



Pixel Art Block by Block

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Art is made of many COMPONENTS (parts) - lines, colors, shapes, and ideas. Many visual building blocks go into a final product. But what if I told you there was a style of art made out of LITERAL building blocks? That style is known as PIXEL art or dot art. Pixel art is a form of digital art that uses pixels and grids as the base components of its design. A pixel is the basic unit of a digital image, representing a single color SWATCH (a swatch is a portion of color). They are also the tiny dots a computer's memory uses to represent an image. What you see on the screen of your iPad or computer is actually millions of tiny dots used to make a large image.

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Spell: DOT ART LITERAL

What word meant parts? COMPONENTS

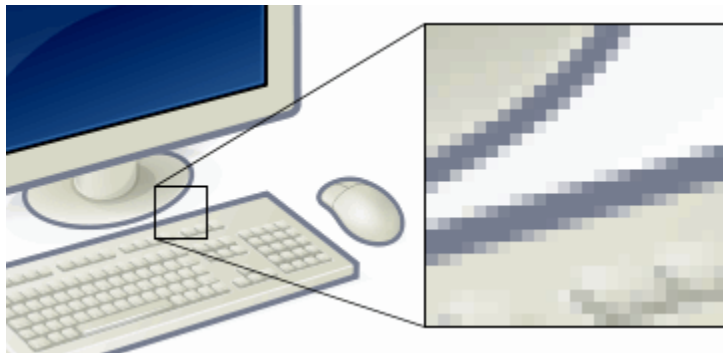
Name one component of art mentioned in the paragraph above. LINES, COLORS, SHAPES, IDEAS

What style is made of literal building blocks? PIXEL ART

What is another word for a portion of color? SWATCH

A computer is the tool used to make pixel art. What is another tool used to make art? PAINT, PAINTBRUSH, PENCIL, PAPER

What kind of art is your favorite?



Example of pixels making up a larger image, note the square shape

In fact, pixel art could be considered the PROGENITOR (originator, founder) of digital art as a whole. The first examples of digital art were associated with the displays of early computers and arcade games. Because these early computers had a low memory limit they were only able to display a small amount of pixels at a time. This made the individual pixels very obvious giving the image a LOW RESOLUTION (an image that lacks sharp focus or fine detail) look, as opposed to the HIGH RESOLUTION (has fine detail and sharp focus) images we see on our screens today. Another side effect of having low memory was the need to use a restricted or limited PALETTE (the colors which make up an image). Many would consider the graphics of the past to be low quality, and to an extent they were. But artists were simply working in the CONSTRAINTS placed on them by the technology. These old computers specifically could hold 8, and later 16, bits of data per memory block giving rise to the now broadly applied term 8BIT or 16BIT images. Pixel art today is not limited to 8 or 16 bits however the terms are often still applied to the style

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Spell: MEMORY FOCUS DIGITAL

What word meant originator or founder from the paragraph?

PROGENITOR

-or- What is another word for progenitor from the paragraph?

ORIGINATOR, FOUNDER

What was one display the first examples of digital art was associated with?

COMPUTERS, ARCADE GAMES

What limited early computers? LOW MEMORY

What is the difference between low and high resolution? LOW

RESOLUTION LACKS FINE DETAIL AND FOCUS HIGH RESOLUTION HAS HIGH DETAIL AND FOCUS

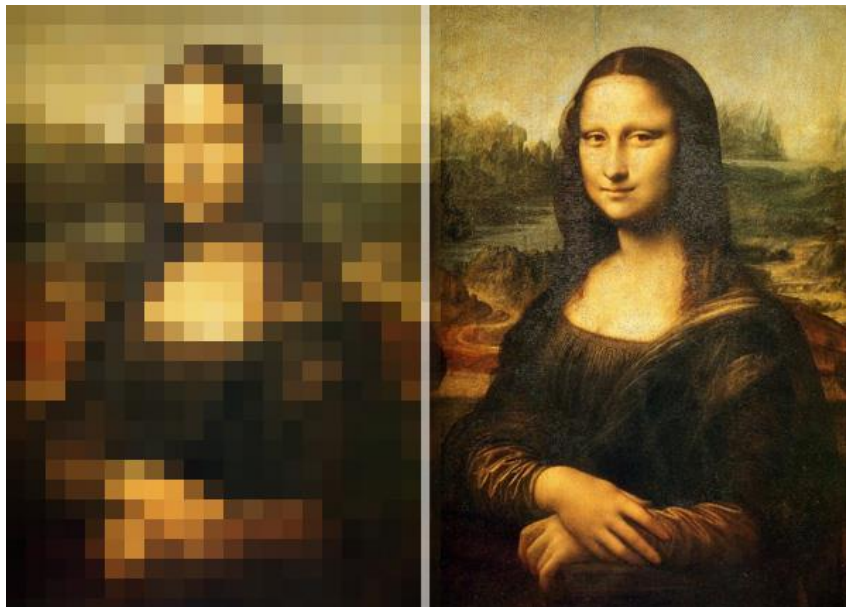
What is the word for the colors that make up an image? PALETTE

How many bits of data could early memory hold? 8 OR 16

What is one company that makes computers? APPLE, MICROSOFT, IBM

VAKT POINT TO THE LOW RESOLUTION IMAGE:

Have your speller point to the low resolution image below



Nowadays many artists still SELF-IMPOSE (to apply to one's self) the restrictions of the past to maintain a true to style feel in their pixel art, specifically in the use of limited pallets and defined pixels. Until now we have been defining pixel art as simply art made of pixels. But as we now know, all digital images are made of pixels. The exact definition of pixel art

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is HAZY (unclear) for this reason. We know that pixel art is different from other digital arts in its use of limited palettes and low resolutions. But 'low resolution' is also unclearly defined, when does a resolution become officially low? Well, many pixel artists also define pixel art as an image where each pixel is hand placed with great INTENTIONALITY (on purpose). Often changing just one pixel will ALTER (change) the composition in a meaningful way. If we moved one pixel in the high resolution Mona Lisa no one would know, however in the low resolution the impact would be more SEVERE (serious or extreme). The spotlight is on the pixel in pixel art. So, we can more specifically define pixel art as a low resolution image, with a limited palette, that places emphasis on the individual pixel. One way to do that is by working on a strict grid!

Spell: MAINTAIN, MEANINGFUL, EMPHASIS

What does it mean to apply something to one's self? SELF-IMPOSE

What word means unclear? HAZY

Why is the exact definition of pixel art hazy? ALL DIGITAL IMAGES ARE MADE OF PIXELS

What type of weather could make things hazy in real life? FOG, CLOUDS

With what does a pixel artist place pixels? INTENTIONALITY

What is another word for change from the text? ALTER

What three things define pixel art? LOW RESOLUTION, EMPHASIS ON THE PIXEL, LIMITED PALETTE

How can we emphasize the individual pixel? WORKING ON A STRICT GRID

Would you like working on a grid? Why or why not.



Modern pixel art with a very limited palette

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The grid is often very important in pixel art as it defines the BOUNDARIES of the individual pixel. Most often the grid consists of any amount of squares. Pixel art, even though it is sometimes called dot art, is fairly strictly defined by squares. The use of the grid gives pixel art its distinct blocky or CRUNCHY feel. As you can see in the picture below, diagonal lines have JAGGED (sharp and bumpy) edges because they are created by the corners of two squares touching. There are ways to ALLEVIATE (fix) this effect but it is often EMBRACED or accepted by pixel artists.

Spell: IMPORTANT INDIVIDUAL GRID

The grid defines the _____ of individual pixels. BOUNDARIES

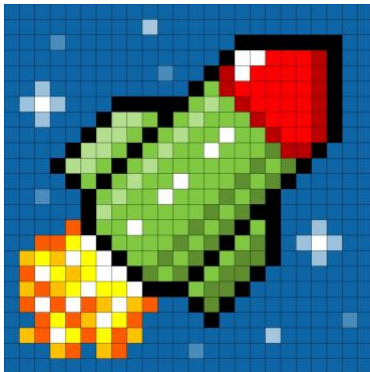
What shape defines pixel art? SQUARE

What kind of feel does the grid give pixel art? CRUNCHY or BLOCKY

What does jagged mean? SHARP AND BUMPY

Why are the diagonal lines jagged? THEY ARE CREATED BY THE CORNERS OF TWO SQUARES TOUCHING

If you were a pixel artist would you embrace or lessen the jagged feel of the pixels?



The grid is made visible in this pixel art image of a rocket

Now that we have an idea of what pixel art is, let's learn about some TECHNIQUES used in pixel art. One big one is called DITHERING. Because of the grid and limited palettes of pixel art smooth shading is often hard to REPLICATE (copy). The transition between colors is often a HARSH line. Dithering is a way for pixel artists to achieve smoother transitions or the ILLUSION (trick of the eye) of a new color entirely. To dither two colors an artist will place alternating or patterned pixels of each

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color along the transition line. This tricks the eye of the viewer into 'seeing' another color or smooth transition as seen in the examples below.

Spell: TRANSITION TRICK ALTERNATING

Shading is hard to ____ in pixel art. REPLICATE

What word means trick of the eye? ILLUSION

What is one big technique used in pixel art? DITHERING

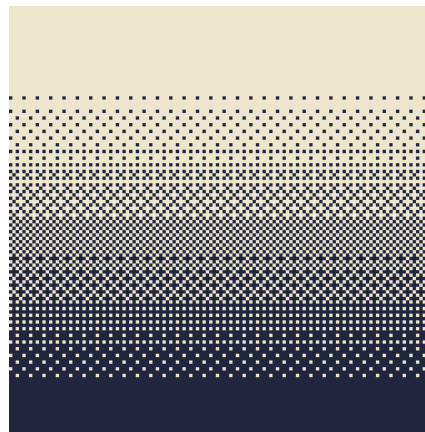
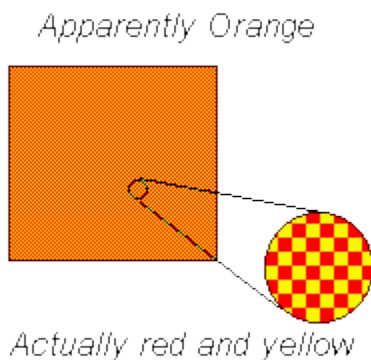
Name one thing dithering helps achieve. SMOOTH TRANSITIONS or NEW COLORS

What kind of pixels are placed to dither? ALTERNATING or PATTERNED

What color would you get if you dithered blue and yellow pixels? GREEN

VAKTIVITY DITHER SOME BLOCKS:

Using colored paper squares or colored blocks have your speller arrange them in a dither pattern



Another technique used in pixel art to achieve a smoother look is known as ANTIALIASING. While dithering is for colors and shading, antialiasing is for LINEWORK. Pixel art often makes use of outlines to separate colors from each other. Since linework often has many diagonal lines and ORGANIC curves. This clashes with the square nature of the pixel and can make the curve UNAPPEALING or ugly. Antialiasing serves to soften curves and reduce harsh edges. It is performed by placing a color somewhere in between the color of the outline and the background. As you can see in the example, pixels are placed where the jagged corners meet. Since the line is black, and the background is white, gray pixels are used. The effect can be quite extreme! Heavy antialiasing is usually avoided by experienced

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pixel artists as the RESULTANT or final image can look blurry. A light touch is needed to UTILIZE (use) antialiasing EFFICIENTLY (in the best manner).

Spell: SERVES CURVES RESULTANT

Besides dithering, what is another technique used in pixel art?

ANTIALIASING

Dithering is for shading while antialiasing is for _____. LINEWORK

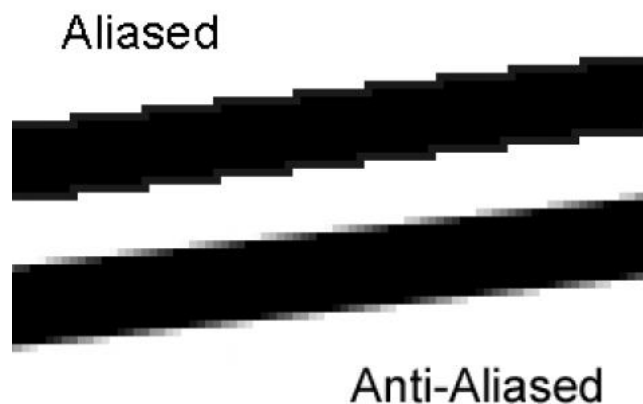
What is one thing linework has that clashes with the square nature of the pixel? DIAGONAL LINES, ORGANIC CURVES

What is another word for ugly from the paragraph? UNAPPEALING

Antialiasing serves to _____ and _____? SOFTEN CURVES, REDUCE HARSH EDGES

Name one color used in the example below. GRAY, BLACK, WHITE

Do you think antialiasing enhances or detracts from an image? Please elaborate why.



There are many other techniques used in pixel art such as COLOR RAMPING and HUE SHIFTING. These techniques are usually used when creating the color palette. They involve ISOLATING (singling out) a handful of colors and DERIVING (creating from something) other colors from them to create a HARMONIOUS (something that looks good with something else) color palette. The colors are then placed in ramps for easy readability and analysis. As you can see in the example most of the colors in the palette stemmed from the original pale yellow. So how does the artist arrive at these colors? Through hue shifting! Hue shifting is simply the act of

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shifting the hue, or color towards another GRADUALLY (slowly or in small increments) as well as the brightness and saturation. By shifting from one or two colors all the resulting colors will look good when placed near the original. As seen in the example this creates a wide range of pleasant colors versus just shifting the saturation and brightness.

Spell: HANDFUL ORIGINAL YELLOW

Besides dithering and antialiasing what is one other pixel art technique?

COLOR RAMPING, HUE SHIFTING

What does isolate mean? SINGLING OUT

When making a color ramp pixel artists are _____ a palette from a single or handful of colors. DERIVING

When something looks good with something else it is _____. HARMONIOUS

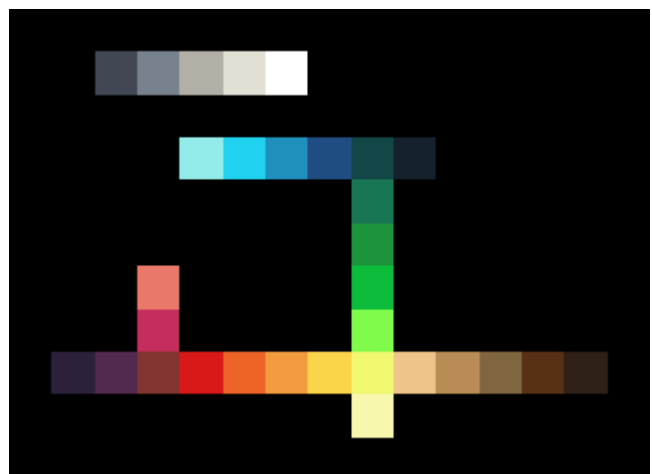
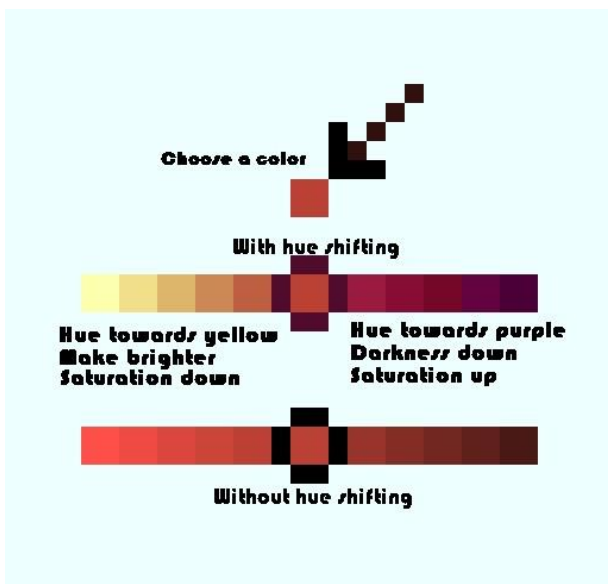
What is something else that can be harmonious? MUSIC

What is one reason the colors are placed in ramps? EASY READABILITY, ANALYSIS

What three things are shifted when hue shifting? HUE, SATURATION, BRIGHTNESS

How fast do we shift when hue shifting? GRADUALLY, SLOWLY, IN SMALL INCREMENTS

If you were going to make a color palette, what three colors would you choose to start shifting from?



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As you can see pixel art has many methods to use, just like if you were creating traditional art. “Pixel art” is not just limited to the digital world however, there are many ANALOGUES (something comparable to something else) in the physical world as well. CROSS STITCHING (creating a picture out of gridded thread X’s) uses a grid and low resolution images but with X’s instead of squares. MOSAICS (creating a picture with small square tiles) often use grids and square tiles to create their images as well. No matter how you do it, pixel art and its techniques is a GUARANTEED (assured, definite) way to make art look unique and NOSTALGIC (comfortable feelings of the past) for your viewer.

Spell: PHYSICAL TILES INSTEAD

What word means comparable to something else? ANALOGUE

What is one physical representation of pixel art? CROSS STITCHING, MOSAICS

What is one synonym for guaranteed? ASSURED, DEFINITE

What is one way pixel art is guaranteed to make your art look? NOSTALGIC, UNIQUE

Cross stitching is made of thread in the shape of what letter? X

VAKT Lets make some pixel art:

Using a grid and markers or colored paper squares have your speller create their own pixel art! If motor planning this is difficult for your speller feel free to use the letterboard and a labeled grid to help your speller choose their squares (for example: Green A1 through D1, Blue B2). If your speller doesn’t want to come up with an abstract design or their own image there are many templates available online. If your speller is tech savvy and has an ipad there are also many programs available to make pixel art by poking squares with one's finger, similar to a letterboard. Perler beads can also be used

EXAMPLE OF A GRID

A	B	C	D
1			
2			

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3			
4			

EXAMPLE TEMPLATE:



SOURCES:

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https://www.seekpng.com/png/small/168-1684948_cutestar-perler-bead-pattern-bead-sprite-pixel-art.png

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<https://www.washingtonpost.com/news/the-intersect/wp/2014/10/14/nostalgia-norwegian-money-and-the-unlikely-resurgence-of-pixel-art/>

Lee, Cindy (2021). "Chapter 14: Best Practices for Pixel Art". In Dillon, Roberto (ed.). *The Digital Gaming Handbook* (1st ed.). Boca Raton: CRC Press. pp. 275–286.

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