

# 3.5 Audio and video

## Audio element

The **<audio>** element plays an audio file in a webpage. The **<source>** element is used inside the **<audio>** tag to specify an audio file to play. Some common **<audio>** attributes include:

- **autoplay** - Boolean attribute that makes the audio begin playing automatically.
- **controls** - Boolean attribute that displays audio controls for the user to play, pause, and control the volume.
- **loop** - Boolean attribute that replays the audio upon reaching the end of the audio.
- **muted** - Boolean attribute that initially mutes the audio.

Note: Some browsers block **<audio autoplay>** from autoplaying so users are not jolted with sound when visiting a webpage.

## Browser plug-ins

Prior to HTML5, developers used **<embed>** and **<object>** elements to embed audio or video in a webpage. The embedded audio or video required browser plug-in to play the media. A browser **plug-in** is software that can properly read and interpret a file format that the browser cannot. Ex: The Flash Player plug-in allows a browser to play Flash files. Plug-ins have traditionally been a source of security risks for web browsers, and some browsers have stopped supporting some types of plug-ins.

### PARTICIPATION ACTIVITY

3.5.1: Audio element.



The **<audio>** tag below loads the MP3 file specified with the **<source>** tag. The text "Your browser does not support the audio element" message only displays on older browsers that do not support the **<audio>** tag.

1. Press the play button to play the audio and the pause button to pause the audio.
2. Add the **autoplay** attribute to the **<audio>** tag and render the webpage.  
Note how the MP3 plays automatically.

3. Add the `loop` attribute to the `<audio>` tag and render the webpage. The audio will restart upon reaching the end of the audio.
4. Add the `muted` attribute to the `<audio>` tag and render the webpage. Note how the audio is initially muted.

Vivaldi meets hip hop by tyops: [Creative Commons Attribution License](#)

```
1 <audio controls>
2   <source src="https://resources.zybooks.com/WebProgramming/tyops/Vivaldi_meets_hip_hop.mp3">
3 Your browser does not support the audio element.
4 </audio>
5
```

Render webpageReset code

### Your webpage

0:00 / 0:28

▼ View solution

 Explain

--- START FILE: html ---

```
<audio controls autoplay loop muted>
  <source
    src="https://resources.zybooks.com/WebProgramming/tyops_vival
    meets-hip-hop.mp3">
  Your browser does not support the audio element.
</audio>
```

--- END FILE: html ---

[Feedback?](#)

Different web browsers support different audio formats, so multiple `<source>` tags can be used to supply alternate file formats. The MP3 and AAC formats have wide browser support.

Table 3.5.1: Common audio formats.

Format	File extension	Description
AAC (Advanced Audio Coding)	.aac	Designed to be the successor of the MP3 format with better sound quality.
MP3	.mp3	The sound portion of an MPEG file. Most popular format for music players.
Ogg Vorbis	.ogg	Open-source audio coding format developed by Xiph.Org Foundation.
Wave (Waveform Audio File Format)	.wav	Developed by Microsoft and IBM, mainly for storing uncompressed audio on Windows.

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**PARTICIPATION ACTIVITY**

3.5.2: Audio element.



- 1) The audio element's audio can always be paused by the user.

True

**Correct**

If the `controls` attribute is not used, no audio control is displayed, and the user cannot pause the audio. Websites



False

- 2) The audio element's \_\_\_\_\_ attribute causes the audio file to play as soon as the audio file has downloaded to the browser.

autoplay  
 loop

- 3) The AAC and MP3 formats are supported by nearly all web browsers.

True  
 False

- 4) A browser that is only capable of playing MP3 audio will download which file?

```
<audio controls>
  <source
    src="sound.ogg">
  <source
    src="sound.mp3">
</audio>
```

sound.mp3  
 sound.ogg

should provide audio controls so that users are not annoyed by the inability to pause the audio.

**Correct**

The `autoplay` attribute allows the audio element to begin playing audio as soon as the audio is ready.



**Correct**

AAC and MP3 are ideal for playing audio because the formats are supported by nearly all web browsers.



**Correct**

The browser will download the first file format the browser supports.



## Video element

The `<video>` element displays a video in a webpage. The `<source>` element is used in a `<video>` tag to specify the name of the video file to play. Some common `<video>` attributes include:

- `autoplay` - Boolean attribute that makes the video begin playing automatically.
- `controls` - Boolean attribute that displays video controls for the user to play, pause, and control the volume.
- `loop` - Boolean attribute that replays upon reaching the end of the video.
- `muted` - Boolean attribute that initially mutes the video.
- `width` - Specifies the pixel width of the video's display area.

[Feedback?](#)

Some browsers will not autoplay a video unless the video is muted. Ex:

<video autoplay muted> will play a muted video successfully in all browsers. Muted video is less jarring to users when visiting a webpage.

PARTICIPATION  
ACTIVITY

3.5.3: Playing a video.



The <video> tag below plays the MP4 file specified by the <source> tag.

1. Press the play button to play the video and the pause button to pause the video.
2. Change the **width** attribute to "300" and render the webpage. The video's display area is now 300 pixels wide.
3. Add the **autoplay** attribute to the <video> tag and render the webpage. Note how the video plays automatically.
4. Add the **muted** attribute to the <video> tag and render the webpage. Note how the video is initially muted.

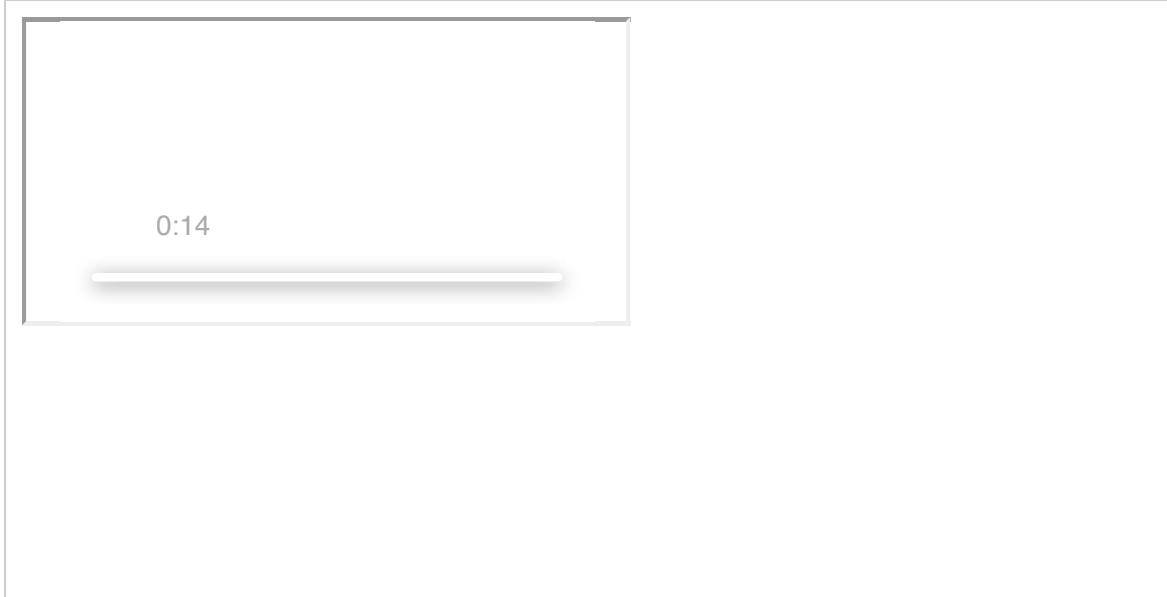
New York City Subway Arriving: CC0 License from [pexels.com](https://pexels.com)

```
1
2 <iframe width="300" allow = "controls; autoplay;" 
3 src="https://resources.zybooks.com/WebProgramming/subway.mp4">
4 </iframe>
```

Render webpage

Reset code

## Your webpage



▼ View solution

Explain

--- START FILE: html ---

```
<video controls width="300" autoplay muted>
  <source
    src="https://resources.zybooks.com/WebProgramming/subway.mp4"
  </video>
```

--- END FILE: html ---

[Feedback?](#)

Different web browsers support different video formats, mainly because of patent issues. Multiple `<source>` tags can be used to supply alternate file formats. MP4, WebM, and Ogg are ideal video formats for playing video on the web.

Table 3.5.2: Common video formats.

Format	File extension	Description
MPEG-4 or	.m4a	Developed by the Moving Pictures Expert Group. m4a

MP4	.mp4	is audio only, but mp4 may contain video.
Ogg Theora	.ogg .ogv .ogm	Open video compression format developed by Xiph.Org Foundation.
WebM	.webm	Open media format developed by Mozilla, Opera, Adobe, and Google for the web.

[Feedback?](#)**PARTICIPATION ACTIVITY****3.5.4: Video element.**

- 1) The size of the video displayed by a video element is configurable.

True  
 False

**Correct**

The `width` and `height` attributes can define the video display area.



- 2) Multiple `<source>` tags can be used to specify different video formats.

True  
 False

**Correct**

Including different video formats increases the chance that more browsers are capable of displaying the video. MP4 currently is the widest accepted video format.



- 3) All browsers autoplay unmuted video.

True  
 False

**Correct**

Some browsers like Chrome will not autoplay unmuted video. Developers use various tricks to circumvent Chrome's restrictions. The video in the Participation Activity above autoplays unmuted in Chrome because the video is embedded in an `iframe` element.



- 4) Playing video uses significantly more network bandwidth than playing just audio.

True  
 False

[Feedback?](#)

## Controlling media playback with JavaScript

The audio and video elements can be controlled with JavaScript. Ex: JavaScript can start and stop audio, change the volume, and jump to a specific location in a video. See the [HTMLMediaElement link](#) in Exploring further below for a list of JavaScript properties and methods to control audio and video.

## Showing YouTube videos

A YouTube video may be embedded in a webpage with the `<iframe>` element. The `<iframe>` element allows a webpage to be embedded in a rectangular area of the current webpage. The `<iframe>` element uses the `src` attribute to specify the URL of the webpage to display and the `width` and `height` attributes to define the width and height in pixels of the rectangular iframe.

The YouTube Help pages give instructions for [uploading a video](#) to YouTube and [embedding a video](#) into a webpage.

### PARTICIPATION ACTIVITY

3.5.5: Embedding a YouTube video.



The webpage below embeds a YouTube video in the webpage. The YouTube URL ends with "7g7kP\_Trp0g?rel=0". `7g7kP_Trp0g` is the ID assigned to the video when the video was first uploaded to YouTube, and `?rel=0` disables showing related videos when the video finishes.

1. Click the video to play the video, and the pause button to pause the video.
2. Add `&autoplay=1` to the end of the YouTube URL and render the webpage.  
The video will play automatically on some browsers but not in others.
3. Add the attribute `allow="autoplay"` to the `<iframe>` tag and render the webpage. For some browsers like Chrome, the video should now play automatically.
4. Change the video ID in the URL to `g4hvUvBmoaA` and render the webpage. A different video should display in the iframe.

```
1 <p>Watch this funny video!</p>
2
3 <iframe width="460" height="250" allow="autoplay"
4     src="https://www.youtube.com/embed/g4hvUvBmoaA?rel=0&autoplay=
5 </iframe>
6
```

Render webpageReset code

### Your webpage

Watch this funny video!

How Star Wars The Phantom Menace Should ...



▼ View solution

Explain

--- START FILE: html ---

```
<p>Watch this funny video!</p>
<iframe width="460" height="250" allow="autoplay"
        src="https://www.youtube.com/embed/g4hvUvBmoaA?
    rel=0&autoplay=1">
</iframe>
```

--- END FILE: html ---

[Feedback?](#)

PARTICIPATION  
ACTIVITY

3.5.6: YouTube videos and <iframe>.



- 1) What <iframe> attribute indicates the URL of the webpage to display in the iframe?

- link
- src
- href

Correct

The `src` attribute may use a relative or absolute URL.



- 2) What is missing to play the YouTube video automatically?

```
<iframe allow="autoplay" width="460"
height="250"
src="_____></iframe>
```

- <https://www.youtube.com/embed/g4hvUvBmoaA>
- <https://www.youtube.com/embed/g4hvUvBmoaA?autoplay=0>
- <https://www.youtube.com/embed/g4hvUvBmoaA?autoplay=1>

Correct

The "autoplay=1" URL parameter turns on autoplay but only works if the iframe allows autoplay. Some browsers will not autoplay a video unless muted by adding "&muted=1" to the URL.



[Feedback?](#)

Exploring further:

- [HTML Video](#) from W3Schools
- [HTML Audio](#) from W3Schools
- [HTML Plug-ins](#) from W3Schools
- [Media formats supported by the HTML audio and video elements](#) from MDN
- [HTMLMediaElement](#) from MDN

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