WELCOME TO THE GAME BUILDERS' CLUB!

Are you ready to learn how to build your own games?

Over the next few days, you're going to not only build games, but you'll get to enjoy playing them! Not only do you get to have fun, but you're going to learn skills that the people that make games know and use every day.

You're going to be learning all of this in something called Scratch, which is made to make it easy for kids like you to get started making your own games!

This guide will describe what you're going to be doing during this summer camp. You can look at it whenever you need a reminder for what you're going to be working on today, or if you want to see what you're going to be working on in a few days!

If you're not sure how a game you're making is supposed to work when you're finished with it, you can find a description of it in here.

Are you ready to be a Code Ninja?

HELPFUL LINKS

Before you get started with the camp, here are some helpful links to make your time here a little easier.

- Scratch, what you're going to be using to make games, can be found here: https://scratch.mit.edu/
- Do you want your own version of the "Red Book" to have at home for yourself? You don't actually need your own copy for the camp, but if you want it you can find it here: https://www.amazon.com/Code-Your-Own-Games-Scratch/dp/1454923318/ref=sr_1_1?s=books&ie=UTF8&qid=1519165970&sr=1-1&keywords=Code+Your+Own+Games%21

LEVEL 1

You're going to learn a lot of new skills today!

You'll start learning how to use Scratch, how to make things move around, and how to let the computer know that two objects, like your character and a power-up, are touching.

While you're figuring these games out, think about how what you're learning is used in some of your favorite games at home! If you finish them, ask your Code Sensei if you could try making one of the other Level 1 games. The other games will let you sail around an island hunting for treasure, drive a racecar around a track, dig for gold, and cross a road while avoiding speeding cars (don't try this at home, kids!).

Activity
The Hungry Cat

- Your first game, The Hungry Cat, might look simple at first glance, but there's a lot going on even in a game as simple as this!
- By the time you're done, you're going to be able to make the cat follow your mouse pointer around, and have it eat a bunch of apples you'll place around the game yourself.

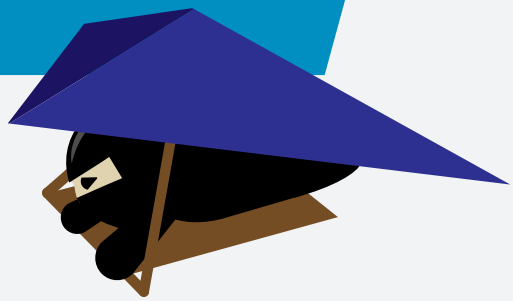
Activity
The Amazing Maze

- While moving your character around by having them follow the mouse is used in some games, most games you've played probably use the keyboard, such as WASD controls.
- In The Amazing Maze, you'll learn how to make things move using the keyboard, and a way to check to see if your character is touching the walls of a maze you'll get to create.

LEVEL 2

Now that you've learned the basics, the game you're going to make today are a little bit harder to do, but the reward is that they're that much more fun to play! You'll also learn how to add some extra features that keep players coming back, like scoring systems, animations, and how choosing random numbers can make your games more exciting!

The two games you're going to be focusing on are Dog and Bone, and Catch the Donut. After you finish these two, if you have time, ask your Code Sensei if you can try the other level 2 game, Up In The Clouds, where you fly a plane through clouds to try and get a high score!



Activity

Dog and Bone

- Dog and Bone might look a lot like The Hungry Cat at first, but when you're through with it, you'll see how the level 2 skills can help it feel more like a game than ever before!
- Not only will you learn how to keep track of scores, but you'll start animating the dog to make it look like it's walking.

Activity

Catch the Donut

- You wouldn't let a donut fall to the ground in real life, would you? Let's make a game where you can stop that from happening in the virtual world too!
- You'll learn how to add a time limit to your game, so that players can't keep playing to get a higher and higher score forever.

LEVEL 3

You've used variables to keep track of players' scores, and you've used collision tests to know when objects in the game have touched. Now, it's time to use these skills you've learned in even more complex ways to do even cooler things with your games!

What if you could use variables to let the player move at different speeds? What if you could use collision testing to see if an object is touching different objects? What if you could check for an object's exact location?

By the end of the day, none of these will be "what-ifs" to you and your skills! Again, if you finish early, ask your Code Sensei if you can try to make one of the other games, Helicopter Pilot and Ping Pong!

Activity
Flappy Fish

- You've probably played a side-scrolling game before, right? If you haven't, what that means is that you get to control a character through a stage so much larger than the screen, that the stage scrolls through the screen as you go through it. It's time for you to learn how to do that now, with Flappy Fish!

Activity
Snake

- You're not afraid of snakes, are you? In this game, you'll move a snake around and it will grow longer and longer as it moves.
- Can you figure out the best way to move the snake to make it as long as possible without hitting hitself or a wall?

LEVEL 4

You've reached Level 4, and now it's time to learn how to use one of the most powerful tools in your skillset when making games: cloning.

Cloning means that you can make a copy of objects in a game, and have them behave the same way as the original that you copied.

Thank about it like this: what would happen if you cloned the cat from The Hungry Cat on your first day? Suddenly, you would have a bunch of cats chasing after wherever you point your mouse! Today's games will teach you how this can be useful. If you finish them early, as always, ask your Code Sensei if you can work on one of the extra games in the Level 4 section of the book!

Activity
Cat and Mouse

- This time, the cats have you in their sights!
- You're going to learn how to clone multiple cats that move at random speeds and appear at random positions.
- Randomness makes games more replayable, try to escape from multiple playthroughs!

Activity
Rock Blaster

- Cloning isn't useful for making lots of obstacles for players to avoid!
- In this case, you're going to learn how to make a clone of the player spaceship's laser!
- You'll then use the cloned lasers to avoid getting your spaceship hit by rocks.

LEVEL 5

For Level 5, and your last day, there's only 2 more games to finish!

These two games will teach you how to make what are known as "functions", sets of commands that occur whenever you "call" the function they're inside. You create functions so that you don't have to write down the same code multiple times.

Along with this, you'll learn about the complicated physics behind simple game actions, like jumping and bouncing objects.

After today, you'll be done with the Game Builder's Club summer camp, and well on your way to becoming a Code Ninja!

Activity
Penguin Jumper

- In this game, you'll try and get a penguin to jump to an iceberg without missing and falling into the water!
- Making it is going to teach you the math behind making something jump, how can you add this knowledge to previous games?

Activity
Tower Smash

- This game is pretty similar to Penguin Jumper, at least the code for launching your catapult is.
- Now, instead of just jumping, our object is going to be bouncing after it hits the ground!
- This is a very complex game, so after you're done, be sure to pat yourself on the back. You did it!