

# Nation Code

## JavaScript Fundamentals

Loops

{codenation}<sup>®</sup>

- **To understand the uses of a for loop**
- **To understand the uses of a while loop**
- **To tell the difference between for and while loops**
- **To write programs using both for and while loops**

**Learning Objectives**



# First thing's first

Create a **function** for a sub sandwich  
order: 5 toppings



# First thing's first

Create a **function** for a sub sandwich  
order: 5 toppings

```
const sandwichOrder = (top1, top2, top3, top4, top5) => {  
  console.log(`We are preparing your sandwich order:  
    ${top1}, ${top2}, ${top3}, ${top4}, ${top5}`);  
}  
  
sandwichOrder("ham", "cheese", "turkey", "bacon", "tuna");
```

# Remember me?

```
for( i = 0 ; i < 10 ; i++ ){  
    console.log(i);  
}
```

# Second things second

If we can create a loop to put 0-9 on the screen, how can we count from 9 to 0?

Try it.



# Second things second

If we can create a loop to put 0-9 on the screen, how can we count from 9 to 0?

```
for (i = 9; i > 0; i--) {  
  console.log(i);  
}
```

# Second things second

**Generate 6 random numbers between 1-50**





# Second things second

Generate 6 random numbers between 1-50

```
for (i = 0; i < 6; i++) {  
    console.log(Math.random() * 49 + 1);  
}
```

# Second things second

## Generate 6 random numbers between 1-50

```
for (i = 0; i < 6; i++) {  
    console.log(Math.random() * 49 + 1);  
}
```

Or

```
for (i = 0; i < 6; i++) {  
    Math.random() * 49 + 1;  
}
```



**Everyone works differently so your code might be different to your peers, this is completely normal!**

**Moving on. Loop de loop**

**Imagine doing the same thing over and over and over again.**

**For example, if I asked you to make me a cup of tea...**

**And then asked you again to make  
everyone in the room a cup of tea...**

**Then everyone in the building...**

**Ugh.**



# Iteration **in coding**

# for loops

**If I said to you make an array of your 3 favourite drinks and log each to the console...**

- 1) I'd expect you to have a good time doing it**
- 2) I'd expect you to do something like this**

```
let favouriteDrinks = ["Coke", "Fanta", "Tonic"];  
  
console.log(favouriteDrinks[0]);  
console.log(favouriteDrinks[1]);  
console.log(favouriteDrinks[2]);
```

**But imagine if I said 1000 drinks**



**Let's make this code work for us.**



# Iteration in coding using **for** loops

```
let favouriteChoco = [  
    "Mars",  
    "Snickers",  
    "Dairy Milk",  
    "Picnic"  
];  
  
for (chocoIndex = 0; chocoIndex < favouriteChoco.length;  
chocoIndex++) {  
    console.log(favouriteChoco[chocoIndex]);  
}
```

```
for (statement1; statement2; statement3){  
    //do stuff  
}
```

# Iteration in coding using **for** loops

```
let favouriteChoco = [  
  "Mars",  
  "Snickers",  
  "Dairy Milk",  
  "Picnic"  
];  
  
for (chocoIndex = 0; chocoIndex < favouriteChoco.length; chocoIndex++) {  
  console.log(favouriteChoco[chocoIndex]);  
}
```

Set the index variable to 0 before the loop starts

# Iteration in coding using **for** loops

```
let favouriteChoco = [  
  "Mars",  
  "Snickers",  
  "Dairy Milk",  
  "Picnic"  
];  
  
for (chocoIndex = 0; chocoIndex < favouriteChoco.length; chocoIndex++) {  
  console.log(favouriteChoco[chocoIndex]);  
}
```

We define the condition for the loop to run.  
As long as the variable is less than the length  
of the array the loop will continue

# Iteration in coding using **for** loops

```
let favouriteChoco = [  
  "Mars",  
  "Snickers",  
  "Dairy Milk",  
  "Picnic"  
];  
  
for (chocoIndex = 0; chocoIndex < favouriteChoco.length; chocoIndex++) {  
  console.log(favouriteChoco[chocoIndex]);  
}
```

Each time the loop executes, the variable is incremented by one

# Iteration in coding using **for** loops

```
let favouriteChoco = [  
  "Mars",  
  "Snickers",  
  "Dairy Milk",  
  "Picnic"  
];  
  
for (chocoIndex = 0; chocoIndex < favouriteChoco.length; chocoIndex++) {  
  console.log(favouriteChoco[chocoIndex]);  
}
```

Once the variable is no longer less than the array's length, the loop will end

# Activity:

Create an array that lists your favourite films, up to 5 elements

Add 2 more using a method

Use a loop to cycle through the array

**Hint:** `for (filmIndex = 0; ...`

# while loops



**for** loops run a **finite**, or limited number of times.

A **while** loop is a little **different**

```
while (condition){  
    //do stuff  
}
```

## for loops

```
for (statement1; statement2; statement3){  
    //do stuff  
}
```

## while loops

```
while (condition){  
    //do stuff  
}
```

```
let cards = ["Diamond", "Spade", "Heart", "Club"];
let currentCard = "Spade";


while(currentCard !== "Spade"){

    console.log(currentCard);
    currentCard = cards[Math.floor(Math.random()*4)];

}

console.log(currentCard);
```

```
let cards = ["Diamond", "Spade", "Heart", "Club"];
let currentCard = "Spade";

while(currentCard  != "Spade") {

    console.log(currentCard);
    currentCard = cards[Math.floor(Math.random()*4)];

}

console.log(currentCard);
```

```
let cards = ["Diamond", "Spade", "Heart", "Club"];
let currentCard = "";

while(currentCard !== "Spade"){

    console.log(currentCard);
    currentCard = cards[Math.floor(Math.random()*4)];

}

console.log(currentCard);
```

- **To understand the uses of a for loop**
- **To understand the uses of a while loop**
- **To tell the difference between for and while loops**
- **To write programs using both for and while loops**

**Learning Objectives**



# Activity:

## Continuing your film for loop

Create a function called `filmCheck()` that checks if the 3<sup>rd</sup> film in the array is Ghostbusters.

If it is, it should return "Yay it's Ghostbusters". If it isn't, it should return "Booo, we want Ghostbusters"