



Pixel Artist's Beginner Booklet

Chpt. 5

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Having explained some of the basics to tiling, let us look at some alternative styles of tiles. There are various styles of tiles which produce different results, for instance, the previous example can be referred to as having a 3/4ths view style perspective, which is what most rpg games use, so it could also be referred to as rpg style tiles. This style basically consists of a perspective which is partway between a side-view and a top-down view. The side-view and the top-down view are also a type of tile style. The side-view style may also be referred to as platform style, because most platform games or side-scrollers have a perspective which is from the side and involve gameplay which makes use of platform-like surfaces which the characters run on. An example of a platform game which utilizes tiles in this style is Lomax for the Sony Playstation:



Lomax

There are also more unorthodox styles of tiling which aim at producing perspectives which are at an angle, such as isometric and planometric. Due to the complex nature the style can create, we will only briefly touch upon it in this booklet, leaving the intricacies to the intermediate booklet. To get us familiar with the style though, I provide the following screenshots from Cadaver for the Amiga, Boktai for the Gameboy Advance, and Earthbound for the SNES.



Cadaver



Boktai

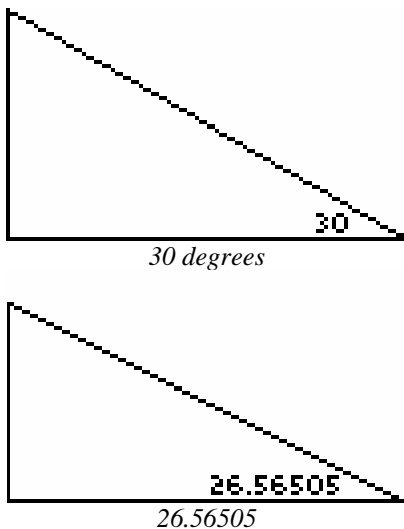


Earthbound

These three screenshots show how the technical placement of the tiles can be more complicated than a simple x, y matrix and that if you were interested in developing graphics for such a game, your knowledge about how the game would utilize them would need to be a little more involved. But what if you weren't intending to make a game, but rather just a simple picture and wished to have it constructed

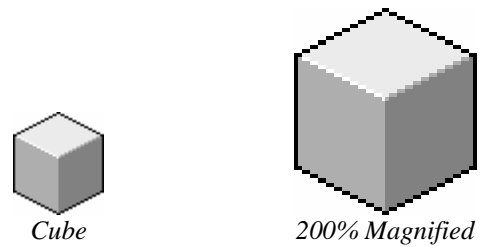
in a similar perspective. I will tell you how to go about recreating such a style.

This brings us to the realm of isometric pixel art, which is quite popular due to its straight-forward nature it uses. At its core, it relies upon angles to define how its spatial organization is managed, yet it lacks any perspective due to its consistent viewpoint across the image. This means that objects never recede or change size no matter where it is drawn in the image. It does however create the illusion of three dimensions by allowing itself to show three sides of an object. The standard isometric uses an angle of 30 degrees which unfortunately if drawn to a computer screen would produce a line which is unevenly stacked.

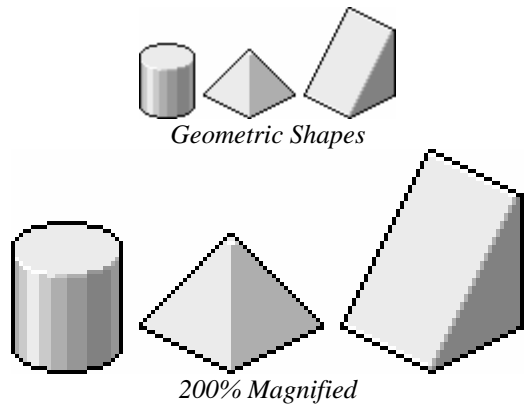


If you notice the slope of the triangles, the 30 degree one has an awkward inconsistent x offset for each y position up or down, while the 26.5650 degree slope has a consistent pixel step of 2 to 1 (for every 2 pixels left or right, you take 1 step up or down). The reason the 2-1 ratio is used is because it is clean and easy to manage. It is far easier to remember when to raise or lower a pixel as you move left or right since it uses whole numbers, as opposed to the 30 degree slope which has a decimal of 1.7241, meaning for every 1.7241 pixels left or right, you would need to go up or down 1 pixel.

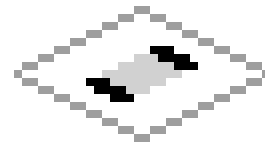
We now know how to align our pixels; let us now look at how we can use these lines to construct isometric art. If we were to pixel a cube, we would be drawing it at an angle which would allow 3 sides to be viewed. The edges of the surfaces which would be parallel with the ground would be drawn with the 2-1 ratio where as the edges of the surfaces which are adjacent to the ground, and therefore vertical, would be drawn as a straight line. To give an example of such an object, I have provided the following picture of a cube.




Notice how the edges which are drawn at a 2-1 ratio are parallel to the floor while the other edges which are adjacent are drawn as a vertical line. This is because in order to suggest that a line has depth you must move it at an angle which describes a change. For instance, if you had a horizontal line, then it wouldn't look as if it were receding or coming forward since if you moved left or right it would stay the same. Similarly if you had a vertical line, as you moved up or down along it, you would move neither left nor right. This lack of change suggests that it is staying in place and moving neither forwards nor backwards because in order to move forwards or backwards, you require the 2-1 ratio. There are of course exceptions to this rule depending upon the situation, but the 2-1 ratio would still be present regardless.



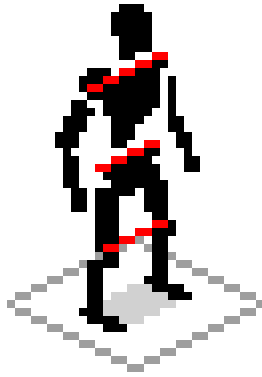
Here are some other geometric shapes as examples of objects which can be created easily in isometric style; it is just easier to do simplistic geometric shapes. For instance, an example of a complicated object would be a person. In order to manage such complex shapes, sometimes it is helpful to simplify them into easier more readable forms. For instance, one could use a cube as a head, or a sphere, and some blocks or cylinders for the limbs. In this way, you quickly get a feel for where the body parts are placed within the isometric world. Once you have a feel for it, you can begin to refine the details. Many people interested with isometric art, do this, not only for its ease, but for its consistent look. By having people look isometric, they appear to fit into the isometric background, environment. I will now walk you through the process of creating an isometric person, and show you the methods for aligning things isometrically.



Step 1 - Plan out our Character:

 In our first step, we'll be planning out how our character will be posed. If we want to exemplify the isometric nature of our world in which the character will exist in, it is useful to have the character also use aspects which make isometric art look the way it is. Here we have a diamond shape in the 2-1 ratio; this will be our floor in which the character will stand upon. As you can see within it, are a couple black spots which are spaced apart in a 2-1 ratio. These spots represent the locations where the character's feet shall stand. The grey space between them shows that the 2-1 ratio is present, because if you notice the edge of the grey space, you can count for every 2 pixels left or right, it goes 1 pixel up or down. This is how we know that the black spots are aligned along a 2-1 ratio line.

From here, we can begin to plot out the character as we know exactly where it'll be standing. To do this, we'll roughly draw in the key points within the character to which we will later use to pixel the rest of the character.

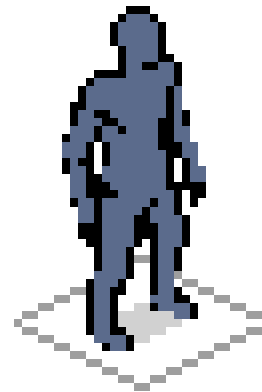


Here we have a character which is plotted out roughly. What you want to do as you plot out your character, is make sure that things which should align, align properly. As you can see with the red lines, they travel through our character's body from one side to the same point on the other side, for instance, the right shoulder to the left shoulder. If drawing a line from one to the other produces a 2-1 ratio line, then you know that it is aligned isometrically. You can see this done with the right hip to the left hip as well as the left knee to the right knee.

Some things you may not want to be aligned, for example if you want an arm doing something differently than the other arm, or a leg doing something differently than the other leg, so not everything must be aligned in a 2-1 ratio. It is perfectly fine to not have anything aligned in this matter, but it does help to make your object look as if it belongs in an isometric world where things follow this 2-1 organization.

Once you have your character plotted out to a suitable degree, and have checked whether things you want aligned are aligned correctly, then we can go forward and begin filling out the shape of our character. It is really that simple to setup, and you can probably see why many people tend to enjoy isometric style pixel art. If you have trouble with drawing a person correctly, it may be of some use to study some anatomy. Since it is a large topic, I will not go into it too deeply, but I will say that the

character in which I drew here is about 6 to 7 heads tall. By heads, I mean that if you take the height of the head, and measure how many times it would fit into the rest of the character vertically, you would come out with about 6 to 7 heads if you include the actual head of the character. Each arm is about 2 to 3 head length for this character. Ultimately, you should strive for what looks right. You do not have to do things perfectly. As long as you understand the concept, then you can apply it to what you do and in time get better at it.



Step 2 - Begin finalizing the shape of our character:



Here we have our character more fully shaped. In the process of filling out the forms I lengthened the legs by 1 pixel because I felt they were too short. I still feel they are a bit short, but that is ok. Your character doesn't need to be perfect, so I left it as it is. What I want to show at this point is the shape of our character. As you can see, it has more thickness to it. The body and limbs make more sense. It may not exhibit the 2-1 ratio we talked about earlier, but if you measure out a point on one side of the body with the opposite point on the other side, you will find that the alignment of both points would still sit along a 2-1 ratio, and this is what makes our character look isometric even if the forms are not. If you want to make the forms look isometric or at least exemplify the isometric environment with which the character exists within, you could give them more of a

geometric look to them, because with geometric shapes, you get clear precise lines and isometric worlds are all about their lines and how things are aligned.

So what we have at this stage is a character which has some mass, or form made up of space with a black outline which surrounds it, signifying the edges. The black outline at this stage defines edges of shapes so that the spaces don't all just melt together into a blob. In the next stage, we can begin to add more tones in order to render our character and describe the shape of the forms more clearly as at the moment he looks fairly flat.



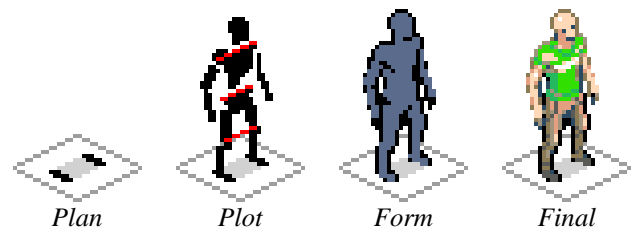
Step 3 - Color and detail:



Here we have our character which has been colored and detailed. Obviously, it is a big step from the previous one, but lets not be too concerned with that since our focus is on isometric aspects at the moment and not the aesthetics (we'll learn more about the intricacies of pixel art in the next booklet). If we take notice of the detail though, we can see how details align with the 2-1 ratio as mentioned many times before, such as the white line on the shirt or the eyes. Having these types of details aligned any other way would produce drastically different results. Below is an example of how the character would look if details on the character did not follow the 2-1 ratio in which the forms do.



Compared to the 2-1, the 1-0 shows details which don't adhere to the forms in which they are on. In effect, this causes the details to appear at a different perspective. The eyes for instance look as if the character is looking upwards at the viewer rather than forwards as the 2-1 image does. Similarly the shirt looks as if it is on an angle compared to the rest of the character as if it is facing us. What can be understood from this is that, even if you have a form which is in a 2-1 ratio, if the details on the form which are parallel to the alignment don't align to the 2-1 ratio, then the details begin to produce results which don't make much sense in the specific situation.



Let's recap what we did. First off, we began with a square isometric base to which we could place down where exactly our character will stand. This provides a base from which to build off of, and since we align the feet on a 2-1 alignment, we know that as we build up, it too should be aligned as well. As we build up, we can always check to see if it is aligned by measuring one point from its opposite point on the other side. Once we have a rough figure which describes how the character will be, we begin to fill out its forms into a more complete shape which will represent the character better. At this point, we should roughly feel how the character will look, and then we can begin

Chapter 1 - An Introduction

adding details such as color and accessories and features such as eyes and fingers.

Personally, what I find intriguing about isometric art is its clean nature in organization. When you look at isometric geometric shapes, which are easy to produce, you quickly see the straight edges of the forms. These edges all share similarities with each other in that they all exist among the 2 to 1 pixel ratio, and it is this sharing of space which allows the clean organization of these forms to be emitted to the viewer. The universal isometric pixel ratio in an image provides the viewer an anchor to which to contemplate how the objects in the image are placed. Without this anchor, the ability to judge the organization and alignment of each object would be difficult and would require additional information present within the image to help the viewer understand it.

The following image is an example of what can be done with isometric art. It was created by Gary J Lucken, and you can view his website at ArmyofTrolls.com to see more of his work which includes a lot of isometric art.



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