Create the Xcode project

Make a button. Option drag. Give it size 100 x 100 Remove Title

Connect it. Change the background:

```
        let r = Int.random(in: 0...255)
        let g = Int.random(in: 0...255)
        let b = Int.random(in: 0...255)

        print("red: \(r), green: \(g), blue: \(b)")
        swatchButton.backgroundColor = UIColor(red: CGFloat(r)/255, green: CGFloat(g)/255, blue: CGFloat(b)/255, alpha: 1.0)
```

Run and show it goes to another color

Option drag 4 new buttons.
Put them in a stack view.
Select the swatch put that in a stack view

Open assistant and create button connections
(Control option command enter)

Create a button array

```
    // not set as optional because this will always be set to an array of the four option buttons
    var buttonOptionArr : [UIButton] = []
```

```
buttonOptionArr = [option1, option2, option3, option4]
```

Make change color func

```
Func changeColor() {

 var guesses = [ UIColor(red: CGFloat(r-40)/255, green: CGFloat(g)/255, blue: CGFloat(b)/255, alpha: 1.0),
                        UIColor(red: CGFloat(r)/255, green: CGFloat(g-40)/255, blue: CGFloat(b)/255, alpha: 1.0),
                        UIColor(red: CGFloat(r)/255, green: CGFloat(g)/255, blue: CGFloat(b-40)/255, alpha: 1.0)]

        // Randomly select which button will hold the correct option
        correctSelection = Int.random(in: 0...3)

        for i in 0 ..< buttonOptionArr.count {
            if i == correctSelection {
                buttonOptionArr[i].backgroundColor = UIColor(red: CGFloat(r)/255, green: CGFloat(g)/255, blue: CGFloat(b)/255, alpha: 1.0)
            } else {
                buttonOptionArr[i].backgroundColor = guesses[0]
                // Once the guess has been used, remove it.  There is probably a slicker way of doing this
                guesses.remove(at: 0)
            }

        }
```

Give the buttons a tag number
Now add the action to change the colors and connect all buttons

```
        let selection = sender.tag
        if (selection == correctSelection) {
            changeColor()
}
```