Week 5
Girls Who Code
Middle School
Ice Breakers!

Left:
Learn to play the card game Spoons!

Right:
Work as a team to solve Sudoku puzzles
Welcome to Our Guest Speaker!
A **variable** is like a **box** with a **name**. You can put a **value** into the **box**.

```
var x = 5
x = 5 + 2
x = x + 5
```

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Review: Data Types

**Strings:** var hello = “Hello World!”;

**Booleans:** var bool = True;

**Ints:** var num = 5;

**Floats:** var deci = 3.0;

**Chars:** var letter = ‘a’;
**Review: Booleans**

A **boolean** value can be either **True** or **False**

Used to check if a certain condition is true or not

**Comparison Operators**
- Greater Than (`>`)
- Greater Than or Equal To (`>=`)
- Less Than (`<`)
- Less Than or Equal To (`<=`)
- Equal To (`===`)
- Not Equal To (`!==`)

**Boolean Operators**
- And (`&&`)
- Or (`||`)
- Not (`!`)
Boolean Operators

&&
and:

True and True ⇒ True
True and False ⇒ False
False and True ⇒ False
False and False ⇒ False
Boolean Operators

||

or:

True or True ⇒ True
True or False ⇒ True
False or True ⇒ True
False or False ⇒ False
Boolean Operators

not:

not True $\Rightarrow$ False
not False $\Rightarrow$ True

Example: Evaluate not (i < 10) when i = 5.

i < 10 $\Rightarrow$ True
not (true) $\Rightarrow$ False
not (i < 10) $\Rightarrow$ False
Review: Booleans

False && False
Review: Booleans

True

&&

False
Review: Booleans

False  ⊗  False
Review: Booleans

False || True
Review: Conditionals

A **conditional** tells the computer to only do something **IF** a certain **condition is true**

**IF statement**
- IF ‘condition A’ is true, then run ‘code A’

**ELSE IF statement**
- IF ‘condition A’ is false and IF ‘condition B’ is true, then run ‘code B’

**ELSE statement**
- IF ‘condition A’, ..., ‘condition Y’ are false, then run ‘code Z’
Conditionals

var x = 5;
var y = x + 10;
if (x < 5) {
  print “Hi!”;
} else if (y === 20) {
  print “Hey there!”;
} else {
  print “Hello!”;
}

What should we print out?

Hello!
var bugs = 5;
if (bugs === 0) {
    print “My code works perfectly!”;
} else if (bugs > 0 && bugs < 5) {
    print “I can fix my code quickly.”;
} else if (bugs > 4 && ! (bugs > 4)) {
    print “Let me walk through my code.”;
} else {
    print “What is wrong with my code?”;
}
var bugs = 5;
if (bugs === 0) {
    print "My code works perfectly!";
} else if (bugs > 0 && bugs < 5) {
    print "I can fix my code quickly."
} else if (bugs > 4 && ! (bugs > 10)) { 
    print "Let me walk through my code.");
} else {
    print "What is wrong with my code?";
}
Loops

A **loop** is a way to tell a computer to do something several times.

There are two ways to make a loop: **for loops** and **while loops**

(Wanna know a secret? They both do the same thing!)
For Loops (Ice Cream)

I want to eat all of the ice cream.

I am now all-knowing, so I know there are exactly 5 bites of ice cream in the bowl.

I will eat exactly one bite of ice cream at a time, but I will do that 5 times.
For Loops

for (var i = 0; i < 5; i = i + 1) {
  print("Eat!");
}

Creates a variable i. We use it to count how many times to run the loop.

Tells the loop to run until i < 5.

Increments i by 1 each time the loop runs.
Let’s Practice
For Loops

```javascript
for (________; __________; _________) {
  // code
}
```
Worksheet Time!

Let’s get out our pens and pencils!
Coding Time!
Let’s hop on Khan Academy!