

@rachelandrew @ Render Conf

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**START USING CSS GRID LAYOUT TODAY**

## Rachel Andrew

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- ▶ Old Nerd.
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**March 2017**



**March 2017**



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## Start using CSS Grid Layout Today

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- ▶ What is grid & why is it different to flexbox?
- ▶ How do I get started using grid in production?
- ▶ What about old browsers?

CSS Grid Layout

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**Why not use  
flexbox?**

# Flexbox is for one-dimensional layout



**1**

**2**

**3**

**4**

**5**

**6**

**7**

**8**

**9**

**10**

**11**

**12**

**13**

# Grid is for two-dimensional layout





**1**

**2**

**3**

**4**

**5**

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**7**

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**10**

**11**

**12**

**13**

## Grid minmax() and auto-fill

Creating a flexible number of flexible tracks, with a little bit of grid spec magic.

<http://codepen.io/rachelandrew/pen/evjdLM>

```
.grid {  
  display: grid;  
  grid-gap: 20px;  
  grid-template-columns: repeat(auto-  
fill, minmax(200px, 1fr));  
}
```

If you are adding widths to all your flex items, you probably need grid.

# Flexbox

Using space-between

<http://codepen.io/rachelandrew/pen/MpBbwX>

```
.example1 {  
  display: flex;  
  justify-content: space-between;  
  flex-wrap: wrap;  
  margin: 30px;  
}
```

**Item 1**

**Item 2**

**Item 3**

**Item 4**

**Item 5**

# Flexbox

Some things grow larger than other things.

This is defined using flex properties on the **item**.

<http://codepen.io/rachelandrew/pen/MpBbwX>

```
.example2 {  
  display: flex;  
  flex-wrap: wrap;  
}
```

```
.example2 > div {  
  flex: 1 1 0;  
}
```

```
.example2 > div.bigger {  
  flex: 4 1 0;  
}
```

**Item 1**

**Item 2**

**Item 3**

**Item 4**

**Item 5**

Grid works from the container in



# Grid

Define column tracks. Items are constrained by those tracks.

<http://codepen.io/rachelandrew/pen/JWBbJP>

```
.example1 {  
  display: grid;  
  grid-gap: 20px;  
  grid-template-columns: 1fr 1fr 1fr;  
  margin: 20px;  
}
```

**Item 1**

**Item 2**

**Item 3**

**Item 4**

**Item 5**

# Grid

To make some tracks larger than others, we do that when defining the tracks on the **container** not on the item itself.

<http://codepen.io/rachelandrew/pen/JWBbJP>

```
.example2 {  
  display: grid;  
  grid-gap: 20px;  
  grid-template-columns: 2fr 1fr 2fr;  
  margin: 20px;  
}
```

**Item 1**

**Item 2**

**Item 3**

**Item 4**

**Item 5**

Other layout methods start with the item.

## A float grid

The float property and widths are added to the items.

```
.box {  
    float: left;  
    width: 33.3333%;  
}
```

## inline-block grid

The display property is set to inline-block and width is added to the item.

```
.box {  
  display: inline-block;  
  width: 33.3333%;  
}
```

## Flex grid

We add `display: flex` to the container however to make a grid out of flex items we need to use the flex properties in the items.

```
.container {  
  display: flex;  
}  
  
.box {  
  flex: 0 0 33.3333%;  
}
```



# Grid Layout

With CSS Grid Layout we create the grid on the parent element. We don't need to add properties to the items.

```
.container {  
  display: grid;  
  grid-template-columns: 1fr 1fr 1fr;  
}
```

Grid is all about the container

### **... and that's just the start**

- ▶ Grid allows you to layer items, or for two items to occupy the same space
- ▶ Grid allows full control of negative space in your designs
- ▶ Grid has methods such as the dense packing mode to backfill gaps in a tight-packed grid

## Flexbox or Grid?

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### Use Flexbox when ...

- ▶ Your content is a row OR a column
- ▶ You want the size of items to dictate their layout
- ▶ You want to distribute space

## Flexbox or Grid?

---

### Consider grid when ...

- ▶ You need to control rows and columns
- ▶ You are adding widths to a flex item in order to make it line up with rows above.
- ▶ You want control of the layout from the parent
- ▶ Items need to occupy the same space or overlap

CSS Grid Layout

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**Using grid in  
production**

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### New Item

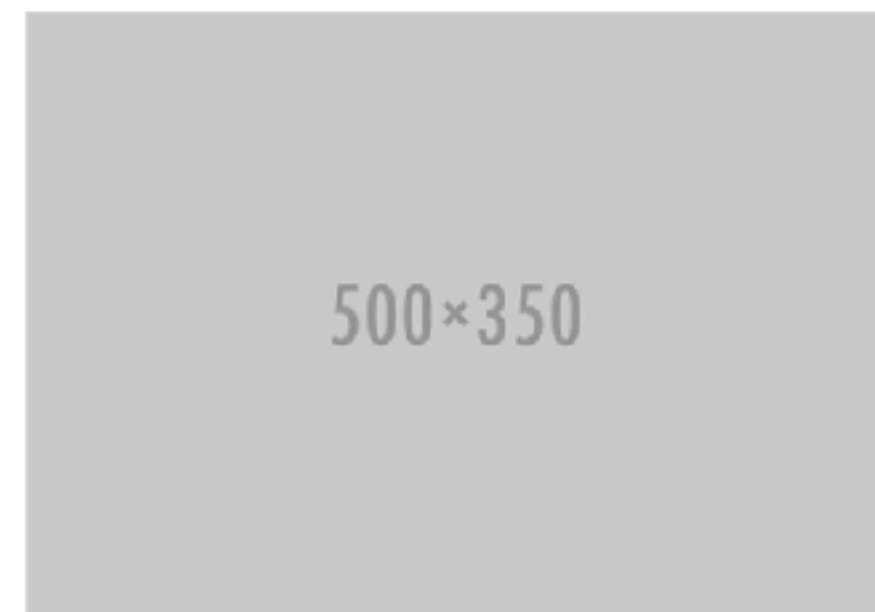
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## Feature box

The feature has an image with a heading and body text overlaid.

```
<div class="box-feature">  
    
  <h2 class="box-feature-title">Featured Item</h2>  
  <div class="box-content">...</div>  
</div>
```

## Feature box

**display: grid** turns on grid layout

**grid-gap** defines gutters between grid items

**grid-template-columns** creates column tracks. In this case creating a grid with 6 equal columns.

```
.box-feature {  
  display: grid;  
  grid-gap: 20px;  
  grid-template-columns: repeat(6, 1fr);  
}
```

The fr unit defines a fraction of the available space in the grid container

900x450

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## Feature box

The image starts at **grid column line 1** and ends at **-1**, which is the end line.

It starts at **grid row 1**, ending at **grid row 4**.

Using **box alignment** properties to stretch the image over that area.

```
.box-feature .box-image {  
  align-self: stretch;  
  justify-self: stretch;  
  grid-column: 1 / -1;  
  grid-row: 1 / 4;  
}
```

Grid lines respect writing mode.  
Column line 1 is on the left and -1 on  
the right in a LTR language.

## Explicit vs. Implicit Grid

---

- ▶ The **Explicit Grid** is created when you define tracks with `grid-template-columns` and `grid-template-rows`
- ▶ If you place an item outside of that grid, or auto-placed content requires further row or column tracks these are added by grid as the **Implicit Grid**.

900×450

**Featured**

The first,  
therefore



## Feature box

Positioning the content inside the area that the image is stretched over.

```
.box-feature .box-feature-title {
  grid-column: 3 / -1;
  grid-row: 1;
  background-color: rgba(0,0,0,0.7);
  color: #fff;
  align-self: start;
  padding: 20px;
}

.box-feature .box-content {
  grid-column: 2 / -1;
  grid-row: 2;
  background-color: rgba(0,0,0,0.7);
  color: #fff;
  padding: 20px;
}
```

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900 × 450

## Layering items on the grid

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- ▶ You can position items into the same grid cells
- ▶ Items further down in the source appear on top of earlier items
- ▶ Control the stack using z-index

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500×350

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## The listing

The container for our boxes has 12 equal columns.

```
.listing {  
  display: grid;  
  grid-template-columns: repeat(12,1fr);  
  grid-gap: 20px;  
}
```



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## The listing

Positioning the title top left and the feature top right

```
.box-title {  
  grid-column: 1 / 4;  
  grid-row: 1 / 2;  
}  
  
.box-feature {  
  grid-column: 4 / -1;  
  grid-row: 1 / 2;  
}
```

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## Larger boxes

Newer items span 4 column tracks. If they also have a class of `box-media` they span 2 row tracks.

```
.box-newer {  
  grid-column: auto / span 4;  
}  
  
.box-newer.box-media {  
  grid-row-end: span 2;  
}
```

## Smaller boxes

The boxes for older items span 3 tracks.

```
.box-older {  
  grid-column: auto / span 3;  
}
```



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CSS Grid

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**Going  
responsive**

## Going responsive

Inside media queries we can redefine where items sit on the grid.

```
.box-title {
  grid-column: 1 / -1;
  grid-row: 1;
}

@media all and (min-width: 53.125em) {
  .box-title {
    grid-column: 1 / 6;
    grid-row: 1 / 3;
  }
}

@media all and (min-width: 75em) {
  .box-title {
    grid-column: 1 / 4;
    grid-row: 1 / 2;
  }
}
```

## Going responsive

Or redefine how many columns they span.

```
.box-newer {  
  grid-column: 1 / -1;  
}
```

```
@media all and (min-width: 28.125em) {  
  .box-newer {  
    grid-column: auto / span 6;  
  }  
}
```

```
@media all and (min-width: 53.125em) {  
  .box-newer {  
    grid-column: auto / span 4;  
  }  
}
```



## New Item

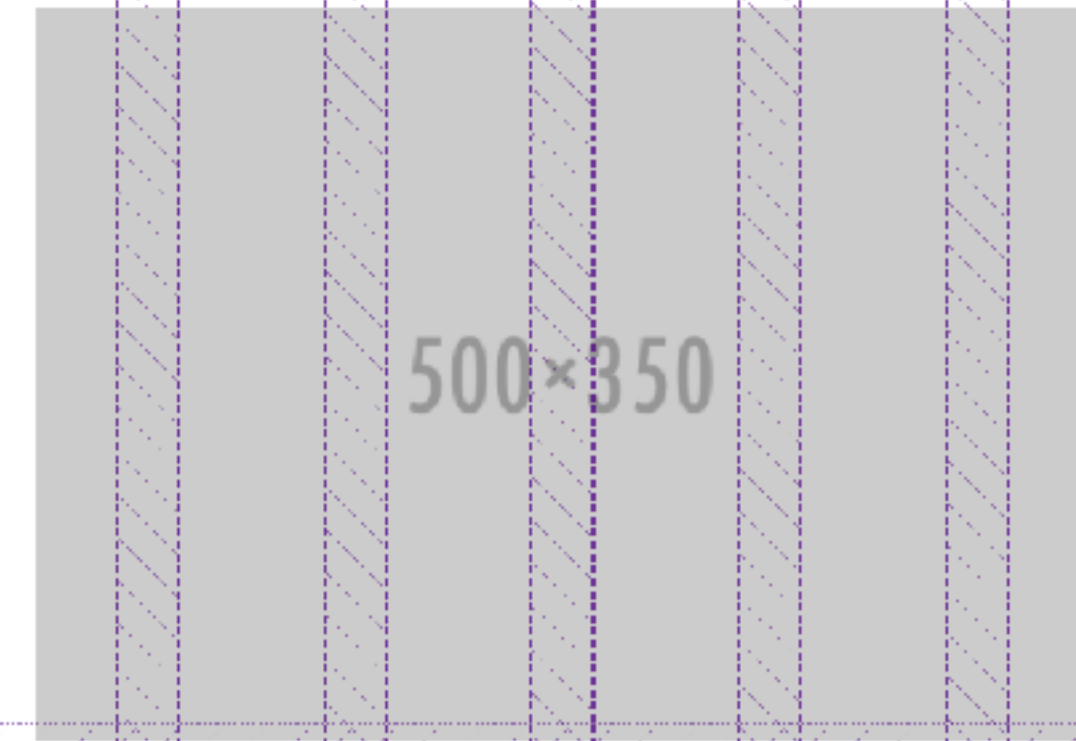
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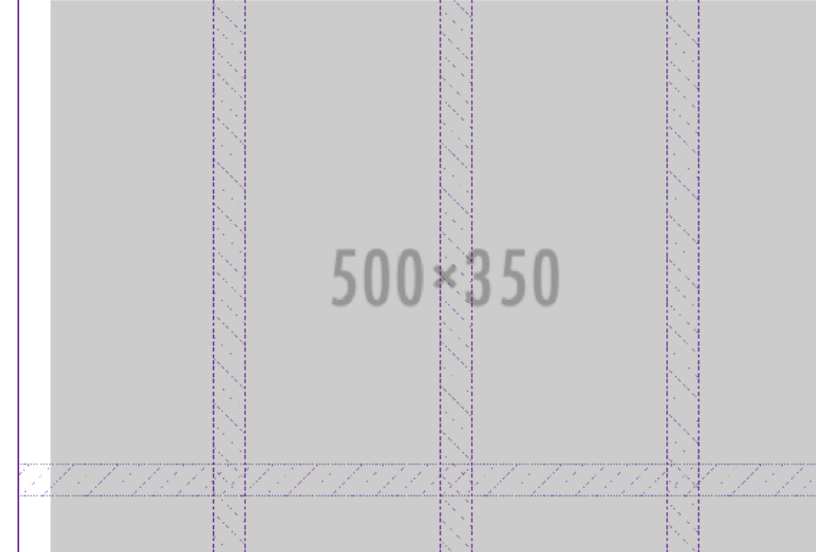
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<http://codepen.io/rachelandrew/pen/gmQdgz>





CSS Grid Layout

---

**What about  
old browsers?**



## What about old browsers?

---

### **If using display: grid on a container, child items:**

- ▶ Using float, lose their float behaviour
- ▶ The vertical-align property has no effect
- ▶ Flex items become grid items
- ▶ Items set to display: block or inline-block become grid items
- ▶ Items set to display: table-cell stop creating anonymous boxes

You do not need to build “two layouts”

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## Adding a flex fallback

Browsers that support `display: flex` and not `grid` will turn the children into flex, not grid, items.

The flex properties applied to those items will be ignored by grid layout.

```
.listing {
  display: flex;
  flex-wrap: wrap;
  margin: 0 20px;
  display: grid;
  grid-template-columns: repeat(12,1fr);
  grid-gap: 20px;
}

.listing > * {
  flex: 1 1 30%;
  margin: 0 20px 20px 20px;
}
```

Feature Queries are your new best friend

# CSS Feature Queries - CR

Global

81.94%

CSS Feature Queries allow authors to condition rules based on whether particular property declarations are supported in CSS using the @supports at rule.

- Current aligned
- Usage relative
- Date relative
- Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49						
			55			9.3		4.4	
		51	56	10		10.2		4.4.4	
11	14	52	57	10.1	44	10.3	all	53	56
	15	53	58	TP	45				
		54	59		46				
		55	60						

- Notes
- Known issues (2)
- Resources (7)
- Feedback

See also the [CSS.supports\(\) DOM API](#)



## Using feature queries

Add a margin for flex layout, remove it if we are using grid layout.

```
.listing > * {  
  flex: 1 1 30%;  
  margin: 0 20px 20px 20px;  
}  
  
@supports(display: grid) {  
  .listing > * {  
    margin: 0;  
  }  
}
```

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## New Item

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## Flex layout

Give the feature box a larger flex-basis percentage.

```
.listing .box-feature {  
    flex: 1 1 60%;  
}
```

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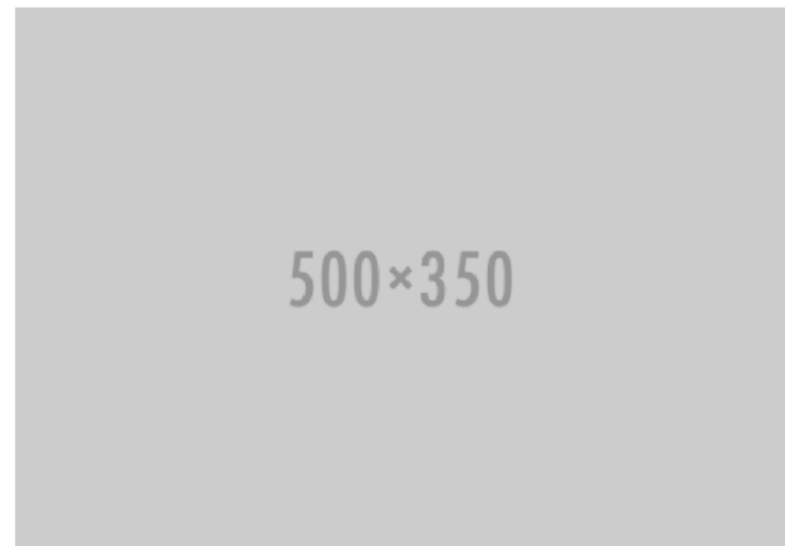
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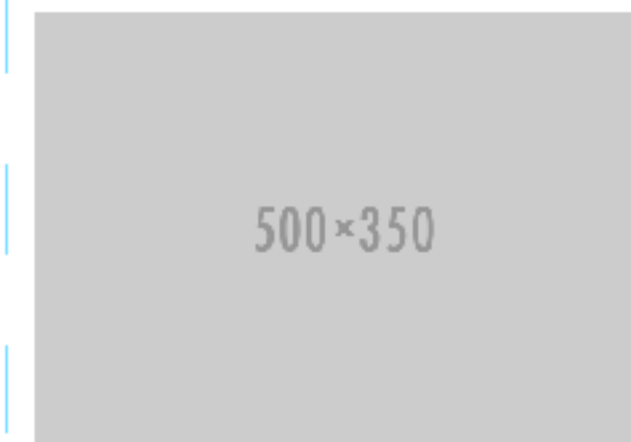
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<http://codepen.io/rachelandrew/pen/jBQpXv>

## Float and Clear

The float and clear properties have no effect on a grid item.

<https://codepen.io/rachelandrew/pen/YZeqZv>

```
.grid > div {  
  float: left;  
}
```

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: repeat(3, auto);  
  width: 500px;  
}
```

## display: inline-block

The properties associated with something being inline-block cease to apply.

<https://codepen.io/rachelandrew/pen/vxdGjQ>

```
.grid > div {  
  display: inline-block;  
}
```

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: repeat(3, auto);  
  width: 500px;  
}
```



## display: table

Anonymous boxes will not be generated and the item will become a grid item.

<https://codepen.io/rachelandrew/pen/bqLpQN>

```
.grid > div {  
  display: table-cell;  
  vertical-align: top;  
}
```

```
.grid {  
  border-spacing: 10px;  
}
```

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: repeat(3, auto);  
  width: 500px;  
}
```

## The vertical-align property

Can be used as a fallback for box alignment and ceases to apply on grid items.

<https://codepen.io/rachelandrew/pen/vxdGaQ>

```
.grid > div {  
  display: inline-block;  
  vertical-align: top;  
}
```

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: repeat(3, auto);  
  width: 500px;  
}
```



## Multiple-column layout

Multiple-column layout properties cease to apply in grid layout.

<https://codepen.io/rachelandrew/pen/JWpXxv>

```
.grid {  
  column-count: 3;  
  width: 500px;  
}
```

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: repeat(3, auto);  
}
```

## Flex layout

Grid will override flex layout and shares box alignment properties.

<https://codepen.io/rachelandrew/pen/YZeqMB>

```
.grid {
  display: flex;
  align-items: center;
  width: 500px;
  height: 200px;
  border: 1px dotted #694486;
}

.grid > div {
  flex: 1;
}

.grid {
  display: grid;
  grid-gap: 10px;
  grid-template-columns: repeat(3, auto);
}
```

Overrides inside @supports are  
mostly widths & margins

## Override widths in feature queries

Watch out for widths in your fallback layouts.

<https://codepen.io/rachelandrew/pen/JWpXNr>

```
* { box-sizing: border-box; }
```

```
.grid > div {  
  float: left;  
  width: 33.333%;  
}
```

```
@supports (display: grid) {  
  .grid > div {  
    width: auto;  
  }  
}
```

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: repeat(3, 1fr);  
  width: 500px;  
}
```

## Grid “fallbacks” and overrides

[Defined in the CSS Grid Specification](#) are the ways in which grid interacts with other layout methods. These definitions mean that as soon as an item becomes a grid item, other behaviour that you may have used for older browsers is overwritten. This means that **you do not have to completely fork your code** and build two versions. Where you do need to overwrite CSS used for older browsers, you can do so inside a CSS Feature Query. This enables safe encapsulation of any CSS you only want a grid supporting browser to apply.

Here is a quick reference to the defined overrides with simple examples. See the resources at the end of this cheatsheet for more advice and examples.

### Floated items

### Float and clear have no effect on a grid item

If you float an item, in your CSS for non-grid browsers, when that item becomes a grid item float ceases to have any effect. The clear property applied to an item that becomes a grid item also no longer takes effect.

#### Example

```
<div class="grid">
  <div>One</div>
  <div>Two</div>
  <div>Three</div>
</div>
```

```
.grid > div {
  float: left;
}
```

```
.grid {
  display: grid;
```

CSS Grid

---

**is here!**

Find out more

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## I made you some resources

Visit Grid by Example for worked examples, and a free video tutorial:

<http://gridbyexample.com>

I created a huge set of guides for MDN:

[https://developer.mozilla.org/en-US/docs/Web/CSS/CSS\\_Grid\\_Layout](https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Grid_Layout)

Over 4 years of grid thoughts on my site at:

<https://rachelandrew.co.uk/archives/tag/cssgrid>



@rachelandrew

Talk resources & code: <https://rachelandrew.co.uk/speaking/event/render2017>

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**THANK YOU!**