

COMPUTER PROGRAMMING >
HTML/JS: MAKING WEBPAGES
INTERACTIVEGet ready to make your
webpages interactiveWelcome to making
webpages interactive

Review HTML/CSS

Practice: Quiz: HTML/CSS
recap

Review JavaScript

Practice: Quiz: JavaScript
recapNext tutorial
JS and the DOM

Quiz: HTML/CSS recap

For the following CSS rule for a `<div>`, pick the CSS properties and values that make the most sense in the dropdowns:

`<style>``div {``background-color : rgb(255, 0, 0) ;``position : absolute ;``top : 10px ;``}``</style>`Way to go! [See a step-by-step solution](#)

Good work!

Keep going. [Or see how we answered this question.](#)

5 of 5

[Show summary](#)

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- Welcome to making webpages interactive
- Review HTML/CSS
- Practice: Quiz: HTML/CSS recap
- Review JavaScript
- Practice: Quiz: JavaScript recap

Next tutorial
JS and the DOM

Quiz: JavaScript recap

Which of the following are keywords in the JavaScript language, i.e. they would be used and understood in any JavaScript environment?

Choose all answers that apply:



CORRECT (SELECTED)

if



INCORRECT

text



CORRECT (SELECTED)

function



CORRECT (SELECTED)

for



INCORRECT



You improved your answer!

You got it; keep up the great persistence.

12 of 12



Show summary

▶ Putting JS in a webpage

- ▶ The DOM (Document Object Model)

Practice: Quiz: What is DOM?

▶ Debugging webpages with the browser console

Next tutorial
DOM access methods

Replace the webpage with JS

Inside the `<script>` tag, use the line of code that we showed you to replace the contents of the webpage with a custom message instead - it can say whatever you want, as long as it's a few letters long. We'll explain more about how that line of code works in the next talk-through.

```

11     </head>
12 <body>
13     <p>A dialogue from <a href="http://en.wikipedia.org/wiki/The_Princess_Bride_%28film%29">The Princess Bride</a>:</p>
14 >
15     <ul>
16     <li><strong>Vizzini</strong>: HE DIDN'T FALL? INCONCEIVABLE.</li>
17     <li><strong>Inigo Montoya</strong>: You keep using that word. I do not think it means what you think it means.</li>
18     </ul>
19     <script>
20     document.body.innerHTML = 'GO SPURS GO';
21     </script>
22 </body>
23 </html>
24
25

```

GO SPURS GO

Undo

[Start over](#)

 Reload

Spin-off

Step 2/2

Onwards!

Congratulations:
You earned 1050
points!



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JS and the DOM

▶ Putting JS in a webpage

★ Challenge: A scripted
script tag▶ The DOM (Document
Object Model)★ Practice: Quiz: What is
DOM?▶ Debugging webpages with
the browser consoleNext tutorial
DOM access methods

Quiz: What is DOM?

Which of these lines of code would replace the content of a webpage with "Khaaaaan"?

Choose 1 answer:



INCORRECT

```
document.innerHTML = "Khaaaaan";
```



INCORRECT

```
document.innerHTML("Khaaaaan");
```



CORRECT (SELECTED)

```
document.body.innerHTML = "Khaaaaan";
```



INCORRECT

```
document.body.html("Khaaaaan");
```



INCORRECT

```
document.body.html =
```



Good work!

Keep going. [Or see how we answered this question.](#)

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Show summary

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DOM access methods

Finding elements by ID

Challenge: ID changer

Finding multiple DOM elements by tag or class name

Challenge: Custom name tags

Finding elements by CSS selector

Challenge: Query modernizer

Challenge: ID changer

Store the heading in a variable

This webpage has an h1 with a placeholder name in it. In this challenge, you'll use JavaScript to replace that with your own name.

For this first step, declare a variable and store the element inside it. You can find the element by passing the ID of the h1 as a string to the `document.getElementById()` function.

Hint What's this?

```
var _ = _;
```

(Report a problem)

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <meta charset="utf-8">
5     <title>Challenge: ID changer</title>
6     <style>
7       #id-card {
8         border: 1px solid black;
9         border-radius: 5px;
10        width: 400px;
11        font-family: monospace;
12        padding: 6px;
13        background: rgb(201, 255, 224);
14      }
15      #id-name {
16        float: right;
17      }
18    </style>
19  </head>
```

You did it!

Undo

Khan Academy identification card

Joshua Rao

Congratulations!
You earned 1500
points!

DOM access methods

(Report a problem)

Hint What's this?

$$\text{var}^* = _;$$

This webpage uses `div`s to create name tags for a few famous computer scientists. In this challenge, you'll use JavaScript to change the text of all the `h1`s in the name tags. In this first step, use `document.getElementsByTagName` to find all the headings, and store them in a variable.

```
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <meta charset="utf-8">
5     <title>Challenge: Custom name tags</title>
6     <style>
7       * {
8         box-sizing: border-box;
9       }
10
11     .name-tag {
12       border: 1px solid red;
13       border-radius: 6px;
14       width: 300px;
15       height: 150px;
16       margin-bottom:
17       background: re
18       font-family: s
19     }
```

Great job!

Hello, world

Grace Hopper

Hello, world

Alan Turing

Congratulations!
You earned 1500
points!

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DOM access methods

Finding multiple DOM elements by tag or class name

Challenge: Custom name tags

Finding elements by CSS selector

Challenge: Query modernizer

Summary: DOM access methods

 Next tutorial
 DOM modification

Challenge: Query modernizer

[\(Report a problem\)](#)

Select the elements

This webpage displays a selection of Isaac Newton's Queries, a book from the 1700s. Back then, Newton used the word 'doth' instead of 'does', because that's how English was spoken. In this challenge, you'll change all instances of 'doth' to 'does'. Each of them is surrounded by a `` with a class of 'doth'. For the first step, use `document.querySelectorAll` to find only the 'doth's that are inside the list, and store them in a variable.

```

17 <p>Language note: Newton originally used <span class="doth">
18 >"doth"</span>, which is the same as "does".</p>
19 <p><a href="http://homepages.wmich.edu/~mcgrew/nq.htm">See
20 more</a></p>
21 <script>
22 // Step 1: Store all doth that are inside lis in
23 dothEls
24 var dothEls = document.querySelectorAll("li .doth");
25
26 for (var i = 0; i < dothEls.length; i++) {
27   dothEls[i].innerHTML = 'does';
28 }
29 // Step 2: Iterate through dothEls and change doth to does
30 </script>
31 </body>
32 </html>

```

You did it!



:h to does

Undo

Start
overSpin-
off

Step 1/3

Finish
challenge!

Onwards!

Isaac Newton's Queries

Selected Queries from Newton's Opticks, 4th ed.

- Query 19:* does not the Refraction of Light proceed from the different density of this Aethereal Medium in different places, the Light receding always from the denser parts of the Medium? And is not the density thereof always greater in free and open Spaces devoid of Air and other grosser Bodies, than within the pores of Water, Glass, Crystal, Gems, and other compact Bodies? For when light passes through Glass or Crystal, and falling very obliquely upon the farther surface thereof is totally reflected, the total Reflexion thereof ought to proceed rather from the density and vigour of the Medium without and beyond the Glass, than from the rarity and weakness thereof.
- Query 20:* does not this Aethereal Medium in passing out of Water, Glass, Crystal

Congratulations!
You earned 2100
points!



lies into empty Spaces, grown denser and denser
ract the Rays of Light not in a point, but by
Lines? And does not the gradual condensation of
uice from the Bodies, and thereby cause the
hich pass by the edges of dense Bodies, at some

(Report a problem)

Hint What's this?

```
var avatarEls = document.getElementsByTagName("img");
for( _; _; _){
    avatarEls[_]._ = _;
}
```

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DOM modification

Challenge: Avatar
attributes

Changing styles

Challenge: Style guide

Changing CSS classes

Challenge: Classification

Setting innerHTML and
textContentChallenge: The inside
story

Challenge: Style guide

Change the color style

This webpage is all about trendy styles, and you'll use JS to fill in the trends and style them with CSS properties. In this first step, use JS to set the innerHTML of colorEl to your favorite color, and then use JS to set a matching color property.

Hint [What's this?](#)

```
colorEl._ = _;  
colorEl._._ = _;
```

[\(Report a problem\)](#)

```
1 <!DOCTYPE html>  
2 <html>  
3 <head>  
4   <meta charset="utf-8">  
5   <title>Challenge: Style guide</title>  
6 </head>  
7 <body>  
8  
9   <h1>Style guide</h1>  
10  
11   <p>The hottest color to wear right now is:  
12     <span id="trendy-color">?</span>  
13 </p>  
14  
15   <p>This is the trendy way  
16     <span id="trendy-handw  
17 </p>  
18  
19   <p>This is the trendy way to frame photographs:
```

You did it!



Undo

Start
over

Reload

Spin-
off

Step 1/3

Finish
challenge!

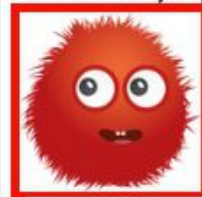
Onwards!

Style guide

The hottest color to wear right now is: **RED**

This is the trendy way to sign an autograph: Roger Federer

This is the trendy way to frame photographs:



Congratulations!
You earned 2100
points!

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Changing styles

Challenge: Style guide

Changing CSS classes

Challenge: Classification

Setting innerHTML and
textContentChallenge: The inside
storyCreating elements from
scratch

Challenge: Classification

Add the classes

This webpage displays a quiz about animal classification, with three possible answers. We've stored them into 3 variables and declared CSS rules for 2 classes at the top. Use JS to add the 'right-answer' class to rightAnswer and the 'wrong-answer' class to wrongAnswer1 and wrongAnswer2.

Hint [What's this?](#)

```
rightAnswer._ = _;  
wrongAnswer1._ = _;  
wrongAnswer2._ = _;
```

[\(Report a problem\)](#)

```
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37
```

```
<p>Which animal class do humans belong to?</p>  
<ul id="answers">  
  <li>Mammalia</li>  
  <li>Ascidiacea</li>  
  <li>Reptilia</li>  
</ul>  
  
<script>  
  var answers = document.querySelectorAll('#answers li');  
  var rightAnswer = answers[0];  
  rightAnswer.className = 'right-answer';  
  var wrongAnswer1 = answers[1];  
  wrongAnswer1.className = 'wrong-answer';  
  var wrongAnswer2 = ans  
  wrongAnswer2.className  
</script>  
</body>  
</html>
```

Great job!



Pop Quiz: Animal Classification

Which animal class do humans belong to?

- Mammalia
- Ascidiacea
- Reptilia

Congratulations!
You earned 1500
points!



Undo

Start
overSpin-
offStep
1/1Finish
challenge!

Onwards!

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Challenge: Classification

 Setting innerHTML and
 textContent

 Challenge: The inside
 story

 Creating elements from
 scratch

 Challenge: Create a solar
 system

 Summary: DOM
 modification techniques

Challenge: The inside story

What does Oh Noes say?

This is an inside story about the true feelings of Oh Noes and Winston, and in this challenge, you'll fill in the crucial lines. For this first step, use `innerHTML` to set what Oh Noes says, and include a `strong` or `em` tag somewhere in it.

Hint [What's this?](#)

ohnoesSays... = ...;

[\(Report a problem\)](#)

```

1 <!DOCTYPE html>
2 <html>
3   <head>
4     <meta charset="utf-8">
5     <title>Challenge: The inside story</title>
6   </head>
7   <body>
8     <h1>The inside story: Why is Oh Noes so sad?</h1>
9
10    <p>We had an exclusive interview with Oh Noes guy, the
    error buddy, and we asked him the question that all of you were
    wondering about: "Why do you always seem so sad?" Here's his
    shocking reply:</p>
11    <p id="ohnoes-says"></p>
12
13    <p>We asked Winston for comment, and this is all he would say
    about it:</p>
14    <p id="winston-says"></p>
15  </body>
  
```

You did it!



...ll he

Undo

Start
over

Reload

Spin-
offStep
1/2Finish
challenge!

Onwards!

The inside story: Why is Oh Noes so sad?

We had an exclusive interview with Oh Noes guy, the error buddy, and we asked him the question that all of you were wondering about: "Why do you always seem so sad?" Here's his shocking reply:

YES PLEASE

We asked Winston for comment, and this is all he would say about it:

GO SPURS BOY
 Congratulations!
 You earned 1500
 points!
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DOM modification

▶ Setting innerHTML and
textContent★ Challenge: The inside
story▶ Creating elements from
scratch★ Challenge: Create a solar
system📄 Summary: DOM
modification techniquesNext tutorial
DOM events

Challenge: Create a solar system

[\(Report a problem\)](#)

Create a planet

This webpage is just a blank universe, and you'll fill it with planets and moons in this challenge. In this first step, use JavaScript to create a div using `createElement`, assign it the 'planet' class, set a nice background color for it, and finally append it to the body.

```
28 <body>
29
30
31 <script>
32   var newDiv = document.createElement("div");
33   var moonDiv = document.createElement("div");
34   newDiv.className = 'planet';
35   newDiv.style.backgroundColor = "red";
36   moonDiv.className = 'moon';
37   moonDiv.style.backgroundColor = "blue";
38   newDiv.appendChild(moonDiv);
39
40   document.body.appendChild(newDiv);
41   // document.body.appendChild(moonDiv);
42
43 </script>
44 </body>
45
46 </html>
```

Great job!



Congratulations!
You earned 2100
points!



Undo

Start
overSpin-
offStep
1/2Finish
challenge!

Onwards!

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DOM events

Adding an event listener

Challenge: Cat Clicker

DOM event types

Using the event properties

Challenge: Cat-stache

Processing forms with events

(Report a problem)

Make sure you click the cat to check that it works! Cats love being petted. :)

You figured it out!



Meow

Congratulations:
You earned 2100
points!

Start
over

 Reload

Spin-off

Step 4/4

Finish challenge!

Onwards!

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DOM events

▶ Making webpages
interactive with events

▶ Adding an event listener

★ Challenge: Cat Clicker

📄 DOM event types

▶ Using the event properties

★ Challenge: Cat-stache

▶ Processing forms with
events

Challenge: Cat-stache

[\(Report a problem\)](#)

Click the cat

Make sure you click around to see how the mustache looks. You might want to add/subtract a little from the event properties, since the image is being positioned according to its left corner, not center.

```
15
16     
17
18     <script>
19         var catPic = document.getElementById("cat-pic");
20         var onCatClick = function(e) {
21             var stashePic = document.getElementById
    ("mustache-pic");
22             stashePic.style.top = e.clientY + "px";
23             stashePic.style.left = e.clientX + "px";
24         };
25         catPic.addEventListener("click", onCatClick);
26
27     </script>
28 </body>
29 </html>
30
```



Congratulations!
You earned 2100
points!



Undo

Start over



Reload

Spin-off

Step 2/2

Onwards!

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DOM events

▶ Using the event properties

★ Challenge: Cat-stache

▶ Processing forms with events

★ Challenge: Mad Libs

▶ Preventing default behavior of events

📄 Summary: DOM events

Next tutorial
DOM animation

Challenge: Mad Libs

[\(Report a problem\)](#)

Play the game

Enter some values in, click the button, and read the story that comes out.

Once you complete this challenge, you can keep going by making a spin-off, adding more fields and maybe even pictures based on what they type.

```
21 </p>
22
23 <script>
24   var libButton = document.getElementById('lib-button');
25   var libIt = function() {
26     var storyDiv = document.getElementById("story");
27     var noun = document.getElementById("noun").value;
28     var adjective = document.getElementById("adjective")
29       .value;
30     var person = document.getElementById("person")
31       .value;
32     alert(noun);
33     storyDiv.innerHTML = person + " " + noun + " " +
34       adjective;
35   };
36   libButton.addEventListener
```

You did it!



Undo

Start
over

Reload

Spin-
offStep
2/2Finish
challenge!

Onwards!

Mad Libs

- Noun:
- Adjective:
- Someone's Name:

Lib it!

Generated story: oslo truck happy

Congratulations!
You earned 2100
points![About](#)[Documentation](#)[Spin-offs](#)

DOM animation

(Report a problem)

Click the `button` to make sure it stops the clock. We'll check the `result` a second after you click, so wait for the checkmark to appear.

Click the `button` to make sure it stops the clock. We'll check the `result` a second after you click, so wait for the checkmark to appear.

5 seconds have gone by!



Onwards!

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DOM animation

Challenge: Catwalk

Make the cat walk

This webpage contains a cat that's already animated, but that's only because it's an animated GIF. For this challenge, you'll make the cat move across the screen, too, in JS. Change the `walkTheCat` function so that it updates the cat's `left` position property, and then make sure it's called repeatedly using the `window.requestAnimationFrame` function.

Hint [What's this?](#)

```
var newLeft = _;  
catEl._ = _;  
_(_);
```

[\(Report a problem\)](#)

```
1 <!DOCTYPE html>  
2 <html>  
3   <head>  
4     <meta charset="utf-8">  
5     <title>Challenge: Catwalk</title>  
6     <style>  
7       #cat {  
8         position: absolute;  
9         left: 0px;  
10      }  
11    </style>  
12  </head>  
13  <body>  
14    <div>  
15      <!-- Cat walking GIF from: http://www.aniimation.com  
16      /clip_art/graphics.html -->  
17        
18    </div>
```



Congratulations!
You earned 2100
points!



Undo

Start over



Reload

Spin-off

Step 1/1

Onwards!

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webpage

What's a JS library?

Using a JS library:
Slideshow libraryWhere are JS libraries
hosted?

Practice: Quiz: JS libraries

The world of JS libraries

Which JS library should
you use?

Quiz: JS libraries

What is a CDN?

Choose 1 answer:



INCORRECT

"CSS Distribution Network": a place to find useful CSS libraries.



CORRECT (SELECTED)

"Content Delivery Network": a server that's specialized for serving static files (like JS libraries) quickly.



INCORRECT

"Code Dump Network": a place where developers share short JS libraries.

Way to go! [See a step-by-step solution.](#)

Great work! ✕

You got it. Onward!

5 of 5



Show summary