

1.4. Pixel and Voxels:-

→ Pixel and Voxels is an artistic technique used to Create 2D and 3D images and animations, usually for use in Video games.

Pixel:-

- * It uses Small Squares, (or) Pixels, to Create an image.
- * Used to Create unique Visuals with a low resolution look that Can be easily manipulated.

Voxels:-

- * It uses 3D Cubes.
- * Used to Create Unique Visuals with a low resolution look that Can be easily manipulated.

→ Pixel and Voxel Art differs from traditional art in Several ways.

1. It is Created using digital tools Such as Software Programs rather than traditional Painting materials.

2. The image created using this technique are not necessarily realistic but instead focus on creating a more stylized look with bright colors and sharp edges.

3. Low-resolution look of Pixel and Voxel art makes it ideal for creating game art as it can be scaled up or down without losing any detail.

→ Pixel and Voxel art can also be tiled to create a ^(smooth) seamless surface just like a 3D render.

→ It is that there are no Painterly Concerns such as hidden Surfaces, glazing, or highlighting, as is often required with 3D renders.

→ It is also easy to hide edges by surrounding them with color plates, providing a smooth look that can be attractive when paired with photographs or other images.

* Create Stunning Visuals:

→ 2 Main techniques.

1. Pixel — Creating 2D graphics using tiny squares called Pixels.
2. Voxel — Creating 3D technique using Cubes called Voxels to create 3D Models.

* Pixel Art:

→ It consists of individual Pixels that are either black or white, with Shades of Gray for intermediate values.

→ These Pixels can be arranged to be displayed quickly on a Computer Screen.

→ It is also referred to as bitmap graphics because it uses binary values (0s and 1s) to represent color.

→ When creating Pixel artwork, artists create drawings by manually filling in Pixels with different colors using special Software known as an editor.

→ These drawings can then be saved to a file or printed on paper using a printer.

→ Computer-generated graphics are created by rendering 3D models or images with computer software.

→ This is done through a process known as rasterization.

→ A raster graphic editor allows an artist to create drawings and pictures by filling in pixels with different colors and levels of shading and details.

→ There are many editors available for use such as Adobe Photoshop, Corel Painter, Gimp and Manga Studio.

→ For 2D animation, the process of drawing or painting images for an animated film, television program, by using sequential images that simulate movement.

→ Most common animation techniques in

Western art are Stop motion and hand-drawn cell animation.

* Picture Formats : PNG and JPG.

* Voxels:-

→ A Voxel is a 3D, geometric cube with an infinite number of faces.

→ In essence, they're tiny Pieces that make up a 2D image.

→ Voxels are made of one or more octaves of Points that Contains Color information, defined by their Position on the x-, y- and z- axis.

→ while Pixelling, we use grids with 1×1 Pixels, and we know how much space the whole object takes up in those Pixels.

→ Different types of Grids

* Square - 4 equally Spaced V & H

* Rectangle - 5 " " " "

* Parallelogram - 6 " " " "

* Triangular (1 to 3 on every Side)

* Hexagonal (1 to 6 " " ")

→ Picture Formats : Vox , VOXELS