Pixel Artist's Beginner Booklet

Chpt. 2

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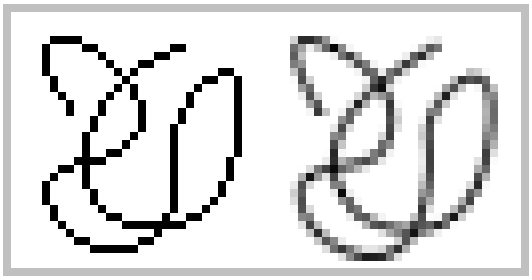
Now, if those screenshots in the last section caught your interest, you may be wondering how anyone can make such great looking graphics. While it may take a beginner some time to reach those levels of expertise, we all have the potential to produce such work. Every artist has their own tools which they use to create their work. Pixel-artists too have such things, and they are found within most graphic programs (example: ms-paint). Before we begin to create pixel art, we must learn which tools we'll be commonly using. Just as a painter chooses between various sized paintbrushes for specific purposes, pixel artists too must choose their tools according to how they intend to work. The top most commonly used tools for the pixel artist are the pencil, eraser, pipette (eyedropper), paint-can, and zoom tool. Together these form a powerful team which can be supplemented with other helpful tools like the selection, line, and layer abilities. If you're an absolute beginner, it is crucial to understand the uses and benefits of each of these tools, so if you will start up your favorite graphics software which offers these types of tools, we can begin to do this.

Pencil:

The majority of any pixel art is done with this tool. The most common function of this tool is to place down individual pixels onto the canvas or to alter existing pixels. It is an essential part of pixel pushing (working at a pixel level). An additional option which most programs allow is the ability to alter the size of the brush, so as to place a grouping of pixels down instead of just one. Determining when to use such a feature is subjective, and ultimately depends upon the desired outcome one has. It usually comes down to whether either way can deliver the same result, and if the feature helps save time without sacrificing that result.

An important setting one should be aware of is anti-alias. As a pixel artist, a program's automated anti-alias is highly discouraged as it alters your graphics in such a way that undermines your work. This is because when working at a pixel level, every single pixel and their characteristics (such as hue and tone) is important, and allowing the program, which has absolutely no awareness or understanding of what it is you are making, to alter what it is you are working on, would give you a result which is artificial and wrong in most cases. To help understand what anti-aliasing does, here is a visual comparison between a non anti-aliased line, and an automated anti-aliased line.



As you can see, the left line is much more crisp and desirable by a pixel artist, than the line on the right, which was auto anti-aliased by the graphics program. The left line is much easier to work with than the anti-aliased line which has over 100 different shades of gray. When every pixel is important and needs personal attention by the artist, having the program decide ends in less than perfect results which are in often times excessive. So, when you work, make sure your programs’ automated anti-alias is deactivated and that your pixels are pixel-perfect.

Eraser:

As you work, it is likely you'll want to erase parts of your work which do not satisfy your vision. The eraser is a common sense tool for doing such that. It helps clean up areas which may be a bit messy. It is also good to keep in mind that if the eraser has an auto anti-alias effect enabled on it, to deactivate it for pixel-perfect management, and do the same for any other tool. You’ll know if it does if it causes edges of the erased area to look like the previous example image with the anti-alias. The

eraser may also have the ability to adjust the brush size, so as to erase a grouping of pixels at a time, and you'll need to determine on your own the appropriateness of either a larger or smaller size.

Eye Dropper:
This tool is very handy for restoring your current color choice. A pixel image consists of a palette of colors, and the more colors, the larger the filesize. When you are using a selective number of colors, each one is unique (note: the slightest difference in color or tone counts it as a unique color, so even if you have a bunch of pixels which seem to look the same, if they aren't exactly the same, they are all different and boost the color count and filesize), and if a person wants to use a color they previously used, this tool makes it easier than having to manually define the color over again. So a quick method of changing the color you're using to another color which has been used is by selecting the eye dropper, hovering it over a pixel with the desired color, and clicking on it. On a side note, some graphic programs have a shortcut which allows you to quickly use this tool without having to select it manually with the mouse (you just have to hold down a key), so it is advised that you check your program's help file relating to shortcuts for a list of useful keys which can make your work flow faster. As an example; Photoshop’s eye dropper shortcut while using the pencil is the Alt key and Pro motion's is the Ctrl key.

Paint Can:
The function of this tool is to instantly fill an enclosed area with a specific color. It's basically an easy method for what would alternatively be a repetitive process. If you didn't have the luxury of the paint can, filling in an area would require you to carefully pixel in the color at an otherwise slower rate. With the paint can, you get the same result with a single click. A special feature of the paint can, which some graphic programs provide, is the ability to paint every area which is similar, the desired color. So for example; with this setting enabled, filling in one area of white with black, would fill in any other white areas with black. This is useful if one intends to change all instances of a color with another.

Zoom:
When working with pixels, the smallest forms which constructs an image on a screen, it would be quite difficult to work at 100% the normal size, and so the zoom tool, or magnifying glass allows the artist the ability to increase or decrease the magnification of the picture so as to see the individual pixels more clearly and to work with them more easily. A screen's resolution varies depending upon the monitor or system hardware. The resolution determines how many pixels fit onscreen. The higher the resolution, the less significant a single pixel becomes, because as the resolution increases and more pixels are packed closer together, the harder it becomes to differentiate between each of them. This is why pixel art is most commonly seen on devices which have smaller screens or low resolutions. Also, much like the eye dropper tool, some graphic programs provide shortcuts for quickly zooming in or out. Photoshop's shortcut is Ctrl plus the - or + keys, and Pro motion's is Shift plus the < or > keys.

Selection:
During the process of creating some pixel art, you may want to edit or adjust a specific grouping of pixels, and rather than adjust it pixel by pixel, the selection tool allows you to select the grouping and then edit it appropriately. Some examples of what can be done once a selection is made are; moving, rotating, stretching, color adjusting, and more. For instance, you may have a group of pixels which you think would look better shifted over to the right just one pixel, but without the selection tool, you would have to re-pixel the entire group of pixels in their new place. With

the selection tool, you can simply select the pixels and move them, saving a lot of time.

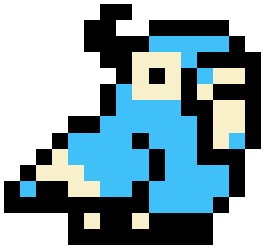
Layers:
Some graphic programs allow the use of layers, which help artists organize their work. Layers are exactly what they are, transparent sheets to which work is divided between. Layers which are below another layer appear to be underneath, and layers which are above appear to be in front. Any transparent portion of a layer allows the layers below to be viewable. This is useful if you want to work on one thing without altering something else, and to do this you can have them on separate layers. Many video games work in a similar way, with tiles on one layer while sprites are on another. It is simply a form of management which allows some flexibility to your work.

With the most commonly used tools now introduced to us, we can begin to create pixel art, but we must first understand a bit about image files and their limitations. Image files come in various forms, but some of the top most commonly used types are; bitmap(.bmp), jpeg(.jpg), png(.png), and gif(.gif). The bitmap image format is typically uncompressed and lossless (image quality is not lost) which lends to its large file size compared to other formats. Jpegs (Joint Photographic Experts Group) encompass lossy (some image quality is lost) compression which allows a significant decrease in file size. The Png (Portable Network Graphics) file format has a lossless compression and considered the successor of the gif(Graphic Interchange Format) format which is limited to only 256 colors though also has animation support, something of which the png does not have.
As a pixel artist, one should never save their work in jpeg format, because it would simply destroy its quality as well as possibly increase its file size due to the unnecessary colors it would add. Typically one should also steer clear of the bmp if your work is intended for the internet, simply because the file would be larger than necessary and may cause slow downloading speeds, on the other hand, many video games use the bitmap format, but the file size could become an issue. Gif files typically have the smallest file size due to the limited colors they use, so if your art has a limited amount of colors(which pixel art usually does), then it would be a good choice if intended for use on the internet, but not so much for video games due to the patent on the format. Png on the other hand is 'open source' and free, so there are no patent worries, but as for internet use, some browsers do not support this file type. So when you save your work, keep all this in mind and consider what your intentions are with it, and never save any pixel art in jpeg format. Next section we will begin the process of creating some pixel work and learn to control the medium in the process.

Let's begin by creating a new blank canvas to which to work with. In order to accommodate the complete beginners, I will guide you through the process of setting up a new canvas. In your chosen graphics program, on the menu at the top choose 'File' > 'New' (alternatively you may press Ctrl+N on your keyboard if your program allows such a shortcut). Once you've done this, depending on your program, a window will pop up allowing you to define some settings for the new file. If this does not happen (example: msPaint doesn't, but rather simply creates a new file with default settings), you will have to customize the settings through options accessed with the menu (in the case of msPaint, this would be 'Images' > 'Attributes', or alternatively pressing Ctrl+E on the keyboard). There should be certain settings which you will see either way, such as height and width. By adjusting these, you'll adjust the dimensions of the image. If the program allows various units of measure such as inches or centimeters, make sure you choose pixels so that we are determining how many pixels wide and high the canvas is. Another thing to note if you are interested in

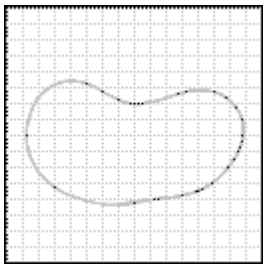
game development, is that constructing your images dimensions with the power of 2 is the usual norm (example: 8x8, 16x16, 32x32, etc), for now though, this is not important since we are just beginning. Let us start small with something simple with dimensions of 16 pixels wide by 16 pixels high (16x16), and then click ok. You may notice once you create the image that it is a pretty small space to work within, so we will need to make use of the magnifying glass tool in order to zoom in (8 times the original size should be suitable in this case). Here is a 16x16 bird graphic from a gameboy color Zelda game as an example of what can be done within a small space, and how well it may look. Note that it consists of only three separate colors; black, blue, and tan. It also utilizes a transparent color for the surrounding space. This is a restriction which the gameboy color posesses, which is that it requires all sprites to a limit of four colors, one of which is transparent, so if you were interested in developing some graphics for the gameboy color, you'd have to oblige by this.

Normal Scale

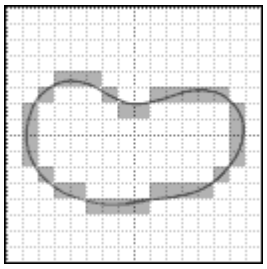


800% Magnified

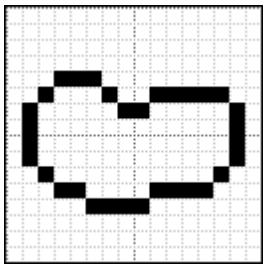
Let us create something similar, such as a monkey. As our bird here uses a black color for the line work, we will do the same. When an artist draws a picture, it is vital to understand the way they envision what it is they are creating. If for instance they are using a sharpened pencil, their lines would be thin and continuous on a piece of paper. Compare that to a pixel artist, and the process is slightly different, because a pixel artist has to accommodate their vision to the grid-like structure they are drawing on. The following images, describe this concept visually how one would translate a thin imaginary line into pixels.



An imaginary shape.



Pixeling the line.

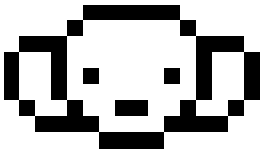


A pixeled shape.

As you can see in the images, what you visualize in your mind as you work must be translated accordingly and relative to the medium (in this case, pixel art). You may notice, that the imaginary line fits within all the pixels, which is ideally how it should be if we want it to best represent the intended shape. First you perceive it, then you check it in relation to other pixels, and then you adjust the pixels accordingly. If you follow these basic steps, you should eventually end up with a pixel drawing, so let us move on and create our monkey.

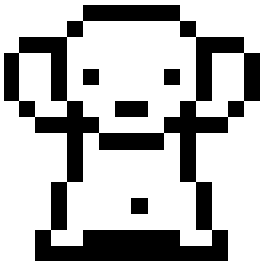
First we begin by imagining how the monkey will look, or at least part of it, such as its head, and then we pixel it according to how we want

it. Like the bird's lines, I'm choosing a black color, though it is up to you to decide what color you will use. When picking colors, it is important to think about how it will affect the image and how it will relate with other colors you may be using. Using a bold color such as black allows a person to easily see the lines. Depending upon the graphics program you are using, the process of choosing a color could vary. In some cases you are provided with a spectrum of colors to choose from, and in others you may have to define your color yourself. Using preset colors can sometimes be too limiting in some situations and is best to get use to picking your own colors so you aren’t held back.

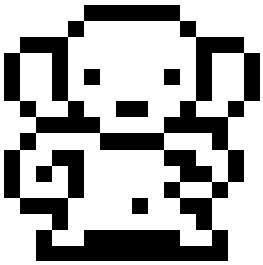


Stage 1:

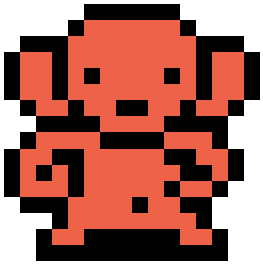
Using the pencil tool, I begin by creating a circular shape for the head. I then attach some large ears to it as well as some eyes and a mouth. The image is very small, and so a single pixel per eye works nicely.



I continue to draw in the rest of the monkey; in this case the body comes next. The order in which you pixel the monkey shouldn't matter. You could just as easily start with the body and then do the head. Sometimes though, one thing effects another; for instance, if the head you pixel takes up half the size of the space (in this case it does), then you're left with half the space for the rest of the monkey.

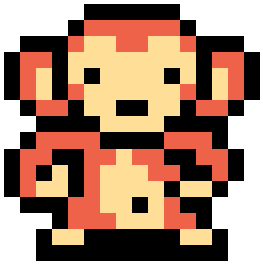


Now I attach a couple arms. You may have to use the eraser tool in order to remove parts of previous lines if they get in the way. Part of the process of creating pixel art, is to often check how pixels relate and interact with each other, because a single pixel has the potential to suggest many things depending upon its placement. It is this suggestive nature, which invites the viewer in on the fantasy.



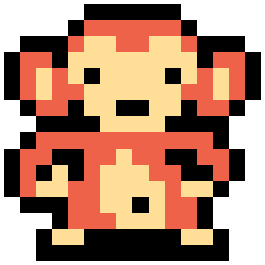
Step 2:

When you are satisfied with the line-art, we'll then choose a base color for the monkey's fur. I have chosen a red-brown color, but you may choose whatever you think is suitable. Once a color is picked, we use the paint can tool to fill in the enclosed areas of the monkey.



Now we'll add some more detail by defining some of the monkey's features. First we'll need another color; in this case I have picked a tan color. I'll use this color to define the skin of the

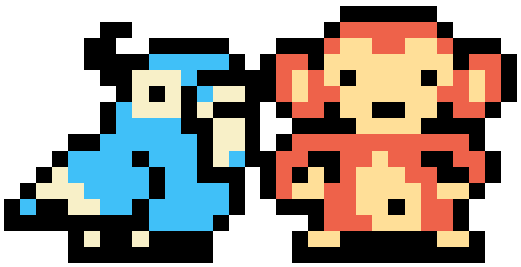
monkey, so I use the pencil tool to color in the face, inner-ears, hands, stomach, and feet as shown in the image. Now it looks like a monkey!



Step 3:

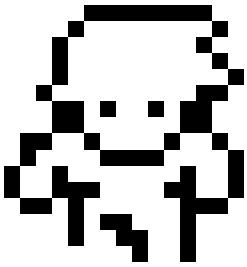
At this point, it would be good to review your work and check to see whether anything can be tweaked and improved. In this case, I felt it necessary to alter the monkey slightly by getting rid of some of the black pixels which were crowding some areas. At this point if you have not done so, save your work. I suggest you save many times in the case of any accidents. The last thing you want happening is your program crashing, causing you to lose all your work.

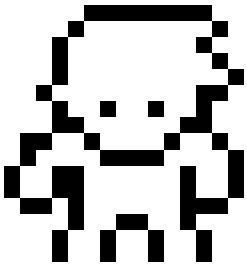
Normal Scale

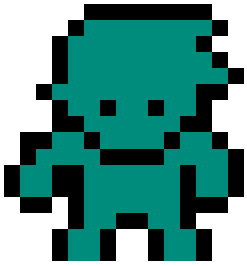


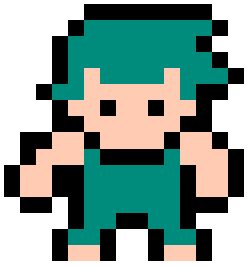
800% Magnified

Let us compare our monkey to the bird. In my case, I was attempting to make my monkey look similar to the bird so that it would look as if it belonged in the same game which the bird is from. Similarities include; image dimensions, amount of colors, and style. Often times, game developers may be interested in a specific style, and so it is good to be capable of producing similar work. It is also a good exercise and a great way to learn because you have a specific and tangible goal you can reach. The following is another sprite in the same style as before. See if you can recreate it yourself, or something similar. In the next section we will continue onto something a bit more challenging as we explore the aspects behind a limited palette and how to use it in the creation of a sprite.

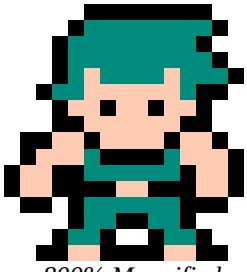








Normal Scale



800% Magnified

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