



VA 402

class presentation

by Berrin Sun

Supervised by Ekmel Ertan

Pixel Art

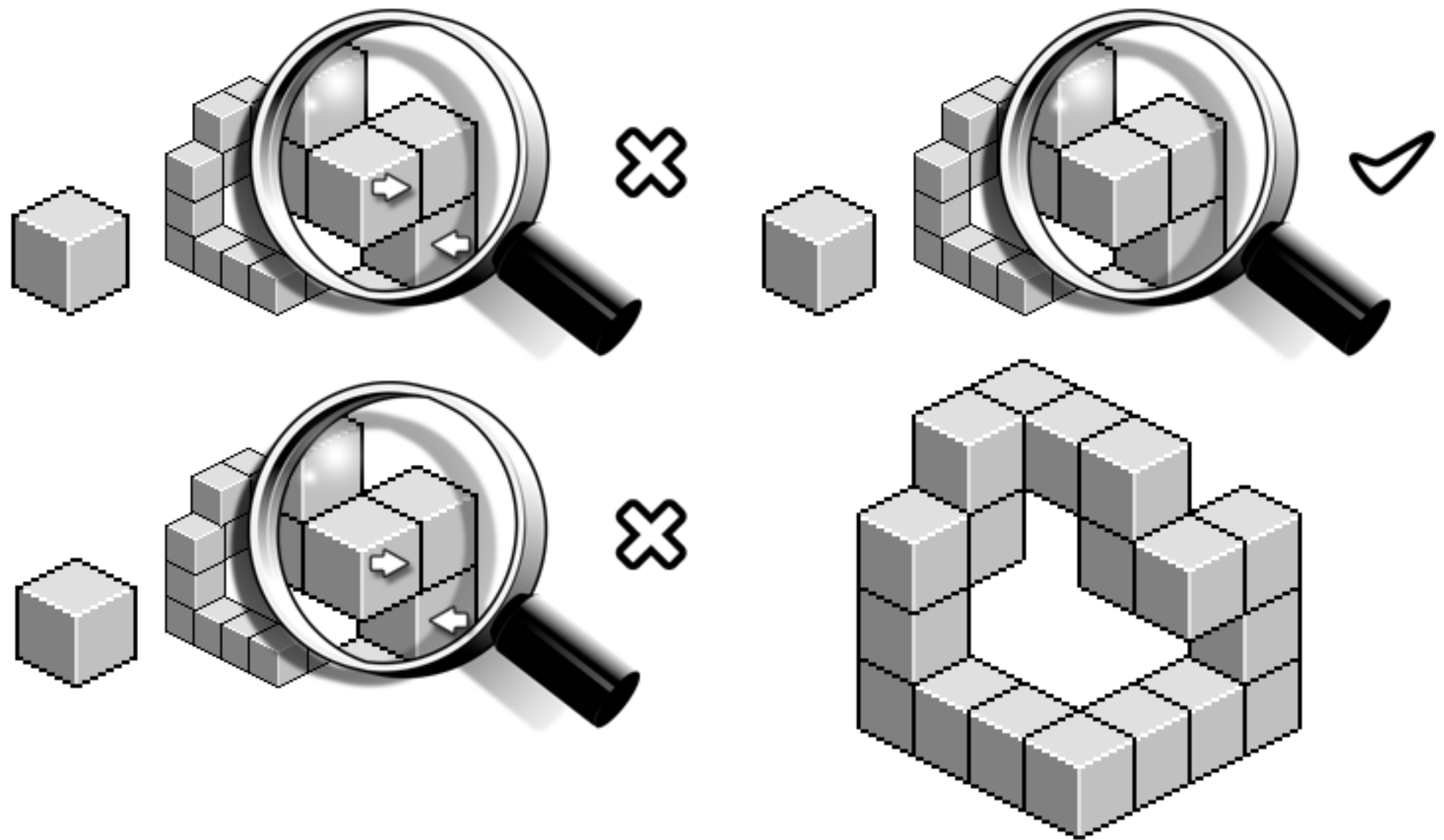
What is pixel art?

Pixel art is a digital art form that is created in raster in its original size, and that is edited in pixel level.



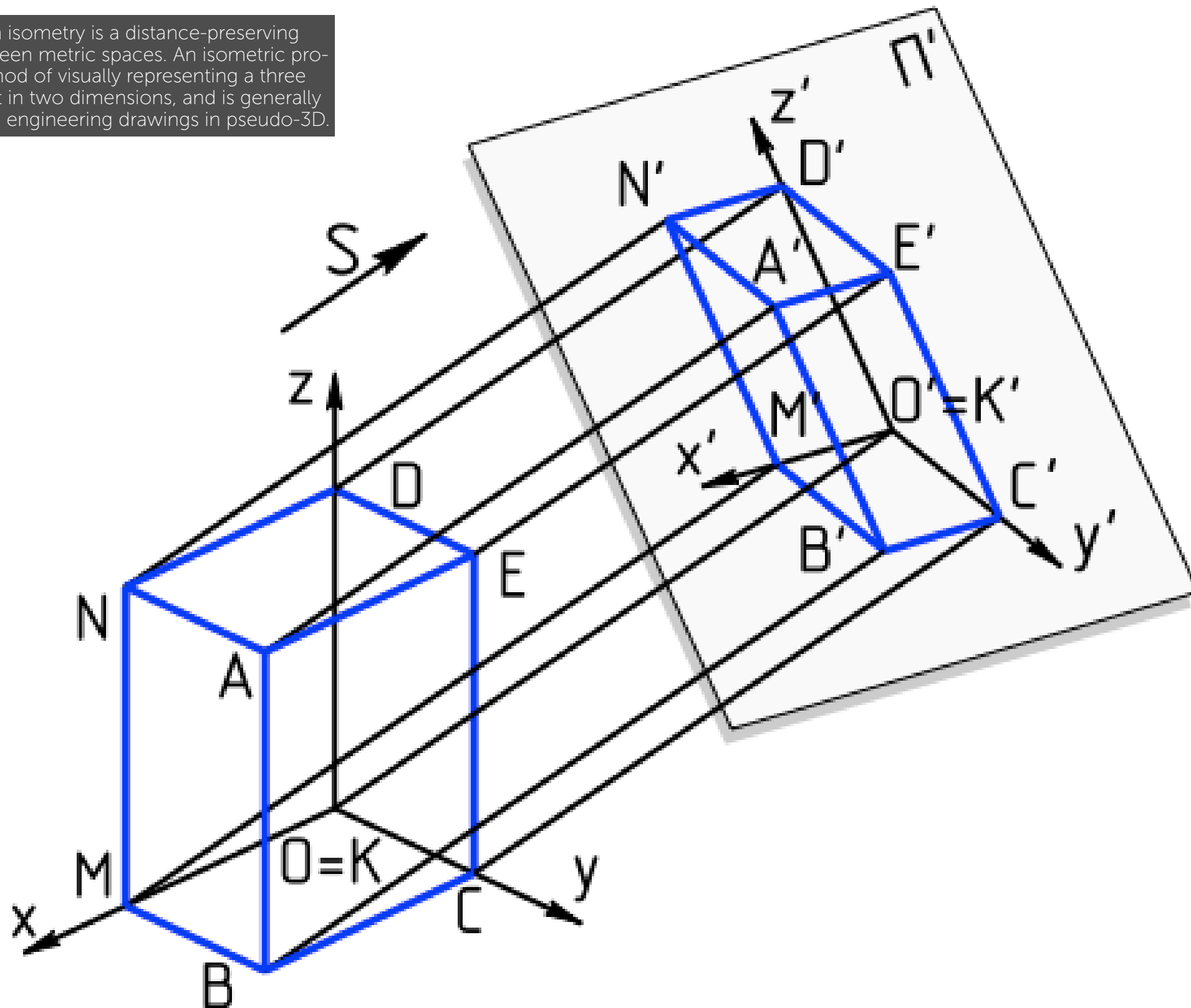
Types

isometric
non-isometric



Isometry

In mathematics, an isometry is a distance-preserving isomorphism between metric spaces. An isometric projection is one method of visually representing a three dimensional object in two dimensions, and is generally used for visualizing engineering drawings in pseudo-3D.



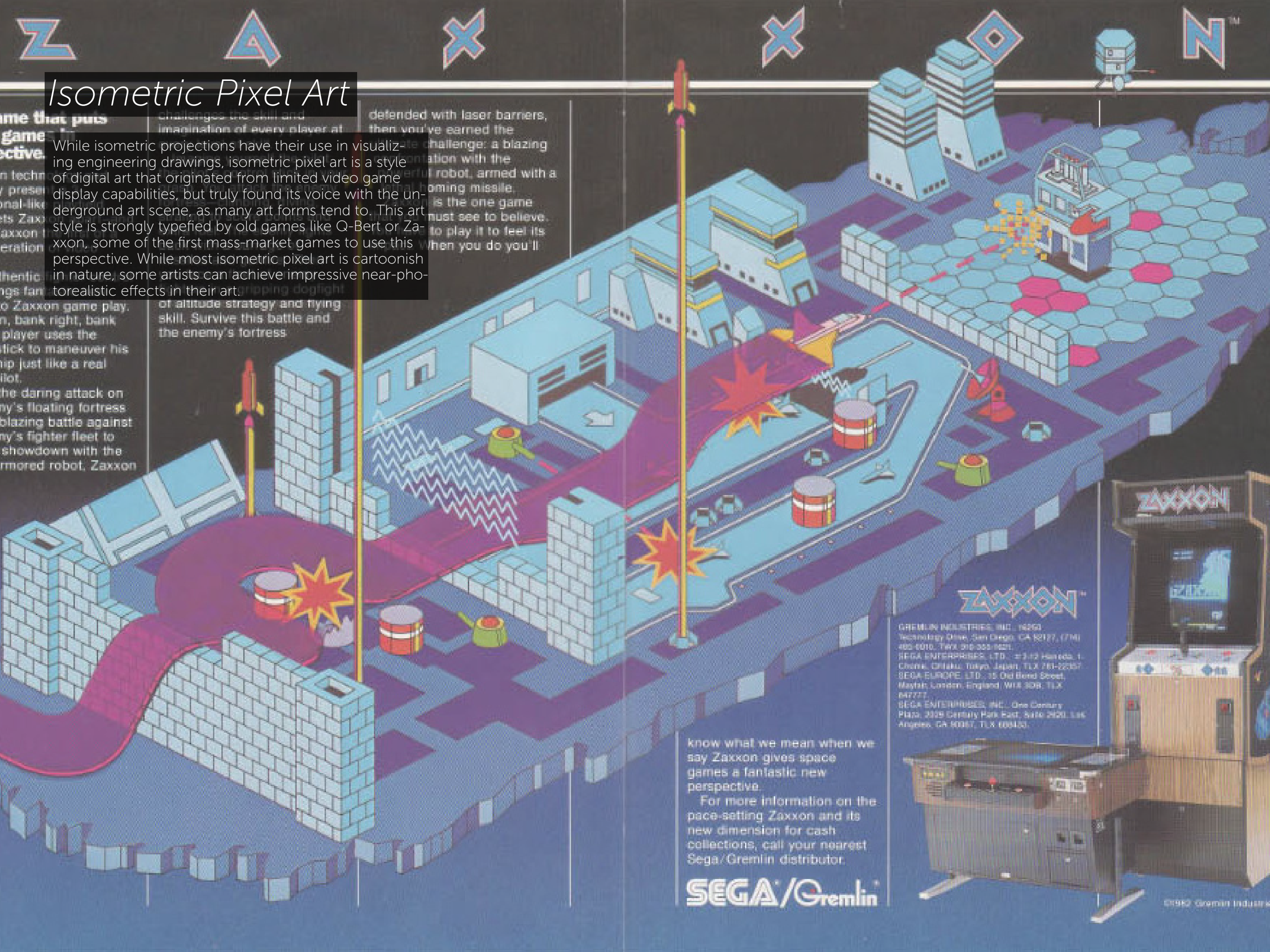
Isometric Pixel Art

While isometric projections have their use in visualizing engineering drawings, isometric pixel art is a style of digital art that originated from limited video game display capabilities, but truly found its voice with the underground art scene, as many art forms tend to. This art style is strongly typified by old games like Q-Bert or Zaxxon, some of the first mass-market games to use this perspective. While most isometric pixel art is cartoonish in nature, some artists can achieve impressive near-photorealistic effects in their art.

challenges the skill and imagination of every player at the challenge: a blazing powerful robot, armed with a homing missile. is the one game must see to believe. to play it to feel its When you do you'll

gripping dogfight of altitude strategy and flying skill. Survive this battle and the enemy's fortress.

me that puts game ective. n techn y preser onal-like ets Zaxx axxon t eration hentic gs fan o Zaxxon game play. n, bank right, bank player uses the tick to maneuver his ship just like a real pilot. he daring attack on ny's floating fortress blazing battle against ny's fighter fleet to showdown with the armored robot, Zaxxon



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know what we mean when we say Zaxxon gives space games a fantastic new perspective.

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Where is pixel art used?

Games
Advertising
Art
Icons
Animation

Use in Games

Pixel art was used in console games like Nintendo's GameBoy (1989) and NES (1983), (both being 8-bit) mainly because of the capacity of their processors. Games that contain pixel art mainly consist of tiles and animated sprites, and these are small in file size.



Games: The Secret of Monkey Island

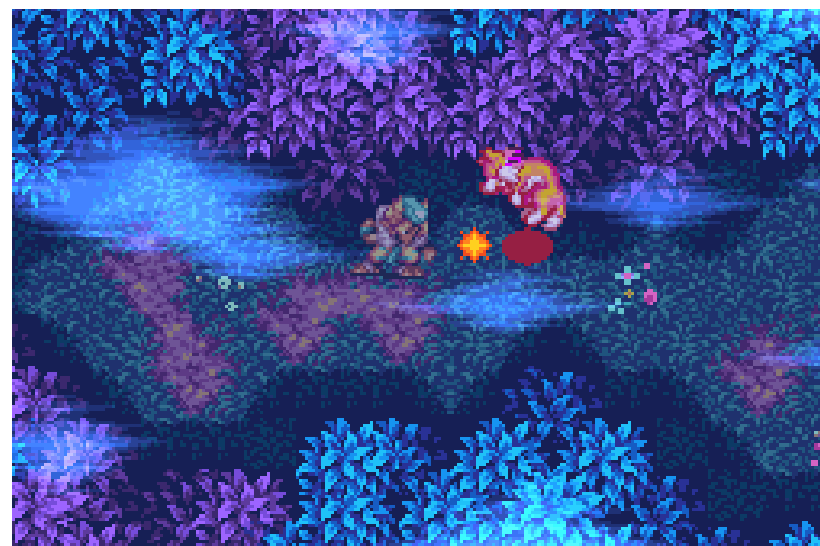
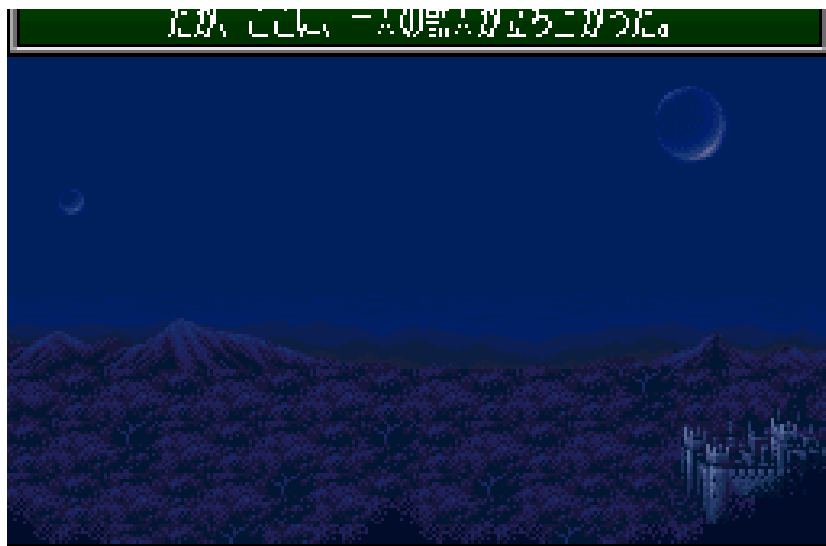
Monkey Island is about Guybrush Threepwood who wants to be a pirate. The environment design is quite detailed and reels the player in the game. You can see that even though the scenes are detailed, the color palette isn't that wide. These screenshots are taken from the DOS version.

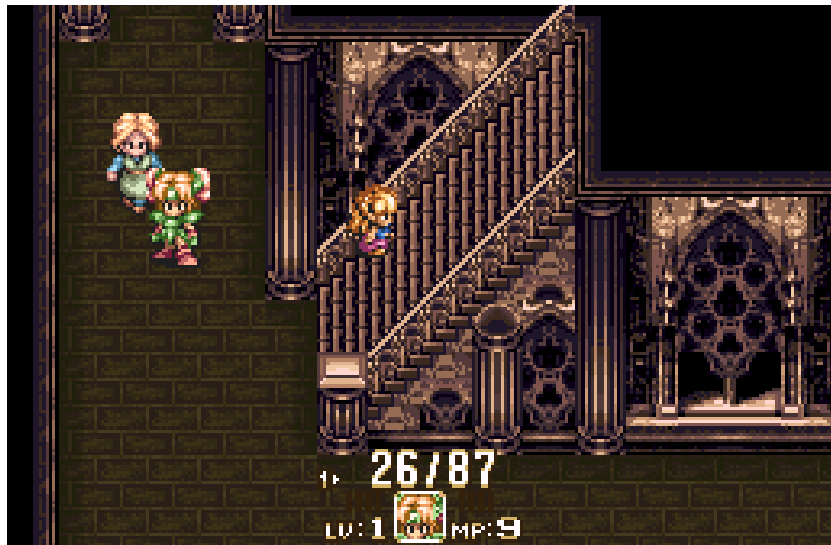




Games: Seiken Densetsu 3

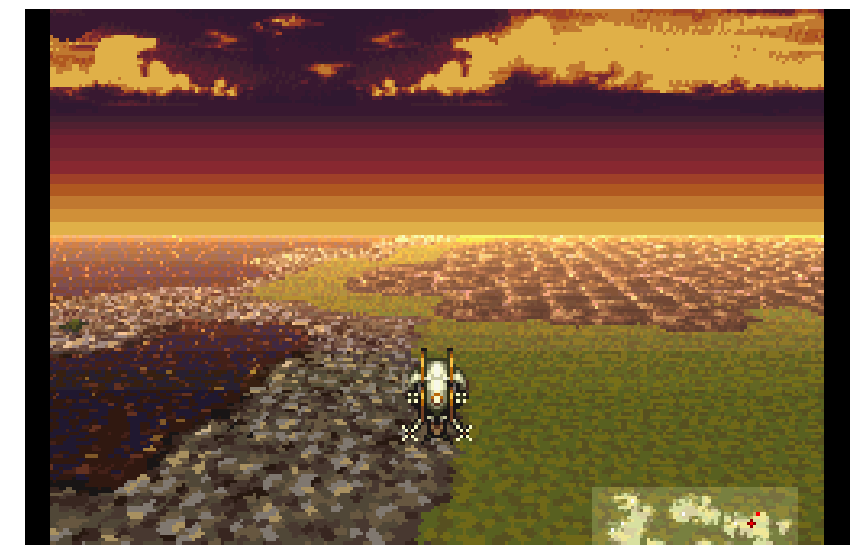
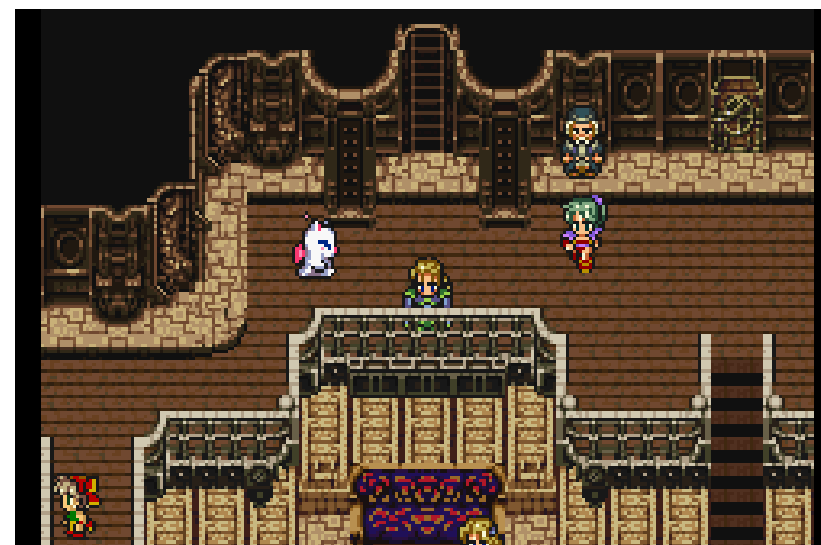
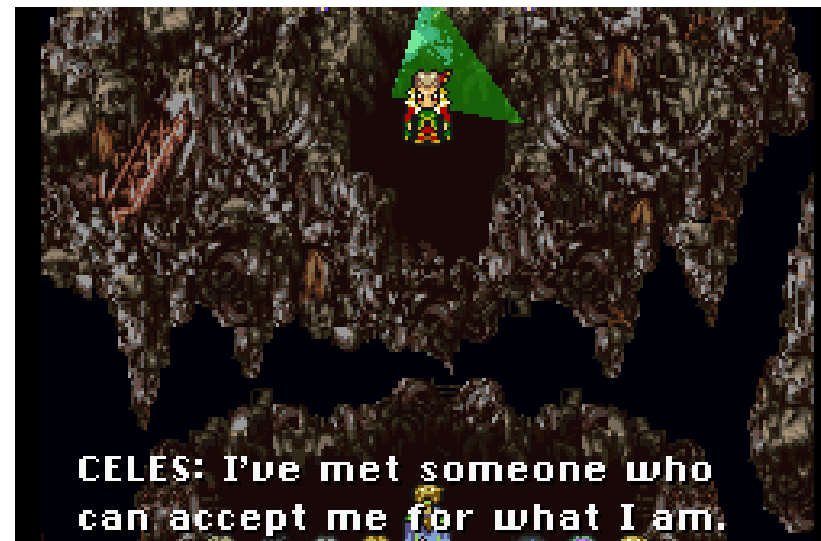
Even though the scenes look very detailed and realistic, the color palette of this SNES game is fairly little too. For example the grass only has three colors.

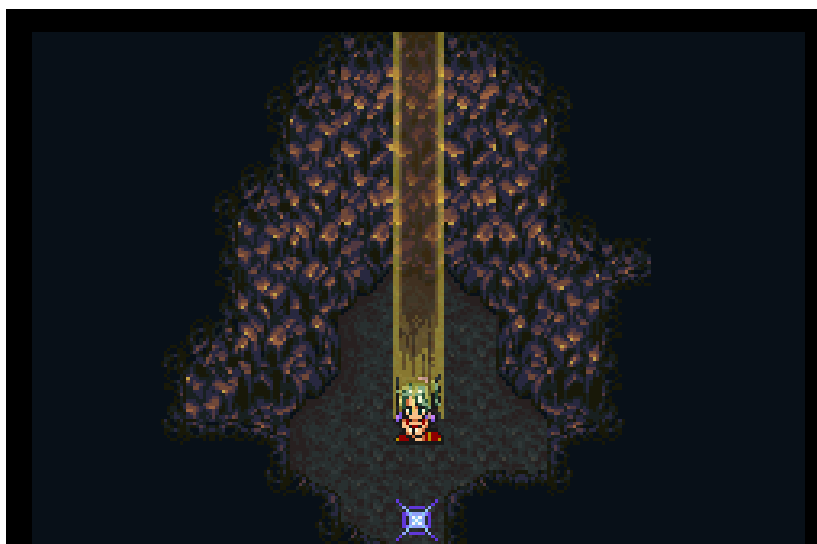
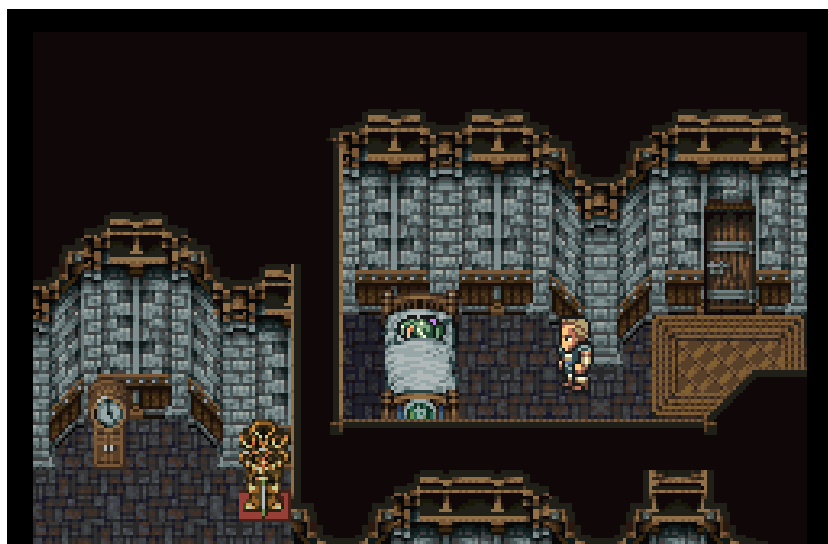


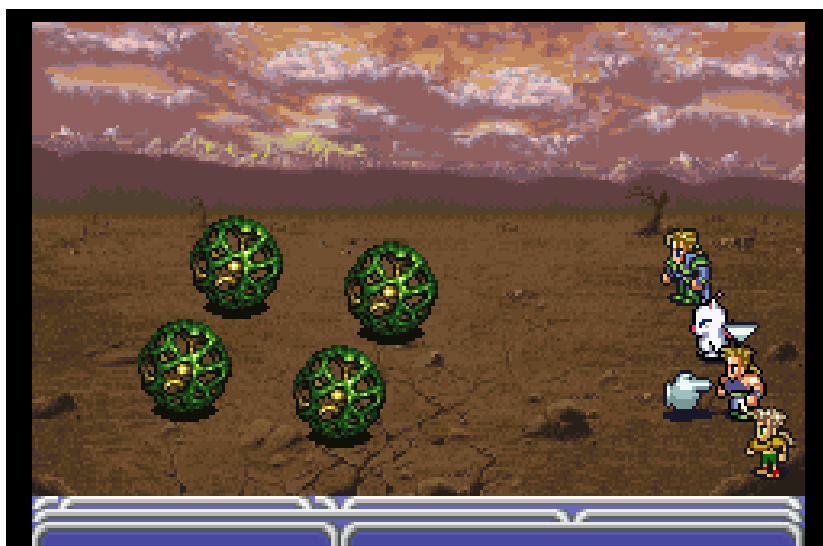
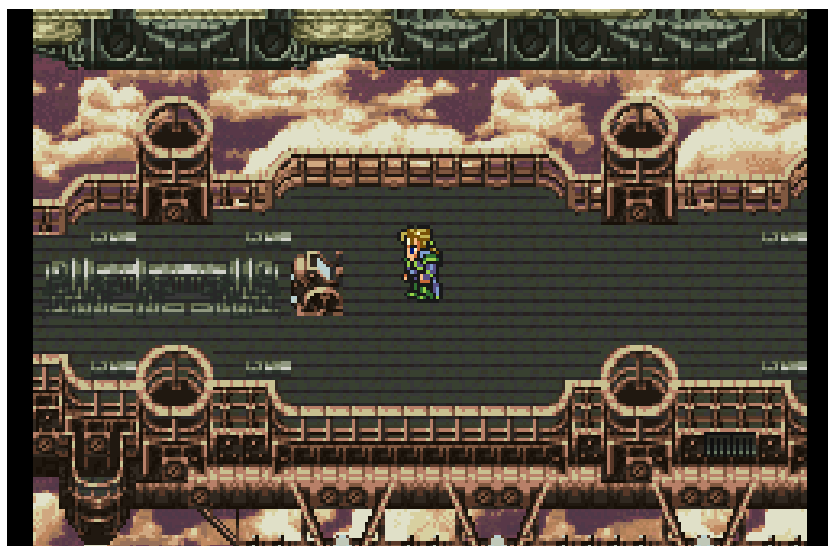
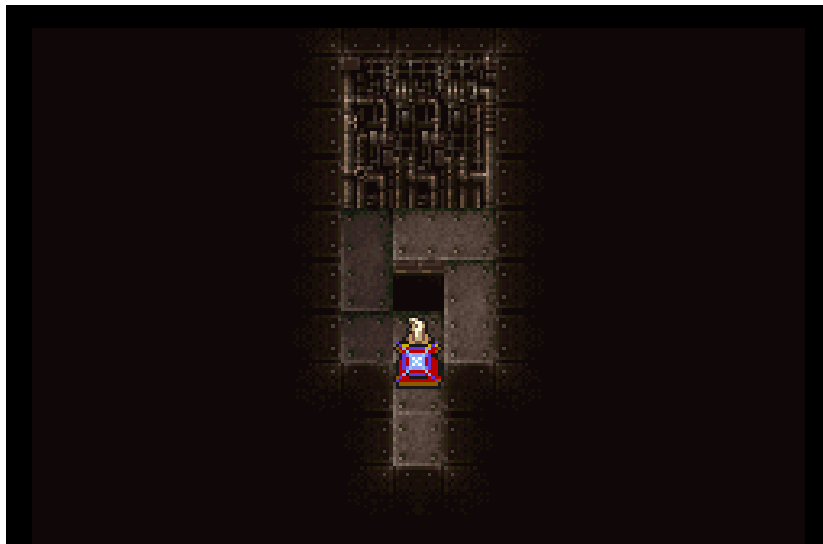
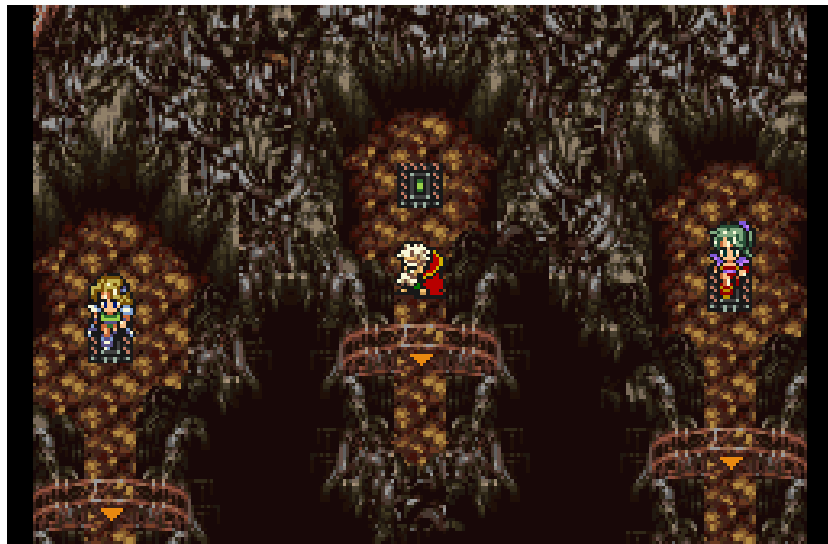


Games: Final Fantasy III

The third of the legendary Final Fantasy series. Look carefully at the screenshots taken from SNES, sometimes it's really hard to tell where tiles end and begin.







Advertising

Here are some of the advertisement examples. They are mostly complicated looking cities or rooms.







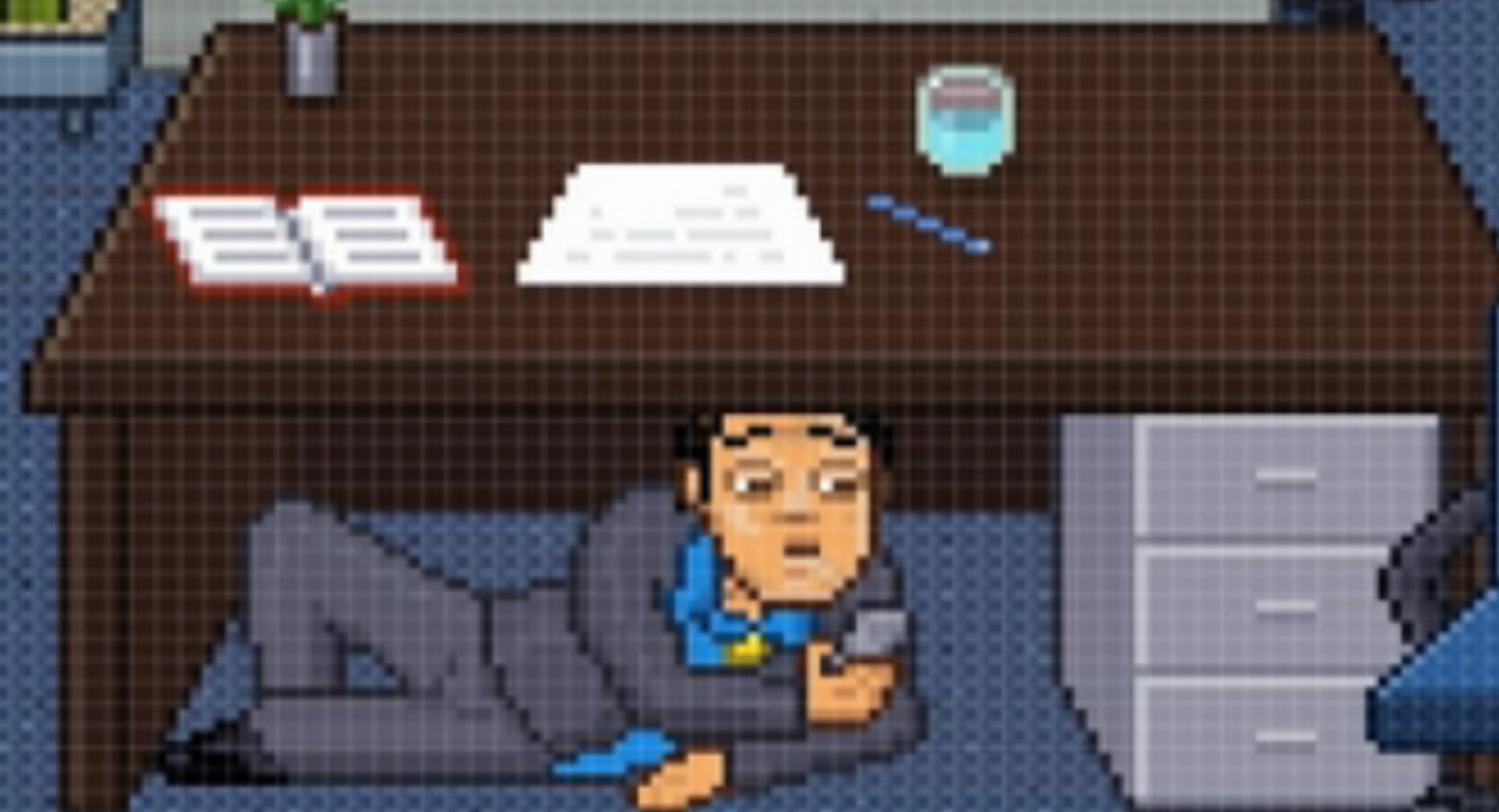
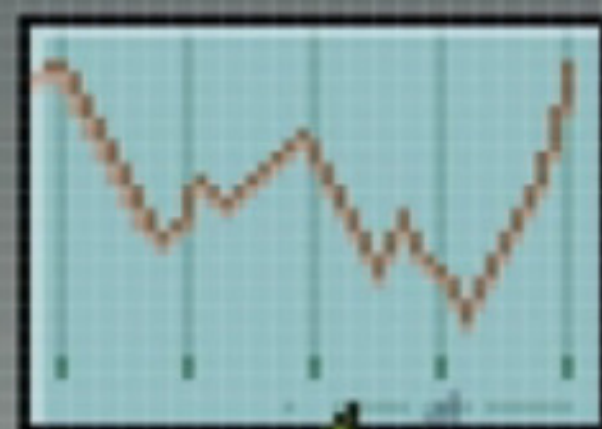


eBoy's Yahoo! advertisement features several yahoo! services.



Screenshots from the Bell pixel campaign by Riotsquad







Art

Some artists are experts on pixel art. It's a very time consuming business and they mostly constrain themselves in terms of color shade numbers to challenge themselves.

15 colors



16 colors

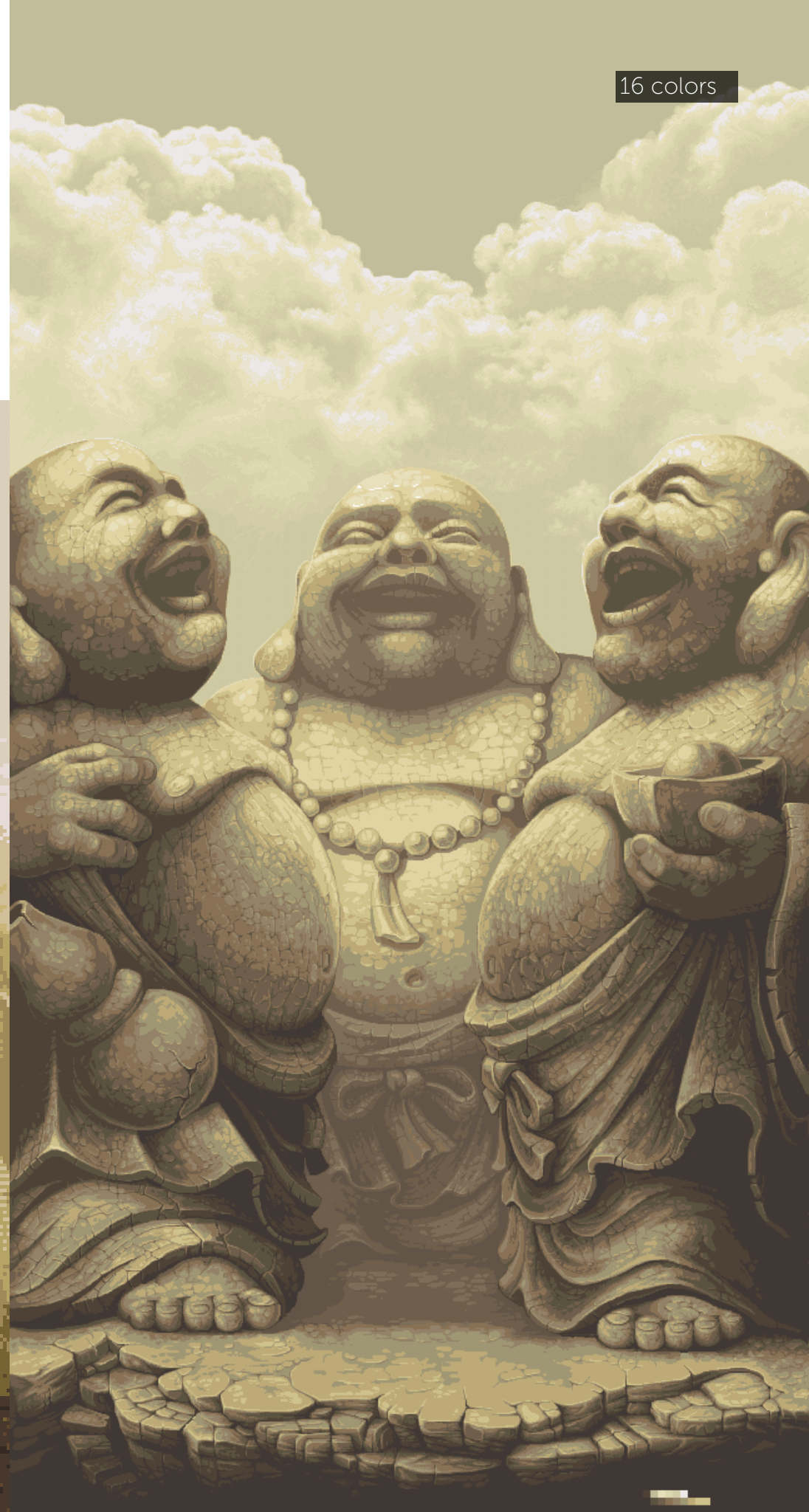


Illustration by Arjan Westerdiep that took about 560 hours in total to complete.



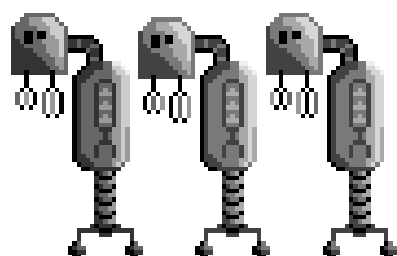
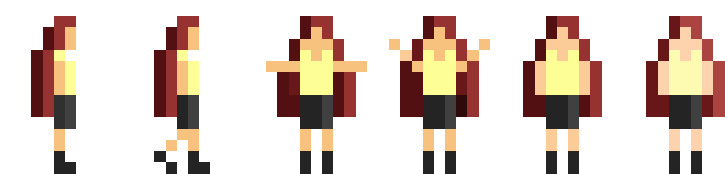
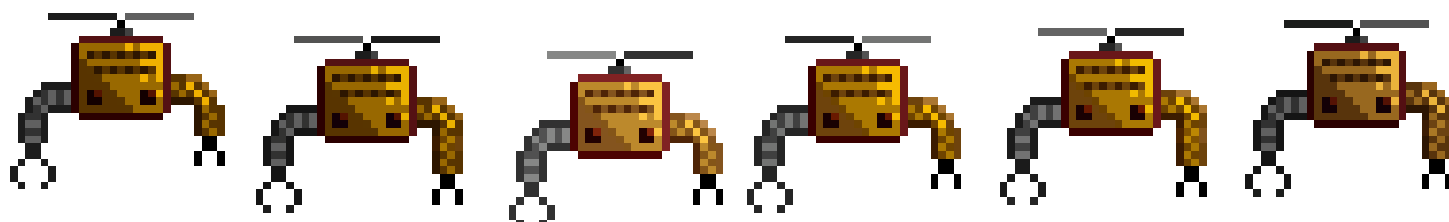
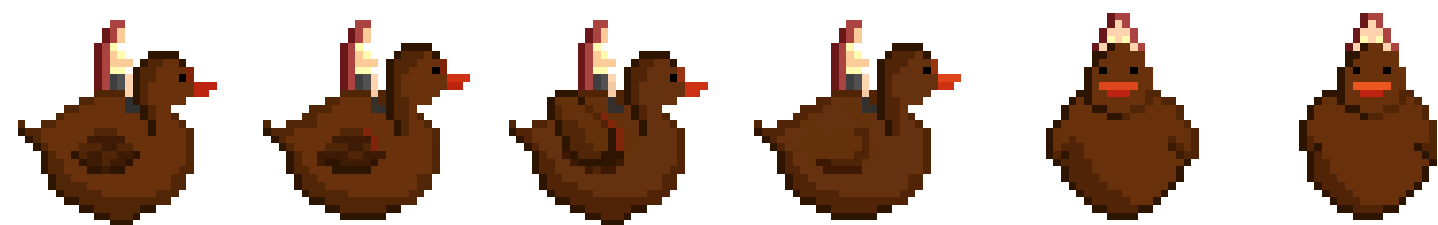
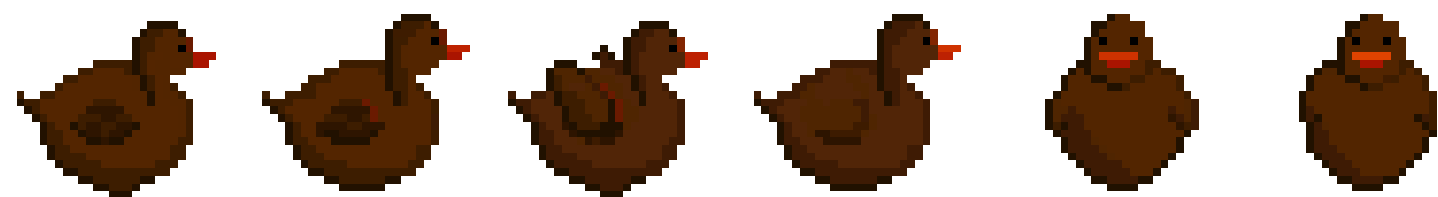
[illegible]

You could also recognize that the Icons on your mobile phone and PC are made by using pixel art. Here are some examples for icons.

Frame based animation

Pixel art animation is made frame by frame. Usually the sprites are individually animated to make series of movements. This screenshot is from the video Dan the Man.







This isn't exactly pixel art but was inspired by it. New York is being invaded by 8-bit creatures



animas.com



Method

sketch
vectorizing
outline
colors
shading
gradient is bad



Paletto

☒ Main Layer

Opacity: 100%



Left Tool

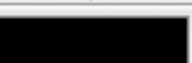


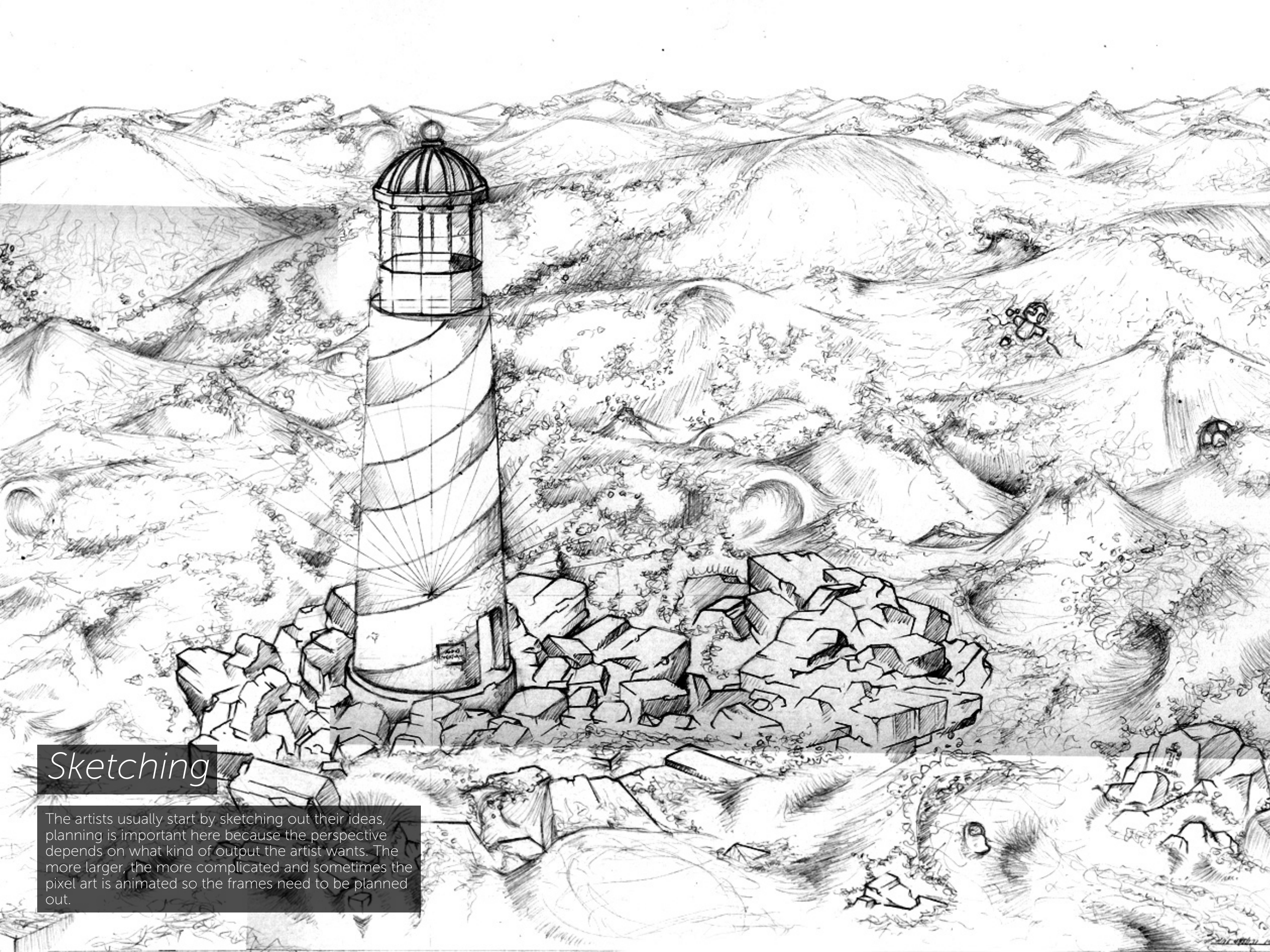
Right Tool



Tools

- scanner
- raster editor (like MS Paint, Photoshop)
- vector editor (like Illustrator)
- tablet





Sketching

The artists usually start by sketching out their ideas, planning is important here because the perspective depends on what kind of output the artist wants. The more larger, the more complicated and sometimes the pixel art is animated so the frames need to be planned out.

Sketches for some animation sequences made in CAPCOM. Notice that even the slightest move must be planned out because there are lots of artists in the development team so they have to communicate and understand every movement of the character correctly.

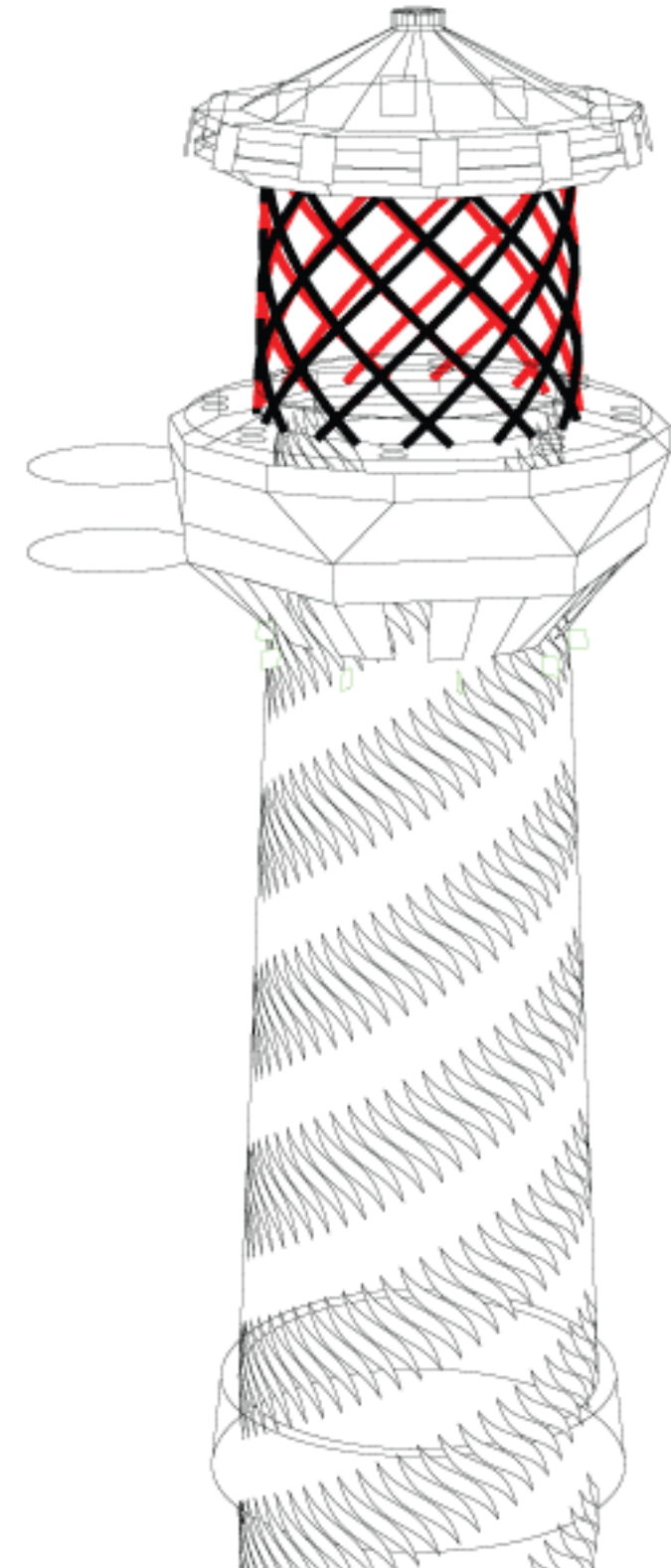


Vectorizing

Some artists want very precise lines that have just the right angle, especially if they're working with isometric perspective. The example isn't in isometric perspective, but the artist wanted the lines to have the perfect angle.



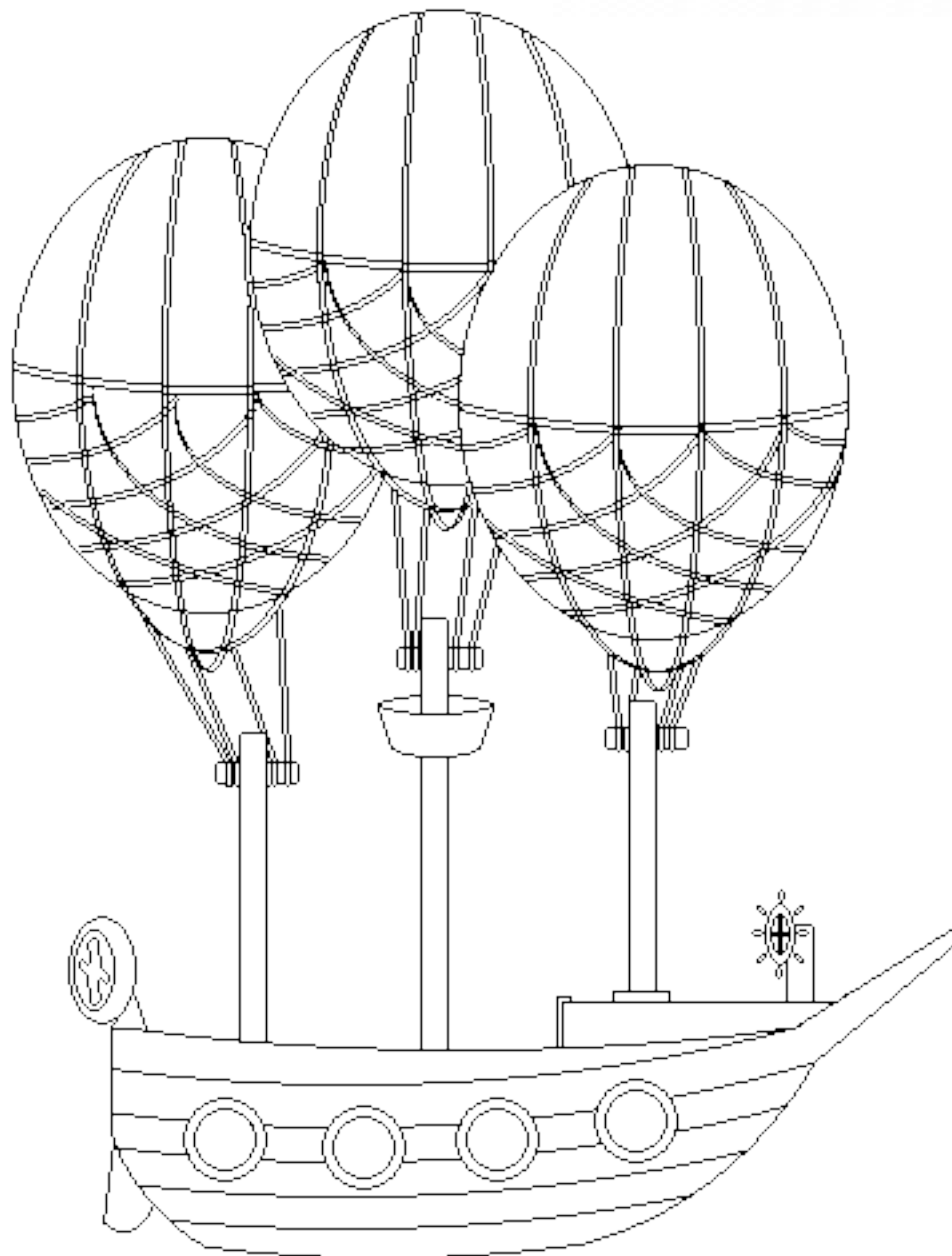
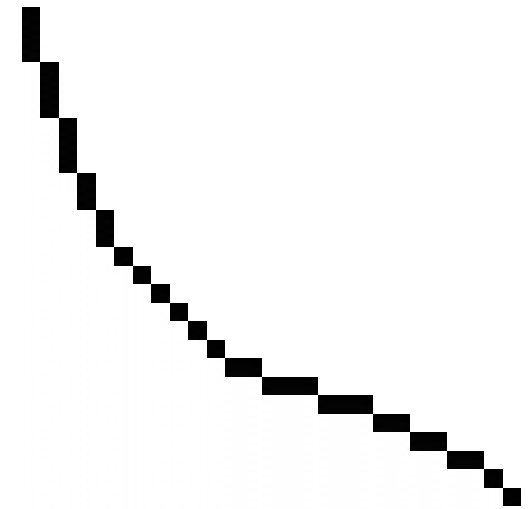
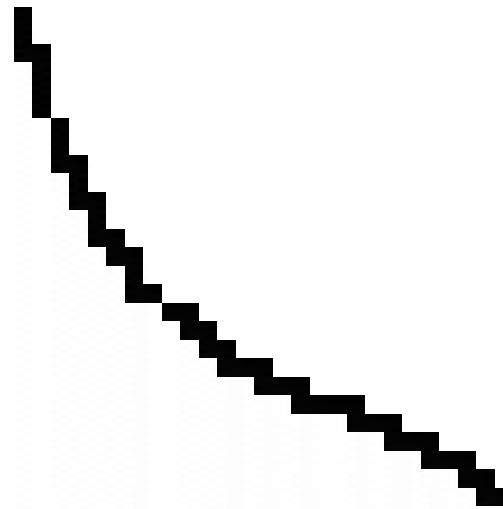
sketch lighthouse



vectorized lighthouse

Outline

The outline is very important when making pixel art, because most often it defines the shapes. The artist edits every line down to a single pixel thickness, like the line in the example. This is a boring chore at times, but it does improve the appearance of sprites. Failure to put in this effort shows in the reduced quality of the final piece.



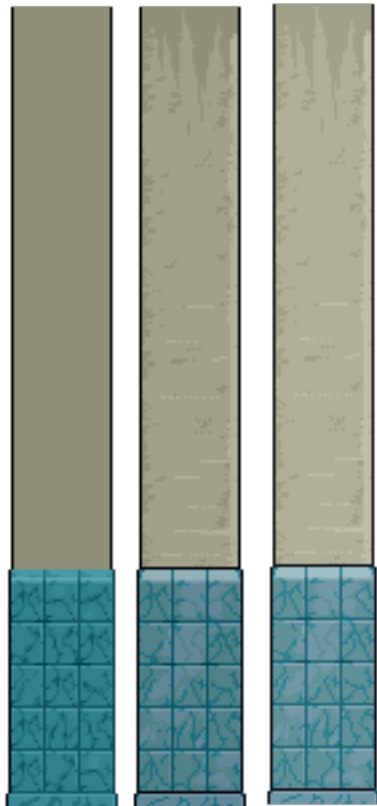
Colors


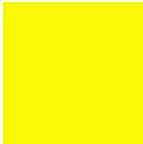






Good selection of colours not only takes the art closer to looking like a real object, but can add personality and mood to it.

Light, pastel tones - close to grey (almost equal RGB values) create a soft, carefree atmosphere. Dark colours, with low RGB values create an oppressive, brooding atmosphere.

Using a restricted palette with variations on a single colour can produce some interesting results. A Grey palette is often used for flashback scenes. Brown palettes look like parchment or old photos. A blue palette can be used to evoke everything from an ocean vibe to deep sadness.

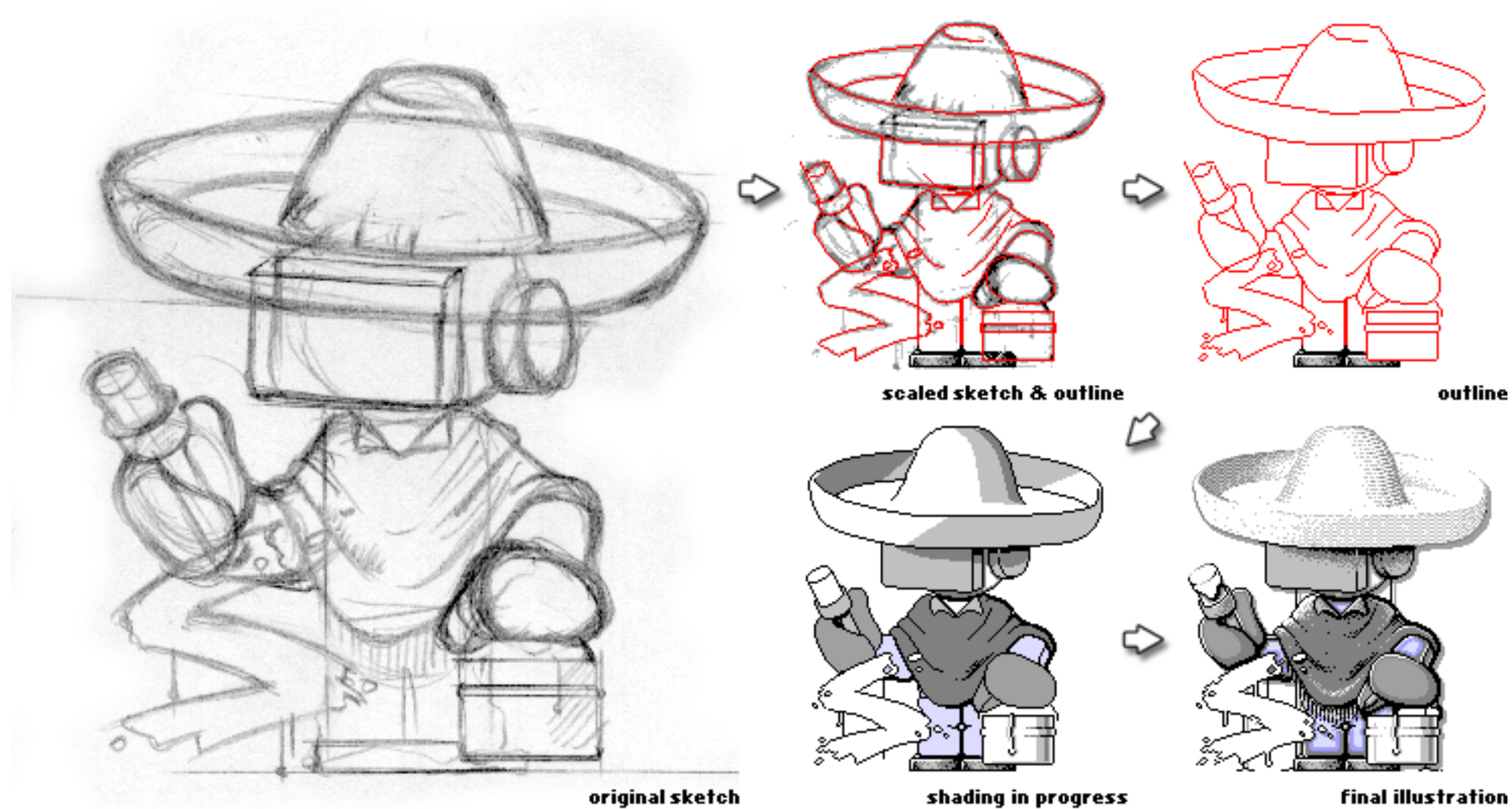
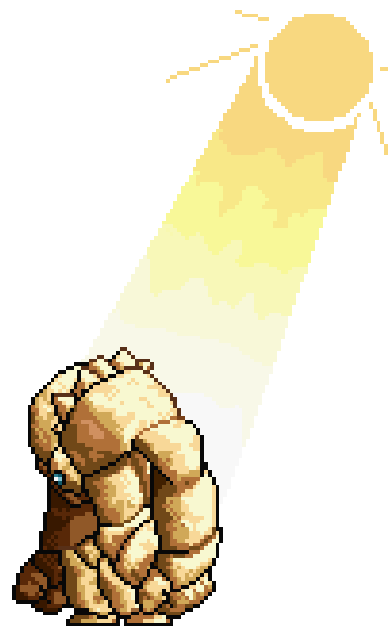
For pixel art avoiding strong, neon colors and using more desaturated pastel tones are better.



| | | R | G | B |
|----------------|---|-----|-----|-----|
| Nice |  | 255 | 245 | 155 |
| A little harsh |  | 255 | 245 | 155 |
| Nice |  | 136 | 168 | 232 |
| Painful |  | 0 | 248 | 248 |
| Nice |  | 176 | 128 | 96 |
| Nice |  | 208 | 100 | 89 |
| My eyes! |  | 232 | 0 | 224 |
| Nice |  | 145 | 186 | 108 |

Shading

In order to begin shading an object, it is important to first establish where light falling upon it is coming from. For outdoor settings, or indoor areas with consistent overhead lighting, it helps to pick a constant direction for light to fall from. This common kind of light all strikes your object at the same angle.

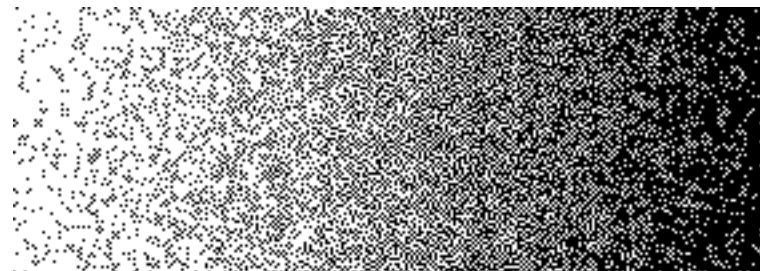
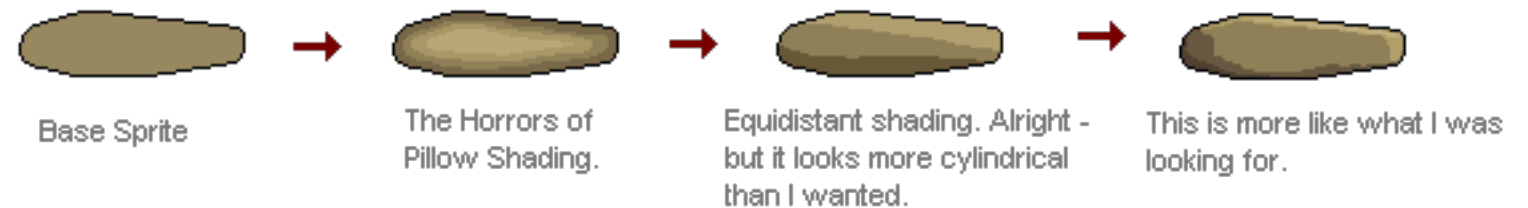
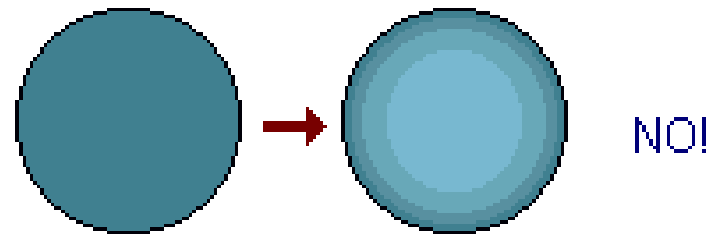


Gradient is bad

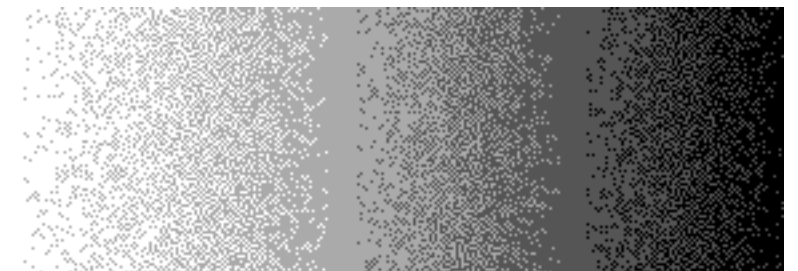
People might think that when they make a gradient effect they have done good shading, but mostly what they do is called 'pillow shading', which appears to assume a single point light source hanging directly between us and our object.

This sort of radial tone gradient is suitable only for a surface lit by a very close light source - like burning torches, but when it is used for an object it looks bad.

Depending on the amount of colors, the artist might be forced to use a technique called 'dithering'. If the amount of colors is limited, transitions between one color and the other can be mimicked by varying the density of pixels of both colors. By gradually increasing the number of pixels of one color, both colors seem to blend together. Depending on the amount of color, this transition is more or less subtle.



dithering with two colors



dithering with four colors

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<http://www.natomic.com/hosted/marks/mpat/index.html>
<http://hello.eboy.com/eboy/about/>
<http://www.nitrome.com/>
<http://www.youtube.com/watch?v=SEVU-YLpM8A>
<http://vimeo.com/7670880>
<http://www.pixelbath.com/isometric-pixel-art/ch1.php#isometry>

Communities

<http://www.pixeljoint.com/>
<http://www.pixeldam.net/>
<http://www.deviantart.com/>