

Remember CSS Grids?

- Allows layout for child elements
- in vertical and horizontal grid
- blocks can "span" multiple "cells"

CSS Grid Properties

We will be using some additional CSS properties

Parent element: (with `display: grid;`)

- `grid-template-columns: repeat(12, 1fr);`
 - creates even distribution of space in columns
 - `12` can be any number
- `gap` - puts space between columns/rows

CSS Properties Child Element

- `grid-columns: span 1;`
 - the `1` can be any number
 - Child will span that many cells
 - spans over any gap
- `grid-columns: 3 / 6;`
 - the `3` and `6` can be any number
 - think of the `/` as "to"
 - Child will span from "line" 3 to "line" 6
 - lines are the start/end of cell boundaries
 - line 1 is left side of first cell
 - line 2 is right of first cell, left of 2nd

Not Areas

- We used `grid-template-areas` and `grid-area` before
 - Those are still valid
 - But we aren't using them here
 - Different way of laying them out

Grid layout without display: grid

- Grid column layout is a design idea
 - CSS Grids are a good way to implement
 - ...but not the only way
 - Can do with flex
 - Can do with percentage widths
- Concept vs implementation
 - different
 - ...but please use css grid

display: grid impacts direct children

Remember how `display: grid;` works

- only affects direct children
- to match non-child elements to grid
 - make wrapper width 100%
 - recreate the same grid inside wrapper

Grid column layouts

A common design pattern

- page layout
- aligns to a set of equally spaced columns
- A row will contain items
 - spanning cells
 - evenly or unevenly

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→ Admissions

→ Security

→ Campus Network

→ Visit Campus

→ PhD Education

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Responsive Alignment

Benefits of this column layout

- allows mix of sizes
- but consistent alignment
 - not off by a pixel or two
- don't need to declare areas
 - "rows" can auto wrap
- easily responsive
 - cells evenly expand

Adaptive Alignment

Another potential benefit

- Change the columns the page has
- and/or the cells an item spans
 - at different breakpoints
- Example:
 - Desktop: 12 columns
 - Tablet: 6 columns
 - Mobile: 1 column

Adaptive Tablet Example



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- Admissions
- Visit Campus



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- Graduate Programs
- Admissions
- PhD Education



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- Professional Programs
- Campus Network

Adaptive Phone Example

RESEARCH >

- Health
- Security
- Sustainability

LIFELONG LEARNING >

- Professional Programs
- Campus Network
- Admissions



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- More About Athletics

12 Column Grid

- Many grid layouts exist
 - 2 column, 3 column, etc
- 12 column is very common
 - allows options for even spanning:
 - 1, 2, 3, 4, 6, 12
 - allows balanced combos:
 - 3+9, 4+8

12 column for desktop, at least

- Very common to change at smaller resolutions
 - to fewer columns in layout
 - also change spans of items

Why 12 columns though?

- Good number of options
- 1 cell still meaningful
 - mostly
 - so 24 is "too busy"
- all subjective
- This is why adaptive has fewer columns
 - no columns you don't want to use

Rule of Thirds

In photography, the **Rule of Thirds** says

- divide picture up into thirds
- vertically and horizontally
- the 4 intersections are more "visually interesting"

12 Column Format allows for thirds

Web design is a little different than photography

- Photos don't scroll

But you can still use that concept

- a 3+6 or 6+3 split
 - puts center of an item at "interesting" point
- a 4+8 or 8+4 can work if edges are interesting

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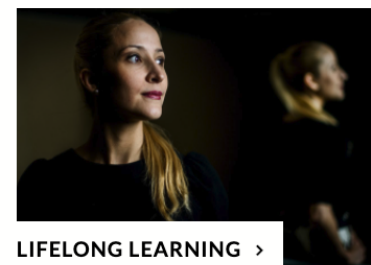
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Summary - CSS Grids

- We used `grid-template-areas` in the past
- For multi-column layout
 - can use `grid-template-columns`
 - with `repeat()`
 - for evenly sized columns
 - optionally `gap`
- `grid-columns`
 - can take `span` to span cells
 - can use `/` to range from/to boundaries

Summary - 12 column grid

- Many grid layouts exist
 - Can be done without css grids
 - but why?
- 12 column very common in web dev
 - allows for different splits
- grids are naturally responsive

Summary - Adaptive Grids

Grids can make it easy to have adaptive breakpoints

- change the number of total columns
 - items will "wrap" to different rows
- change the span of different items
 - will be a reasonable size

You can have multiple adaptive breakpoints