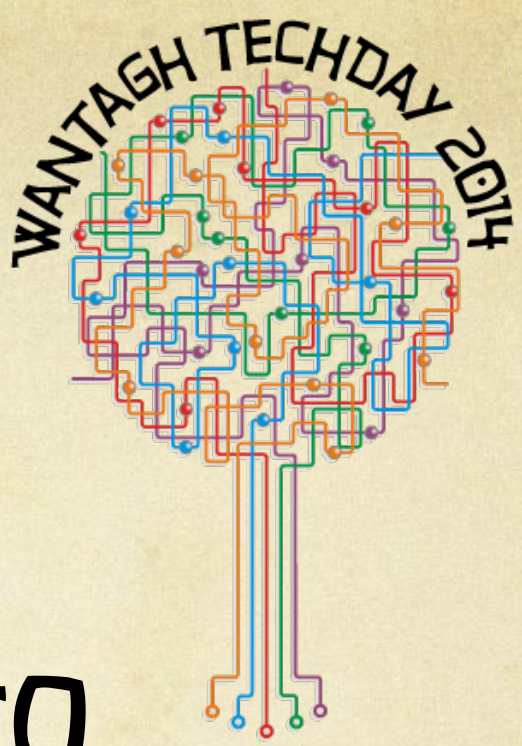


INTRODUCTION TO PROGRAMMING USING SCRATCH

CS.001

```
        If a collision occurs with the ball and the paddle, when the ball has a
        negative velocity, the ball's y component of the velocity is negated. If
        there is a collision with the ball and paddle, but the ball is going up,
        nothing happens. If there is a collision between the ball and a brick,
        the brick is removed, and the ball's y component of the velocity is
        negated. Also plays a specific sound depending on what object the ball
        hits."""

        collision = self._getCollidingObject() # Checks for Collisions

        if collision == self._paddle and self._ball.vy > 0:
            pass # nothing happens when the ball is going up and hits the paddle
        elif collision == self._paddle and self._ball.vy < 0:
            if self._soundToggle:
                paddleSound = Sound('bounce.wav')
                paddleSound.play()
            self._ball.vy = - self._ball.vy # change direction
        elif collision in self._bricks:
            if self._soundToggle:
                brickNoise = Sound(BRICKS_AUDIO[self._audioCounter])
                brickNoise.play()
                self._audioCounter = self._audioCounter + 1
                if self._audioCounter == len(BRICKS_AUDIO):
                    self._audioCounter = 0
            self._ball.vy = - self._ball.vy # change direction
            self.view.remove(collision) # remove from view
            self._bricks.remove(collision) # remove from field
            self._score = self._score + 10
            self._scoreKeeper.text = 'Current Score : '+`self._score`

    def _keepInBounds(self):
        """This method keeps the paddle within the boundaries of the window.

        Although short, this helper method is mainly for styling purposes.
```

WHAT IS CODE?

AND HOW IS IT PREVALENT TO TODAY'S WORLD?

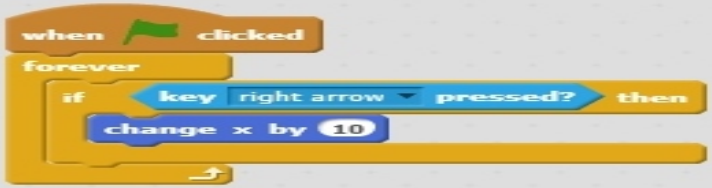
CODE

```
01010100100101110010100101010101
01010101001110101011001110001101 0
01110010101011001101100000110100
10010101000100110011001001001100
```

BINARY

```
mov     abx3e321, e32
mov     324aev,231fba1
eax     f2va33,ffa3a34
edx     249gjfa,23f2fa
```

ASSEMBLY



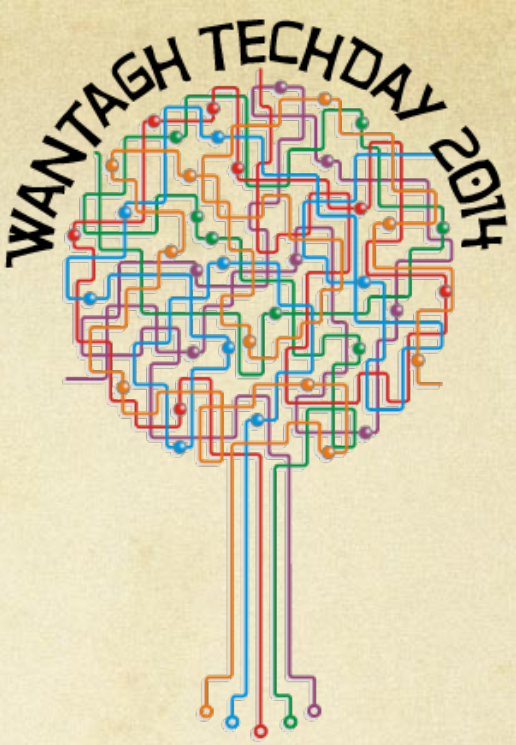
SCRATCH

STARTING / USING SCRATCH

- TO START SCRATCH
  - CLICK THE GOOGLE CHROME ICON ON YOUR DESKTOP
  - GO TO SCRATCH.MIT.EDU 

- TO BEGIN LOG INTO SCRATCH
  - CLICK "*SIGN IN*" IN THE TOP RIGHT CORNER
  - USERNAME: SCHOOL ID
  - PASSWORD: (CAPITAL P) PASSWORD1

- NOW LET'S WRITE OUR FIRST PROGRAM!



SUPER SWIMMER

INTRODUCTION TO SCRATCH AND COMPUTER PRINCIPLES THROUGH CREATING A GAME

SUPER SWIMMER

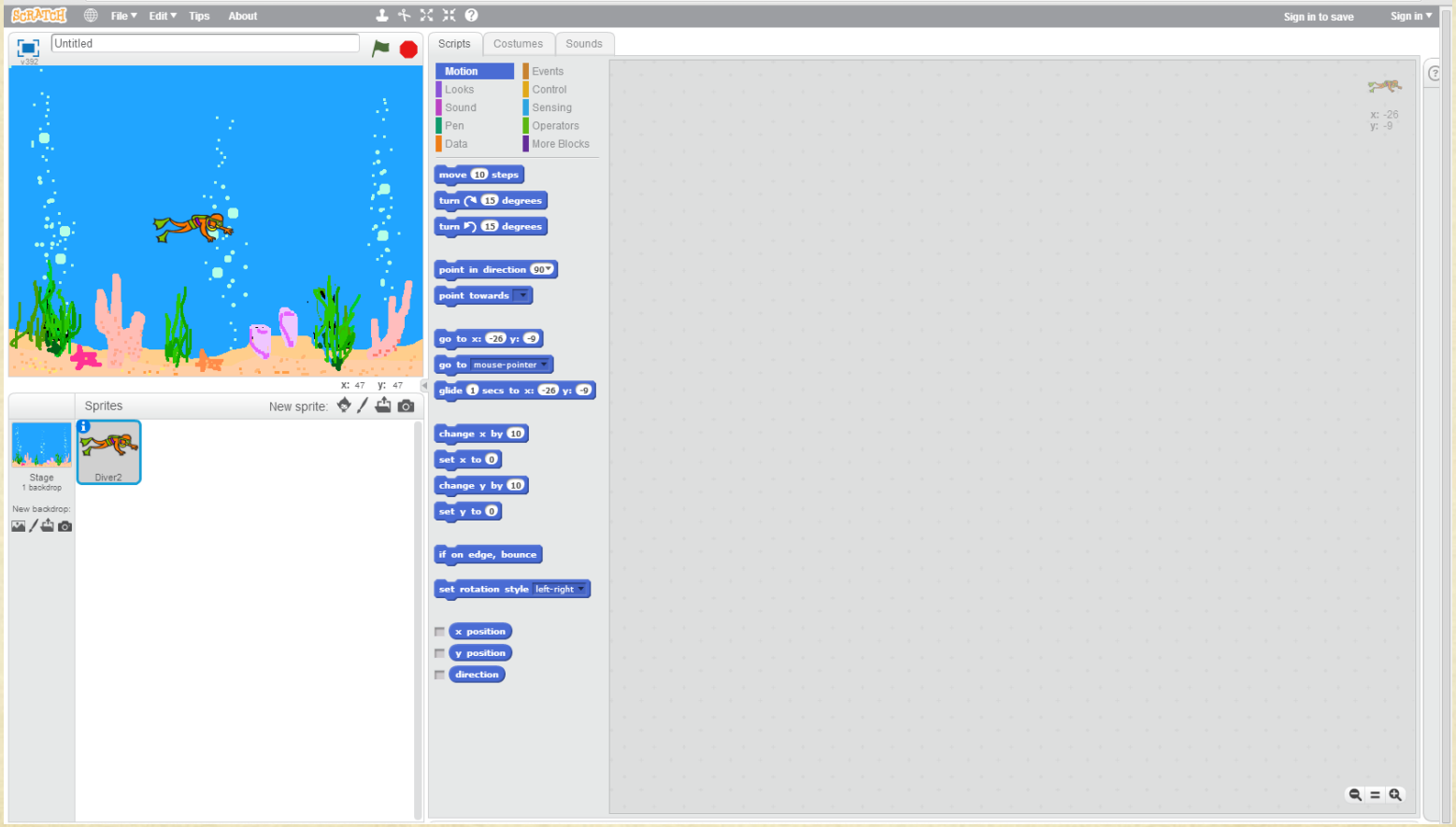
SUPER SWIMMER IS A GAME ORIGINALLY CREATED BY PETER MOUNTANOS USING SCRATCH

THE OBJECTIVE OF THE GAME IS TO COLLECT AS MANY FISH AS YOU CAN WHILE AVOIDING THE SHARKS

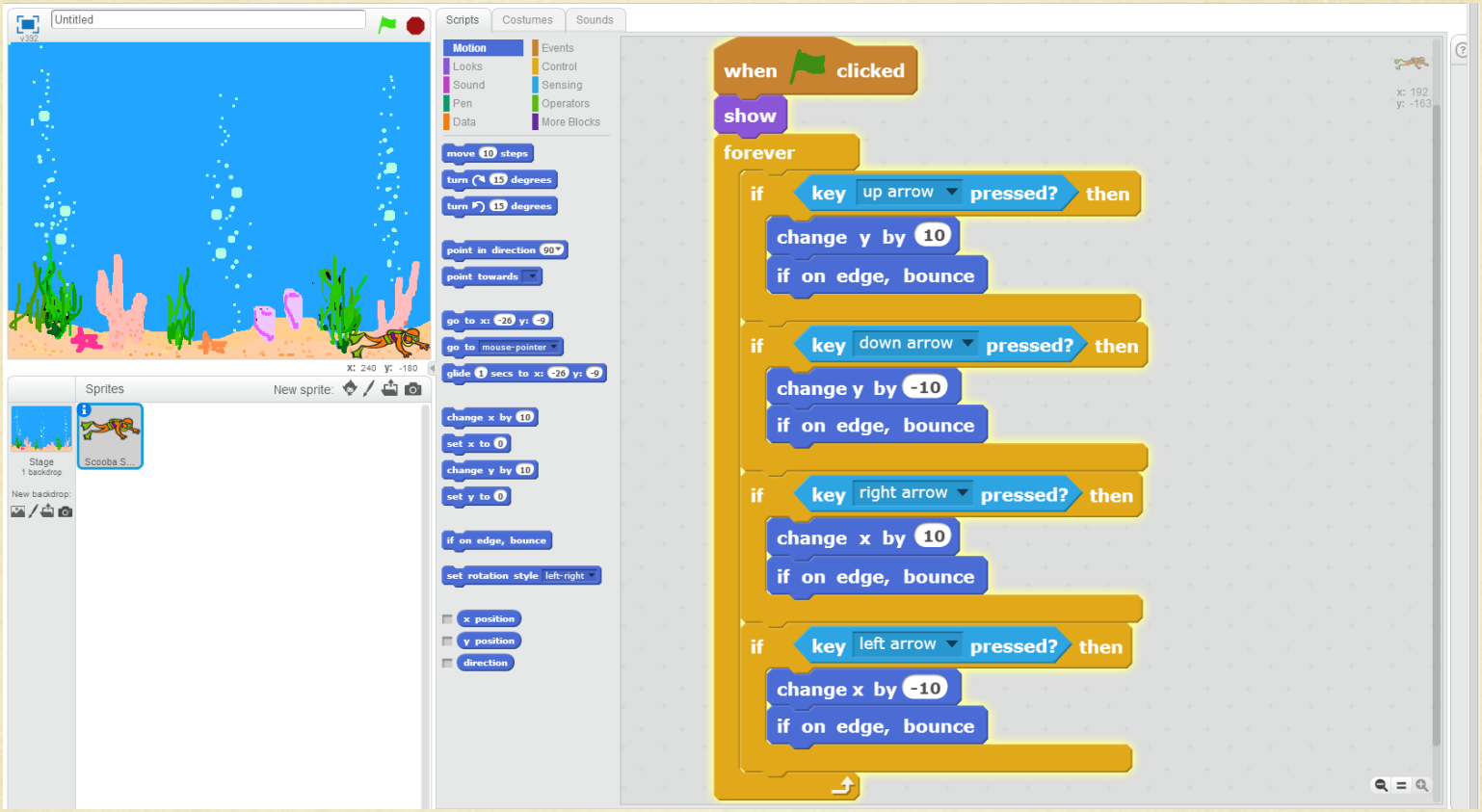
TODAY YOU WILL LEARN ABOUT SOME OF THE BASICS OF PROGRAMMING THROUGH MAKING A SUPER SWIMMER GAME OF YOUR OWN!

TRY OUT PETER'S VERSION OF SUPER SWIMMER HERE!
http://scratch.mit.edu/projects/3310840/

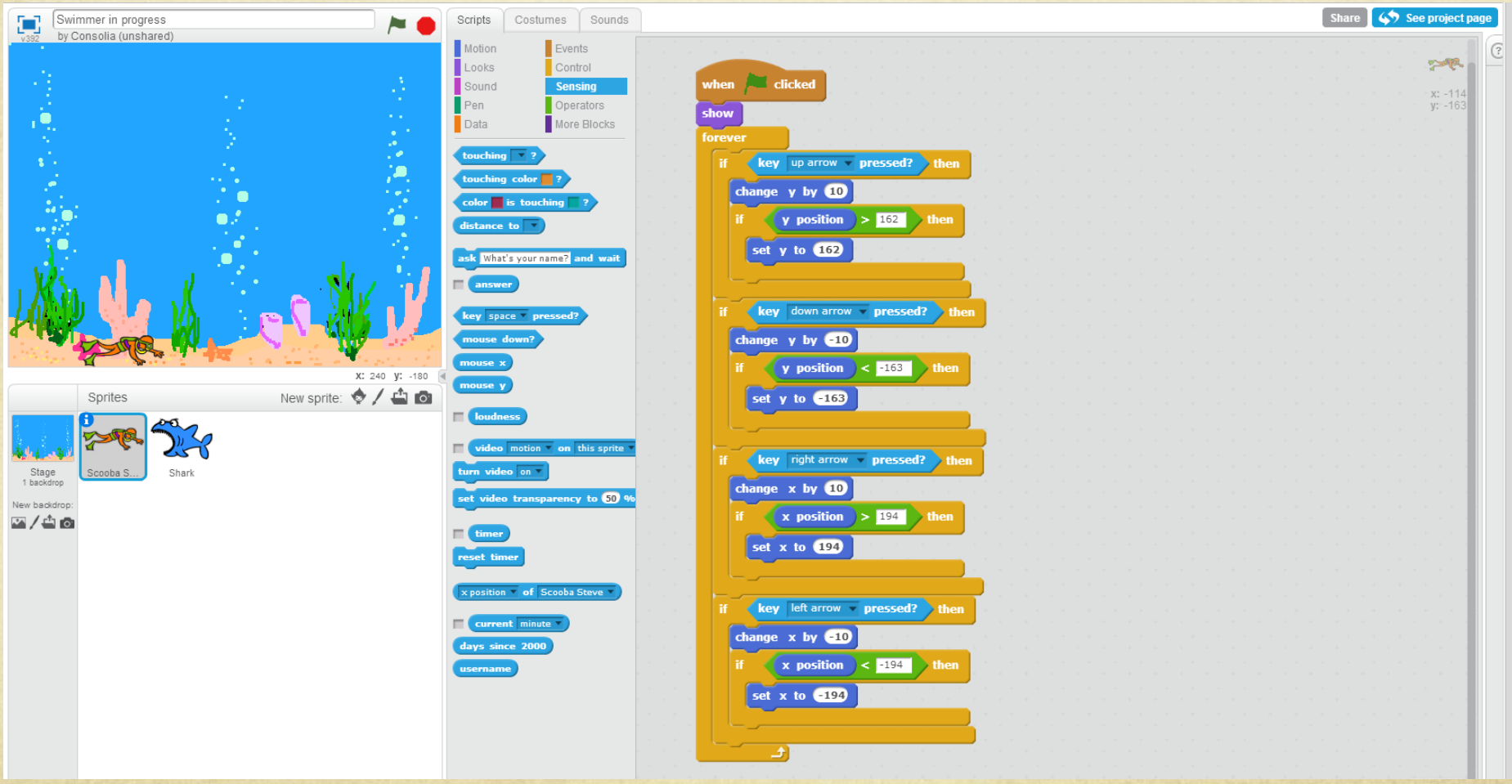
SETTING UP SUPER SWIMMER



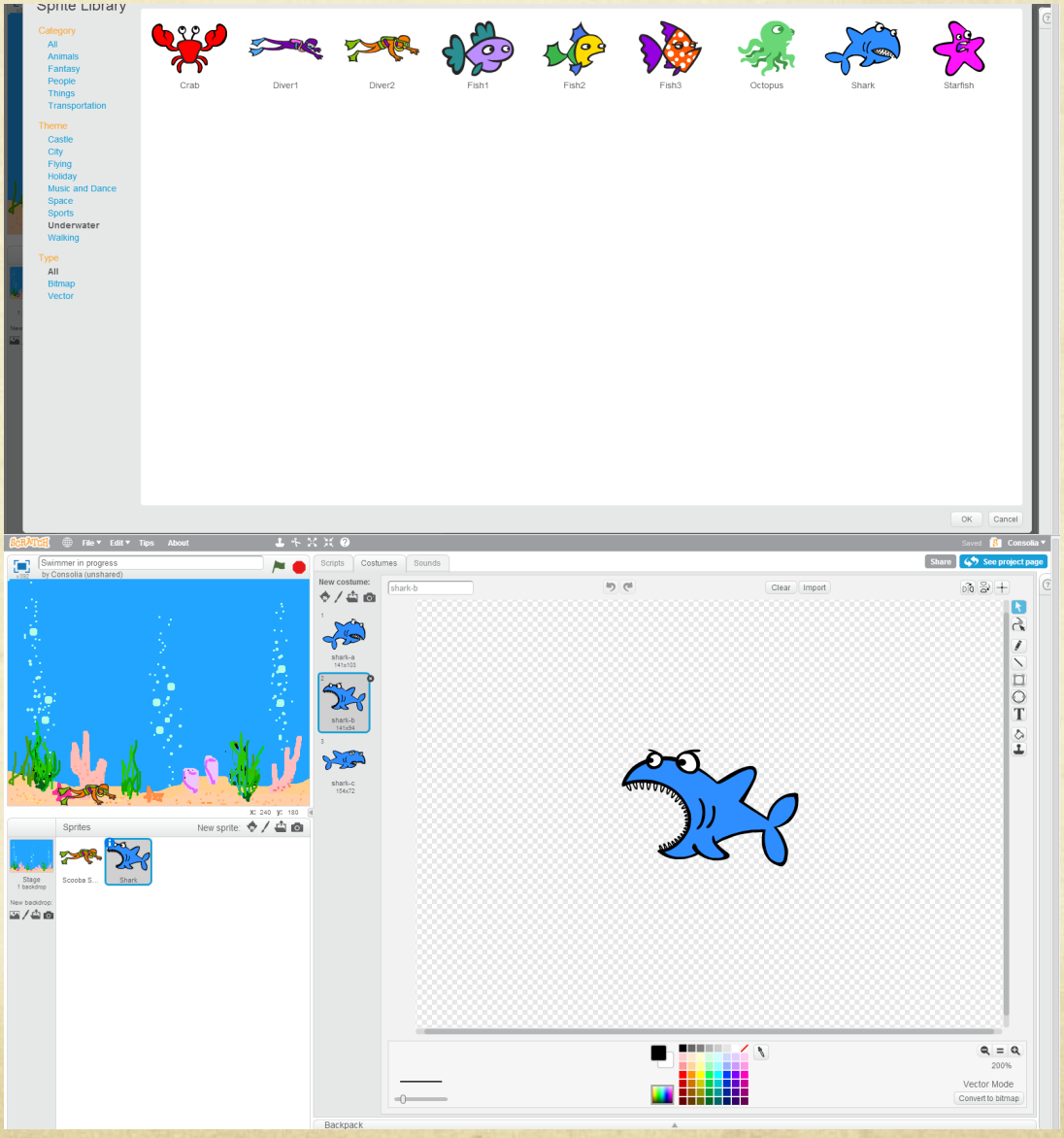
MOVING OUR DIVER



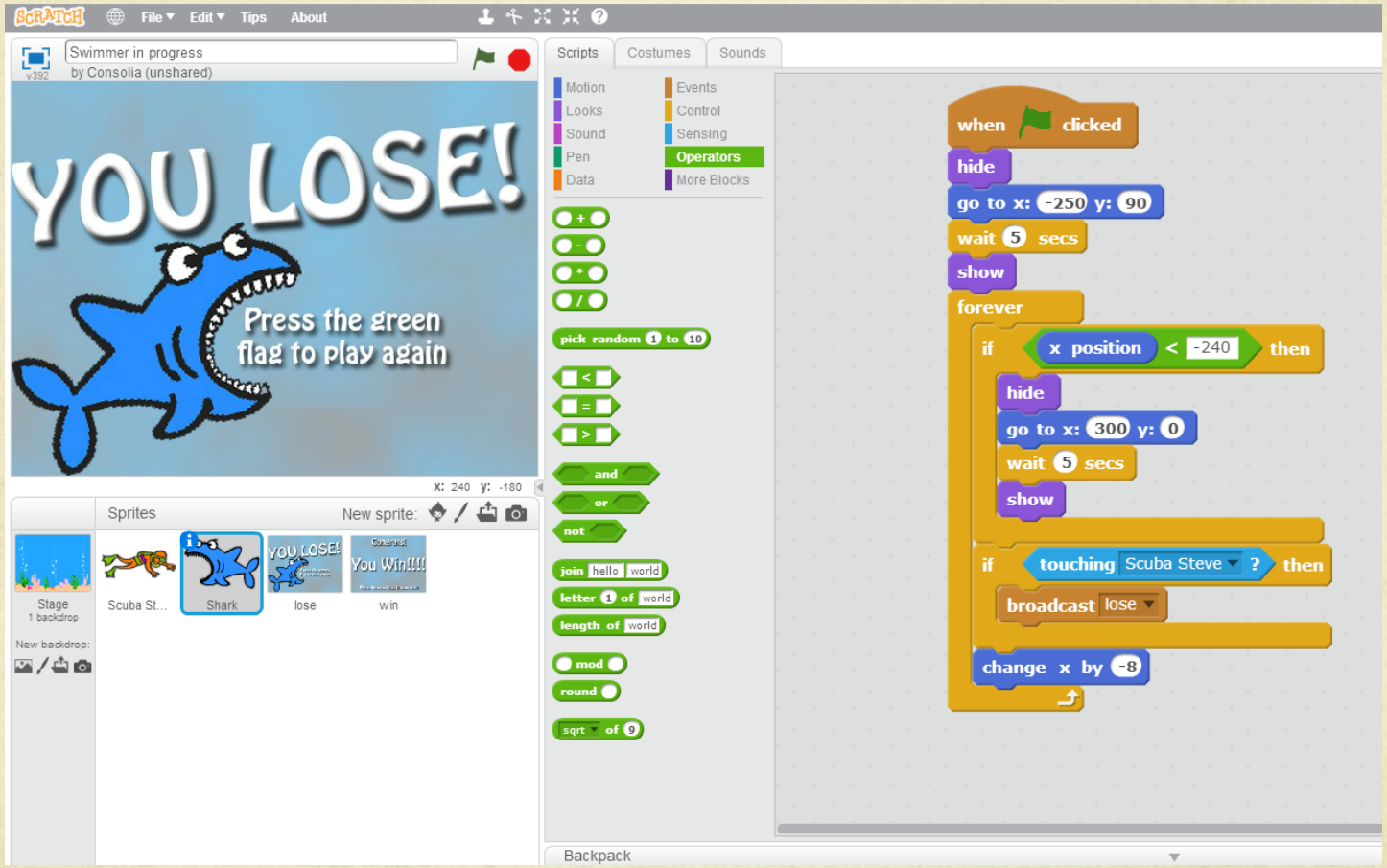
MOVING OUR DIVER REVISED



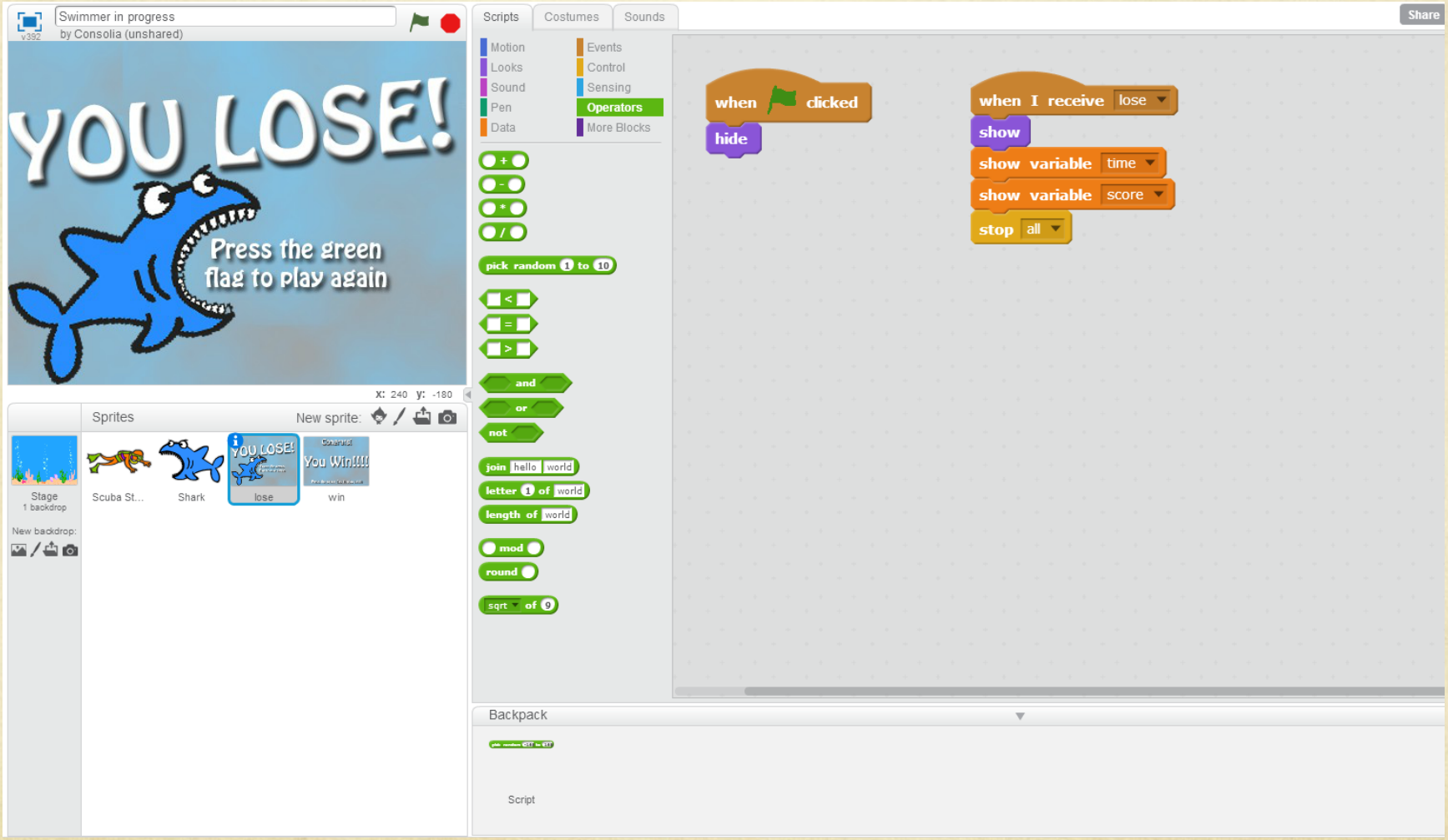
ADDING THE SHARK



GETTING THE SHARK TO MOVE



ADDING LOSE SPRITE

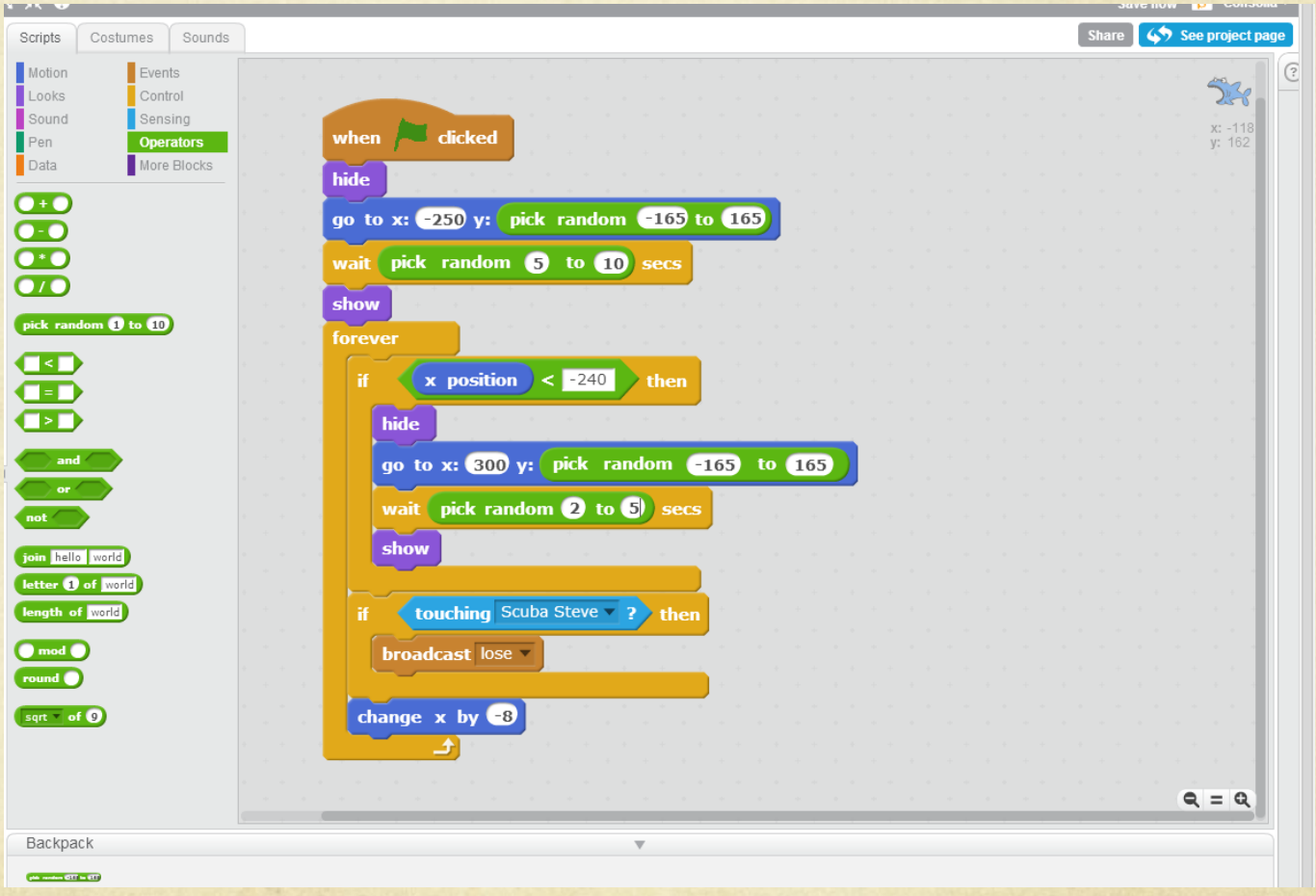


TEST YOUR GAME

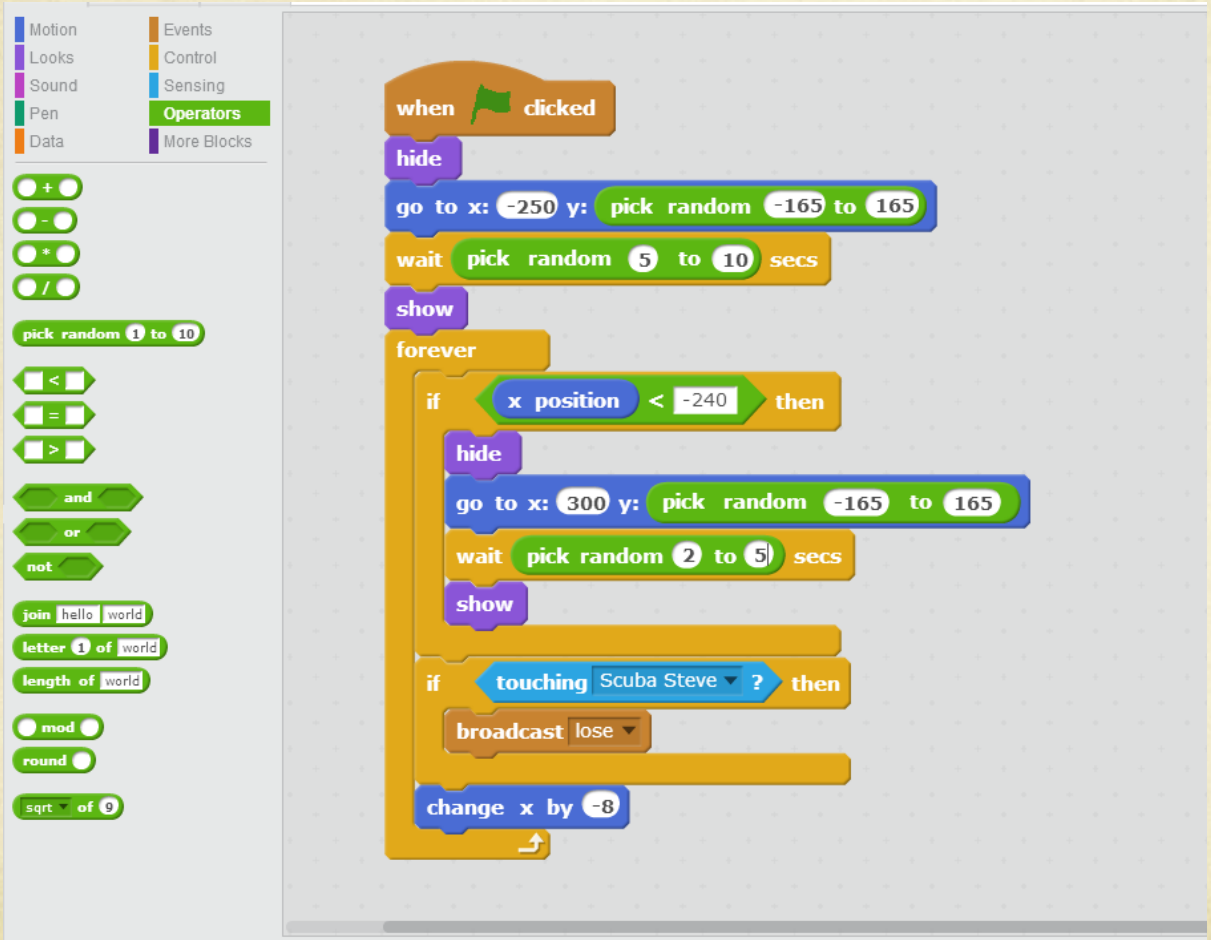
- AVOID THE SHARK ONE TIME
- GET EATEN BY THE SHARK THE SECOND TIME

TESTING IS AN EXTREMELY IMPORTANT PART OF PROGRAMMING

MAKING THE SHARK RANDOM



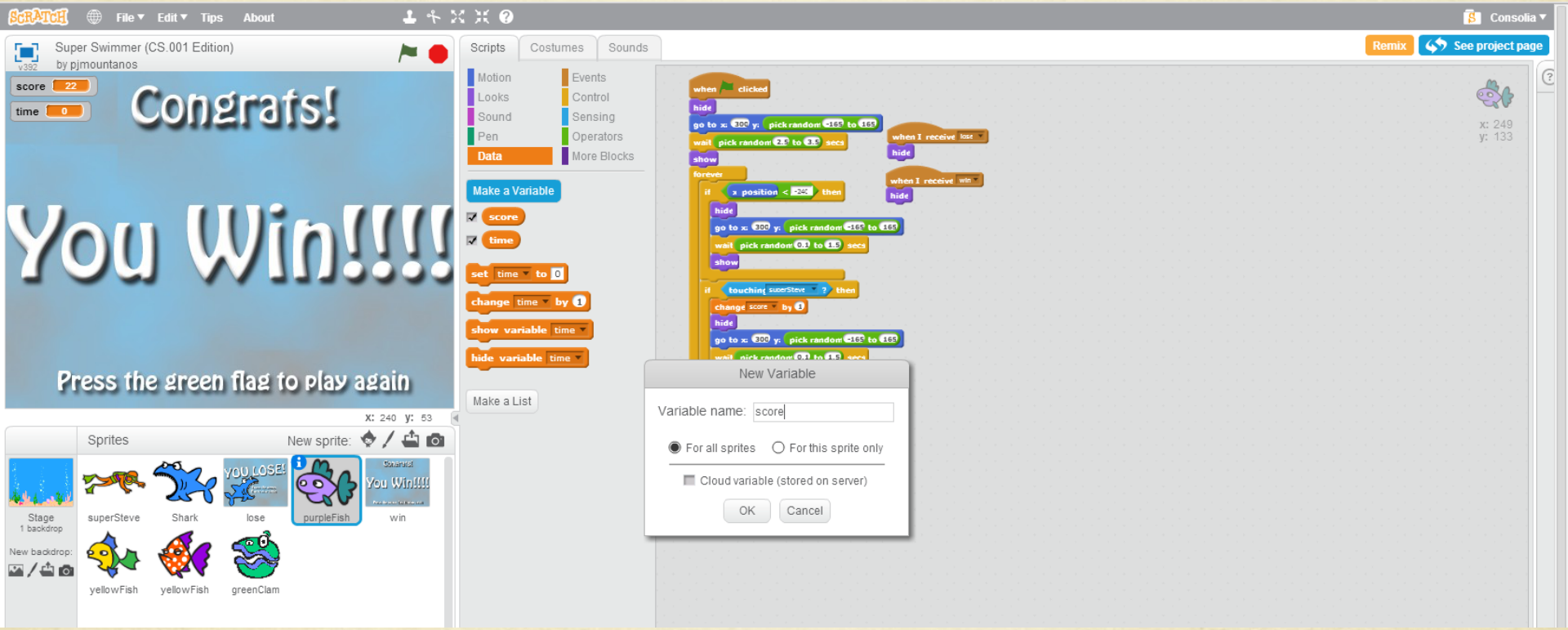
ADDING OUR FIRST FISH



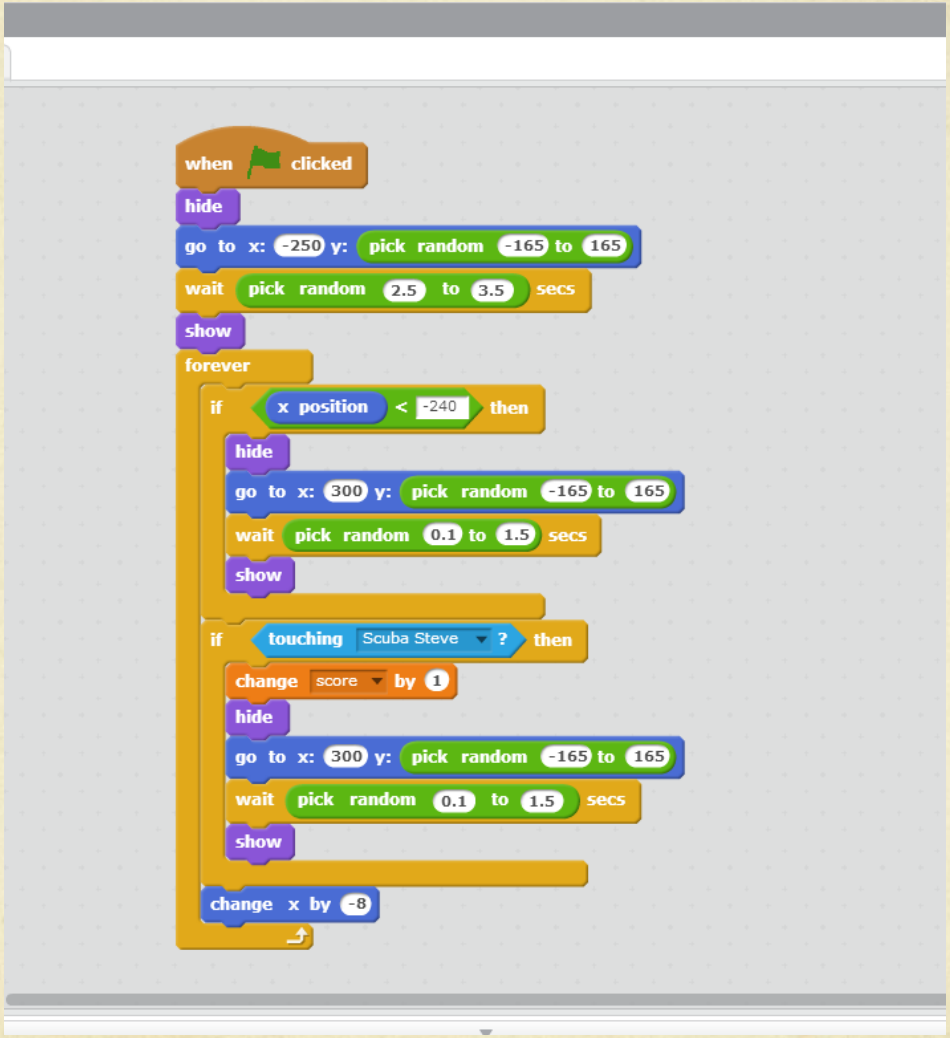
AFTER YOU HAVE COPIED AND PASTED THE CODE FROM THE SHARK, TEST THE GAME.

TRY TO CATCH THE FISH AND THE RAISE YOUR HAND IF YOU NOTICE THE PROBLEM

MAKING OUR FIRST VARIABLE



FIXING OUR PROBLEM

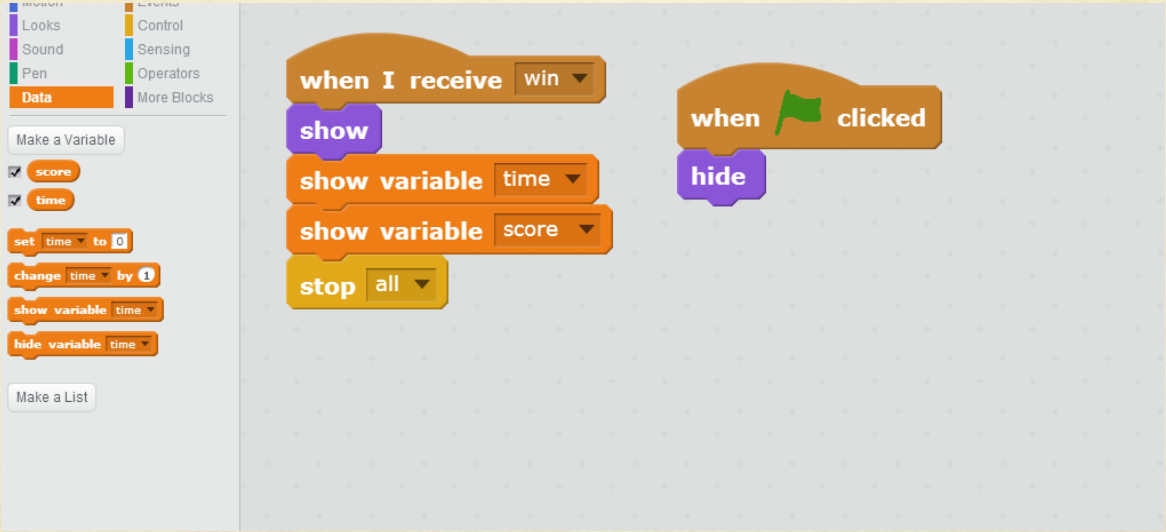


MAKING A TIME VARIABLE & INITIALIZING VARIABLES

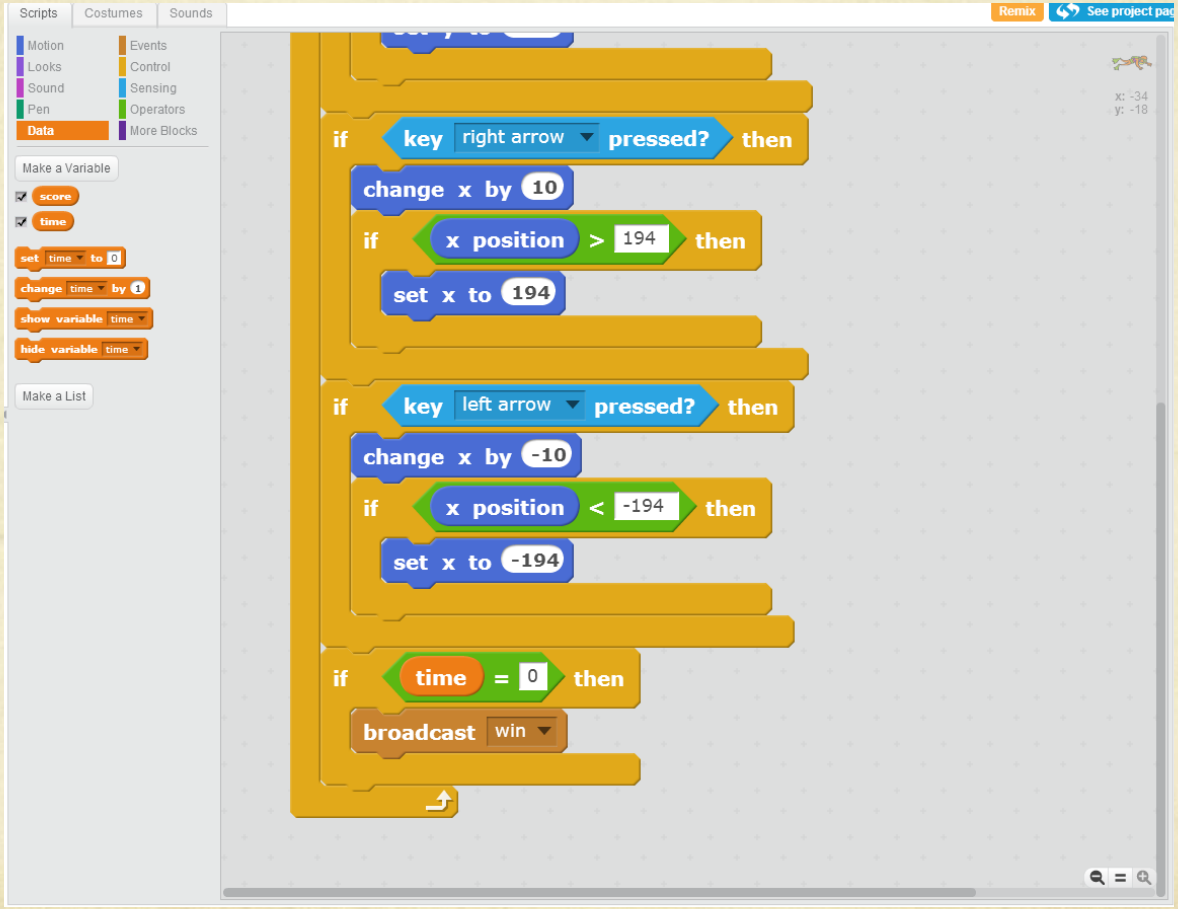
ADDING WIN SPRITE

FIRST WE MUST UPLOAD THE WIN SPRITE JUST LIKE WE DID WITH THE LOSE SPRITE AND CENTER IT ON THE SCREEN

AFTER THAT WE SHOULD EDIT THE SCRIPT FOR THE WIN SPRITE TO LOOK LIKE THIS.



ALTERING SCUBA STEVE/SALLY'S SCRIPT TO ACCOUNT FOR TIME



NOW WE ALL SHOULD HAVE THE BASIC FUNCTIONALITY OF THE GAME

TEST THE GAME

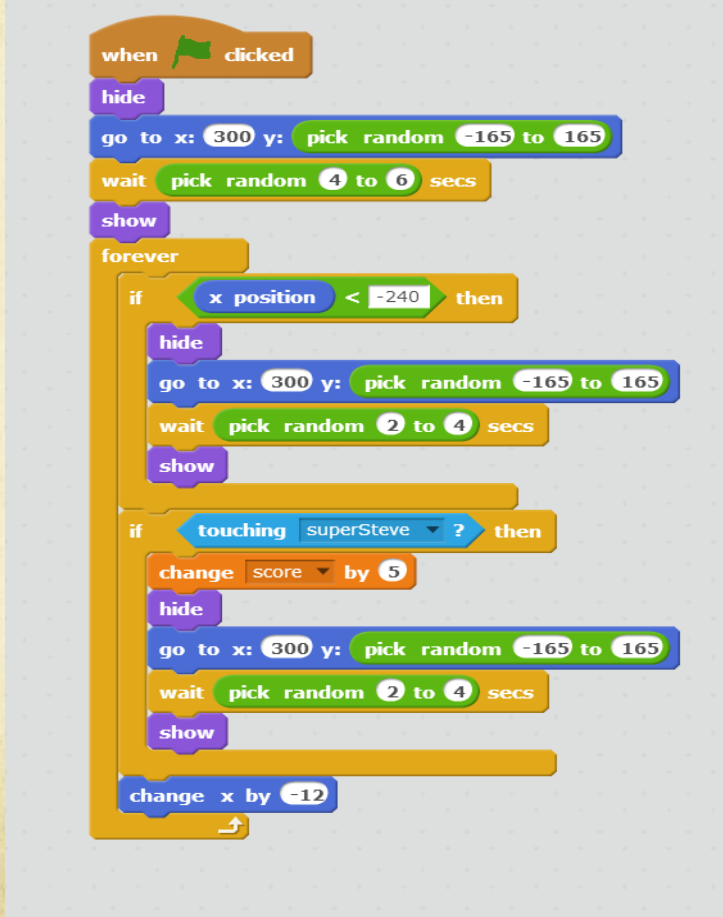
AFTER YOU HAVE TESTED YOUR GAME IT IS TIME TO ADD MORE FISH TO MAKE THE GAME MORE INTERESTING

ADDING MORE FISH

WE WILL BE ADDING THE RED FISH AND THE GREEN FISH JUST LIKE THE PURPLE FISH AND THEN DUPLICATING THE CODE FROM THE PURPLE FISH INTO THE OTHERS.

MAKING THE CLAM A RARE CATCH

AFTER UPLOADING THE GREEN CLAM SPRITE YOU WILL CHANGE THE CLAM'S SCRIPT TO MAKE IT HARDER TO CATCH.
THIS ALSO MEANS THE CLAM SHOULD BE WORTH MORE POINTS



FINISHING YOUR GAME

BY ADDING THIS CODE TO THE SCRIPTS OF ALL OF THE CHARACTER SPITES IT WILL ENSURE THAT ALL OF THE FISH ARE HIDDEN WHEN YOU WIN OR LOSE.

CHALLENGE

CHECK OUT THE FULL VERSION OF SUPER SWIMMER TO SEE ALL OF THE OTHER COOL THINGS YOU CAN ADD TO YOUR GAME.

TRY TO ADD POWER-UPS AND OTHER FEATURES TO YOUR GAME USING WHAT YOU HAVE LEARNED WHILE CREATING IT.

IF YOU HAVE IDEAS OF YOUR OWN FEEL FREE TO TRY TO PUT THEM INTO YOUR GAME TO MAKE IT EVEN BETTER.

THE POSSIBILITIES ARE ENDLESS