How Video Games are Made

By Abby

Video games are one of the most popular creative media today. Have you ever thought about how they were made? Well they don't just poof onto the store shelves, there is a large production team that works very hard to put that game into your hands, because making video games isn't easy.

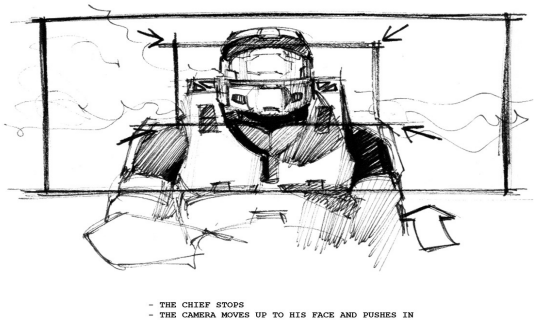
A Game is Born

Video games all start with an idea. There are a handful of people who work on the story called "Developers". The development team usually consists of a Director, Designer, Software Engineer/ Programmer, Artist, Writer, and Producer.

Directors manage the direction and production of the games, while the Producer handles the business side of things. When decided on a story, the team starts a storyboard.

Sketches and doodles

A storyboard consists of sketches of worlds, levels, and major characters. It also lays out the overall gameplay. The story boards are grouped into scenes that will appear in that order.



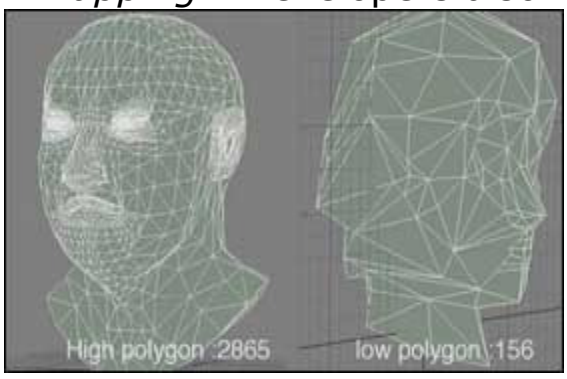
Unlike a movie, where there is one storyline and ending, the artists must plan out different scenarios because video games can have many different outcomes. When the storyboard is worked out and discussed, then comes the computer.

Keep Your Skin on!

When the storyboard is finished, the game enters a stage called *production*.

Characters are scanned into a computer and placed into 3-D worlds where moves and abilities are programmed. Actors and athletes may wear specially designed suits that have small sensors on them. These are used to program certain moves.

The characters are then adapted into a wire frame image. The movements are laid out onto the wire frame image. Characters are then given "*skin*" that it will be classified by. The skin is an image stretched out over the frame image using "*texture mapping".* Developers also



work on 3-D environments that characters will interact with.

E.P.A: Environment Programming Association

One of the most important parts of a game is the environment it is played in. It determines whether a game is a platformer[1], shooter[2], or any another genre. Subtle touches in games, like lighting, small reflections on shiny objects, or even varied cloud patterns give it a more realistic feel.

3-D objects in the environment consist of polygons. Each polygon has a set of verticies which identifies its shape. This requires information that tells it what to look like. A frequent method of transmitting this information is called " *texture mapping*".

This "Battle for Middle Earth" creature is nothing without the texture file (seen above).

This quote from Jeff Tyson best describes texture mapping. "You can think of texture mapping much like a present. Each side of the box

being wrapped is a blank polygon, and the 'paper' is an image of the texture to be applied."

Video game consoles and most computers have a special chip and dedicated memory to store the images used for texture mapping and applies them to the polygons. This enables games to have rich graphics that are interactive in real time.

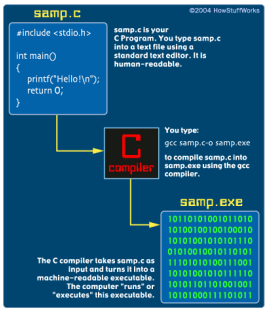
1 These are run and jump games like "*Super Mario Brothers*".

2 More commonly known as " first- person shooters" these are games like "*Halo*" or "*Bioshock*"

Cracking the code

Making all the elements of a game work together, is the code. The code is a set of computer language instructions that controls the whole game.

Many games have customized code based on the C programming language. C is a compiled language. This means that when you have written your C program, you must run it through a C compiler. This turns the program into an *executable* that the computer can execute, or run.



Another essential part of the code is *AI*, or *artificial intelligence*. This controls the logic of the game, physics, as well as interactions and collisions between objects. It also controls enemies and their attack patterns.

Passing the test

When the game is finished, it enters a stage called "*Postproduction".* This is where testers play the game, and look for mistakes ranging from minor, to fatal. Minor mistakes may or may not effect the release of the game, but fatal mistakes will have the game sent back to developers to be fixed.

The version sent to testers is called the" *Alpha"* version. This game is stripped of major flaws that would be harder to fix later. Then a "*Beta"* version is released to larger groups of testers and sometimes the public.

There was a large uproar this year when the "*Halo 3*" beta crashed. This shows betas can sometimes be used as game demos. The beta is tested and tweaked until perfect in the eyes of the developers. Near this point in testing, the game is sent to the *ESRB*, or *Entertainment Software Rating Board*.

A game usually falls under one of these categories.

EC= early childhood

E= everyone

T= teen

M= mature

AO= Adults only

RP= rating pending

When the game has a rating and has been tested till eyes fall out, then comes.....

Start the Presses!

Lots of money goes into marketing video games. A hit game like "*Grand Theft Auto: Vice City*" (*GTA*) can take three to five million dollars just to develop. Ten million dollars can go into advertising a game like *GTA.* With all that money at stake, developers usually start hyping games while they're still in development!

A big place for hyping games are trade shows. One of the biggest video game trade shows is *E3, (Electronic and Entertainment Expo)* . It runs for three to four days traditionally in Los Angeles, and has become one of the most popular places to advertise games.

Like movies, developers release trailers of the game that may circulate around the internet and add hype. All of this is done so a rough little idea turns into that game in your hands.