Design Burst

Week 3: A taste of CSS grids



Mondrian cake. Source: Smithsonian.com. Photo by Clay MacLachlan

What is a grid?

- The grid is the most widely used system for arranging objects in patterns that make sense, whether by **semantic**, **practical** or **aesthetic** criteria.
- Grids are used in very diverse types of design.

For example ...

Grids are used in ...

• print and graphic design



Grids are used in ...

- furniture design
- interior design



Grids galore (furniture design: de zeen)

Grids are used in ...

- architecture
- urban planning



Urban grids for US cities

What is the CSS grid?

In design, a grid is an often implicit framework for structuring the page into blocks defined by intersecting rows and columns.

In web design, you can use a grid to structure your entire webpage or specific container-elements on it. Here's an example of how you define a grid:

What's a grid good for?

Think of the grid as a 'creative constraint'

In print and in web design, grids

- allow us to position the elements of a page harmoniously and consistently regardless of page size or screen size
- help us structure the content of a page meaningfully
- make it easier for users to scan and navigate the content of the page.

The advantages of the CSS grid

In web design, the CSS grid has

- made it easier to display content consistently across most browsers (apart from lesser browsers and the usual suspect - IE).
- removed the need for layout hacks notably, tables
- revolutionised responsive design
- opened up possibilities for creative layouts.

	The header			The header			
Nav 1	Nav.1	Nav.2	Nav.3	Nav.1 Nav.2 Nav.3	Main article area In this layout, we display the areas in source order	Sidebar	
Nav 2 Nav 3	Sidebar	Main article area	in source		for any screen less that 500 pixels wide. We go to a two column layout, and then to a three column layout by redefining the grid, and the placement of items on the grid.	Adverti	
Main article area	order for any screen less that 500 pixe We go to a two column layout, and the three column layout by redefining the the placement of items on the grid.		bixels wide. then to a he grid, and	The footer			
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the placement of items on the grid.							
the placement of items on the grid. Sidebar]						
Sidebar Advertising]]						

A potted history of grids 1. Before print

- In the Renaissance, many artists and architects used various ratios – some studied in antiquity – to create frameworks out of intersecting lines. These frameworks helped them structure the layout of paintings and buildings.
- The proportions

 13th-century French artist/architect Villard
 de Honnecourt applied
 in his diagrams
 influenced early printers
 and are still used today
 by designers.

The Villard Diagram	
a sum i accorde a supply property	

A potted history of grids:2. Gutenberg and print

Calligraphers, scribes and, from the 15th century onwards, printers, all applied canons based on such ratios – mainly (variants of) the golden ratio (1.618) or Rosarivo's 'golden number' (2:3).



Rosarivo's Canon. Image credit: Retinart

A potted history of grids:3. The modern grid

In the 1940s, Dutch book designer **J. A. Van de Graaf** derived from medieval canons his own canon for page layout, which is still used today.

At around the same time, German designer and typographer **Jan Tschichold** distilled his enduring 'secret canon' from Van de Graaf's rules and from the layouts applied in illuminated manuscripts and early books.



Image credits: Retinar

A potted history of grids: 4. The CSS grid

- **1940s** Rosarivo's and Tschichold's layout rules evolved into the grids that graphic designers and printers came to use.
- **1990s** In the late 1990s, these grids inspired the creators of CSS, Dr. Bert Bos and Håkon Wium Lie, to develop for the web the framework that became the CSS grid.
- All major browsers shipped the first stable version of the CSS grid within a year of its launch in March 2017. The grid <u>now has</u> over 90% unprefixed support across different devices.

Anatomy of the CSS grid

Track: the rectangular area defined by grid lines

Column: a vertical track

Row: a horizontal track

Gap/Gutter: the space between tracks

NB: the numbers you see correspond to lines, *not* tracks.



Based on this image from freeCodeCamp

Example of responsive grid



Types of CSS grid layouts

- 1. **The single-column grid:** popular in print. When might a web designer want to use a single-column grid?
- 2. **The multi-column grid:** it divides the page vertically into multiple columns. The versatile 12-column grid allows you to divide the page into 2, 3, 4, 6 or 12 vertical tracks.
- 3. The modular grid: very popular and <u>here's why</u>: 'While a multicolumn grid splits a page vertically into a number of columns, a modular grid subdivides a page both vertically and horizontally into [...] a matrix of cells, or modules.'

The original single-column grid

A grid can be simple or complex, specific or generic, tightly defined or loosely interpreted. Typographic grids are all about control. They establish a system for arranging content within the space of page screen, or built environment. Designed in response to the internal pressures of content (text, image, data) and the outer edge or frame (page, screen, window), an effective grid is not a rigid formula but a fexible and resilient structure, a skeleton that moves in concert with the muscular mass of content. Grids belong to the technological framework of typography, from the concrete modularity of letterpress to the ubiquitous rulers, guides, and coordinate systems of graphics applications. Although software generates illusions of smooth curves and continuous tones, every digital image or mark is constructedultimately-from a grid of neatly bounded blocks. The ubiquitous language of the gui (graphical user interface) creates a gridded space in which windows overlay windows. In addition to their place in the background of design production, grids have become explicit theoretical tools. Avant-garde designers in the 1910s and 1920s exposed the mechanical grid of letterpress, bringing it to the polemical surface of the page. In Switzerland after World War II, graphic designers built a total design methodology around the typographic grid, hoping to build from It a new and rational social order. The grid has evolved across centuries of typographic evolution. For graphic designers, grids are carefully honed intellectual devices, infused with ideology and ambition, and they are the inescapable mesh that filters, at some level of resolution, nearly every system of writing and reproduction. A grid can be simple or complex, specific or generic, tightly defined or loosely interpreted. Typographic grids are all about control. They establish a system for arranging content within the space of page, screen, or built environment, Designed in response to the internal pressures of content (test, image data) and the outer edge or frame (page, screen, window), an effective grid is not a rigid formula but a flexible and resilient structure, skeleton that moves in concert with the muscular mass of content. Grids belong to the technological framework of typography, from the concrete modularity of letterpress to the ubiquitous rulers, guides, and coordinate systems of graphics applications. Although software generates illusion of smooth curves and continuous tones, every digital image or mark is constructed-ultimately-from a grid of neatly bounded blocks. The abiquitous language of the gui (graphical user interface) creates gridded space in which windows overlay windows. In addition to their

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Golden rectangle of text on 8.5 x 11-inch page (U.S. standard) Golden rectangle of text on A4 page (European standard, 210 x 297 mm)

Image source: Thinking with Type

The single column grid in web design



Image source: <u>w3schools</u>

Examples of the multi-column grid



Examples of the modular grid



Tips for using grids

- You can and will often want to use a grid with other CSS positioning methods, such as flexbox.
- You can **nest** grids.
- You can use the z-index to **stack** elements in a grid without specifying absolute/relative positioning.
- You can easily make an element span the entire grid: grid-column: 1/-1.
- You can space columns differently from rows (but note that all columns will be spaced identically and all rows will be spaced identically):

grid-gap: 20px 40px; /*row-gap, column gap*/

Current limitations

- The grid is not inherited: the grid syntax will position accordingly only the immediate children of an element to which you've applied a grid.
- The '<u>subgrid</u>', i.e. a nested grid that inherits the parent-grid's specifications, is still an experimental feature (but you can nest independent grids).
- You cannot specify differently sized gaps/gutters between different pairs of columns or of rows.

The Challenge

Use a grid in your project!

Suggestion

Use an **8-point grid**, i.e. multiples of 8, to define the grid's dimensions, padding and margin. The 8-pt grid is not the only system around, but it's a good system.

Why?

Because 'The majority of popular screen sizes are divisible by 8 which makes for an easy fit.'

Tip

Start with the guide to the 8-pt grid in the **Resources** provided here.

The Challenge

Desktop

Vertical Grid Over 企 晞K				
Horizontal Lines Overlay 企業H				
Settings Re	port	Advanced		
Columns				
Large 8	Small			
Gutters				
Vertical – Large				
Inner 16	Outer	128		
Vertical – Small				
Inner	Outer			
Horizontal				
Height 48				
Screen Sizes Max Layout Width 1440 Large to Small Bro	n eakpoint	t		
Offset				

Y O

Reset Grid Settings

X 0

Mobile

Vertical Grid Overlay 企業K
Horizontal Lines Overlay 企業H
Settings Report Advanced
Columns
Large 4 Small
Gutters
Vertical – Large
Inner 16 Outer 16
Vertical – Small
Inner Outer
Horizontal
Height 48
Screen Sizes
Max Layout Width
375
Large to Small Breakpoint

Offset

<	0		Y	0	
		Reset G	rid S	Settings	

Grid 8-pt basis

Mobile 4 columns or 1 column

Desktop 8 columns

Resources

History of the grid 99designs: History of the Design Grid

A comprehensive introduction to the CSS grid Excellent guide on grid units, positioning, sizing and more <u>freeCodeCamp: CSS grid - The Beginner's Guide</u>

CSS grid cheat-sheet Download the PDF from GitHub

Grid examples Great collection of resources by CSS grid pioneer Rachel Andrew Grid by Example

Guide to the 8-point grid Start here before experimenting with the grid in your project Spec: The 8-point Grid

The modular grid Modular Grid: Complete Beginner's Guide

