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Arrays

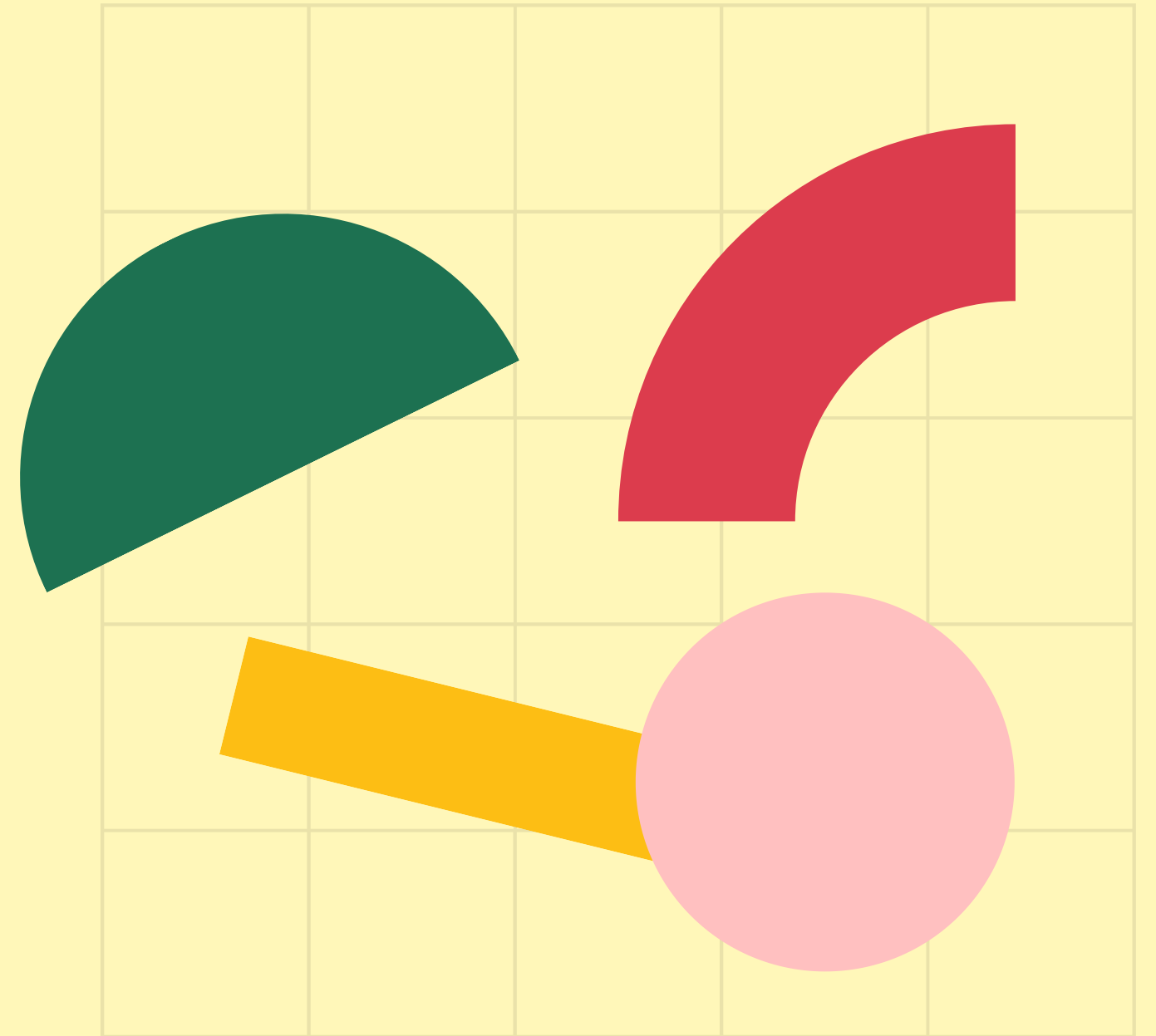
JavaScript Arrays – Our First Data Structure



Unit Goals

what we'll cover

- creating arrays
- modifying arrays
- array methods
- nested arrays



ARRAYS



They are an ordered collections of values:

- list of comments on IG post
- collection of levels in a game
- songs in a playlist

CREATING ARRAYS



```
// To make an empty array
```

```
let students = [];
```

```
//An array of strings
```

```
let colors = ['red', 'orange', 'yellow'];
```

```
//An array of numbers
```

```
let lottoNums = [19,22,56,12,51];
```

```
//A mixed array
```

```
let stuff = [true, 68, 'cat', null];
```

ARRAYS ARE INDEXED



DOG

CAT

WOLF

DEER

0

1

2

3

Each element has a corresponding index
(counting starts at 0)

ARRAYS ARE INDEXED



```
let colors = ['red', 'orange', 'yellow', 'green'];
```

```
colors.length //4
```

```
colors[0] //'red'
```

```
colors[1] //'orange'
```

```
colors[2] //'yellow'
```

```
colors[3] //'green'
```

```
colors[4] //'undefined'
```

MODIFYING ARRAYS



```
let colors = ['red', 'orange', 'green', 'yellow'];

colors[0] = 'red';

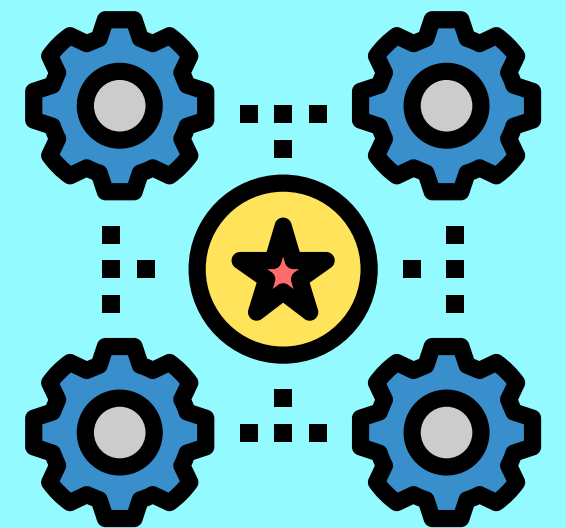
colors[2] = 'yellow';
colors[3] = 'green';

colors[4]; //undefined
colors[4] = 'blue';
//["red", "orange", "yellow", "green", "blue"]
```

ARRAY METHODS



- push** - add to end
- pop** - remove from end
- shift** - remove from start
- unshift** - add to start



MORE METHODS



- concat** - merge arrays
- includes** - look for a value
- indexOf** - just like `string.indexOf`
- join** - creates a string from an array
- reverse** - reverses an array
- slice** - copies a portion on an array
- splice** - removes/replaces elements
- sort** - sorts an array

CONST AND ARRAYS



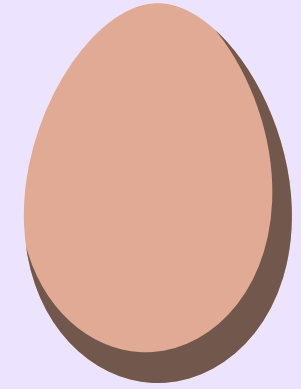
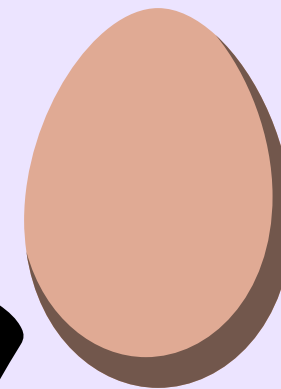
Why do people use const with arrays?

The values can change as long as the reference remains the same.



```
const myEggs = ['brown', 'brown'];
```

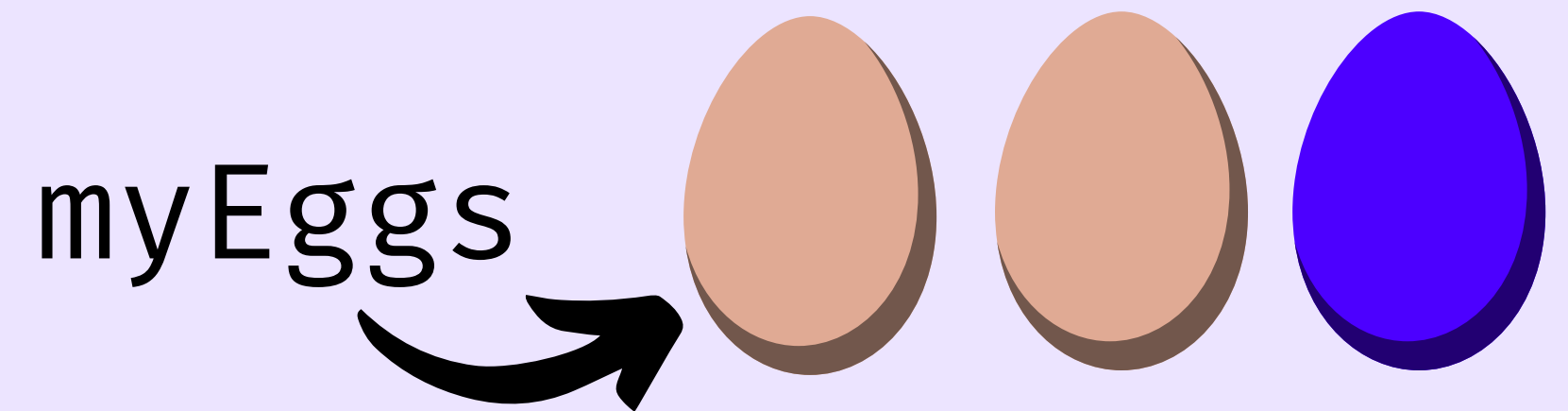
myEggs



The values can change as long as the reference remains the same.



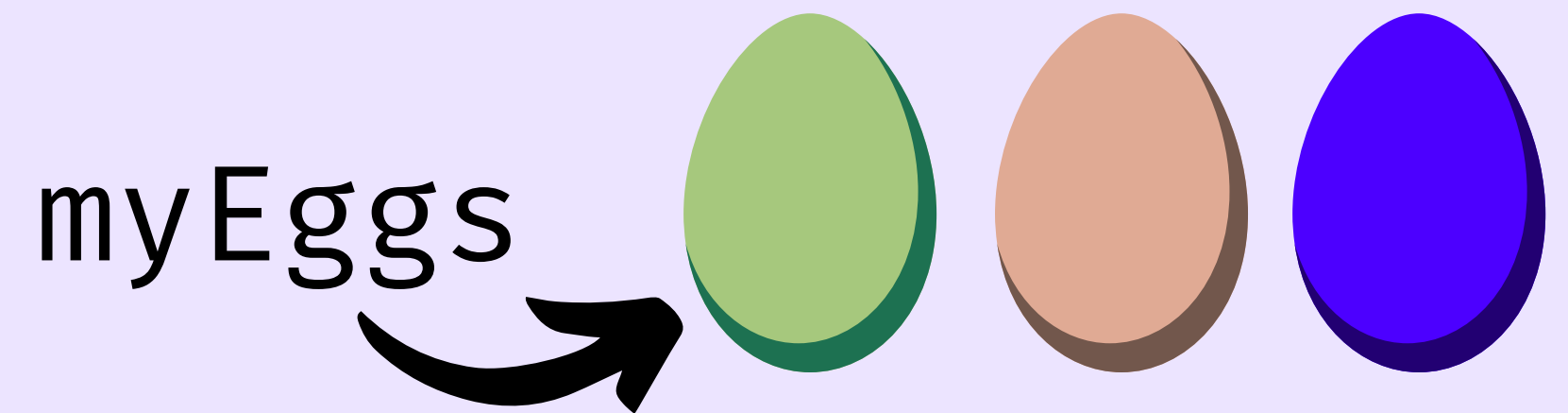
```
const myEggs = ['brown', 'brown'];  
myEggs.push('purple');
```



The values can change as long as the reference remains the same.



```
const myEggs = ['brown', 'brown'];  
myEggs.push('purple');  
myEggs[0] = 'green';
```

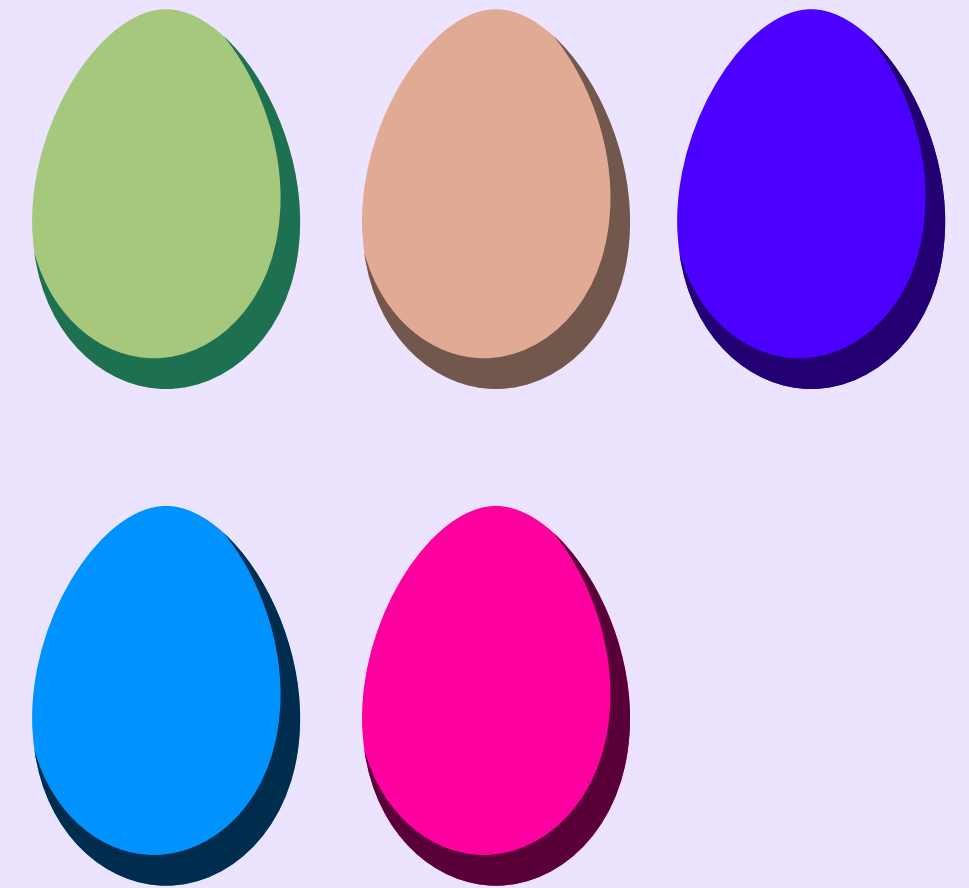
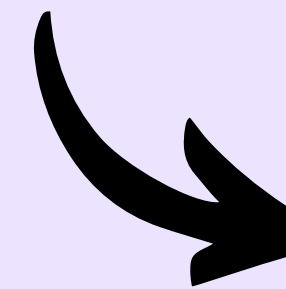


The values can change as long as the reference remains the same.



```
const myEggs = ['brown', 'brown'];  
myEggs.push('purple');  
myEggs[0] = 'green';  
  
myEggs = ['blue', 'pink']; //NO!
```

myEggs



✖ ▶ Uncaught TypeError: Assignment to constant variable.

NESTED ARRAYS



WE CAN STORE ARRAYS INSIDE OTHER ARRAYS



```
const colors = [  
  ['red', 'crimson'],  
  ['orange', 'dark orange'],  
  ['yellow', 'golden rod'],  
  ['green', 'olive'],  
  ['blue', 'navy blue'],  
  ['purple', 'orchid']  
]
```

NESTED ARRAYS



```
const board = [  
  ['0', null, 'X'],  
  [null, 'X', '0'],  
  ['X', '0', null]  
]
```

