LEVEL 1

WELCOME, NOOBS!

This chapter is written especially for people who are new to video games and how they are made. If you are not a n00b[1], then feel free to skip it. However you are going to be missing out on a lot of great stuff. Don't say I didn't warn you.

Within the academic gaming community, there are many different definitions for what qualifies as a game. Some scholars insist that "a game needs to be a closed formal system that subjectively represents a subset of reality[2]." Others say that games need to have "players in conflict with each other[3]." I think those definitions are trying too hard to sound smart.

Games, while complex, are often simpler than that. Bernard Suits[4] wrote that "playing a game is a voluntary effort to overcome unnecessary obstacles." This is a pretty amusing definition, but still a bit too scholarly for my taste. Let's keep things simple. Let's consider hand ball. You only need one player for hand ball—where's the other players to be in conflict with? Bouncing a ball against a wall without missing it is hardly a metaphor for reality; unless you lead a very boring life. Let's face it, sometimes a ball bouncing against a wall is just a ball bouncing against a wall.

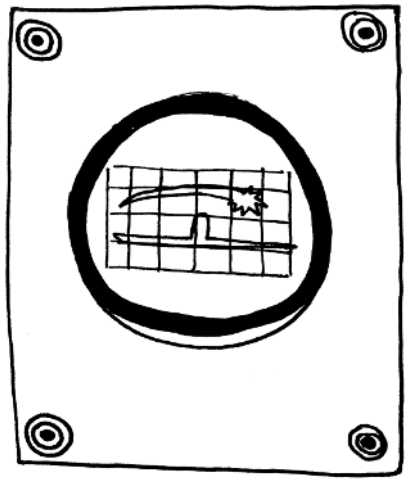
[1] A n00b is short for "newbie", or someone who is new to a game. While the term predates the Internet, it became popular with MO communities. Not a particularly flattering term, as it implies inexperience and/or ignorance: only a real n00b would read a footnote defining what a n00b is!

[2] "What is a Game?", Chris Crawford in The Art of Computer Game Design, 1982.

[3] "What is a Game?", Kevin Langdon in The New Thesaurus, 1979.

[4] The Grasshopper: Games, Life and Utopia, Bernard Suits, 1978.

Playing hand ball may therefore seem like a time-waster, but a time-waster becomes a game when you add rules and an objective. A rule may be to throw the ball with your right hand and catch it with your left, or to not drop the ball. A victory condition could be that you have to catch the ball ten times in a row. A failure state would be if you violated any of the rules or victory conditions. Once those criteria have been met, you have created a game. Ironically, while simple, hand ball was enough of a game to inspire the creators of one of the earliest video games: *Tennis for Two*.



Tennis for Two

So, let's ask this basic question:

Q: What is a game?
A: A game is an activity that:
- requires at least one player
- has rules
- has a victory condition.

That's pretty much it.

Now that you know what a game is, let's ask:

Q: What is a video game?
A: A video game is a game that is played on a video screen.

Sure, you can start complicating the definition and add requirements about devices, peripherals, control schemes, player metrics, boss fights, and zombies (and don't worry; we'll tackle these things soon enough). But by my reckoning, that is pretty much as simple as it gets.

Oh, there's one other thing to consider at this early stage. The game's **objective**. You should be able to sum a game's objectives up quickly and clearly. If you can't, you've got a problem.

Danny Bilson, THQ's EVP of Core Games, has a great rule of thumb about a game's objective. He says that you should be able to sum up the game's objectives as easily as those old Milton Bradley board games did on the front of their box. Check out these examples taken from real game boxes:

Battleship: sink all of your opponent's ships.

Operation: successful operations earn "Money." Failures set off alarms.

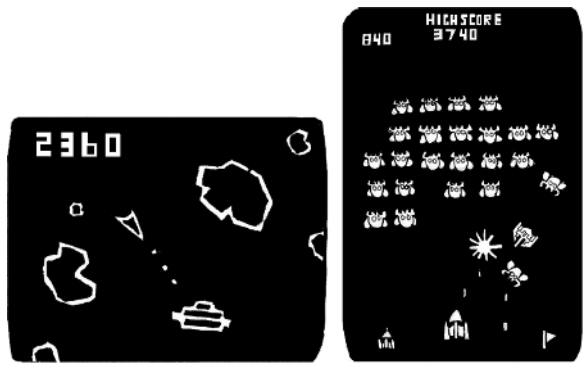
Mouse Trap: player turns the crank which rotates gears causing lever to move and push the stop sign against shoe. Shoe tips bucket holding metal ball. Ball rolls down rickety stairs and into rain pipe which leads it to hit helping hand rod. This causes bowling ball to fall from top of helping hand rod through thing-a-ma-jig and bathtub to land on diving board. Weight of bowling ball catapults diver through the air and right into wash tub causing cage to fall from top of post and trap unsuspecting mouse.

Ok, so maybe not with that last one. The lesson is, you need to keep your game objectives simple. Speaking of simple games, let's take a moment to travel back to the dawn of video games. They had to start somewhere, right?

A BRIEF HISTORY OF VIDEO GAMES

The 1950s. The dawn of television, 3-D movies, and rock 'n' roll. Video games were invented in the 1950s too, only they were played by a very few people on very large computers. The first video game programmers were students in the computer labs of large universities like MIT and employees of military facilities at Brookhaven National Laboratories. Early games like *OXO* (1952), *Spacewar!* (1962), and *Colossal Cave* (1976) had very simple or even no graphics at all. They were displayed on very small black and white oscilloscope screens.

After playing *Spacewar!* at the University of Utah's computer lab, future Atari founders Ted Dabney and Nolan Bushnell were inspired to create *Computer Space*, the first **arcade** video game, in 1971. While (despite the name) the first arcade games could be found in bars, arcades dedicated to video games began appearing by the late 1970s.



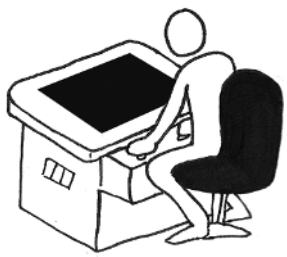
Asteroids
(Vector Graphics)

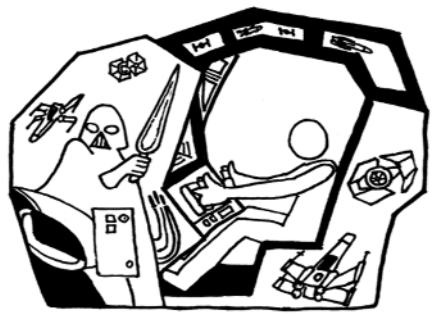
Galaxian
(Raster Graphics)

Early arcade games like *Asteroids*, *Battlezone*, and *Star Castle* were rendered in **vector graphics** (images constructed from lines). After color **raster graphics** (images constructed from a grid of dots called pixels) were introduced, cartoon-inspired video game characters appeared. Characters like Pac-Man (Namco, 1980) and Donkey Kong (Nintendo, 1982) became pop culture icons virtually overnight.

During the early 1980s, three styles of game machines dominated arcades: **uprights** (cabinets which the player stood in front of while they played), **cocktail tables** (arcade games set into the top of a small table, allowing the player to sit down while playing), and **cockpits** (elaborate game cabinets that allowed the player to lean or sit down to further enhance the gaming experience).

Arcade Cabinet


Cocktail Table


Arcade Cockpit

In the mid-1980s, arcades began springing up everywhere and video games took the world by storm. Game genres and themes became more varied, while gaming controls and cabinets became more elaborate with realistic controllers and beautiful graphics decorating uniquely designed cabinets. You could sit back-to-back in a two-player spaceship cockpit while playing *Tail Gunner* (Vectorbeam, 1979), battle Klingons from a replica of Captain Kirk's command chair in *Star Trek* (Sega, 1982) or drive in an actual Ferrari Testarossa that moved and shook in *Out Run* (Sega, 1986). By the late 1990s, many arcade games started to resemble mini theme-park rides complete with rideable race horses, gyroscopically-moving virtual simulators and fighting booths that allowed players to battle virtual foes using actual punches and kicks. The most elaborate of these arcades was Virtual World's BattleTech Centers; steampunk-themed arcades with linked "battle pods[5]"

[5] In the mid-1990s, I had the pleasure of going to a BattleTech Center on several occasions. The battle pods were a video gamer's dream come true. The player sat in a photo booth-sized cockpit. Dual control joysticks and foot pedals operated the mech's movement. Triggers and thumb switches fired the arsenal of weapons. Surrounding the pod's video monitor were banks of dipswitches—each one actually having a function within the game from activating tracking devices to venting overheating weapons. It took at least one gaming session (about a half hour) just to learn what all the switches did! It was as realistic a gaming experience as I've ever had.

that allowed 8 players to fight each other while stomping around in giant virtual "mechs."

These elaborate arcade games required lots of floor space and were very expensive to maintain. In the late 1990s, home systems began to rival and eventually surpassed the graphics seen in most arcade games. Arcades went out of business by the dozens. The video games became replaced with more lucrative redemption machines[6] and games of skill like skeeball. With the liquidation of arcades, many cabinets ended up in the hands of private collectors. The golden age of video game arcades was over.

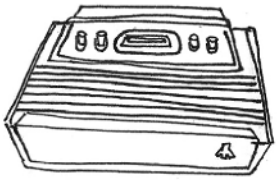
Most recently, arcades have become social and virtual experiences. **LAN gaming centers** combine retail and social space to allow players to play computer and console games on a per-hour basis. Many have upgraded to feature large-scale gaming experiences held in movie theater-sized venues. Internet cafes are similar to LAN centers but with an emphasis on cultivating a café-style environment.

Social gaming has also expanded in another direction. Companies such as Disney and the Sally Corporation have started merging traditional amusement **dark rides**[7] with gameplay to create new arcade-style experiences. For example, *Toy Story Midway Mania* at Disney's California Adventure (2008) whisks a four-player cart past a succession of giant video screens where players compete in a variety of carnival-style shooting games. Players are sprayed with air and water to simulate different visual effects in the game. The circle of modern arcade gaming and home gaming has come full circle with the release of a Wii version of the *Toy Story Midway Mania* attraction.

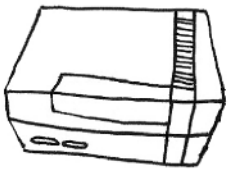
Who knows? Perhaps these new attractions will become the backbone of a new hybrid arcade/amusement park filled with virtual games and interactive dark rides.

[6] Redemption machines are those claw catcher "games" you see in American toy stores and supermarkets. Personally, I would rather play the lottery than try my luck with one of these vending machines, which are rigged to (almost) guarantee you to lose. However, if you are ever in Japan, I recommend playing them as they are winnable and are usually stocked with some very cool toys and prizes.

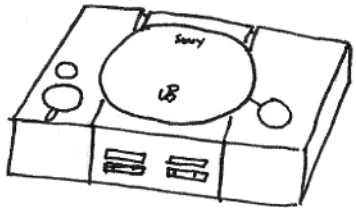
[7] A "dark ride" is an amusement park attraction that has guests ride past scenes of (usually) audio-animatronic characters. Famous examples of dark rides include Disneyland's Pirates of the Caribbean and Haunted Mansion.



Atari 2600

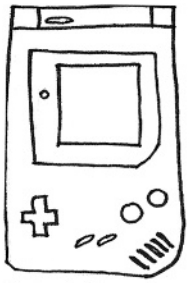


Nintendo Entertainment System (NES)

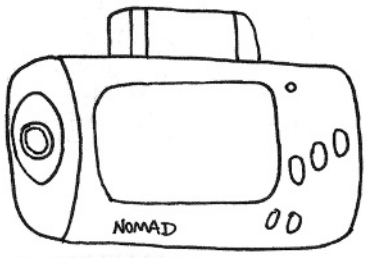


Playstation One (PSX)

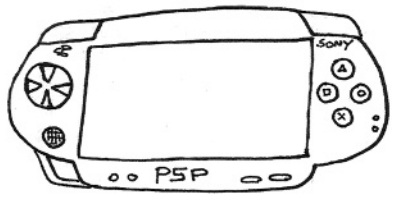
A **console** is a gaming platform that can be used in the home. A microprocessor runs the electronic device, which sends a video display signal to the user's TV set or monitor[8]. Unlike the dedicated controllers of an arcade machine, a home console controller has enough buttons, triggers, and analog controls to allow for a variety of games to be played. And unlike the dedicated motherboards in early arcade games, which could only hold one game, console games use cartridge, CD, and DVD media to allow players to quickly change games. From the late 1970s onwards, there have been many home consoles. Some of the more popular and/or well known previous generation ones include the Atari 2600 and Jaguar, the Mattel Intellivision, the Colecovision, the Nintendo Entertainment System and Super Nintendo, the Sega Genesis and Dreamcast, and the 3DO interactive player. Current consoles such as the Playstation 3, Xbox 360, and Nintendo Wii continue to bring gaming into the homes of millions of gamers worldwide.



Nintendo Game Boy



Sega Nomad



Playstation Portable (PSP)

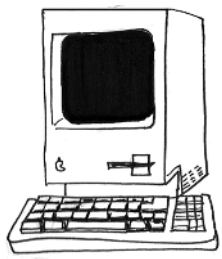
Like arcade games, **handheld games** have a visual display, a processor, and controller, but are small enough to fit in the hands of the player. The first handheld titles were dedicated to only one game per unit. *Auto Race* (Mattel Electronics, 1976) used a digital display while the Game & Watch series (Nintendo, 1980) featured a more appealing liquid crystal display.

[8] One console exception is the wonderful Vectrex portable game system (Smith Engineering, 1982). The Vectrex's processor, screen, controller and even one game were all in a self-contained, portable system.

Microvision (Milton Bradley, 1979) was one of the earliest handheld systems to have switchable cartridges. Handheld gaming took off when Tetris became a phenomenon on the Gameboy (Nintendo, 1989), the forerunner of the Nintendo DS[9]. Recent handheld systems have become quite powerful. The Sony PSP's processor can run the equivalent of a Playstation One game. That's quite a jump since the digital blips of Mattel Football!

Handheld gaming, particularly on mobile devices, is becoming more and more popular. Games for cellular phones are quick and less expensive to make. In a few short years, the number of mobile game developers has exploded. Are these mobile games and devices the future of gaming?

Commodore 64 (C64)



Macintosh Plus

Personal Computer (PC)

As **personal computers** (or **PCs**) became popular in the late 1970s, both video game programming and video game playing became more common. An entire generation of game developers started off in their bedrooms, programming games on their PCs. These early games were stored on tape drives and floppy discs. While early computer video games attempted to emulate games found at arcades, the addition of the keyboard allowed greater user input, giving rise to unique game genres including the text adventure game. Longer periods of time spent at the computer also meant longer gaming experiences and simulations; construction and management and strategy games started to become popular. As the computer hardware, memory, and storage evolved to CD and DVD media, computer games became more detailed, more involved, and more complex. The rise of the **first person shooter** (or **FPS**) can be attributed to the popularity of the mouse controller. By the mid-1990s the computer was the ultimate gaming platform. Several gaming genres, particularly strategy, FPSs, and **massively multiplayer online** games (or **MMOs**) remain very strong on the computer platform.

[9] Not ironically, the Nintendo DS bears several design semblances to the original Game & Watch series devices.

GAME GENRES

Over the years, gaming has splintered off into many different genres and subgenres. A game genre is used to describe the style of gameplay.

Action: games that require hand/eye coordination to play. The action genre has several subgenres:

- **Action-adventure**—this combination of genres features an emphasis on item collection and usage, puzzle solving, and long-term story-related goals. Examples: the *Prince of Persia* and *Tomb Raider* series.
- **Action-arcade**—any game presented in the style of early arcade games with an emphasis on "twitch" gameplay, scoring, and short play time. Examples: *Dig Dug*, *Diner Dash*.
- **Platformer**—a platform game often features a mascot character jumping (or swinging or bouncing) through challenging "platform" environments. Shooting and fighting may also be involved. At one time, the platformer was the most popular subgenre in gaming. Examples: Nintendo's Mario titles (*Super Mario World*, *Mario 64*, and *Super Mario Galaxy*).
- **Stealth**—an action game with an emphasis on avoiding enemies rather than directly fighting them. Examples: the *Metal Gear* series and *Thief: The Dark Project*.
- **Fighting**—a game where two or more opponents battle in arena settings. Fighting games are distinguished from action games for the depth of their player controls. Examples: the *Street Fighter* series and the *Mortal Kombat* series.
- **Beat 'em up/hack 'n' slash**—these games have players battle against wave after wave of enemies increasing in difficulty. Examples: *Double Dragon*, *Castle Crashers*.

Shooter: shooters focus primarily on firing projectiles at enemies. While fast-paced and "twitch" oriented, like action games, this genre has evolved to include several subgenres that are distinguished by their camera view:

- **First person shooter**—a shooter as seen from the player's perspective. The tighter camera view is more limiting but more personal than in a third person shooter. Examples: *Quake*, *Team Fortress 2*.
- **Shoot 'em up**—shoot 'em ups (or shmups for short) are arcade-style shooters where players shoot large quantities of enemies while avoiding hazards. The player's avatar in a shmup is usually a vehicle (such as a spaceship) rather than a character. They can be presented from several different camera angles. Examples: *Space Invaders*, the *Contra* series.

- **Third person shooter (TPS)**—a shooter where the camera is placed further behind the player, allowing for a partial or full view of the player's character and their surroundings. Despite the wider view, the emphasis on gameplay remains on shooting. Examples: the *Star Wars Battlefront* and *Grand Theft Auto* series.

Adventure: adventure games focus on puzzle solving, and item collection and inventory management. Early adventure games were solely text based. Examples: *Colossal Cave*, the *King's Quest*, and *Leisure Suit Larry* series.

- **Graphical adventure**—this subgenre has players use a mouse or cursor to click to uncover clues and navigate around. Examples: *Myst*, *Monkey Island*, and the *Sam and Max* series.
- **Role-playing game (RPG)**—this subgenre is based on pen and paper role-playing games like *Dungeons and Dragons*. Players choose a character class and increase their statistical abilities through combat, exploration, and treasure finding. Characters can either be specific characters or generic character classes. Examples: *Star Wars: Knights of the Old Republic* and the *Mass Effect* series.
- **Massively multiplayer online role-playing game (MMORPG)**—an RPG that can support hundreds of players together in one environment. MMORPGs are known for player vs player gameplay, repetitive gameplay or "grinding", and group battles or "raids." Examples: *World of Warcraft*, *DC Universe Online*.
- **Survival/horror**—players attempt to survive a horror scenario with limited resources, such as sparse ammunition. Examples: the *Resident Evil* series, the *Silent Hill* series.

Construction/management: this genre has players build and expand a location with limited resources. They can be based on stories or "toys." *SimCity* and *Zoo Tycoon* are examples of this genre.

Life simulation: similar to the management genre, but revolving around building and nurturing relationships with artificial life forms. *The Sims* and *Princess Maker* titles are both life simulators.

- **Pet simulation**—based on the Tamagotchi digital pet pocket games, though often now much expanded, pet simulators revolve around nurturing animals through feeding and relationships. *World of Zoo* is an example of this.

Music/rhythm: the player tries to match a rhythm or beat to score points. They can be as simple as the game *Simon* or as complex as *Rock Band*.

Party: party games are specifically designed for multiple players and are based on competitive play. More often than not, gameplay is presented in the minigame format. Examples: *Mario Party* and *Buzz!*

Puzzle: puzzle games are based on logic and pattern completion. They can be slow, methodical or use hand/eye coordination. Examples: *The Incredible Machine* or *Tetris*.

Sports: these are games based on athletic competitions, whether they are traditional or extreme. It is common to see annual versions of these titles. Examples: the *Madden* series, the *Tony Hawk* series.

- **Sports management**—rather than directly playing the sport, players manage players or teams. Examples: the *FIFA Manager* series, the *NFL Head Coach* series.

Strategy: from chess to *Sid Meir's Civilization*, thinking and planning are the hallmarks of strategy games. They take place in both historical and fictitious settings.

- **Real time strategy (RTS)**—similar to turn-based games, these faster-paced games focus on the "four X's": expansion, exploration, exploitation, and extermination. RTS has become the dominant strategy subgenre. Examples: *Command and Conquer* series, the *Dawn of War* series.
- **Turn-based**—the slower pace of these games allows players time to think, providing more opportunity for strategy to be employed. Examples: the *X-Com* series, the *Advance Wars* series.
- **Tower defense**—a relatively new subgenre on PC and handheld systems where players create automated projectile-shooting "towers" that keep enemies at bay. Examples: *Defense Grid: The Awakening*, *Lock's Quest*.

Vehicle simulation: players simulate piloting/driving a vehicle, from a sports car to a spaceship. Emphasis is placed on making the experience as "real" as possible. Examples: *Lunar Lander*, *Densha de Go! 64.*

- **Driving**—players race and upgrade vehicles, from motorcycles to hovercrafts. Driving games can be ultra-realistic experiences or more action oriented. Examples: the *Gran Turismo* series, the *NASCAR Racing* series, *Wave Race* and *SSX*.
- **Flying**—players pilot aircraft either for the pleasure of flying as in the *Microsoft Flight Simulator* series or into combat as seen in the *Ace Combat* and *Blazing Angels* series. You can even fly into outer space as in *Starfox* and the *X-Wing/TIE Fighter* series.

This list of genres and subgenres attempts to scratch the surface. Adult games, serious games, advert games, and vehicular combat are other classifications that fit within several of the genres above. As games combine several genres and subgenres, new ones are constantly being created. For example, the *Grand Theft Auto* series now combines action-adventure, third person shooter, driving, life simulation, and action-arcade genres into one

game! *Tuper Tario Tros*.[10] seamly combines *Super Mario Bros.* and *Tetris*! What's next? What will be the most popular game genre in the future? Who knows? Perhaps you will create it!

WHO MAKES THIS STUFF?

Just as there are many types of games, there are many types of people who make them. In the early days of video game development, games were initially created by individuals; one example is the original *Prince of Persia*, which was made by one person[11] programming, designing and animating the entire game. He even composed the game's music! Teams eventually became bigger as commercial video game development became serious and games required two or three programmers to make.

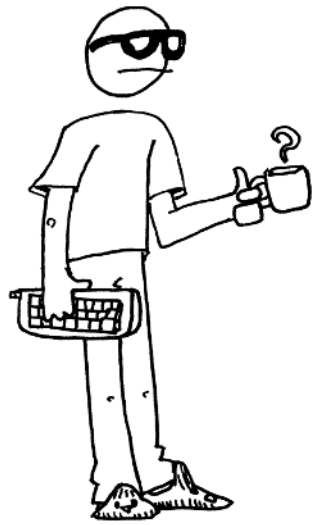
Artists joined development teams as players began to demand better-looking games. Games were initially designed by whichever team member had the good idea. Finally, when game content became too involved to do alone, a dedicated design position was created. While team members on current teams can still wear many hats, specialization is becoming increasingly necessary as games become bigger, more complex, and take longer to make.

Video game teams that produce games are known as **developers** or **development teams.** They are similar to a production team that makes a movie or TV show—several creative people all working together to create entertainment. An average production team includes numerous members, as outlined in the following sections.

PROGRAMMER

Using programming languages such as C++ and Java, a **programmer** writes the code that allows a game's text and graphics to be displayed, develops the control systems that allow a player to interact with the game, creates the camera system that allows the player to view the game world, programs the physics system that affects the player and game world, writes the AI system that controls enemies and object scripting … you get the idea.

[10] You can play Tuper Tario Tros. by Swing Swing Submarine at http://www.newgrounds.com/portal/view/522276.
[11] The one-man development team in question is Jordan Mechner.



One programmer may work exclusively on tools to help team members build the game more efficiently. Another programmer may write code to simulate real-world physics making water look realistic or develop inverse kinetics for characters. They may even work solely on sound tools to play music and effects.

Like many of the jobs in the game industry, programming jobs are becoming more specialized. Regardless of the position, a programmer needs to have an excellent understanding of mathematics, 2-D and 3-D graphics, physics, particle systems, user interface, artificial intelligence, input devices, and computer networking. These skills are always in high demand and some programmers make a good living as contractors, moving from project to project as "hired guns", writing code and providing temporary solutions to beleaguered teams.

ARTIST

In the early days of video games, programmers created all a game's art. Because that early art was so blocky and crude, we now call placeholder game art "programmer art[12]." Thank goodness real artists came along. One of the first artists working in video games was Shigeru Miyamoto, who created Mario and Donkey Kong. He was able to create memorable cartoon characters with an 8-bit CPU using only 2-bit pixels. That's a lot of personality per pixel! There were a few exceptions in the early days, such as *Dragon's Lair* (Cinematronics, 1983) and *Space Ace* (Cinematronics, 1984), beautifully animated games created by ex-Disney animators like Don Bluth, but those games were rare exceptions because they employed laser discs to play the video footage. Eventually, new, better hardware with more

[12] I apologize to any programmers reading this, but I didn't make this term up.

memory, color depth and the ability to display larger graphics meant artists could create more detailed images, backgrounds and characters like those seen in beautifully hand-drawn and animated games such as *Darkstalkers* (Capcom, 1994) and *Metal Slug* (SNK, 1996).

As high-end computer software became more affordable to developers, 3-D graphics, which had been limited to movies like *Tron* (Disney, 1982) and Pixar's animated shorts like *Luxo Jr.* (1986), began appearing in games. *Myst* (Broderbund, 1993) and *Donkey Kong Country* (Nintendo, 1994) used prerendered 3-D graphics. True 3-D graphics had been in arcade games as early as *Battlezone* (Atari, 1980), but when the Playstation arrived in 1994, game developers became inspired to use 3-D to create more realistic worlds and characters for home consoles.

Just like with programming, video game art has become a specialized job. A **concept artist** uses both traditional medium and computers to draw game characters, worlds, and enemies. **Storyboard artists** illustrate the game's cinematics and sometimes elements of gameplay design to be passed along to other artists and animators. **3-D Modelers** and **environmental artists** build characters and environments using programs such as Maya and 3D Studio Max. **Texture artists** literally paint surfaces onto 3-D models and locations. **Visual effects artists** create spectacular visual effects using a combination of 2-D and 3-D art. A **user interface (UI) artist** designs icons and elements that are used in the game's interface and HUD. **Animators** animate the player character and create cutscenes exactly like they do in big budget animated movies. **Technical artists** help every artist on the team by doing a variety of tasks, including rigging models to allow animators to move them and teaching fellow artists the latest tools and technology. The **art director** supervises the work of all the artists while maintaining the artistic vision for the entire project. Regardless of what kind of art position you are interested in, make sure you study the basics and keep drawing!

DESIGNER

Director, planner, producer[13], lead designer, or senior game designer—no matter what the job title is, the designer's role is the same: create the ideas and rules that comprise a game. A **game designer** needs to possess

[13] There's more to a producer's job than game design and in some cases, a producer doesn't even design the game. But what are you doing skipping ahead anyway?

many, many skills[14], least of which is to love to play games. As a game designer, you should be able to tell the difference between a good and bad game and, more importantly, communicate why. Remember, "because it sucks" is *never* an acceptable answer.

Just like with programmers and artists, design is becoming a specialized profession. **Level designers** create paper maps, build "grey box" worlds using 3-D programs, and populate the levels with everything from enemies to treasure. **System designers** develop how the game elements relate to one another, whether it is the game's economy or technology tree. **Scripters** use tools to write code that allow things to happen within the game, from springing a trap to choreographing a camera movement. **Combat designers** specialize in player vs enemy combat and "balancing" the player's experience. The **creative director** maintains the vision of the game while supervising the other designers; often offering suggestions for improving their work.

There is one other task that a designer is responsible for: that the game is "fun." However, I will leave this can of worms unopened until later in the book. I hope you can stand the suspense.

PRODUCER

Overseeing the entire game development team is a **producer**. Originally, producers were designers who also managed the work of their team members. A producer's role has expanded dramatically over the years.

The producer's responsibilities include hiring and building teams, writing contracts, contributing to the game's design, managing the team's work schedule, balancing the game's budget, resolving disputes between

[14] According to Jesse Schell in his book The Art of Game Design (Morgan Kaufmann, 2008), a "well-rounded" game designer understands animation, anthropology, architecture, brainstorming, business, cinematography, communication, creative writing, economics, engineering, history, management, mathematics, music, psychology, public speaking, sound design, technical writing, and visual arts. I think it's a pretty accurate list.

creative and programming leads, acting as the team representative to upper management and publishers, coordinating the creation of outside resources such as art, music and cutscenes, and arranging testing and localization. Producers are usually the first team member on and the last team member off of a game's production. More often than not, you will find producers acting as the public face of the game; talking to the press and public about the game they are managing[15].

Because there are many things for a producer to do, often you will find assistant and **associate producers** helping out with day-to-day tasks. Sometimes the task can be as "trivial" as ordering dinner for a team that is working late. Believe it or not, some of those "menial" chores are some of the most important that a producer can provide to a team.

Regardless of how helpful producers can be, some development studios consider producers to be an unnecessary part of development. Others feel that producers should not have any creative control, just manage the game's production and schedule. As with designers, the role and influence of a producer varies wildly across the industry.

TESTER

Do you like to play games? Do you like to play games over and over? Do you like to play the same level over and over and over and over and over and over and over and over and over again? Then testing is for you!

While **testers** work long hours, work in cramped environments, and have to play games to a degree that many would classify as mind-numbingly boring, being a tester requires more skills than you may think. A good tester has patience, persistence, and great communication skills to report back any

[15] Producers often end up as the "face of the game" because they are the one team member that can keep all of the moving parts straight!

problems (or "**bugs**") they find in the game. It's not a glamorous job, but without testers, we would be plagued with games that crash upon loading, have crappy cameras, broken combat systems, and unfair difficulty balances.

Quality assurance (or **QA**)[16] is crucial to the successful completion of a game. Publishers hold games to a rigorous standard of quality so the game that you buy is (mostly) bug free. That standard can only be met by thoroughly testing a game for weeks, if not months. Only once it has passed muster with the QA department is a game truly ready to be released to the public.

Testing is a great gateway job position for newcomers to the game industry, I have seen testers go on to become designers, artists, producers, and even heads of studios. You can find out a lot about games in a short time by working as a tester. Testers prevent games from sucking. Remember that the next time you think about making fun of a tester.

COMPOSER

In the earliest days of video games, music was nothing more than crude beeps and bloops to accompany the game's action. But how many of you can still hum the music to *The Legend of Zelda* or the *Super Mario Bros.* theme?

Music is extremely important to the gaming experience, and a **composer** creates that music. Most modern composers create their music on a keyboard or synthesizer, as they can be used to simulate any musical instrument. As sound technology has improved, many composers have created actual "live" and orchestral pieces; this requires a whole new set of skills, including conducting an orchestra. I won't even pretend to know how to do that—I have no idea what all that baton waving means!

Home versions of modern audio software are powerful enough to mix and master professional-sounding samples. If you want to become a composer, then write some music, record it, and get your samples into the hands of a game producer. As someone who has reviewed lots and lots of composers'

[16] Quality assurance is just a fancy way of saying "test department."

audio resumes, I can tell you it goes something like this: the designer has a specific idea for the style or feel of music in his mind. If your music sample matches what the designer wants, then they will contact you for the job. What matters most is that your music is unique and fits the needs of the game. Look at the success of a movie score composer like Danny Elfman. He composed very distinct music for *Beetlejuice* and *Pee Wee's Big Adventure*, and soon everyone wanted his style of music in their own movies.

Writing music for games is somewhat different than writing music for movies. Most game themes are either very short or have to repeat over and over again. Being able to compose powerful and exciting music with these limitations in mind will make your music more appealing than someone who just writes "songs[17]." Don't worry, I'll cover more about music in Level 15.

SOUND DESIGNER

Unlike a composer who creates the music for a game, the **sound designer** creates all the sound effects that are used in a game. Go ahead and fire up a game, turn off the sound and try playing it. Do you notice that the game just isn't the same without sound effects? Often, there is a lot of information that is delivered to the player via sound. These audio cues are the sound designer's responsibility to create.

Personally, I think sound design is a lot of fun. Games tend to come to life once sound is added to them. That is why it is important to even have placeholder sound effects. Mixing and blending sounds to create something no one has ever heard before is pretty cool. However, a good sound designer needs to understand the game he is working on and how to create sounds that help the player with the game. Some sound effects need to sound "positive" to encourage the player that they are doing something right or collecting something good. Other sounds warn players of danger or possible bad choices. A sound designer can make a sound effect sound happy, deadly, scary, or like a big pile of treasure. Or sometimes all the above!

If you want to be a sound designer, you also need to take direction from people who may or may not know what they want. For example, see if you can create a sound effect based on the following description: "I need this creature to sound like a phlegmy cougar from hell … but make it sound more shriek-ey than growl-y[18]." Did you do it? Congratulations! You are now ready to be a sound designer.

[17] Don't let that comment cause you despair, songwriters. There are still plenty of games that use traditional songs; in particular, sport and rhythm games.
[18] Sadly, yes: this was an actual direction to a sound designer. And yet, he still delivered a great sound effect.

WRITER

Unlike Hollywood, where **writers** come up with the initial ideas for a movie, video game writers are usually hired pretty late in the game's production process. If you want to be the "idea guy" then I suggest sticking to game design.

That's not to say that writers don't contribute to games. However, a writer is not usually a full-time team position. Most likely they are a freelancer who is brought into the game's production for one of the following reasons:

- To rewrite the design team's story into something that makes sense once everyone on the team realizes that it is drivel.
- To write dialogue for the game characters and cutscenes once everyone on the team realizes that writing good dialogue is actually hard to do.
- To make elements in the game clearer to understand, as in the case of instructional or directional prompts.
- To write the games manual and any fictional support material, such as character biographies, that will appear on the publisher's website.
- To add some "star power" to the back of the box. This comes and goes depending on how important the game industry is feeling about the worth of "name writers" at the time.

The upside of being a writer in the game industry is that there is usually plenty of work, as long as you don't mind doing different writing jobs and working for different companies. If you want to be a game writer, you obviously need to know how to write, use proper grammar, and know how to write in screenplay format. But the most important thing to know is how to write for video games. They are very different than writing a book or movie. Fortunately, this book has a whole chapter[19] on how to do this. Good thing you are reading it!

Well, now you know all the different employment possibilities in video games, right? Wrong! People don't generally know this, but there is a second career path in video games: publishing.

HAVE YOU THOUGHT ABOUT PUBLISHING?

Publishers provide the funding for game development teams, manage the game's production, handle any legal issues, manufacture the game, and

[19] Level 3, to be exact.

provide public relations and marketing for the game. They even handle distribution of the finished product. Here are some of the more common positions found in publishing:

PRODUCT MANAGER

Much like a game producer, a **product manager** works with the development team and manages them based on the agreed production schedule. They help determine production priorities for the game's production, act as an intermediary between the studio and the publisher's legal department, review and approve milestones, and make payments to the studio. They also work with the ESRB[20] to secure a rating for the game.

At some publishers, the product manager has extensive say in the game's content. At others, the product manager is there to make sure the game's development goes smoothly. All I know is, I'm glad I'm not the one making the schedule.

CREATIVE MANAGER

When people ask me what I do as a **creative manager** for THQ, I tell them "I have the job that people think of when they think of working in video games." To be honest, working as a creative manager isn't just "thinking up and playing games all day." But sometimes it is.

Creative managers are usually game designers or writers who are working in publishing. Like product managers, a creative manager's involvement on a game can vary from publisher to publisher. In my own experience I have worked with teams to create and develop games, written game pitches, and worked with licensors to create game concepts. One of my most common responsibilities is to play game builds[21] and make sure that they remain true to the core idea and are "fun."

The best benefit a creative manager can provide is what I call the "**thousand foot view**" (as in looking down on the game from a thousand feet in the air, not looking at thousands of feet!); an unbiased viewpoint on a game that can help root out weakness in the game's design and construction. When they aren't solid I need to provide the team clear

[20] ESRB stands for the Entertainment Software Ratings Board, an organization that determines a game's rating (in the US, at least).
[21] A "build" (or a "burn") is an in-progress version of the game that can be played either on a computer or a special console.

feedback on how gameplay can be improved or give advice on how the team can explore another creative direction.

Creative managers also work with marketing and public relation departments to provide press materials to make sure a game is shown in the very best light.

ART DIRECTOR

An **art director** is similar to a creative manager, but only deals with the game's art. Art directors can help a team create a visual style for their game and take their game in directions that weren't previously considered by the team. An art director can help the team globalize the visual language of their game to make it clear to the player. Art directors also work with the marketing teams to create packaging materials (such as the cover of a game's box) or wrangle assets that are needed to publicize the game.

TECHNICAL DIRECTOR

A **technical director** comes from a programming background. They review and recommend tools and software to teams to help them work more efficiently. They provide technical support and advice when there are deficiencies in a team's programming staff. They also help perform **due diligence** on a new team to help assess whether they can actually make the game they are being hired to make.

AND THE REST . . .

There are other publishing positions that aren't directly involved in making games, but are important to creating and selling a game nonetheless. **Business development** staff build relationships with studios, hold game pitch meetings and review prospective game demos. They make deals with external studios and find emerging studios to acquire. If you ever own a gaming studio, odds are you'll meet a lot of business developers. A **lawyer** negotiates all the contracts and makes sure the production team isn't creating content that will get the publisher into any legal trouble. A **brand manager** creates the marketing strategy to promote and advertise a game. They develop print material such as manuals and box covers. A **public relations manager** talks to gaming magazines and organizes press events to show the game off in the best possible light. A **quality assurance manager** runs the test department, organizing and relaying the bug sheets back to the developer.

In addition to production and publishing, there are many others who interact with development teams and publishers. A **talent recruiter** searches for new talent and helps get them employment with developers and publishers, **game reviewers** play the games before they come out and write reviews and interviews for magazines and online sites, and **licensors** work for major entertainment companies to make sure their brands are properly represented in games based on their properties.

As you can see, there are plenty of options if you want a career in games. But I say forget all those other jobs. You want to find out how to make great game designs, right? Trust me, game design is where the real fun is!

But to make great games, you need great ideas. Where do you get great ideas? Let's find out!

Level 1's Universal Truths and Clever Ideas:

- A game is an activity with rules and a victory condition.
- Your game objective should be simple, like that of a 1950s board game.
- Game genres come in all shapes and sizes. Don't be afraid to mix and match.
- Gaming technology is always improving. Adapt or get left behind.
- It takes all kinds of people to make video games.