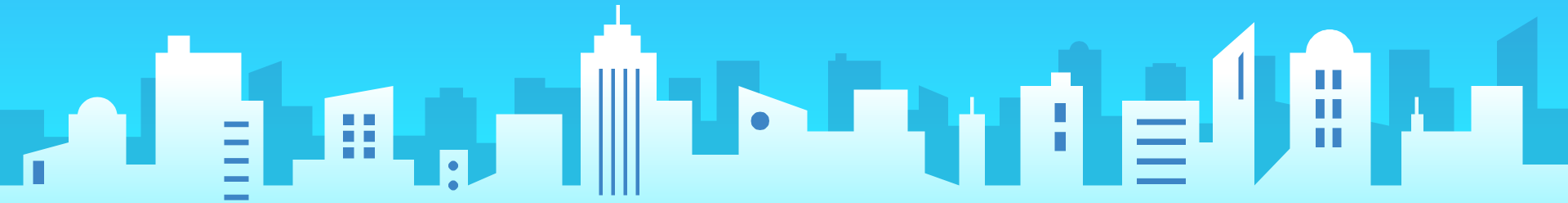
Week 5

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!

Review: Variables

A **variable** is like a **box** with a **name**.

You can put a **value** into the **box**.

var x = 5	x	5
x = 5 + 2	x	~~5~~ 7
x = x + 5	x	~~5~~ ~~7~~ 12

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 ⇒ False
not False ⇒ True

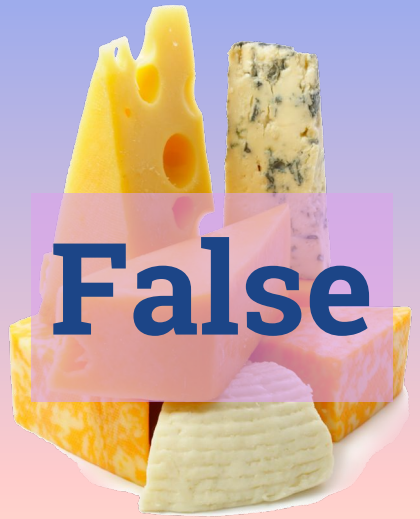
Can negate anything by putting "**not**" in front of it

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

i < 10 ⇒ True
not (true) ⇒ False

not (i < 10) => False

Review: Booleans



False

&&

False

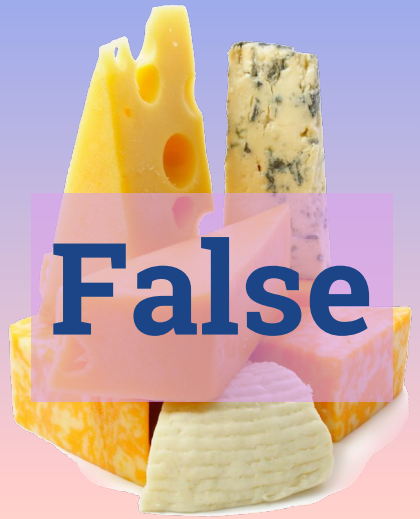
Review: Booleans

True

&& !

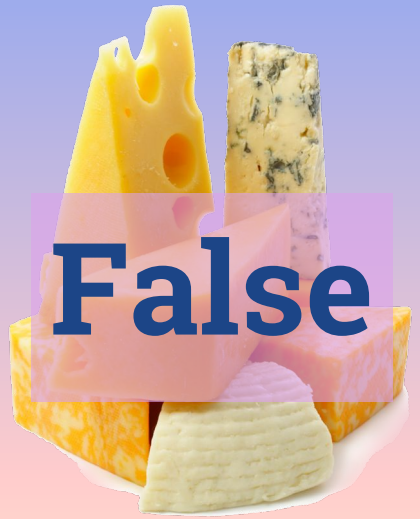
False

Review: Booleans



||

Review: Booleans



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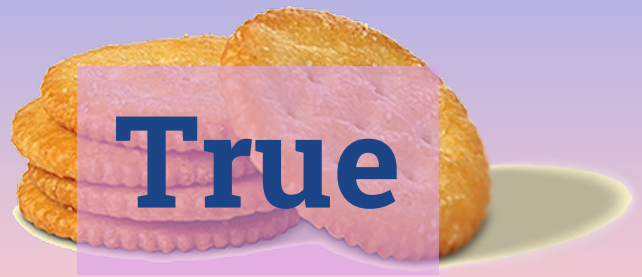


Review: Conditionals

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!

Conditionals

```
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?”;
}
```

What should we print out?

What is wrong with my code?

Conditionals

```
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?”;
}
```

What should we print out?

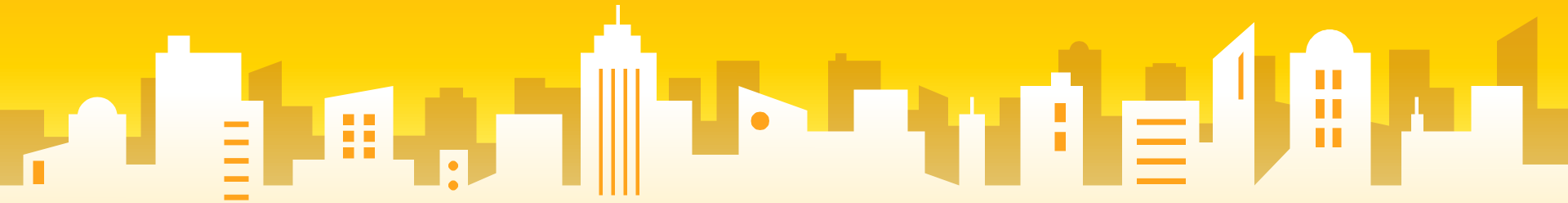
Let me walk through my code.

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!)

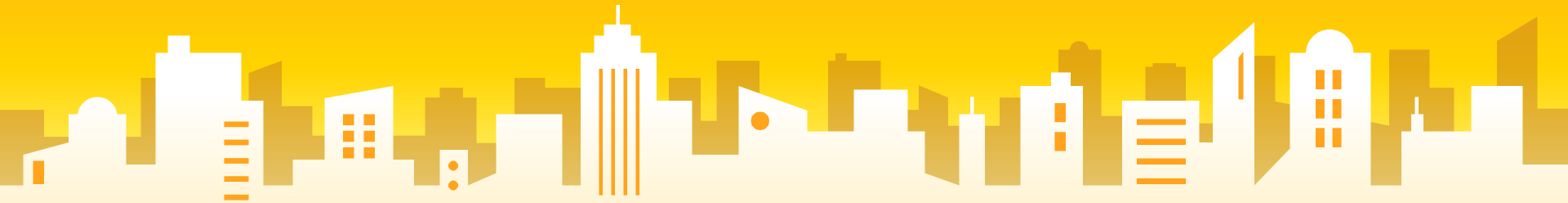


For Loops (Ice Cream)

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**.



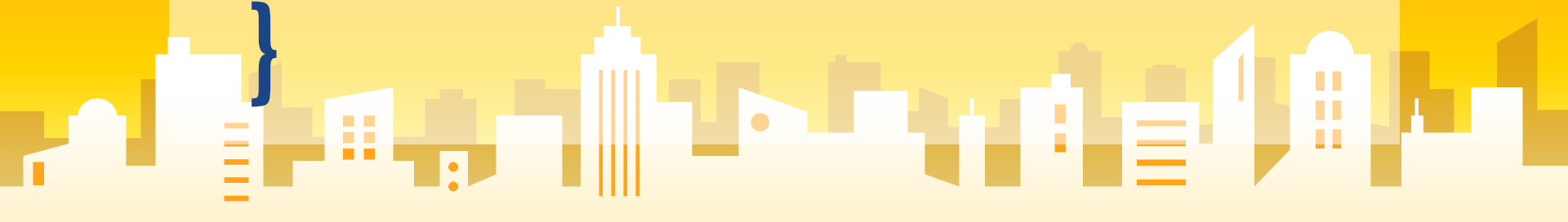
For Loops

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

Tells the loop to run until i < 5

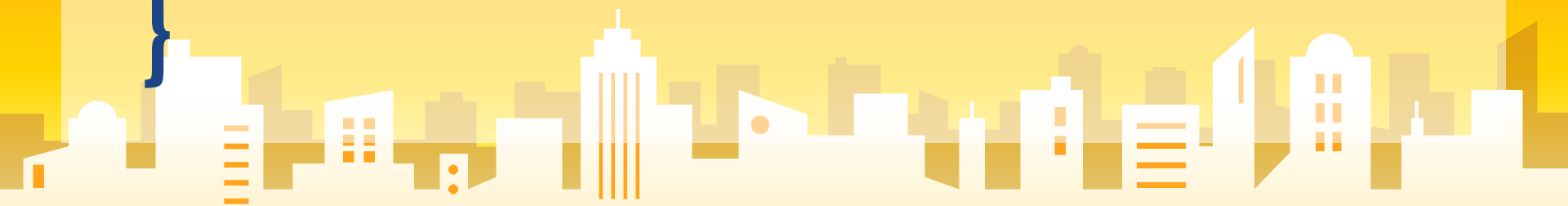
Increments i by 1 each time the loop runs

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



Let's Practice For Loops

```
for ( _____; _____; _____) {
   // code
}
```



Worksheet Time!

Let’s get out our pens and pencils!

Coding Time!

Let’s hop on Khan Academy!