

Lesson 12: Organizing Content with Flexbox

45 minutes

Overview

This lesson introduces students to two new web development tools: div tags and Flexbox styling. This lesson introduces students to div tags to organize their HTML code into sections. They then learn about Flexbox and how it can be used with their div containers to style and position items. Students practice using Flexbox properties to control the layout of web pages.

Question of the Day: What are div tags and Flexbox and why are they important in web design?

Standards

Full Course Alignment

CSTA K-12 Computer Science Standards (2017)

- AP - Algorithms & Programming

Agenda

Warm Up (5 minutes)

Quick Sketch

Activity (35 minutes)

Introduction to Div and Flex

Div and Flex Practice

Wrap Up (5 minutes)

Solving Layout and Design Issues

Objectives

Students will be able to:

- Analyze and solve common web design layout challenges using div tags and Flexbox
- Apply Flexbox properties in CSS
- Identify and explain the purpose and use of div tags in HTML

Preparation

- Print copies of the handout
- If you would like more information on what Flexbox is and how to use it with CSS, **check out this video!**
- Check the "**Teacher's Lounge**" forum for verified teachers to find additional strategies or resources shared by fellow teachers
- If you are teaching virtually, consider checking our **Virtual Lesson**

Modifications

Links

Heads Up! Please make a copy of any documents you plan to share with students.

For the teachers

- **Div Containers** - Resource
- **Flexbox** - Resource

For the students

- **Flexbox Cheat Sheet** - Handout

▼ Make a Copy

Vocabulary

- **Flexbox** - a layout model in CSS for displaying items
- **div** - the HTML division tag, called "div" for short, is an element that lets you group sets of content together in a container

Introduced Code

- `<div></div>`

Teaching Guide

Warm Up (5 minutes)

Quick Sketch

Remarks

Let's warm up our design skills today with a pencil and paper. I want you to imagine and sketch how you would design a webpage about something you love. You have complete creative freedom!

 **Prompt:** Imagine you are designing a webpage for your favorite hobby, club, pet, animal, food, or something else you love. How would you arrange the following elements:

- Title
- Paragraph of information
- 6-8 images of the topic

 **Do This:** Give students 2 minutes to sketch how they would like to arrange these elements quickly. Encourage creativity and personal expression. After 2 minutes, allow students to quickly share their sketches with a partner before inviting a few volunteers to share their sketches.

Remarks

Now that we've seen some different ways to organize the title, text, and images, let's talk about them real quick.

 **Prompt:** Display the following discussion prompts and quickly discuss one at a time:

- Did you notice any common themes in how we arranged our content? What were they?
- What made you decide to place your title/images/text in that particular spot on the page?

Discussion Goal: The discussion should reveal that organizing webpage content is a crucial part of web design. The tools they will learn today are essential for creating effective layouts, so use examples from the students' sketches to segue into the concepts of div tags and Flexbox. Mention how these tools will help them achieve the layouts they've envisioned. Students should also recognize that there is no "right" way to design a webpage and that different layouts

When discussing the sketches, steer the conversation towards the functionality and layout choices rather than artistic quality. This keeps the focus on web design principles.

Keep the discussion concise and focused. While it is important to hear from several students, be mindful of the time to ensure ample opportunity for the main activity.

Remarks

Great sketches, everyone! Some great ideas for how to organize webpage content! This is a crucial part of a web developer's job which means you need the right tools to help you do this job. Today, we're going to start learning how we can bring your organization and layout ideas to life using div tags in our HTML and Flexbox in our CSS.

Question of the day: What are div tags and Flexbox and why are they important in web design?

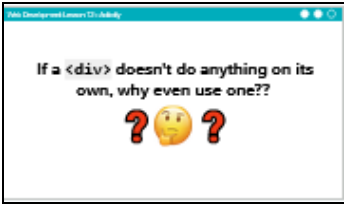
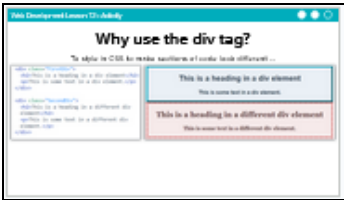
Activity (35 minutes)

Introduction to Div and Flex (10 minutes)

 **Display:** Use the activity slides for this lesson to introduce students to the `div` tag. Use the Speak Notes below as a guide to explaining what a `div` tag is, what it does, and why use it.

Look for this symbol on the slides to show when animation plays when presenting the slides: . Make sure to preview the slides before class.

Slides	Speaker Notes
	Say: A <code>div</code> tag defines a division or a section in an html document. It allows developers like you to split their webpage into distinct sections, each capable of taking on unique styles through CSS. Think of a <code>div</code> tag as a container for different sections of your html code on your page.
	Say: Divs go in the body section of an html file.  Click through animation Say: To create a <code>div</code>, you need to use an open and close tag, just as you would for a heading or paragraph tag.

Slides	Speaker Notes
	Say: Now, the <code>div</code> tag doesn't technically do anything. It can help organize an HTML file into sections, but that won't affect how those sections display on our screen.  Click through animation Notice how content in a <code><div></code> looks the same as the heading and paragraph not in a <code><div></code>.
	Say: Now that you know a <code>div</code> element doesn't do anything on its own, you might wonder why you'd even use one!
	Say: You'll use the div container to group sections of code that you want to target with CSS
	Say: You can style items in a div to look different from other sections on the page
	Say: ... or to position them in a specific way. Here we have the same HTML code in a div being displayed in two different layouts.  Click through animation to show the same HTML code with two different positioning results

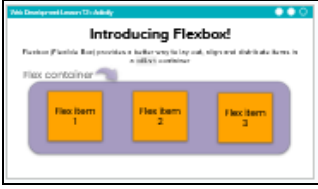
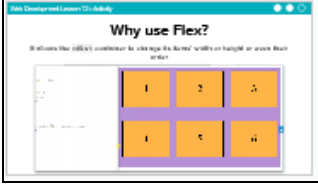
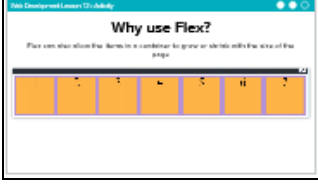
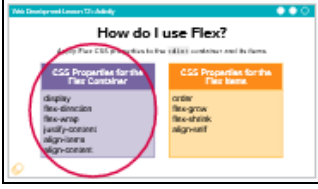
 **Do This:** Use the two “Self Check” slides to gauge student understanding. Answer any questions the students may have.

Teaching Tip

You can choose to either have students raise their hands to indicate which option they think is correct or simply have them jot their letter choice down for their own reference.

 **Display:** Continue to use the activity slides for this lesson to introduce students to Flexbox. Use the Speaker Notes below as a guide to explaining what Flexbox is.

Look for this symbol on the slides to show when animation plays when presenting the slides: . Make sure to preview the slides before class.

Slides	Speaker Notes
	Say: Now that we know we can use <code>div</code> tags to position the code inside of it in different ways, you are probably wondering how do we do that??
	Say: Flexbox, or Flex for short, is how! Flex provides a more efficient way to lay out, align, and distribute space among items in a container.
	Say: The main idea behind flex is to allow the container to alter its items' width or height and even order to fill the available space best.
	Say: As you can see in this animation, a flex container expands the items in it to fill available free space or shrinks them to prevent overflow. Pretty handy right?
	Say: So, how do we use Flex? Flex is the term used to refer to a whole set of CSS properties. Some are applied to the container and some are applied to the items in a container.  Click through animation Today, we'll start with the flex properties for the <code>div</code> container. Who's ready to jump in and get started?!

Div and Flex Practice (25 minutes)

 **Distribute:** Pass out the **Flexbox Cheat Sheet** handout to the students.

Teaching Tip

This handout has a section on the first page for students to write down any notes to themselves. Please encourage students to use this space as they go through the skill-building, practice, and challenge levels to remind themselves of anything they notice and wish to remember or refer back to later.

Transition: Send students to Code Studio, Lesson 12, Level 1, and have students explore the code. Bring students' attention back to you after a few minutes of exploration.



Div & Flex Exploration

 **Prompt:** What did you discover about the flex properties in the CSS file?

Discussion Goal: The goal of this quick discussion is to allow students to share what they figured out or what they noticed about the properties. It is okay if they didn't figure out exactly what each property does as they will learn in the next skill-building levels. Some possible discoveries might include:

- Without `display: flex;` the images change position
- Without `flex-direction: row-reverse;` the order of the images change
- Without `flex-wrap: wrap;` the images try to fit in a single row
- Without `justify-content: center;` the alignment of items within the container will change

Remarks

These 4 flex properties you just played with are the ones that you will use the most. When applying Flex properties to containers, you will typically follow three steps ...

 **Display:** Use the "4 Basic Flex Properties" slide to explain the 3 steps they will typically follow when applying flex properties to their containers.

Teaching Tip

This information is already in the Flexbox Cheat Sheet handout for students, but you might want to direct students to highlight, circle or star these steps for quick reference later.

Group: Group students into pairs for Pair Programming.

Transition: Send students back to Code Studio and have students connect with their partner using the "Pair Programming" feature to complete the Skill Building and Practice levels.

 **Do This:** Remind students to switch driver and navigator every 3 minutes. You may want to project a digital timer at the front of the room.



Skill Building

2

3

4

5

Teaching Tip

A slide with a timer has been provided for you. Delete this slide if you prefer a different method of keeping track of time for students so that they switch drivers and navigators often.



Practice Levels



7-8

Assessment Level



Assessment Opportunity



Formative Assessment: Levels 7 & 8 can be used as a formative assessment.

A rubric is provided in level 7, and written feedback can be given to students. [Click here to learn more about giving feedback to students.](#)

Level 8 is a free response reflection that can be used as an opportunity to gain insight into how the students completed the assessment level and the choices they made with using `div` containers and Flexbox layout. In addition, this reflection can be used to identify any misconceptions shared among students that should be cleared up.



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Challenge Levels



Teaching Tip



It is **highly advisable** to have your **students complete Challenge Level 9e** at least. The gallery product cards they will learn to build using `div` containers and Flexbox properties will come in **very** handy in the Chapter 1 project.

Wrap Up (5 minutes)

Solving Layout and Design Issues

Question of the Day: What are div tags and Flexbox and why are they important in web design?

 **Do This:** Have students include the Flexbox Reference Cheat Sheet in their notebooks if they haven't done so already.

 **Journal Prompt:** In your own words, how do div tags and Flexbox help solve page design and layout issues?

Discussion Goal: The goal of this quick reflection is to ensure students grasp the fundamental roles of div tags (structuring and grouping HTML content in a container) and Flexbox (styling and positioning elements within containers). Student responses may vary but might include design and layout issues like alignment, spacing, and organization.



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