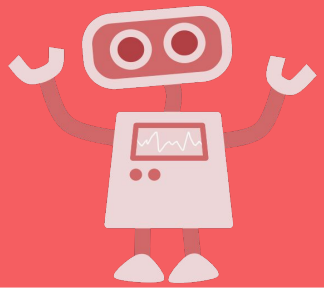
Day Two

Conditionals and Color



Today's Plan

Learn about conditional statements

Learn to use the color sensor

Simon Says

Did you notice any patterns?

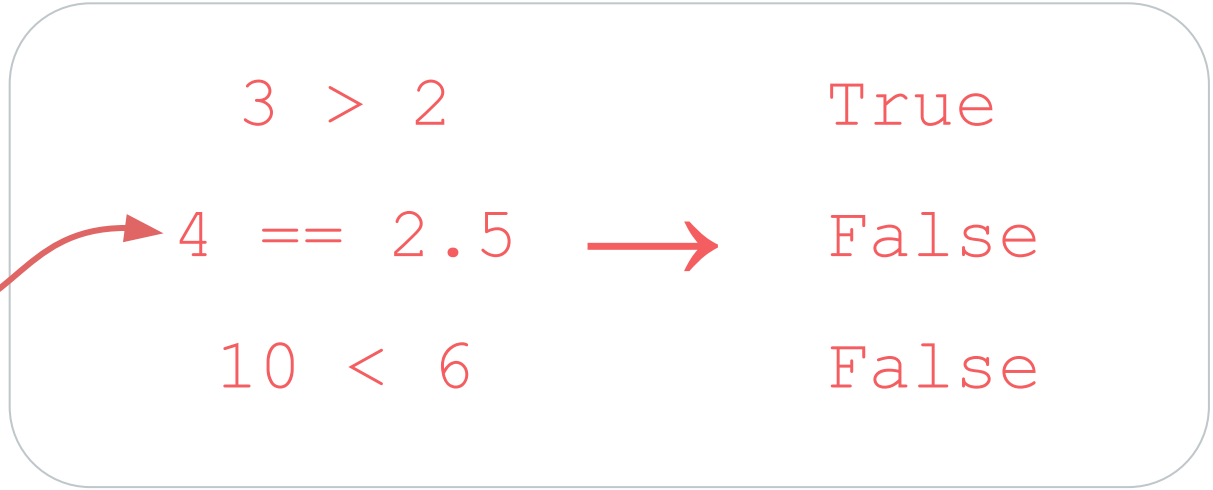
What format were the statements?

What were the possible answers to the questions?

What are Boolean Expressions?

- Yesterday we learned about boolean variables (they are always True or False)
- Boolean expressions are statements that *evaluate* to True or False (a boolean value)

When comparing values, we use double equal signs (==) to differentiate from the assignment operator (=)



Variables in Boolean Expressions

Variables can be used in boolean expressions!

For example,

```
x = 4

x < 3
```

```
False
```

```
y = 15

y == 15
```

```
True
```

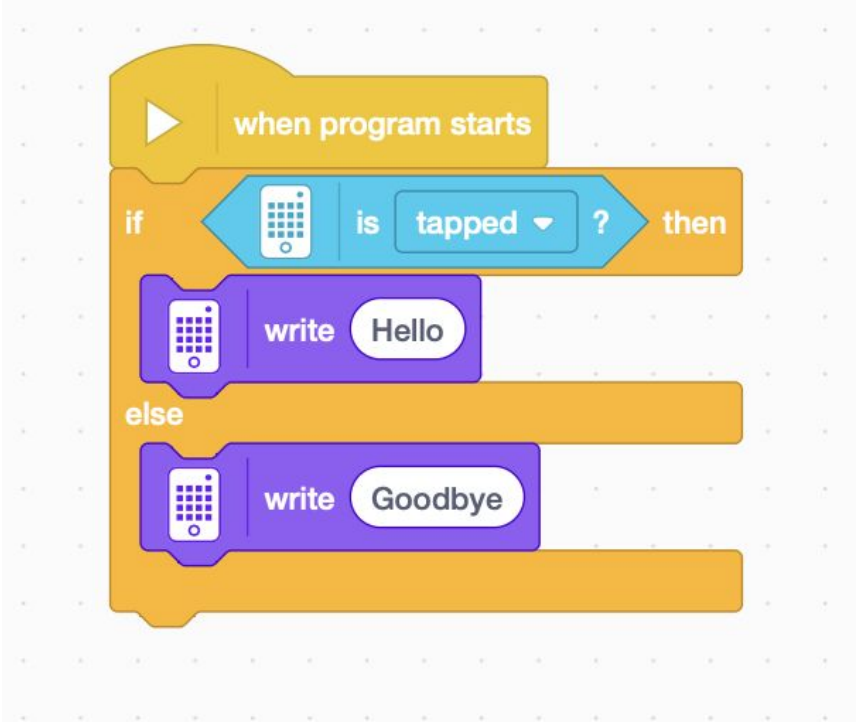
Conditionals

- Conditionals occur in programming when we decide to do an action depending on whether or not a boolean expression is True or False

- For example, if 3 > 1.5, dance!
- Otherwise, sit quietly.

Conditionals in our Robots

- Conditionals are represented using orange blocks in Spike
- if some condition is true (blue blue) then do some action (purple block)
- else do some other action
- The else runs automatically if the condition specified in the if is False
- Conditions (blue blocks) are boolean—they are always either True or False



Reacting to the Environment

Conditionals are often used with environmental events

- if it is raining, bring an umbrella
- if it is sunny, wear sunscreen
- if it is cold, wear a jacket. else wear a tshirt

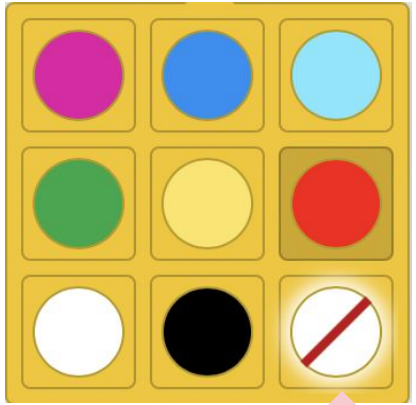
Our robots can sense certain aspects of the environment, too!

- Color
- Light
- Distance
- Touch

Color Sensor!

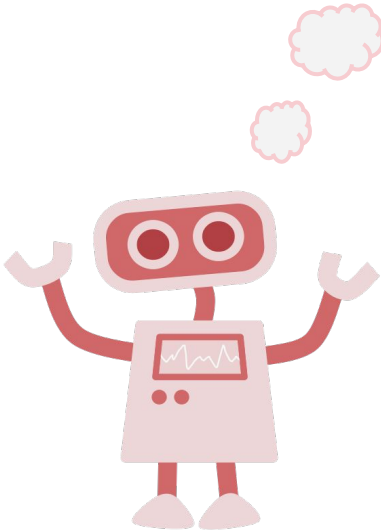
Track what color the sensor sees with the live monitor at the top of your screen!

these are the color options



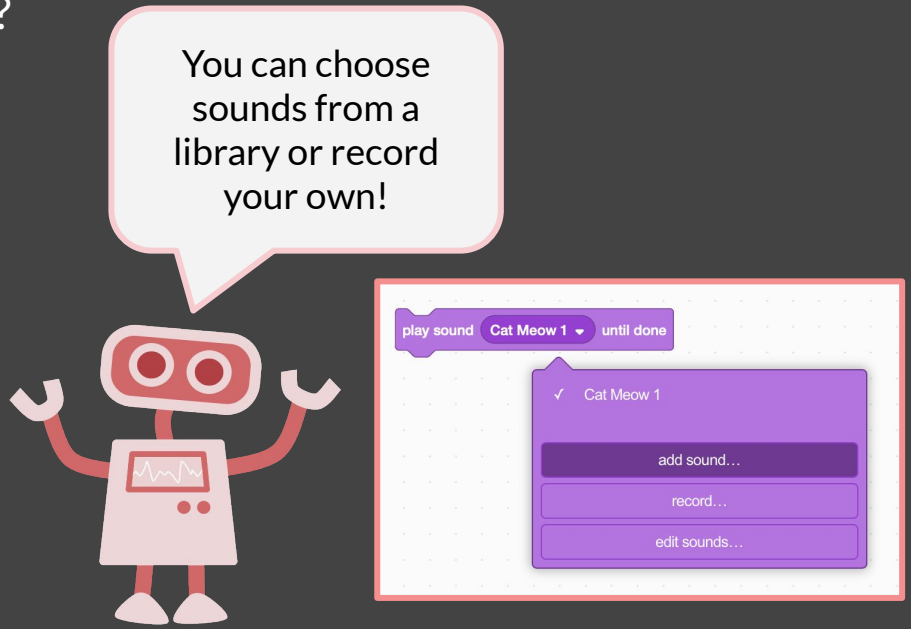
this means no SINGLE color is seen

Almost like an eyeball that sees the color of an object

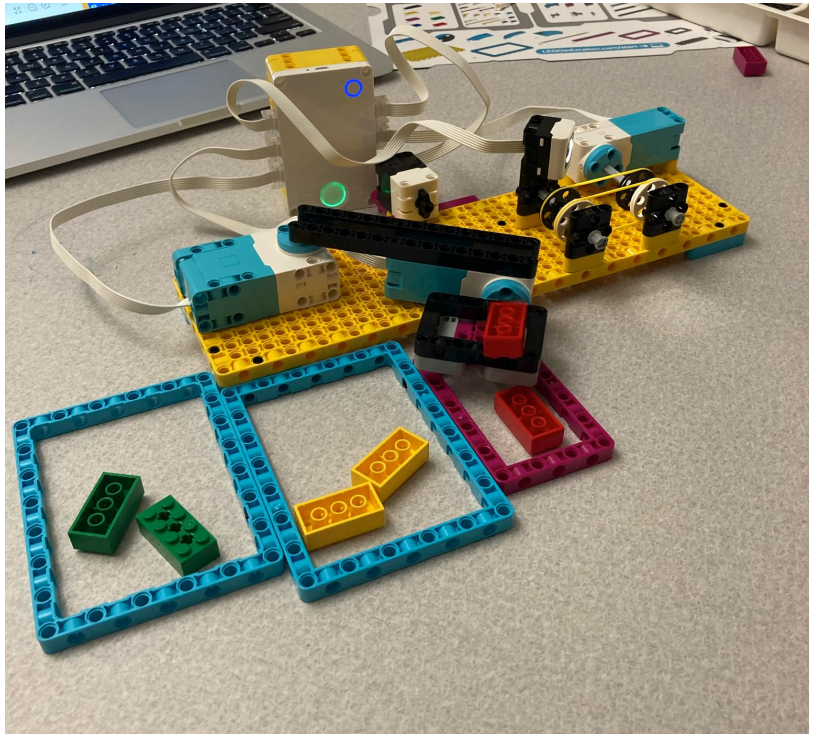


Pre-Lab

Find and attach the color sensor to the hub. Using the if or the if/else block, write a program that identifies a color by speaking the color or displaying it on the hub! How many colors can it identify from the lego kit?

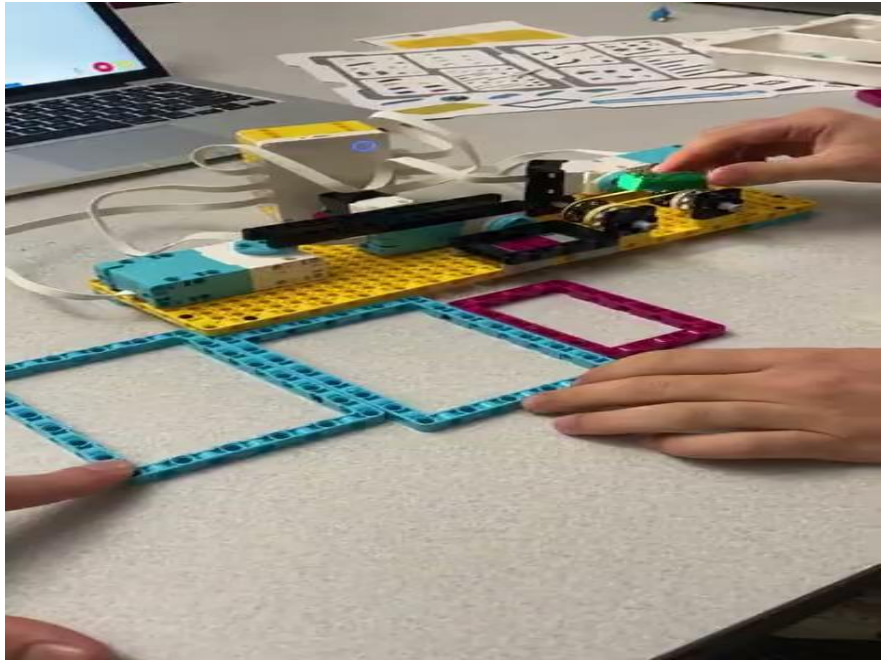


Lab: McSortie



Today we will be building a color sorter! Your task is to build McSortie, who can sort lego pieces by their color.

Lab Hints



McSortie can be extended to use more sensors or even sort more colors! Can you extend its functionality?