color because the current color is already pretty dark. The legs are shaped like a cylinder, so by adding some lighter pixels near the middle of each leg like so, will make the leg look round. We add a pixel on each glove to give it some form as well. For the armor, we use a darker color than its base color so that we can define some details. I also go over some of the black pixels with this color to help make the armor stand out more, because if a lot of black pixels are present, the less color pixels there are which can define the features, for example; when a black pixel becomes a color which

represents armor, the more armor you can distinguish.

Take note that I also gave the sprite some blue eyes. They don't really go well with his red hair, but they are blue none the less. At this point, I also add another color which will be used for the white of the eyes and highlights for the hair. I also place one pixel of this color on the shoulder armor to make it stand out more and look shiny.

Before   *Next*   *Last*

Also, I adjusted the color of the hair to a brighter more orange color, which I think looks better. The white pixels on the hair look too bright next to the previous hair color, which is why I brightened the hair so that the white pixels would look less harsh. At this point, we have finished our Final Fantasy VI character sprite. I think I will call him Flash. Don't forget to save your work! Now let us compare Flash side by side with Locke.

Normal Scale   *800% Magnified*

In the next chapter, we will be introduced to a new area of pixel art consisting of tiles and the aspects which are involved with them.

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