

Written by Billy D. Spelchan for www.BlazingGames.com

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Chapter 28

Arcade Games

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We take a look at arcade games and why action games are known as Arcade games. We then roughly design the two games that we are going to be creating in this part.

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What are Arcade Games

Arcade games are rather interesting. The term comes from the fact that the game is a twitch oriented game like those that you would find in an arcade. Well, that is assuming that you can find an arcade. Sadly, arcades are going the way of the Dodo. This is not because arcade games are not popular. In fact there are a lot of action oriented games that are being released. These games are being released for home consoles and computers, however, not for arcades.

While I am not a big fan of twitch games, I do have to admit that it was arcade games that got me interested in creating computer games. Now, I live in a small town, so our "arcade" was a small section of the local bowling alley. Some of my friends dragged me down to the arcade where they had these video games. I had known about the pinball games that they had, but the video games were something new.

The games at that time were rather primitive. Despite this, I seen an incredible potential with these games. Home computers were just beginning to come out at this time, and my oldest sister was taking a computer course (our high school was surprisingly ahead of the technology curve) so I had some idea what programming was. Shortly after this exposure to video games, the town fair had a computer on display. I was able to play with the computer at which point I became hooked.

Arcade games at the time were very primitive. The game mechanics tended to revolve around shooting things and/or dodging things, either in an open area or in simple mazes. Eventually, the concept of platforms emerged (with the first game I remember having platforms being "Astro Panic", but I have no idea if that was indeed the first platformer). Platformers introduced the concept of jumping. Eventually platformers evolved from single screen levels to multiple scrolling levels and are now in 3D.

What's Required for Writing Arcade Games

While arcade games seem to be fairly simple (and in fact, in many cases they are) creating an arcade game in Flash is going to require a knowledge of Action Script. In fact, you may end up writing a lot of Action Script.

Why is there so much Action Script? Arcade games tend to require a lot of interaction with the game's environment. Since this type of interaction can happen at any time and is in the player's control, things can get complicated really quickly. Lets take a look at the most basic of games, Pong. What is so difficult about it that you would have to use Action Script?

First, you have the player's paddle. You are going to have to code the user interface for that. This can be as simple as having the paddle follow the mouse. Next you have the ball. This is where a lot of action script is going to be needed. The ball has to be able to bounce off of walls, know when it hits a paddle, and know when it has scored. Finally you need some type of timer or other scoring mechanism.

Now, if you make the game more complex, you then have to deal with more intelligent opponents, a more complex user interface, and obstacles then you can see that a lot of Action Script is going to be needed. If you are not familiar with Action Script, then read chapters 4, 7, and 11 to a few times to familiarize yourself with it.

Graphics are another area that Video Games require, but these can be built into Flash. Sound Effects are another requirement. This one will pose a bit of a problem. Flash can easily import sound files, but you need to have the sound files before you can import them. The two routes to getting sound effects into a game are to create the sounds yourself (most computers come with some software for recording sounds) or to buy the sound effects. There are many royalty free collections of sound effects and if you are willing to spend the time searching the internet, I am sure that you can find public domain sound effects. Just be very careful that the public domain sound effect that you use is truly in the public domain! I personally am planning on purchasing some Royalty Free sound effects collections.

String Along Game Design

The first arcade game that we are going to create is going to be called String Along. This game is a variant of the common tap-worm or snake games. Essentially the player controls a sphere and needs to collect energy. However, when the player collects energy, the player grows. If the player runs into an obstacle or himself, the player loses a life.

The game will consist of a number of different playfields, which the player will loop through. The first loop through the playfields, the player will only have to collect 10 orbs per playfield. Each additional pass through the set increases the number of orbs required by 10.

Scoring for this game is where things will get interesting. I will allow the player to choose their speed from 1 of 5 choices (very slow, slow, normal, fast, very fast). The speed will be a factor in scoring.

Instead of looping, we are going to take advantage of Flashes limited built in timing support. We are also going to have the games playfield in a separate layer. To find out why we do things this way, you may want to skip ahead to the second game, which I wrote first. The reason this game is being created first in the book is because it is a slightly easier game to create.

Designing Lights Out

We are then going to create a game that could be considered an extended version of pong. This game, which I am calling "Lights Out" consists of a playfield filled with colored balls. you have an instigator ball. This ball is the only one that you can touch and you have to keep it from going past you.

Now, lets start working out some of the details before we start writing this game. First, we have three components that make up the game. First, we have the balls that make up the top of the playfield. Next we have the player's paddle. Finally we have the instigator ball.

The balls that line the top will fit within a 32x32 square, therefore allowing for 20 balls in a line ($640 / 32 = 20$). We want a lot of smashing to occur so we will allow for 7 lines of balls. It would also be a good idea to reserve a bit of room at the top to place the score and other information. Balls will be based on the colors of light. Red, Green and Blue balls fall after a single hit. Yellow, Magenta, and Cyan balls require two hits. The first hit knocks one of the primary colors out of the ball turning the ball into the other primary color. Finally, we will have white balls that require 3 hits before they drop. The first hit knocks out a primary color turning the ball into a secondary color.

Now, we want a smaller instigator ball. We will make it fit within a 16x16 square. Finally, the player's paddle will fit within a 64x32 square. Based on where on the paddle the instigator ball hits will determine the angle the ball bounces.

Scoring will simply be based on which row the destroyed light is on. The game will get faster every time the player clears the playfield. The game would continue until the player ran out of instigator balls.