



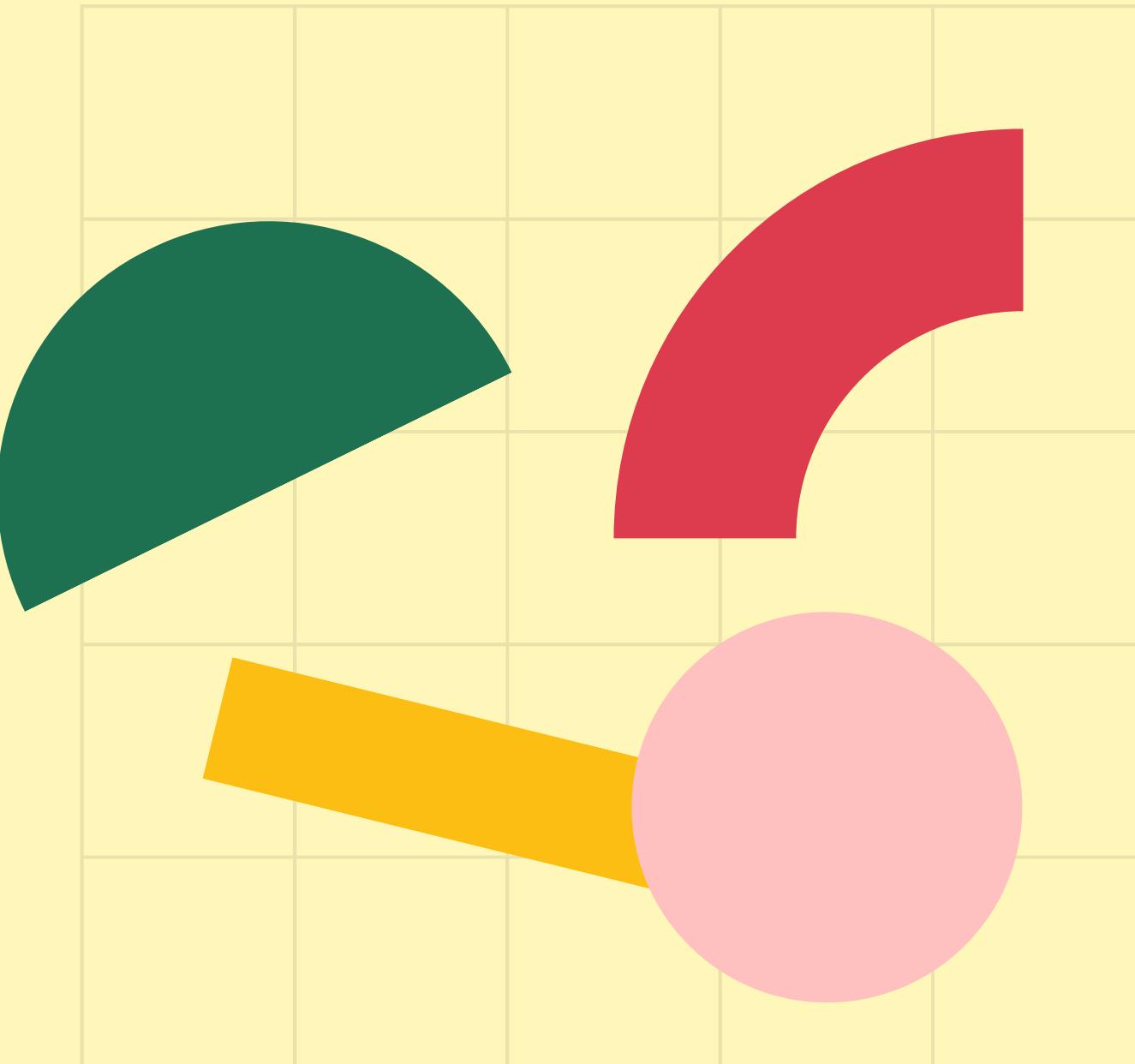
JavaScript Loops

Repeating Stuff With Loops

Unit Goals

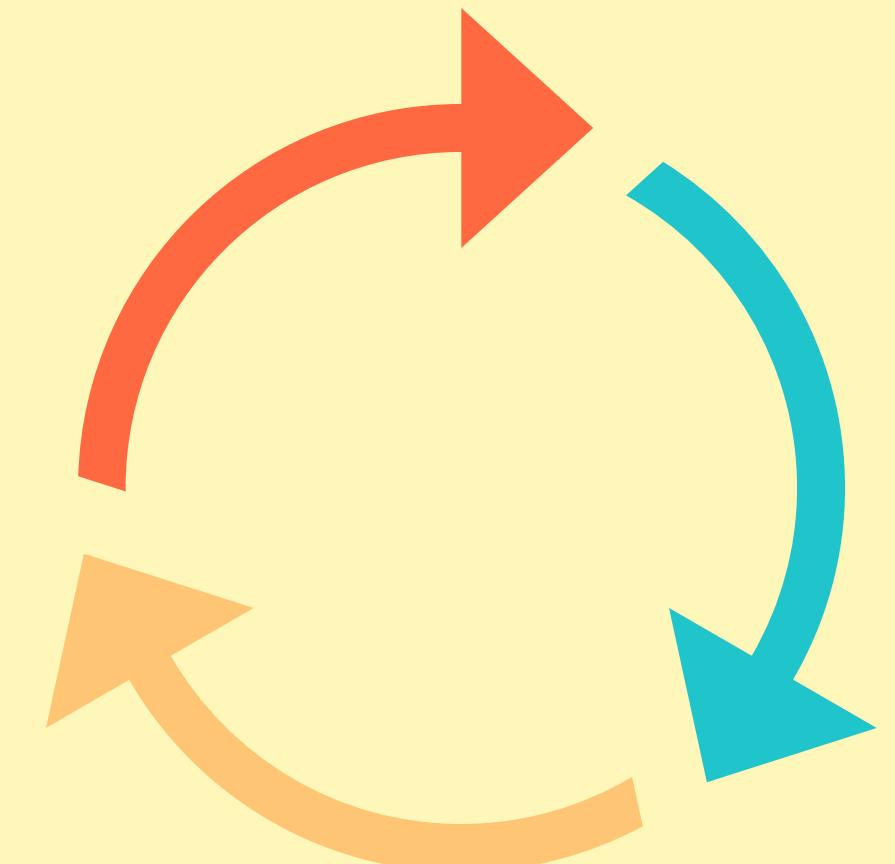
what we'll cover

- what loops are
- for loops
- while loops
- iterating over arrays
- nested loops



LOOPS

- Loops allow us to repeat code
 - Print 'hello' 10 times
 - Sum all numbers in an array
- There are multiple types:
 - for loop
 - while loop
 - for...of loop
 - for...in loop



FOR LOOPS

SYNTAX

```
for(  
    [initialExpression];  
    [condition];  
    [incrementExpression]  
)
```

FOR LOOP

EXAMPLE



```
start at 1      stop at 10      add 1 each time
for (let i = 1; i <= 10; i++) {
  console.log(i);
}
```

FOR LOOP

ANOTHER EXAMPLE

```
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for (let i = 50; i >= 0; i -= 10) {
    console.log(i);
}
//50
//40
//30
//20
//10
//0
```

- Start i at 50
- Subtract 10 each iteration
- Keep going as long as $i \geq 0$

INFINITE LOOPS

```
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//DO NOT RUN THIS CODE!  
for (let i = 20; i >= 0; i++) {  
    console.log(i);  
} //BADDDED!!!
```



LOOPING OVER ARRAYS



```
const animals = [ 'lions', 'tigers', 'bears' ];

for (let i = 0; i < animals.length; i++) {
  console.log(i, animals[i]);
}

//0 'lions'
//1 'tigers'
//2 'bears'
```

To loop over an array, start at index 0 and continue looping until last index (`length - 1`)

NESTED LOOPS



```
let str = 'LOL';
for (let i = 0; i <= 4; i++) {
  console.log("Outer:", i);
  for (let j = 0; j < str.length; j++) {
    console.log(' Inner:', str[j]);
  }
}
```

Outer: 0	Inner: L
Inner: 0	Inner: L
Outer: 1	Inner: L
Inner: 0	Inner: L
Outer: 2	Inner: L
Inner: 0	Inner: L
Outer: 3	Inner: L
Inner: 0	Inner: L
Outer: 4	Inner: L
Inner: 0	Inner: L
Outer: 5	Inner: L

WHILE LOOPS

CONTINUE RUNNING AS LONG AS
THE TEST CONDITION IS TRUE



```
let num = 0;  
while (num < 10) {  
    console.log(num);  
    num++;  
}
```

0

1

2

3

4

WHILE LOOPS

A COMMON PATTERN

```
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let targetNum = Math.floor(Math.random() * 10);
let guess = Math.floor(Math.random() * 10);

while (guess !== targetNum) {
  console.log(`Guessed ${guess}...Incorrect!`);
  guess = Math.floor(Math.random() * 10);
}
console.log(`CORRECT! Guessed: ${guess} & target was: ${targetNum}`);
```

WHILE LOOPS

THE BREAK KEYWORD

```
let targetNum = Math.floor(Math.random() * 10);
let guess = Math.floor(Math.random() * 10);

while (true) {
    guess = Math.floor(Math.random() * 10);
    if (guess === targetNum) {
        console.log(`CORRECT! Guessed: ${guess} & target was: ${targetNum}`);
        break;
    }
    else {
        console.log(`Guessed ${guess}...Incorrect!`);
    }
}
```

FOR ... OF

A NICE AND EASY WAY OF ITERATING OVER ARRAYS OR OTHER ITERABLE OBJECTS



NO INTERNET EXPLORER SUPPORT

FOR ... OF

SYNTAX

```
for (variable of iterable){  
    statement  
}
```

FOR ... OF

EXAMPLE

```
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let subreddits = [ 'soccer', 'popheads', 'cringe', 'books' ];
for (let sub of subreddits) {
    //Do this for every item in subreddits array:
    console.log(` ${sub} - www.reddit.com/r/${sub}`);
}
```

FOR ... OF NESTED

```
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const magicSquare = [
  [ 2, 7, 6 ],
  [ 9, 5, 1 ],
  [ 4, 3, 8 ]
];

for (let row of magicSquare) {
  let sum = 0;
  for (let num of row) {
    sum += num;
  }
  console.log(`Row of ${row} sums to ${sum}`);
}
```