



Responsive Design in 2017

Justin Avery



Latest approaches

Ensure performance across devices

Best practice implementation techniques

How others are approaching challenges



Responsive Web Design Is...

The combination of flexible grids, flexible images and media queries. We help take the complexity out of responsive design with details on Design, Development and Strategy.

[READ LATEST ARTICLES](#)

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“Web design must mature and accept the developments of the past several years”

“The goal of web design is not merely to dazzle, but to deliver information to the widest audience.”

Before 2013

Graceful Degradation

Progressive enhancement is similar, but it does things the other way round. You start by **establishing a basic level of user experience** that **all browsers** will be able to **provide** when rendering your web site, but you also **build in more advanced functionality** that will automatically be **available to browsers that can use it.**

Building Progressively

World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#) , [Policy](#) , November's [W3 news](#) , [Frequently Asked Questions](#) .

[What's out there?](#)

Pointers to the world's online information, [subjects](#) , [W3 servers](#), etc.

[Help](#)

on the browser you are using

[Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#) ,X11 [Viola](#) , [NeXTStep](#) , [Servers](#) , [Tools](#) , [Mail robot](#) , [Library](#))

[Technical](#)

Details of protocols, formats, program internals etc

[Bibliography](#)

Paper documentation on W3 and references.

[People](#)

A list of some people involved in the project.

[History](#)

A summary of the history of the project.

[How can I help ?](#)

If you would like to support the web..

[Getting code](#)

Getting the code by [anonymous FTP](#) , etc.

proposed new tag: IMG

Marc Andreessen (marca@ncsa.uiuc.edu)

Thu, 25 Feb 93 21:09:02 -0800

- **Messages sorted by:** [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)
- **Next message:** [Tony Johnson: "Re: proposed new tag: IMG"](#)
- **Previous message:** [Bill Janssen: "Re: xmosaic experience"](#)
- **Next in thread:** [Tony Johnson: "Re: proposed new tag: IMG"](#)

I'd like to propose a new, optional HTML tag:

IMG

Required argument is SRC="url".

This names a bitmap or pixmap file for the browser to attempt to pull over the network and interpret as an image, to be embedded in the text at the point of the tag's occurrence.

An example is:

```
<IMG SRC="file:///foobar.com/foo/bar/blargh.xbm">
```

(There is no closing tag; this is just a standalone tag.)

This tag can be embedded in an anchor like anything else; when that happens, it becomes an icon that's sensitive to activation just like a regular text anchor.



happens, it becomes an icon that's sensitive to activation just like a regular text anchor.

Browsers should be afforded flexibility as to which image formats they support. **Xbm and Xpm are good ones to support,** for example. If a browser cannot interpret a given format, it can do whatever it wants instead (X Mosaic will pop up a default bitmap as a placeholder).

This is required functionality for X Mosaic; we have this working, and we'll at least be using it internally. I'm certainly open to suggestions as to how this should be handled within HTML; if you have a better idea than what I'm presenting now, please let me know. I know this is hazy wrt image format, but I don't see an alternative than to just say ``let the browser do what it can" and wait for the perfect solution to come along (MIME, someday, maybe).

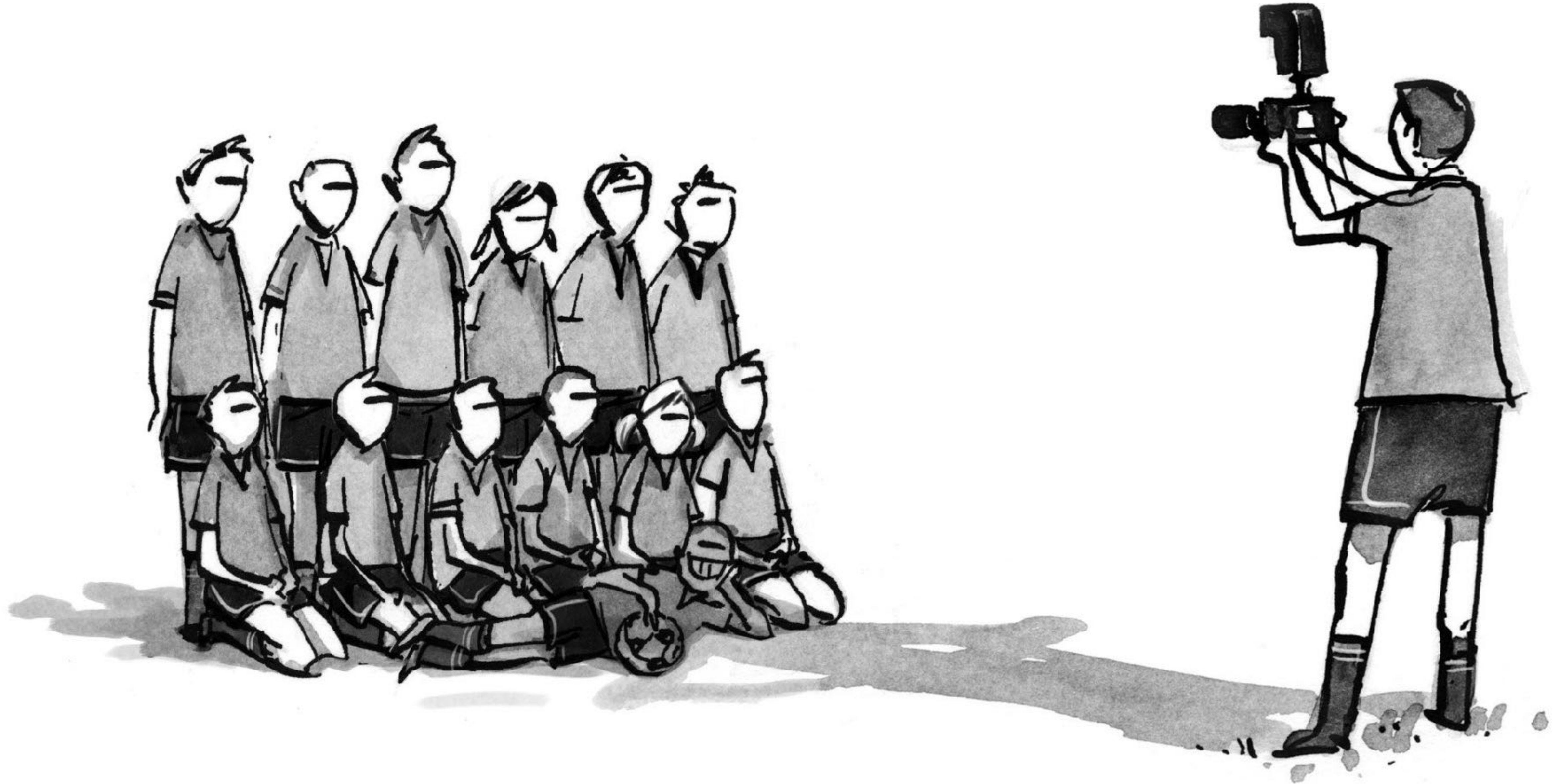
The arrival of CSS

HTML

```
<header>  
<article>  
<aside>  
<footer>  
<input type=date>
```



```
<div>  
<div>  
<div>  
<div>  
<input type=text>
```



Current day. The Future.

WORLD INTERNET USAGE AND POPULATION STATISTICS

JUNE 30, 2016 - Update

World Regions	Population (2016 Est.)	Population % of World	Internet Users 30 June 2016	Penetration Rate (% Pop.)	Growth 2000-2016	Table % Users
Asia	4,052,652,889	55.2 %	1,846,212,654	45.6 %	1,515.2%	50.2 %
Europe	832,073,224	11.3 %	614,979,903	73.9 %	485.2%	16.7 %
Latin America / Caribbean	626,054,392	8.5 %	384,751,302	61.5 %	2,029.4%	10.5 %
Africa	1,185,529,578	16.2 %	340,783,342	28.7 %	7,448.8%	9.3 %
North America	359,492,293	4.9 %	320,067,193	89.0 %	196.1%	8.7 %
Middle East	246,700,900	3.4 %	141,489,765	57.4 %	4,207.4%	3.8 %
Oceania / Australia	37,590,820	0.5 %	27,540,654	73.3 %	261.4%	0.8 %
WORLD TOTAL	7,340,094,096	100.0 %	3,675,824,813	50.1 %	918.3%	100.0 %

NOTES: (1) Internet Usage and World Population Statistics updated as of June 30, 2016. (2) **CLICK** on each world region name for detailed regional usage information. (3) Demographic (Population) numbers are based on data from the [US Census Bureau](#), [Eurostats](#) and from local census agencies. (4) Internet usage information comes from data published by [Nielsen Online](#), by the [International Telecommunications Union](#), by [GfK](#), by local ICT Regulators and other reliable sources. (5) For definitions, disclaimers, navigation help and methodology, please refer to the [Site Surfing Guide](#). (6) Information in this site may be cited, giving the due credit and placing a link to www.internetworldstats.com. Copyright © 2001 - 2016, Miniwatts Marketing Group. All rights reserved worldwide.

Latest approaches

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Latest approaches

- Responsive Images
- Layout with Grid & Flexbox
- CSS Image Shapes
- Fluid Typography

#1 Responsive Images





```
img {  
  width: 100%;  
  max-width: 100%;  
}
```

~~Responsive Images~~

AIRBRAKE MX

A REVOLUTION IN IMPACT PROTECTION

98%

<http://moto.oakley.com/>



10.4.16

FEATURED STORY

ALERT CITIZEN HELPS MPD ARREST ATTEMPTED ARMED ROBBERY SUSPECT

READ FULL STORY



HOME

THE SOURCE

THE STATS

MOST WANTED

HEROES

COMMUNITY

ABOUT

HEROES

THE STATS

MOST WANTED



The CNET logo is a white lowercase 'c|net' inside a dark grey circle. The background features a dark blue abstract graphic consisting of a large 'U' shape, a circle, and a triangle, all connected by lines.

Jony Ive talks about putting the Apple 'touch' on the MacBook Pro

Apple's longtime chief design officer gives us his exclusive take on the Touch Bar he says is "just the beginning of a very interesting direction."



Addy Osmani ✓

@addyosmani



Following

@addyosmani This CNET page:
cnet.com/special-report ...

Weights: 131MB 🥲

Load: 2m ⏳

Cost: up to \$2.61 in mobile data 🙄

Images to blame again 🏠

131MB, Web Bloat Score of 842

1MB per JPEG

Name	Status	Type	Initiator	Size	Time	Timeline - Sta
c5fa4da843c23e1a69c88c04a89319...	200	jpeg	angular-animate.js?84	1.3 MB	2.49 s	
Layer-87.jpg	200	jpeg	Other	1.0 MB	594 ms	
Layer-86.jpg	200	jpeg	Other	1001 KB	364 ms	
Layer-85.jpg	200	jpeg	Other	988 KB	579 ms	
Layer-88.jpg	200	jpeg	Other	985 KB	459 ms	
Layer-84.jpg	200	jpeg	Other	963 KB	702 ms	
Layer-89.jpg	200	jpeg	Other	958 KB	676 ms	
Layer-93.jpg	200	jpeg	Other	957 KB	872 ms	
Layer-94.jpg	200	jpeg	Other	957 KB	736 ms	
Layer-97.jpg	200	jpeg	Other	954 KB	913 ms	
Layer-98.jpg	200	jpeg	Other	954 KB	358 ms	
Layer-87.jpg	200	jpeg	Other	954 KB	738 ms	
Layer-89.jpg	200	jpeg	Other	953 KB	534 ms	
Layer-92.jpg	200	jpeg	Other	953 KB	727 ms	
Layer-83.jpg	200	jpeg	Other	952 KB	939 ms	
Layer-95.jpg	200	jpeg	Other	952 KB	586 ms	
Layer-96.jpg	200	jpeg	Other	952 KB	660 ms	
Layer-91.jpg	200	jpeg	Other	950 KB	618 ms	

304 requests | 131 MB transferred | Finish: 33.38 s | DOMContentLoaded: 685 ms | Load: 15.16 s

net

s about
apple 'touch'
book Pro

Apple's longtime chief design officer gives us his exclusive take on the Touch Bar he says is "just the beginning of a very interesting direction."

 **Addy Osmani** ✓
@addyosmani

⚙️ **Following**

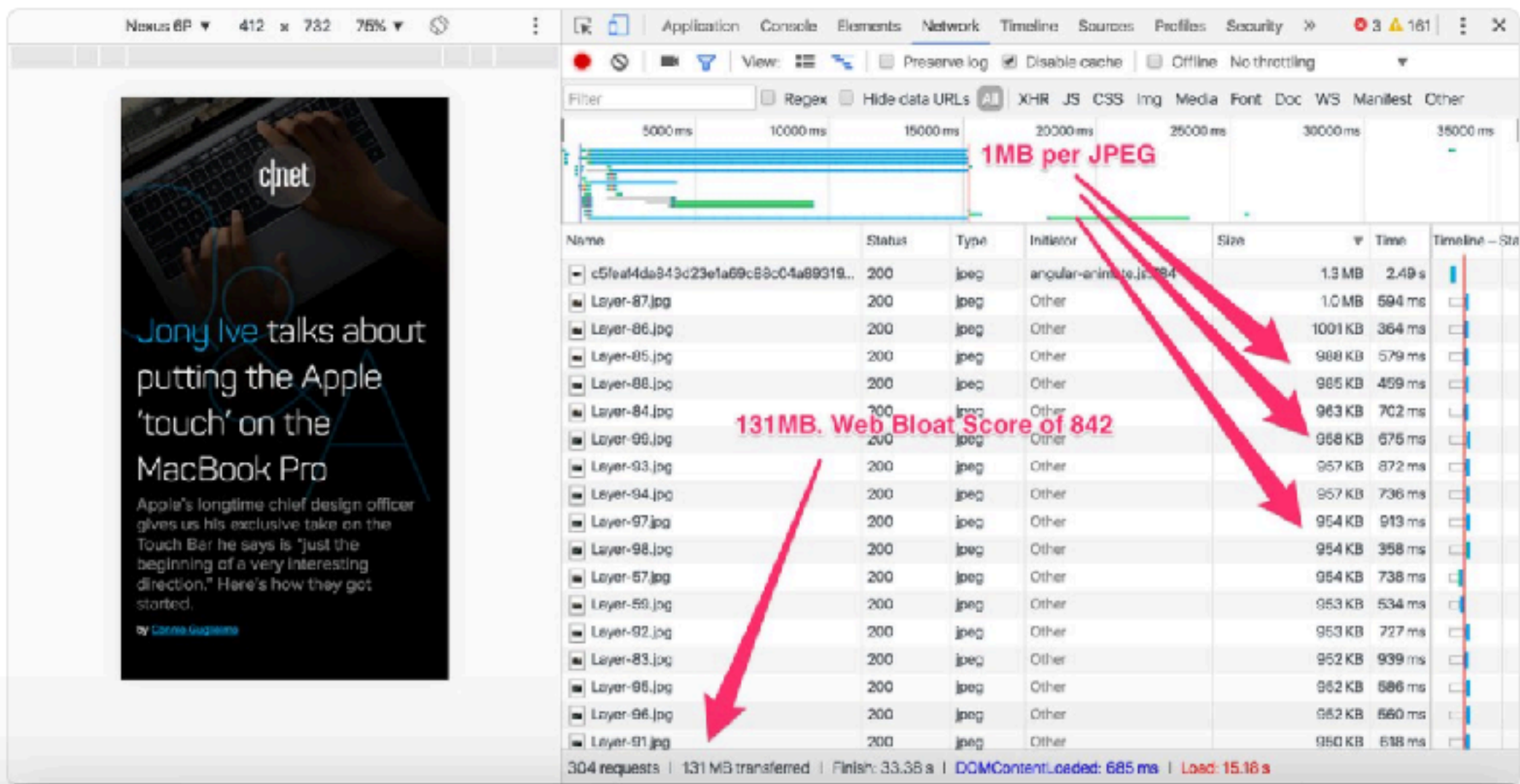
@addyosmani This CNET page:
cnet.com/special-report ...

Weights: 131MB 🤔

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Layer-89.jpg	200	jpeg	Other	958 KB	676 ms
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304 requests | 131 MB transferred | Finish: 33.38 s | DOMContentLoaded: 685 ms | Load: 15.16 s

 **Tim Kadlec**
@tkadlec

⚙️ **Following**

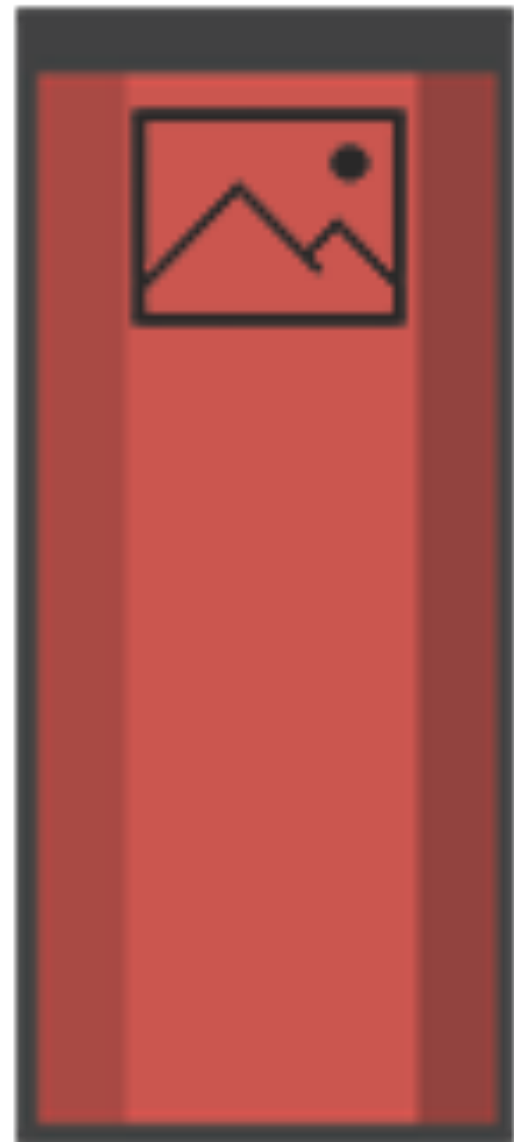
The thing about [twitter.com/addyosmani/sta ...](https://twitter.com/addyosmani/status/1111111111) is WPT times out so data cost is actually much worse. Up to \$16.05.
[whatdoesmysitecost.com/test/har5818a0 ...](https://whatdoesmysitecost.com/test/har5818a0...)

Cost in USD (POSTPAID DATA)

This is the cost of the site based on data from the ITU, without any adjustment for purchasing power or relative affordability. Prices were collected from the operator with the largest marketshare in the country, using the least expensive plan with a (minimum) data allowance of 500 MB over (a minimum of) 30 days. Prices include taxes. Because these numbers are based on the least expensive plan, they are best case scenarios.

Country	Cost (In USD)
Canada	\$16.05
Japan	\$11.21
Brazil	\$11.02
Germany	\$10.41
Botswana	\$9.80
Mauritania	\$8.74
Switzerland	\$8.52
United States	\$8.35
Macao, China	\$5.84
Italy	\$5.37

Apple's longtime chief design officer gives us his exclusive take on the Touch Bar he says is "just the beginning of a very interesting direction."



10kB



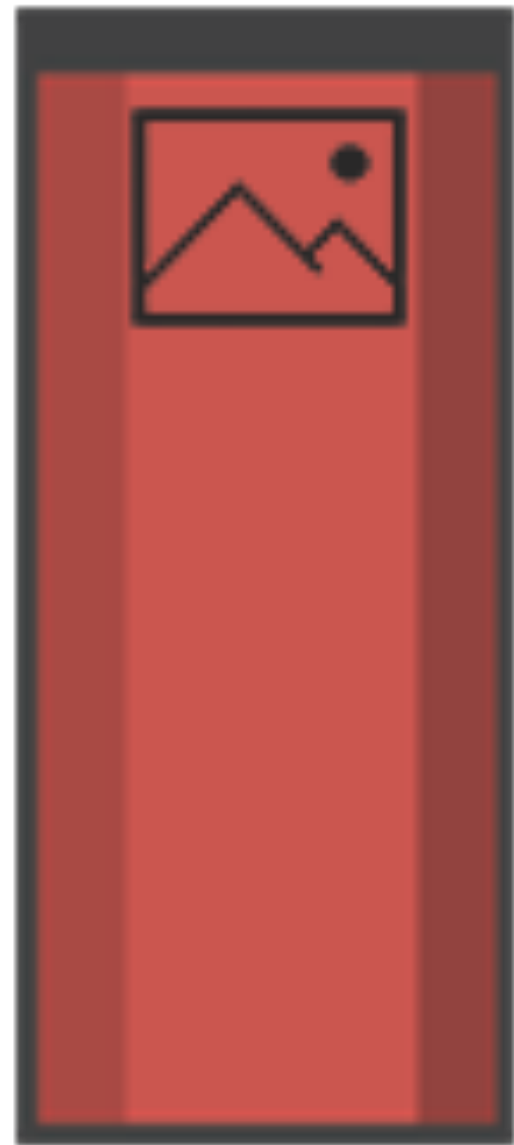
20kB



45kB



73kB



200px



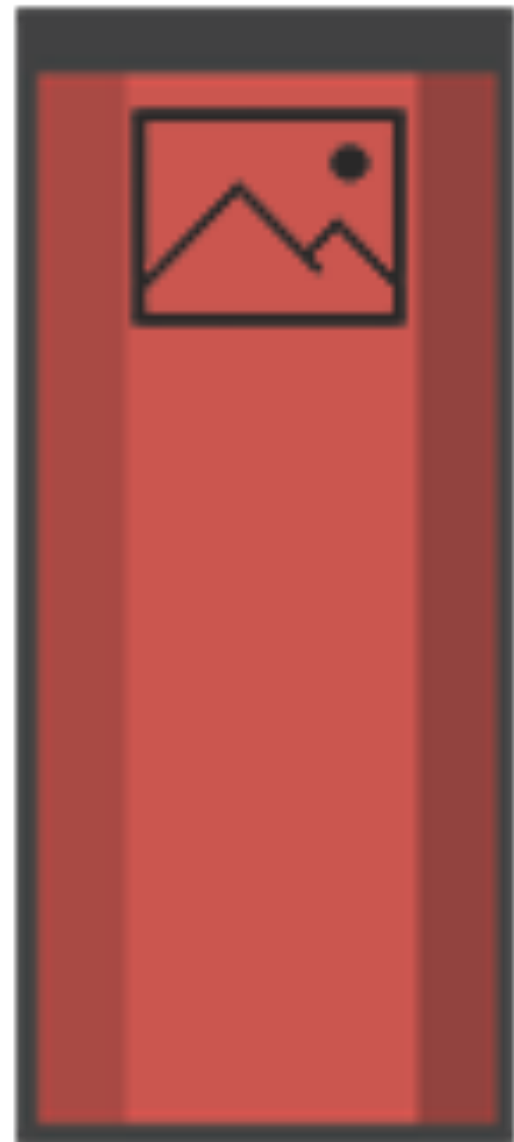
400px



800px



1600px



~~200px~~

400px



~~400px~~

800px



~~800px~~

1600px



~~1600px~~

3200px



<http://www.html5rocks.com/en/tutorials/responsive/picture-element/>



<http://www.html5rocks.com/en/tutorials/responsive/picture-element/>

picture/srcset


```

```

`<img`

```
src="horse-350.jpg"  
srcset="horse-350.jpg 350w,  
horse-500.jpg 500w,  
horse-1024.jpg 1024w,  
horse.jpg 2000w"  
sizes="(min-width: 64em) 70vw,  
(min-width: 37.5em) 95vw,  
100vw"  
alt="A horse" />
```

```

```

```

```

```

```

```

```

```

```

```

```



```

```

#1 Responsive Images

Srcset attribute - LS

Allows authors to define various image resources and "hints" that assist a user agent to determine the most appropriate image source to display (e.g. high-resolution displays, small monitors, etc).

responsivedesign.is	61.5%	+ 6.48%	= 67.98%
Global	81.57%	+ 0.73%	= 82.29%
U.K.	84.43%	+ 1.19%	= 85.62%

Current aligned Usage relative Show all

IE	Edge	Firefox *	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			2 37						
			39						
		1 35	40						
		1 36	41	5.1					
		1 37	42	2 7.1					
		38	43	2 8		7.1			
11	14	49	53	10	40	10	all	52	53
		50	54	TP	41				
		51	55		42				
		52	56						

```
<img  
  src=""  
  srcset="horse-350.jpg 350w,  
horse-500.jpg 500w,  
horse-1024.jpg 1024w,  
horse.jpg 2000w"  
  sizes="(min-width: 64em) 70vw,  
(min-width: 37.5em) 95vw,  
100vw"  
  alt="A horse" />
```

#1 Responsive Images

Picture element - LS

A responsive images method to control which image resource a user agent presents to a user, based on resolution, media query and/or support for a particular image format

responsivedesign.is 61.5%
 Global 72.57%
 U.K. 82.04%

Current aligned Usage relative Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			1 37						
			39						
		3 35	40						
		3 36	41	5.1					
		3 37	42	7.1					
		38	43	8		7.1			
11	14	49	53	10	40	10	all	52	53
		50	54	TP	41				
		51	55		42				
		52	56						









darcey-avery.jpg



darcey-avery-cropped.jpg



darcey-avery.jpg



darcey-avery-cropped.jpg

```
<picture>
  <source
    media="(min-width:50em)"
    srcset="darcey-avery.jpg ">
  <source
    srcset="darcey-avery-cropped.jpg ">
  
</picture>
```

Easily generate the optimal responsive image dimensions

One image for all screen resolutions and different devices is not enough. An image per pixel is too much - so how can someone automatically choose the optimal responsive image sizes? [Learn more...](#)

UPLOAD FILE

Breakpoints generation settings

Resolution ? From To
50 200 480 1080 2180 3840

Size step ? Size (KB)
5KB 25KB 45KB 65KB 85KB

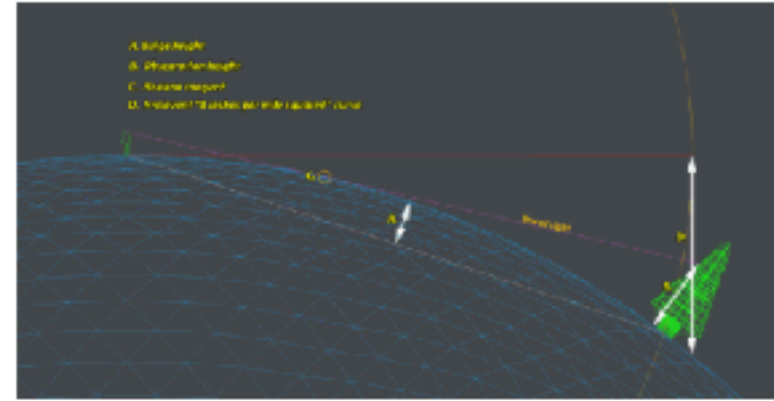
Maximum images ? Quantity Retina resolution

<http://www.responsivebreakpoints.com/>

Layout with Grid & Flexbox

Problem with floats.

only five planets because five are all we can see with the naked eye: Mercury, Venus, Mars, Jupiter, and Saturn. Today we know why the planets take such unusual paths across the sky: though the stars hardly move at all in comparison to our solar system, the planets orbit the sun, so their motion in the night sky is much more complicated than the motion of the distant stars.



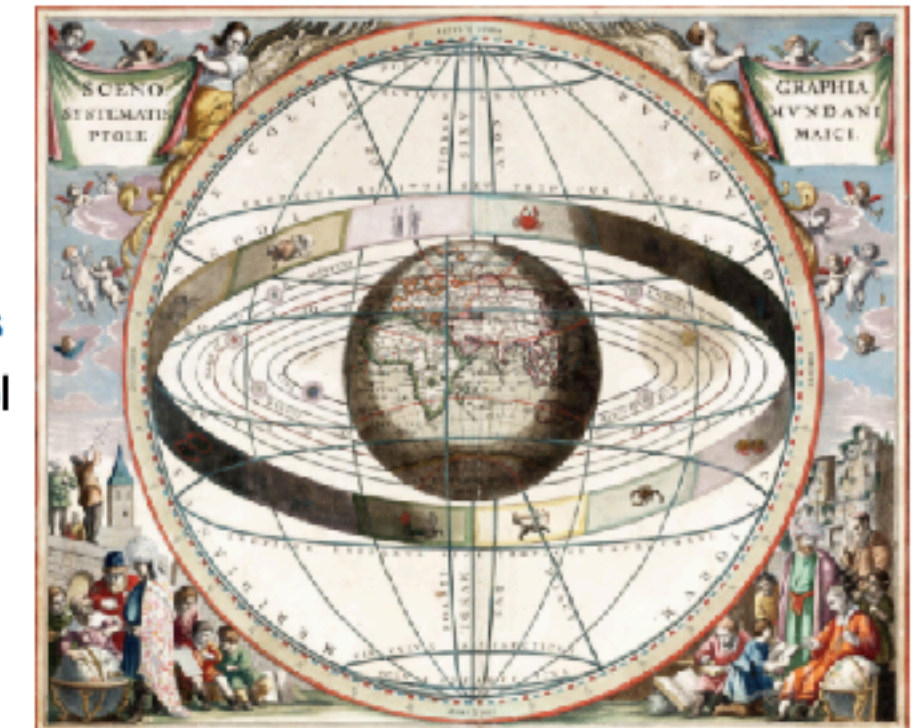
Aristotle thought that the earth was stationary and that the sun, the moon, the planets, and the stars moved in circular orbits about the earth. He believed this because he felt, for mystical reasons, that the earth was the centre of the universe and that circular motion was the most perfect. In the second century A.D. another Greek, Ptolemy, turned this idea into a complete model of the heavens. Ptolemy was passionate about his studies. "When I follow at my pleasure the serried multitude of the stars in their circular course," he wrote, "my

feet no longer touch the earth."

In Ptolemy's model, eight rotating spheres surrounded the earth. Each sphere was successively larger than the one before it, something like a Russian nesting doll. The earth was at the centre of the spheres. What lay beyond the last sphere was never made very clear, but it certainly was not part of mankind's observable universe. Thus the outermost sphere was a kind of boundary, or container, for the universe. The stars occupied fixed positions on that sphere, so when it rotated, the stars stayed in the same positions relative to each other and rotated together as a group across the sky just as we observe. The

was adopted by the Christian church as the picture of the universe that was in accordance with scripture, for it had the great advantage that it left lots of room outside the sphere of fixed stars for heaven and hell.

Another model, however, was proposed in 1514 by a Polish priest, Nicolaus Copernicus. (At first, perhaps for fear of being branded a heretic by his church, Copernicus circulated his model anonymously.) Copernicus had the revolutionary idea that not all heavenly bodies must orbit the earth. In fact, his idea was that the sun was stationary at the centre of the solar system and that the earth and planets moved in circular orbits around the sun. Like Ptolemy's model, Copernicus's model worked well, but it did not perfectly match observation. Since it was much simpler than Ptolemy's model, though, one might have expected people to embrace it. Yet nearly a century passed before this idea was taken seriously. Then two astronomers—the German Johannes Kepler and the Italian —started publicly to support the Copernican theory.



In 1609, Galileo started observing the night sky with a telescope, which had just been invented. When he looked at the planet Jupiter, Galileo found that it was accompanied by several small satellites or moons that orbited around it. This implied that everything did not have to orbit directly around the earth, as Aristotle and Ptolemy had thought. At the same time, Kepler improved Copernicus's theory, suggesting that the planets moved not in circles but in ellipses. With this change the predictions of the theory suddenly matched the observations. These events were the death blows to Ptolemy's model.

Down with tables
In with CSS float based
layouts

<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>	<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>	<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>
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```
.item {  
  width: 330px;  
  background: #ccc;  
  float: left;  
  padding: 1em;  
  margin: 3px  
}
```

<p>My Item</p> <p>This is the items content based on the desinger. In real life the words are different in each box.</p> <p>Read More</p>	<p>My Item</p> <p>This is the items content based on the desingerThis will make some boxes appear to be really really really really really really really really long.</p> <p>Read More</p>	<p>My Item</p> <p>And some really short.</p> <p>Read More</p>
		<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>
<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>	<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>	<p>My Item</p> <p>This is the items content based on the desinger</p> <p>Read More</p>
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```
.item:nth-of-type (3n+1) {  
  clear:left;  
  background: coral;  
}
```

My Item

This is the items content based on the desinger. In real life the words are different in each box.

[Read More](#)

My Item

This is the items content based on the desingerThis will make some boxes appear to be really really really really really really really really long.

[Read More](#)

My Item

And some really short.

[Read More](#)

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[Read More](#)

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[Read More](#)

```
display: flexbox;
```

Flexible Box Layout Module - WD

Method of positioning elements in horizontal or vertical stacks. Support includes the support for the all properties prefixed with `flex` as well as `display: flex`, `display: inline-flex`, `align-content`, `align-items`, `align-self`, `justify-content` and `order`.

responsivedesign.is	96.85%	+ 1.88%	= 98.73%
unprefixed:	87.14%	+ 0.2%	= 87.34%
U.K.	88.42%	+ 5.46%	= 93.87%
unprefixed:	61.85%	+ 0.23%	= 62.08%

[show more...](#)

Current aligned Usage relative Show all

IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		37						
		39						
	35	40						
	36	41	5.1					
	37	42	7.1		7.1			
11	38	43	8	30	8.3	8	40	42
Edge	39	44	9	31	9			
	40	45		32				
	41	46						

```
<div class="container">  
  <div class="item"></div>  
  <div class="item"></div>  
  <div class="item"></div>  
  ...//8 items  
</div>
```

```
.container {  
  width: 95%;  
  max-width: 1024px;  
  margin: 1em auto;  
  display: flex;  
  flex-wrap: wrap;  
}
```



```
.item {  
  padding: 1em;  
  margin: 1%;  
  flex-basis: 15em; //be 15em wide  
  flex-grow: 1; //Grow full width  
  flex-shrink: 0; //Don't shrink.  
}
```

My Item

This is the items content based on the desinger. In real life the words are different in each box.

My Item

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This is the items content based on the desinger. In real life the words are different in each box.

My Item

This is the items content based on the desingerThis will make some boxes appear to be really really really really really really long.

My Item

And some really short.

My Item

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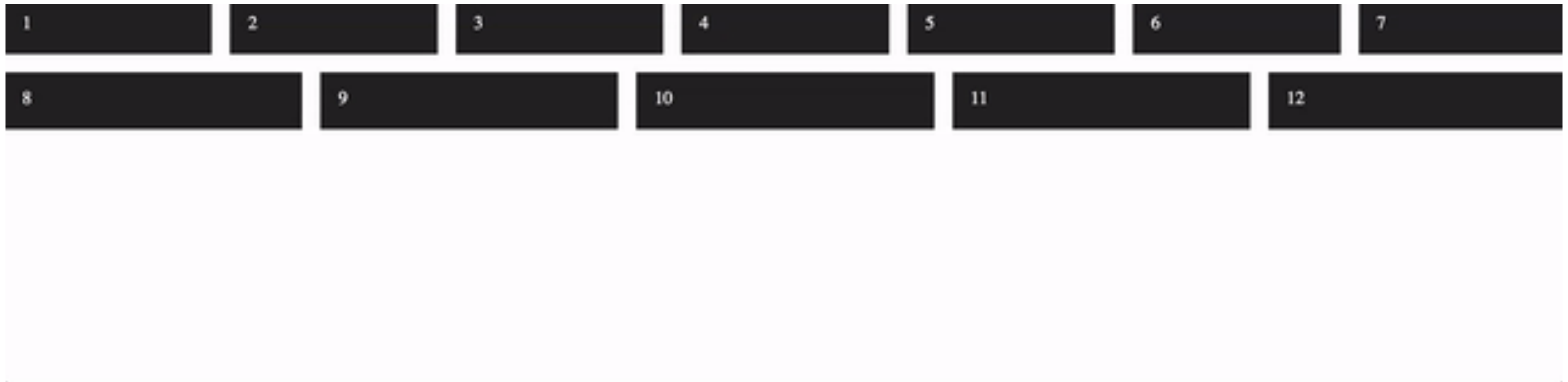
My Item

This is the items content based on the desinger



Are there any Flexbox Grids?

There's Fukol Grids



```
.fukol-grid {  
  display: flex; /* 1 */  
  flex-wrap: wrap; /* 2 */  
  margin: -0.5em; /* 5 (edit me!) */  
}
```

```
.fukol-grid > * {  
  flex: 1 0 5em; /* 3 (edit me!) */  
  margin: 0.5em; /* 4 (edit me!) */  
}
```

Flexbox for page layout?

<p>This is my site</p> <p>This is my article</p> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin nulla enim, facilisis quis urna et, ultrices hendrerit nibh. Integer adipiscing facilisis elementum. Etiam vitae lectus vulputate, facilisis tortor eu, aliquam nunc. Duis ut euismod quam, eu luctus erat. Donec tincidunt adipiscing ullamcorper. Aliquam non scelerisque nisi. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. In aliquam libero quam, eu ultrices enim gravida et. Sed tincidunt mauris nisi, eget tempus urna tristique vitae. Proin eu nulla et lacus volutpat faucibus. Curabitur libero eros, mattis eget porttitor in, pretium pretium libero.</p> <p>Ut auctor libero eget libero vehicula faucibus. Mauris sit amet gravida ligula, et placerat massa. Donec aliquet aliquam varius. Vestibulum mollis vitae velit sit amet fermentum. Suspendisse ullamcorper, purus vitae vestibulum lobortis, enim arcu semper velit, sit amet vehicula mi dolor et erat. Pellentesque sed lacus a libero imperdiet porta in quis justo. Vivamus sit amet est at nulla accumsan tincidunt. Curabitur vehicula porttitor felis, id viverra mi tristique a. Nulla elit nibh, interdum ac purus et, malesuada ultricies urna.</p> <p>Aliquam gravida tincidunt metus, sit amet tincidunt enim rhoncus vel. In ac mi et est dictum adipiscing ac non diam. Aliquam at ligula massa. Integer non felis a dui semper ultricies. Integer nisi ipsum, mattis vitae semper sit amet, tempor cursus metus. Praesent bibendum consequat viverra</p>	<p>This is my site</p> <p>This is my article</p> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin nulla enim, facilisis quis urna et, ultrices hendrerit nibh. Integer adipiscing facilisis elementum. Etiam vitae lectus vulputate, facilisis tortor eu, aliquam nunc. Duis ut euismod quam, eu luctus erat. Donec tincidunt adipiscing ullamcorper. Aliquam non scelerisque nisi. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. In aliquam libero quam, eu ultrices enim gravida et. Sed tincidunt mauris nisi, eget tempus urna tristique vitae. Proin eu nulla et lacus volutpat faucibus. Curabitur libero eros, mattis eget porttitor in, pretium pretium libero.</p> <p>Ut auctor libero eget libero vehicula faucibus. Mauris sit amet gravida ligula, et placerat massa. Donec aliquet aliquam varius. Vestibulum mollis vitae velit sit amet fermentum. Suspendisse ullamcorper, purus vitae vestibulum lobortis, enim arcu semper velit, sit amet vehicula mi dolor et erat. Pellentesque sed lacus a libero imperdiet porta in quis justo. Vivamus sit amet est at nulla accumsan tincidunt. Curabitur vehicula porttitor felis, id viverra mi tristique a. Nulla elit nibh, interdum ac purus et, malesuada ultricies urna.</p> <p>Aliquam gravida tincidunt metus, sit amet tincidunt enim rhoncus vel. In ac mi et est dictum adipiscing ac non diam. Aliquam at ligula massa. Integer non felis a dui semper ultricies. Integer nisi ipsum, mattis vitae semper sit amet, tempor cursus metus. Praesent bibendum consequat viverra</p>
<h1>Flexbox</h1>	<h1>Grid</h1>

The image displays two side-by-side website layout designs. Both designs feature a dark grey header with the text 'This is my site' and a dark grey sidebar on the left with a menu containing 'Home', 'Blog', 'Twitter', 'Myface', 'Snapsquare', and 'Githug'. The main content area has a white background with an orange header bar containing the text 'This is my article'. Below this, there are several paragraphs of placeholder text (Lorem ipsum).

The left design is labeled 'Flexbox' and shows the sidebar and main content area as separate, independent elements. The right design is labeled 'Grid' and shows the sidebar and main content area as part of a single grid system.

Flexbox

Grid

This is my site

This is my article

Home
Blog
Twitter
Myface
Snapsquare
Github

Hi, I'm Clarence Quince thanks for reading my blog please visit again soon. I need the attention.

Flexbox

This is my site

This is my article

Home
Blog
Twitter
Myface
Snapsquare
Github

Hi, I'm Clarence Quince thanks for reading my blog please visit again soon. I need the attention.

Grid



```
<div class="container">  
  <header class="header"></header>  
  <article class="article"></article>  
  <aside class="aside"></aside>  
  <footer class="footer"></footer>  
</div>
```



```
.container {  
    display: grid;  
}
```

Site Header here

The Article

Latency is an often forgotten concern when it comes to website performance. There are ways to testing your current site for a variety of performance settings, including customising latency.

Recently I've been working on a talk for the MobX Conference in Berlin, Germany. The talk was originally going to be around building for performance and focussing on the approach to building responsible responsive websites. The reason is that I wanted to keep performance on the front of everyones minds and ensure that the traditional argument that responsive design sites are too slow for mobile could be debunked. While I ended up changing tact with the talk to be a more universal talk I still spent time looking at the issues of poor performance and how to overcome that.

The only way that you can truly overcome something is by having a good understanding of the problem at hand, and this in turn allows you track and test the challenges at every angle. When it came to responsive design and performance there were a few different areas I was looking at during the talk including preconnect, prefetch, prerender, critical CSS and latency (plus a few more that didn't end up making the talk).

Latency is one area of web performance that never seems to get a lot of attention, perhaps because the simple fact of latency can not really be changed.

Aside

Footer

```
@media (min-width: 50em) {  
  .container {  
    grid-template-rows: auto;  
    grid-template-columns: repeat(4,  
1fr) ;  
  }  
}
```

Site Header here

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Aside

Footer

Site Header here

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1

2

3

4

5

```
.header, .footer {  
    grid-column: 1/5;  
}  
  
.article {  
    grid-column: 1/4;  
}  
  
.sidebar {  
    grid-column: 4/5;  
}
```

The Article

Aside

1 Latency is an often forgotten concern when it comes to website performance. There are ways to testing your current site for a variety of performance settings, including customising latency.

4

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4

5

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Aside



Add some related articles
after the main article

Footer

Site Header here

The Article

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Aside

Directly below the article, but full width like the footer.

Footer

```
<div class="container">  
  <header class="header"></header>  
  <article class="article"></article>  
  <aside class="related"></aside>  
  <aside class="aside"></aside>  
  <footer class="footer"></footer>  
</div>
```

```
.related {  
  grid-column: 1/5;  
  grid-row: 3;  
}
```

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Aside

Related Article

Related Article

Related Article

Related Article

Grid vs Flex

Known vs Unknown

Site Header here

The Article

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Aside

1

Related Article

Related Article

Related Article

Related Article

5

Footer

Site Header here

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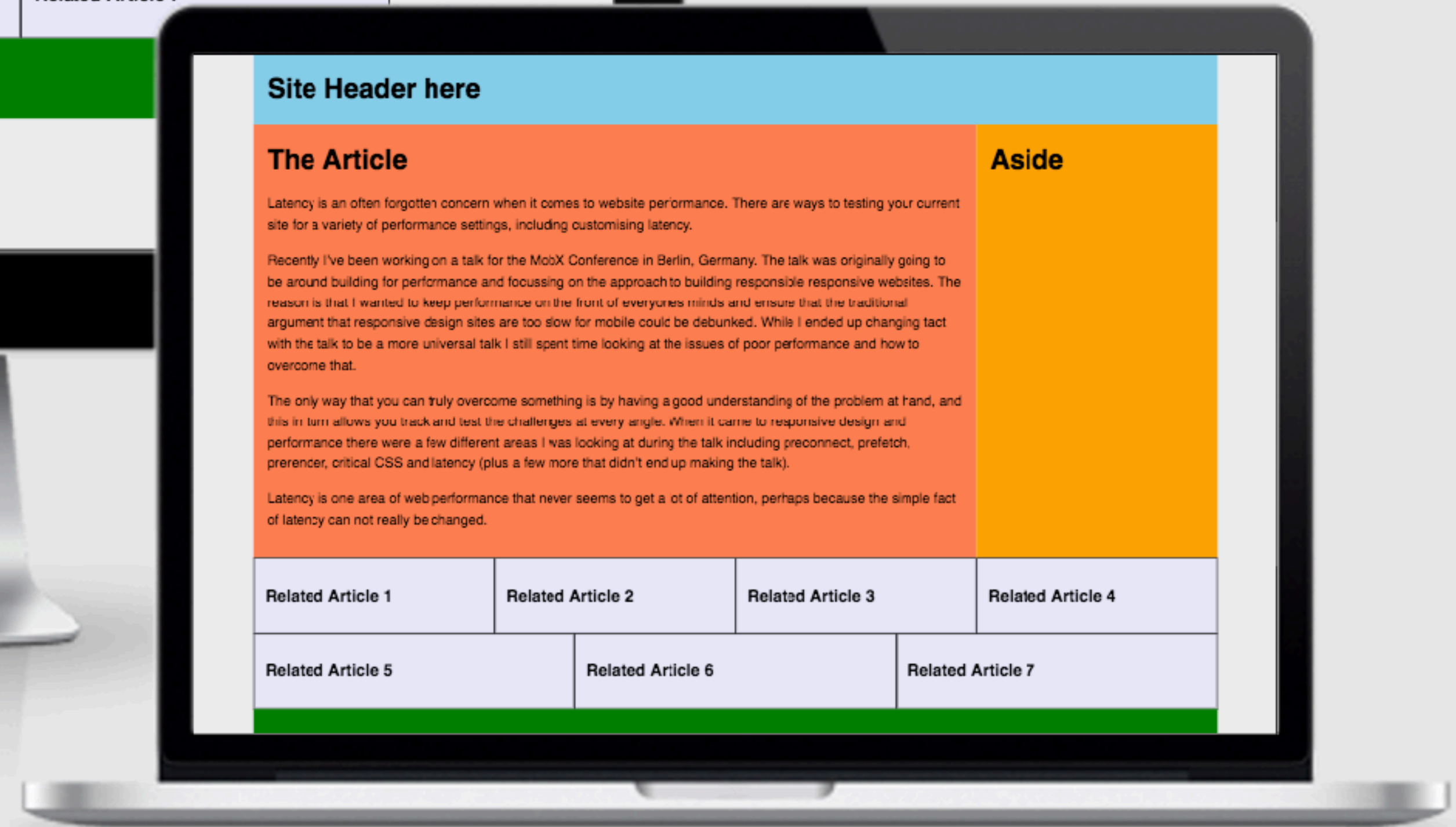
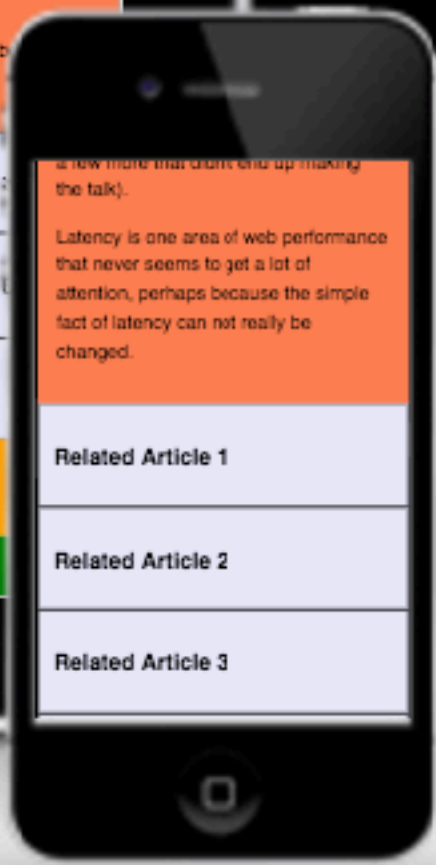
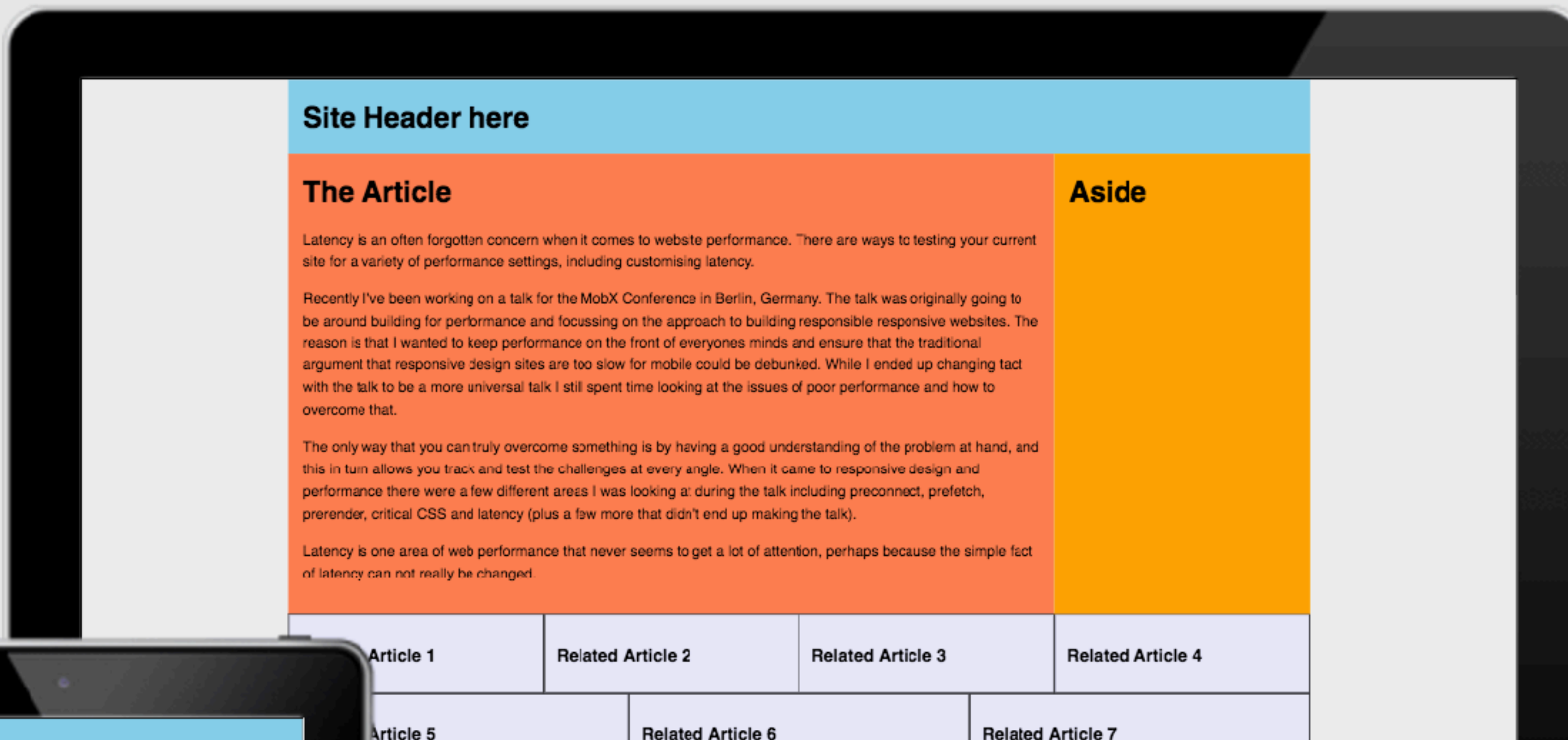
Aside

Related Article 1	Related Article 2	Related Article 3	Related Article 4
Related Article 5	Related Article 6	Related Article 7	

1



5



Grid - Pffft!

Hydrogen <i>H</i>																	Helium <i>He</i>
Lithium <i>Li</i>	Beryllium <i>Be</i>											Boron <i>B</i>	Carbon <i>C</i>	Nitrogen <i>N</i>	Oxygen <i>O</i>	Fluorine <i>F</i>	Neon <i>Ne</i>
Sodium <i>Na</i>	Magnesium <i>Mg</i>											Aluminum <i>Al</i>	Silicon <i>Si</i>	Phosphorus <i>P</i>	Sulfur <i>S</i>	Chlorine <i>Cl</i>	Argon <i>Ar</i>
Potassium <i>K</i>	Calcium <i>Ca</i>	Scandium <i>Sc</i>	Titanium <i>Ti</i>	Vanadium <i>V</i>	Chromium <i>Cr</i>	Manganese <i>Mn</i>	Iron <i>Fe</i>	Cobalt <i>Co</i>	Nickel <i>Ni</i>	Copper <i>Cu</i>	Zinc <i>Zn</i>	Gallium <i>Ga</i>	Germanium <i>Ge</i>	Arsenic <i>As</i>	Selenium <i>Se</i>	Bromine <i>Br</i>	Krypton <i>Kr</i>
Rubidium <i>Rb</i>	Strontium <i>Sr</i>	Yttrium <i>Y</i>	Zirconium <i>Zr</i>	Niobium <i>Nb</i>	Molybdenum <i>Mo</i>	Technetium <i>Tc</i>	Ruthenium <i>Ru</i>	Rhodium <i>Rh</i>	Palladium <i>Pd</i>	Silver <i>Ag</i>	Cadmium <i>Cd</i>	Indium <i>In</i>	Tin <i>Sn</i>	Antimony <i>Sb</i>	Tellurium <i>Te</i>	Iodine <i>I</i>	Xenon <i>Xe</i>
Cesium <i>Cs</i>	Barium <i>Ba</i>		Hafnium <i>Hf</i>	Tantalum <i>Ta</i>	Tungsten <i>W</i>	Rhenium <i>Re</i>	Osmium <i>Os</i>	Iridium <i>Ir</i>	Platinum <i>Pt</i>	Gold <i>Au</i>	Mercury <i>Hg</i>	Thallium <i>Tl</i>	Lead <i>Pb</i>	Bismuth <i>Bi</i>	Polonium <i>Po</i>	Astatine <i>At</i>	Radon <i>Rn</i>
Francium <i>Fr</i>	Radium <i>Ra</i>		Rutherfordium <i>Rf</i>	Dubnium <i>Db</i>	Seaborgium <i>Sg</i>	Bohrium <i>Bh</i>	Hassium <i>Hs</i>	Mtnerium <i>Mt</i>	Darmstadtium <i>Ds</i>	Roentgenium <i>Rg</i>	Copernicium <i>Cn</i>	Ununtrium <i>Uut</i>	Flerovium <i>Fl</i>	Ununpentium <i>Uup</i>	Livermorium <i>Lv</i>	Ununseptium <i>Uus</i>	Ununoctium <i>Uuo</i>
	Lanthanum <i>La</i>	Cerium <i>Ce</i>	Praseodymium <i>Pr</i>	Neodymium <i>Nd</i>	Promethium <i>Pm</i>	Samarium <i>Sm</i>	Europium <i>Eu</i>	Gadolinium <i>Gd</i>	Terbium <i>Tb</i>	Dysprosium <i>Dy</i>	Holmium <i>Ho</i>	Erbium <i>Er</i>	Thulium <i>Tm</i>	Ytterbium <i>Yb</i>			
	Actinium <i>Ac</i>	Thorium <i>Th</i>	Protactinium <i>Pa</i>	Uranium <i>U</i>	Neptunium <i>Np</i>	Plutonium <i>Pu</i>	Americium <i>Am</i>	Curium <i>Cm</i>	Berkelium <i>Bk</i>	Californium <i>Cf</i>	Einsteinium <i>Es</i>	Fermium <i>Fm</i>	Mendelevium <i>Md</i>	Nobelium <i>No</i>			

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Hydrogen <i>H</i>																	Helium <i>He</i>
Lithium <i>Li</i>	Beryllium <i>Be</i>											Boron <i>B</i>	Carbon <i>C</i>	Nitrogen <i>N</i>	Oxygen <i>O</i>	Fluorine <i>F</i>	Neon <i>Ne</i>
Sodium <i>Na</i>	Magnesium <i>Mg</i>											Aluminum <i>Al</i>	Silicon <i>Si</i>	Phosphorus <i>P</i>	Sulfur <i>S</i>	Chlorine <i>Cl</i>	Argon <i>Ar</i>
Potassium <i>K</i>	Calcium <i>Ca</i>	Scandium <i>Sc</i>	Titanium <i>Ti</i>	Vanadium <i>V</i>	Chromium <i>Cr</i>	Manganese <i>Mn</i>	Iron <i>Fe</i>	Cobalt <i>Co</i>	Nickel <i>Ni</i>	Copper <i>Cu</i>	Zinc <i>Zn</i>	Gallium <i>Ga</i>	Germanium <i>Ge</i>	Arsenic <i>As</i>	Selenium <i>Se</i>	Bromine <i>Br</i>	Krypton <i>Kr</i>
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Hydrogen <i>H</i>																	Helium <i>He</i>
2	Lithium <i>Li</i>	Beryllium <i>Be</i>											Boron <i>B</i>	Carbon <i>C</i>	Nitrogen <i>N</i>	Oxygen <i>O</i>	Fluorine <i>F</i>	Neon <i>Ne</i>
3	Sodium <i>Na</i>	Magnesium <i>Mg</i>											Aluminum <i>Al</i>	Silicon <i>Si</i>	Phosphorus <i>P</i>	Sulfur <i>S</i>	Chlorine <i>Cl</i>	Argon <i>Ar</i>
4	Potassium <i>K</i>	Calcium <i>Ca</i>	Scandium <i>Sc</i>	Titanium <i>Ti</i>	Vanadium <i>V</i>	Chromium <i>Cr</i>	Manganese <i>Mn</i>	Iron <i>Fe</i>	Cobalt <i>Co</i>	Nickel <i>Ni</i>	Copper <i>Cu</i>	Zinc <i>Zn</i>	Gallium <i>Ga</i>	Germanium <i>Ge</i>	Arsenic <i>As</i>	Selenium <i>Se</i>	Bromine <i>Br</i>	Krypton <i>Kr</i>
5	Rubidium <i>Rb</i>	Strontium <i>Sr</i>	Yttrium <i>Y</i>	Zirconium <i>Zr</i>	Niobium <i>Nb</i>	Molybdenum <i>Mo</i>	Technetium <i>Tc</i>	Ruthenium <i>Ru</i>	Rhodium <i>Rh</i>	Palladium <i>Pd</i>	Silver <i>Ag</i>	Cadmium <i>Cd</i>	Indium <i>In</i>	Tin <i>Sn</i>	Antimony <i>Sb</i>	Tellurium <i>Te</i>	Iodine <i>I</i>	Xenon <i>Xe</i>
6	Cesium <i>Cs</i>	Barium <i>Ba</i>		Hafnium <i>Hf</i>	Tantalum <i>Ta</i>	Tungsten <i>W</i>	Rhenium <i>Re</i>	Osmium <i>Os</i>	Iridium <i>Ir</i>	Platinum <i>Pt</i>	Gold <i>Au</i>	Mercury <i>Hg</i>	Thallium <i>Tl</i>	Lead <i>Pb</i>	Bismuth <i>Bi</i>	Polonium <i>Po</i>	Astatine <i>At</i>	Radon <i>Rn</i>
7	Francium <i>Fr</i>	Radium <i>Ra</i>		Rutherfordium <i>Rf</i>	Dubnium <i>Db</i>	Seaborgium <i>Sg</i>	Bohrium <i>Bh</i>	Hassium <i>Hs</i>	Mtnerium <i>Mt</i>	Darmstadtium <i>Ds</i>	Roentgenium <i>Rg</i>	Copernicium <i>Cn</i>	Ununtrium <i>Uut</i>	Flerovium <i>Fl</i>	Ununpentium <i>Uup</i>	Livermorium <i>Lv</i>	Ununseptium <i>Uus</i>	Ununoctium <i>Uuo</i>
8		Lanthanum <i>La</i>	Cerium <i>Ce</i>	Praseodymium <i>Pr</i>	Neodymium <i>Nd</i>	Promethium <i>Pm</i>	Samarium <i>Sm</i>	Europium <i>Eu</i>	Gadolinium <i>Gd</i>	Terbium <i>Tb</i>	Dysprosium <i>Dy</i>	Holmium <i>Ho</i>	Erbium <i>Er</i>	Thulium <i>Tm</i>	Ytterbium <i>Yb</i>			
9		Actinium <i>Ac</i>	Thorium <i>Th</i>	Protactinium <i>Pa</i>	Uranium <i>U</i>	Neptunium <i>Np</i>	Plutonium <i>Pu</i>	Americium <i>Am</i>	Curium <i>Cm</i>	Berkelium <i>Bk</i>	Californium <i>Cf</i>	Einsteinium <i>Es</i>	Fermium <i>Fm</i>	Mendelevium <i>Md</i>	Nobelium <i>No</i>			

```
<ol class="periodic-table wrapper">
  <li class='element h`'>
    <h2>Hydrogen</h2> <i> H </i>
  </li>
  <li class='element he`'>
    <h2>Helium</h2><i> He </i>
  </li>
  //...all the other elements
</ol>
```

Periodic Table

CSS Grid flag required to view in the traditional Periodic Table layout

1. Hydrogen

H

2. Helium

He

3. Lithium

Li

4. Beryllium

Be

5. Boron

B

6. Carbon

C

```
.wrapper {  
  display: grid;  
  grid-gap: 5px; // Set the gap between  
the grid rows and columns at 5px.  
  grid-template-columns: repeat(18, 1fr);  
// create 18 columns, make them all 1  
fraction or 18/100 in width.  
  grid-template-rows: repeat(9, 50px); //  
create 7 rows, make them 50px tall.  
  max-width: 1140px;  
  margin: 1em auto;  
}
```

.wrapper



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Hydrogen <i>H</i>																	Helium <i>He</i>
2	Lithium <i>Li</i>	Beryllium <i>Be</i>											Boron <i>B</i>	Carbon <i>C</i>	Nitrogen <i>N</i>	Oxygen <i>O</i>	Fluorine <i>F</i>	Neon <i>Ne</i>
3	Sodium <i>Na</i>	Magnesium <i>Mg</i>											Aluminum <i>Al</i>	Silicon <i>Si</i>	Phosphorus <i>P</i>	Sulfur <i>S</i>	Chlorine <i>Cl</i>	Argon <i>Ar</i>
4	Potassium <i>K</i>	Calcium <i>Ca</i>	Scandium <i>Sc</i>	Titanium <i>Ti</i>	Vanadium <i>V</i>	Chromium <i>Cr</i>	Manganese <i>Mn</i>	Iron <i>Fe</i>	Cobalt <i>Co</i>	Nickel <i>Ni</i>	Copper <i>Cu</i>	Zinc <i>Zn</i>	Gallium <i>Ga</i>	Germanium <i>Ge</i>	Arsenic <i>As</i>	Selenium <i>Se</i>	Bromine <i>Br</i>	Krypton <i>Kr</i>
5	Rubidium <i>Rb</i>	Strontium <i>Sr</i>	Yttrium <i>Y</i>	Zirconium <i>Zr</i>	Niobium <i>Nb</i>	Molybdenum <i>Mo</i>	Technetium <i>Tc</i>	Ruthenium <i>Ru</i>	Rhodium <i>Rh</i>	Palladium <i>Pd</i>	Silver <i>Ag</i>	Cadmium <i>Cd</i>	Indium <i>In</i>	Tin <i>Sn</i>	Antimony <i>Sb</i>	Tellurium <i>Te</i>	Iodine <i>I</i>	Xenon <i>Xe</i>
6	Cesium <i>Cs</i>	Barium <i>Ba</i>		Hafnium <i>Hf</i>	Tantalum <i>Ta</i>	Tungsten <i>W</i>	Rhenium <i>Re</i>	Osmium <i>Os</i>	Iridium <i>Ir</i>	Platinum <i>Pt</i>	Gold <i>Au</i>	Mercury <i>Hg</i>	Thallium <i>Tl</i>	Lead <i>Pb</i>	Bismuth <i>Bi</i>	Polonium <i>Po</i>	Astatine <i>At</i>	Radon <i>Rn</i>
7	Francium <i>Fr</i>	Radium <i>Ra</i>		Rutherfordium <i>Rf</i>	Dubnium <i>Db</i>	Seaborgium <i>Sg</i>	Bohrium <i>Bh</i>	Hassium <i>Hs</i>	Mtnerium <i>Mt</i>	Darmstadtium <i>Ds</i>	Roentgenium <i>Rg</i>	Copernicium <i>Cn</i>	Ununtrium <i>Uut</i>	Flerovium <i>Fl</i>	Ununpentium <i>Uup</i>	Livermorium <i>Lv</i>	Ununseptium <i>Uus</i>	Ununoctium <i>Uuo</i>
8		Lanthanum <i>La</i>	Cerium <i>Ce</i>	Praseodymium <i>Pr</i>	Neodymium <i>Nd</i>	Promethium <i>Pm</i>	Samarium <i>Sm</i>	Europium <i>Eu</i>	Gadolinium <i>Gd</i>	Terbium <i>Tb</i>	Dysprosium <i>Dy</i>	Holmium <i>Ho</i>	Erbium <i>Er</i>	Thulium <i>Tm</i>	Ytterbium <i>Yb</i>			
9		Actinium <i>Ac</i>	Thorium <i>Th</i>	Protactinium <i>Pa</i>	Uranium <i>U</i>	Neptunium <i>Np</i>	Plutonium <i>Pu</i>	Americium <i>Am</i>	Curium <i>Cm</i>	Berkelium <i>Bk</i>	Californium <i>Cf</i>	Einsteinium <i>Es</i>	Fermium <i>Fm</i>	Mendelevium <i>Md</i>	Nobelium <i>No</i>			

```
.h {grid-column: 1; grid-row: 1;}  
.he {grid-column: 18; grid-row: 1;}  
.li {grid-column: 1; grid-row: 2;}  
.be {grid-column: 2; grid-row: 2;}  
.b {grid-column: 13; grid-row: 2;}  
.c {grid-column: 14; grid-row: 2;}  
.n {grid-column: 15; grid-row: 2;}  
.o {grid-column: 16; grid-row: 2;}
```

.wrapper

Hydrogen <i>H</i>																	Helium <i>He</i>	
Lithium <i>Li</i>	Beryllium <i>Be</i>												Boron <i>B</i>	Carbon <i>C</i>	Nitrogen <i>N</i>	Oxygen <i>O</i>	Fluorine <i>F</i>	Neon <i>Ne</i>
Sodium <i>Na</i>	Magnesium <i>Mg</i>												Aluminum <i>Al</i>	Silicon <i>Si</i>	Phosphorus <i>P</i>	Sulfur <i>S</i>	Chlorine <i>Cl</i>	Argon <i>Ar</i>
Potassium <i>K</i>	Calcium <i>Ca</i>	Scandium <i>Sc</i>	Titanium <i>Ti</i>	Vanadium <i>V</i>	Chromium <i>Cr</i>	Manganese <i>Mn</i>	Iron <i>Fe</i>	Cobalt <i>Co</i>	Nickel <i>Ni</i>	Copper <i>Cu</i>	Zinc <i>Zn</i>	Gallium <i>Ga</i>	Germanium <i>Ge</i>	Arsenic <i>As</i>	Selenium <i>Se</i>	Bromine <i>Br</i>	Krypton <i>Kr</i>	
Rubidium <i>Rb</i>	Strontium <i>Sr</i>	Yttrium <i>Y</i>	Zirconium <i>Zr</i>	Niobium <i>Nb</i>	Molybdenum <i>Mo</i>	Technetium <i>Tc</i>	Ruthenium <i>Ru</i>	Rhodium <i>Rh</i>	Palladium <i>Pd</i>	Silver <i>Ag</i>	Cadmium <i>Cd</i>	Indium <i>In</i>	Tin <i>Sn</i>	Antimony <i>Sb</i>	Tellurium <i>Te</i>	Iodine <i>I</i>	Xenon <i>Xe</i>	
Cesium <i>Cs</i>	Barium <i>Ba</i>		Hafnium <i>Hf</i>	Tantalum <i>Ta</i>	Tungsten <i>W</i>	Rhenium <i>Re</i>	Osmium <i>Os</i>	Iridium <i>Ir</i>	Platinum <i>Pt</i>	Gold <i>Au</i>	Mercury <i>Hg</i>	Thallium <i>Tl</i>	Lead <i>Pb</i>	Bismuth <i>Bi</i>	Polonium <i>Po</i>	Astatine <i>At</i>	Radon <i>Rn</i>	
Francium <i>Fr</i>	Radium <i>Ra</i>		Rutherfordium <i>Rf</i>	Dubnium <i>Db</i>	Seaborgium <i>Sg</i>	Bohrium <i>Bh</i>	Hassium <i>Hs</i>	Meitnerium <i>Mt</i>	Darmstadtium <i>Ds</i>	Roentgenium <i>Rg</i>	Copernicium <i>Cn</i>	Ununtrium <i>Uut</i>	Flerovium <i>Fl</i>	Ununpentium <i>Uup</i>	Livermorium <i>Lv</i>	Ununseptium <i>Uus</i>	Ununoctium <i>Uuo</i>	
	Lanthanum <i>La</i>	Cerium <i>Ce</i>	Praseodymium <i>Pr</i>	Neodymium <i>Nd</i>	Promethium <i>Pm</i>	Samarium <i>Sm</i>	Europium <i>Eu</i>	Gadolinium <i>Gd</i>	Terbium <i>Tb</i>	Dysprosium <i>Dy</i>	Holmium <i>Ho</i>	Erbium <i>Er</i>	Thulium <i>Tm</i>	Ytterbium <i>Yb</i>				
	Actinium <i>Ac</i>	Thorium <i>Th</i>	Protactinium <i>Pa</i>	Uranium <i>U</i>	Neptunium <i>Np</i>	Plutonium <i>Pu</i>	Americium <i>Am</i>	Curium <i>Cm</i>	Berkelium <i>Bk</i>	Californium <i>Cf</i>	Einsteinium <i>Es</i>	Fermium <i>Fm</i>	Mendelevium <i>Md</i>	Nobelium <i>No</i>				



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The header of this page is much more interesting in a browser that supports CSS Grid. Try [Firefox Nightly](#), [Safari Technical Preview](#), or [Chrome Canary](#) (where you need to turn Grid on manually). (It doesn't quite work in Chrome 54 because not enough of Grid is implemented.)

CSS Grid Layout - CR

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for lay out into columns and rows using a set of predictable sizing behaviors

responsivedesign.is 0% + 2.79% = 2.79%
 unprefixed: 0%
 Global 0% + 6.8% = 6.8%
 unprefixed: 0%

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Current aligned Usage relative Date relative Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			1 37						
			1 39						
		35	1 40						
		36	1 41	5.1					
		37	1 42	7.1					
		38	1 43	8		7.1			
2 11	2 14	3 49	1 54	10	1 41	10	all	53	53
		3 50	1 55	4 TP	1 42				
		3 51	1 56		1 43				
		3 52	1 57						

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CLASSIFICATION

Sans Serif Serif Slab Serif Script

Blackletter Mono Hand Decorative

RECOMMENDATIONS

Responsive

Typography

Viewing 305 of 809 font families

Roboto Christian Robertson (12 styles)

All their equipment and instruments are alive.

Open Sans Steve Matteson (10 styles)

Almost before

Coiny Marcelo Magalhães (1 style)

A red flair silhouetted the jagged edge of a wing.

Slabo 27px John Hudson (1 style)

A shining crescent

Shrikhand Jonny Pinhorn (1 style)

I watched the storm, so beautiful yet terrific.

Lato Łukasz Dziedzic (10 styles)

It was going to

- Categories
- Serif
 - Sans Serif
 - Display
 - Handwriting
 - Monospace

Sorting Trending

Languages All Languages

Number of styles

Thickness

Slant

MIKE'S

B

B

Q

JOINT

LEO'S

PIZZA Tortellini e pizza buonissima!

a

a

7 BREE SERIF

This friendly upright italic is the serif cousin of Typetogether's award winning family Bree. Designed by Veronika Burian and José Scaglione, Bree was originally released in 2008 and became an immediate success because of its originality, charming appearance and versatility.

time to which we have come, she was unknown to the world of except as a translator and editor. It had published a translation of the "Theology" of Raymond de la, which he had solely undertaken in his father. In 1937, he had caused to be published certain "opuscula" of de la Boetie and these two efforts in one case by fidelity, and in the other by friendship, prove that man's mother extended with him moral ambition as a literary man.

ON THE BRINK of AFFECTION

PHOTO Instagram

THREE THINGS TO LEARN

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thefreemagazine

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Default
 All Characters
 Language Subsetting ▾
 OpenType Features ?
Which should I choose?

Adelle by TypeTogether 🗑️

AaBbCcDdEeFfGgHhIiJjKkLlMmNnOoP...

Le Monde Livre Classic Std Swash by Typofonderie 🗑️

AaBbCcDdEeFfGgHhIiJjKkLlMmNnOoP...

Weights & Styles 14/14

Include these in your kit:

- Thin 29K
- Thin Italic 28K
- Light 34K
- Light Italic 32K
- Regular 34K
- Italic 32K
- Semibold 35K
- Semibold Italic 32K
- Bold 34K
- Bold Italic 29K
- Extra Bold 30K
- Extra Bold Italic 28K
- Heavy 29K
- Heavy Italic 27K

Using weights & styles in your CSS

CSS Stack

Kit Size: 462K 4 fonts, 4 selectors, for Adobe's site site Publish

4 Families Selected ▮

Your Selection Clear All ↗️ ⬇️

Roboto Condensed ⊖
Oswald ⊖
Source Sans Pro ⊖
Raleway ⊖

EMBED
CUSTOMIZE
Load Time Slow

<p>Roboto Condensed</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> light 300 <input checked="" type="checkbox"/> light 300 Italic <input checked="" type="checkbox"/> regular 400 <input checked="" type="checkbox"/> regular 400 Italic <input checked="" type="checkbox"/> bold 700 <input checked="" type="checkbox"/> bold 700 Italic <p>Oswald</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> light 300 <input checked="" type="checkbox"/> regular 400 <input type="checkbox"/> bold 700 	<p>Source Sans Pro</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> extra-light 200 <input checked="" type="checkbox"/> extra-light 200 Italic <input checked="" type="checkbox"/> light 300 <input checked="" type="checkbox"/> light 300 Italic <input checked="" type="checkbox"/> regular 400 <input checked="" type="checkbox"/> regular 400 Italic <input checked="" type="checkbox"/> semi-bold 600 <input checked="" type="checkbox"/> semi-bold 600 Italic <input checked="" type="checkbox"/> bold 700 <input checked="" type="checkbox"/> bold 700 Italic
---	---

Tk Adobe Typekit Embed Code | Kit Settings

- Default
- All Characters
- Language Subsetting
- OpenType Features Which should I choose?

Adelle by TypeTogether

AaBbCcDdEeFfGgHhIiJjKkLlMmNnOoP...

Le Monde Livre Classic Std Swash by Typofonderie

AaBbCcDdEeFfGgHhIiJjKkLlMmNnOoP...

Weights & Styles 3/14

Include these in your kit:

- Thin 29K
- Thin Italic 28K
- Light 34K
- Light Italic 32K
- Regular 34K
- Italic 32K
- Semibold 35K
- Semibold Italic 32K
- Bold 34K
- Bold Italic 29K
- Extra Bold 30K
- Extra Bold Italic 28K
- Heavy 29K
- Heavy Italic 27K

Using weights & styles in your CSS

CSS Stack

Kit Size: 132K 4 fonts, 4 selectors, for Adobe's site site Publish

4 Families Selected

Your Selection Clear All ↗ ⬇

Roboto Condensed Oswald Source Sans Pro Raleway

EMBED **CUSTOMIZE** Load Time Fast

Roboto Condensed	Source Sans Pro
<input type="checkbox"/> light 300	<input type="checkbox"/> extra-light 200
<input type="checkbox"/> light 300 Italic	<input type="checkbox"/> extra-light 200 Italic
<input type="checkbox"/> regular 400	<input type="checkbox"/> light 300
<input type="checkbox"/> regular 400 Italic	<input type="checkbox"/> light 300 Italic
<input checked="" type="checkbox"/> bold 700	<input checked="" type="checkbox"/> regular 400
<input type="checkbox"/> bold 700 Italic	<input type="checkbox"/> regular 400 Italic
	<input type="checkbox"/> semi-bold 600
Oswald	<input type="checkbox"/> semi-bold 600 Italic
<input type="checkbox"/> light 300	<input type="checkbox"/> bold 700
<input type="checkbox"/> regular 400	<input type="checkbox"/> bold 700 Italic
<input type="checkbox"/> bold 700	

```
body {  
  font-size: 1em;  
  font-size: calc(1em + 1vw);  
}
```



Vertically & Horizontally centered with flexible Type

CSS Image Shapes

Apples

The apple tree (*Malus domestica*) is a deciduous tree in the rose family best known for its sweet, pomaceous fruit, the apple. It is cultivated worldwide as a fruit tree, and is the most widely grown species in the genus *Malus*. The tree originated in Central Asia, where its wild ancestor, *Malus sieversii*, is still found today. Apples have been grown for thousands of years in Asia and Europe, and were brought to North America by European colonists. Apples have religious and mythological significance in many cultures, including Norse, Greek and European Christian traditions.

Apple trees are large if grown from seed, but small if grafted onto roots (rootstock). There are more than 7,500 known cultivars of apples, resulting in a range of desired characteristics. Different cultivars are bred for various tastes and uses, including cooking,

eating raw and cider production. Apples are generally propagated by grafting, although wild apples grow readily from seed. Trees and fruit are prone to a number of fungal, bacterial and pest problems, which can be controlled by a number of organic and non-organic means. In 2010, the fruit's genome was sequenced as part of research on disease control and selective breeding in apple production.

Worldwide production of apples in 2013 was 80.8 million tonnes.

url

Grapes

The cultivation of the domesticated grape began 6,000–8,000 years ago in the Near East. Yeast, one of the earliest domesticated microorganisms, occurs naturally on the skins of grapes, leading to the innovation of alcoholic drinks such as wine. The earliest archeological evidence for a dominant position of wine-making in human culture dates from 8,000 years ago in Georgia.

The oldest winery was found in Armenia, dating to around 4000 BC. By the 9th century AD the city of Shiraz was known to produce some of the finest wines in the Middle East. Thus



it has been proposed that Syrah red wine is named after Shiraz, a city in Persia where the grape was used to make Shirazi wine. Ancient Egyptian hieroglyphics record the cultivation of purple grapes, and history attests to the ancient Greeks, Phoenicians, and Romans growing

purple grapes for both eating and wine production. The growing of grapes would later spread to other regions in Europe, as well as North Africa, and eventually in North America. In North America, native grapes belonging to various species of the *Vitis* genus proliferate in the wild across the continent, and were a part of the diet of many Native Americans, but were considered by European colonists to be unsuitable for wine. *Vitis vinifera* cultivars were imported for that purpose.

Grapes are a type of fruit that grow in clusters of 15 to 300, and can be crimson, black, dark blue, yellow, green, orange, and pink. "White" grapes are actually green in color, and are evolutionarily derived from the purple grape.

polygon

Egg

Eggs are laid by female animals of many different species, including birds, reptiles, amphibians, mammals, and fish, and have been eaten by humans for thousands of years. Bird and reptile eggs consist of a protective eggshell, albumen (egg white), and vitellus (egg yolk), contained within various thin membranes.

The most popular choice for egg consumption are chicken eggs. Other popular choices for egg consumption are duck, quail, roe, and caviar.



Egg yolks and whole eggs store significant amounts of protein and choline, and are widely used in cookery. Due to their protein content, the United States Department of Agriculture categorizes eggs as Meats within the Food Guide Pyramid. Despite the nutritional value of eggs, there are some potential health issues arising from egg quality, storage, and individual allergies.

Chickens and other egg-laying creatures are widely kept throughout the world, and mass production of chicken eggs is a global industry. In 2009, an estimated 62.1 million metric tons of eggs were produced worldwide from a total laying flock of approximately 6.4 billion hens. There are issues of regional variation in demand and expectation, as well as current debates concerning methods of mass production. The European Union recently banned battery husbandry of chickens.

Bird eggs have been valuable foodstuffs since prehistory, in both hunting societies and more recent cultures where birds were domesticated. The chicken was probably domesticated for its eggs from jungle fowl native to tropical and subtropical Southeast Asia and India by 7500 BCE. Chickens were

ellipse

Justin Avery



Father of two kids, Noah and Darcey and husband to Laura

Spend a reasonable amount of time on the internet looking to find ways to help people get their content up online and make a difference to someones life.

Recently started playing around with CSS shapes and `@supports` to see how they could be applied to everyday web designs.

Turns out a lot of things can be applied to everyday web designs these days. For example you should try changing the width of this screen. As it gets wider/narrower you will notice that the text will begin to grow and shrink to match all without having to put in a breakpoint (thanks to `font-size: calc(0.8em + 1vw);`)

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```
<div class="wrapper">
  <h1>Justin Avery</h1>
  
  <p>blah blah</p>
  <p>more blah blah</p>
</div>
```

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```
img {  
  float: left;  
  max-width: 25vw;  
  border-radius: 50%;  
  shape-outside: circle(50%);  
}
```

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```

What about when
shape-outside
isn't supported?

@supports

@supports gives CSS the
ability to perform a feature
query

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```
img {  
  float: left;  
  max-width: 25vw;  
}  
@supports (shape-outside: circle (50%)) {  
img {  
  border-radius: 50%;  
  shape-outside: circle (50%);  
}
```

```
img {  
  float: left;  
  max-width: 2  
}
```

```
@supports (shape-outside: circle (50%)) {
```

```
img {  
  border-radius  
  shape-outside  
} }
```

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ABBY COVERT

Information Architect



ANNA DAHLSTRÖM

UX designer



BEN SAUER

Senior User Experience Designer
at Clearleft



CENNYDD BOWLES

Digital Product Designer



CHRISTINA WODTKE

Start-up coach and author of the
forthcoming 'Radical Focus'



CLARA GAGGERO



DAN KLYN



DAVID TRAVIS



DOUG MORWOOD



ELLEN DE VRIES

~~Latest approaches~~

Ensure performance across devices

Best practice implementation techniques

How others are approaching challenges

Ensure performance across devices

- Facts about performance
- HTTP2
- Images
- Offline First
- AMP





Ari Weil
@aweil



Following

#perfmatters! @Alipay saw conversions increase 27% for new customers (2x existing) & 10% order rate increase w/speed



Load time

vs

Perceived Load Time



151,721,929.8 km ▼



HTTP2 is coming

HTTP₁

1. Written for humans to understand
2. 1 http request per file
3. Load 1 file at a time

HTTP₂

1. Written for machines (in binary 001101010)
2. Many files per request
3. Make many requests at a time

Lets look at side project

(or scary live demo fingers crossed this all works the way it's supposed to)

The nature of a scientific theory

In order to talk about the nature of the universe and to discuss such questions as whether it has a beginning or an end, you have to be clear about what a scientific theory is. We shall take the simpleminded view that a theory is just a model of the universe, or a restricted part of it, and a set of rules that relate quantities in the model to observations that we make. It exists only in our minds and does not have any other reality (whatever that might mean). A theory is a good theory if it satisfies two requirements. It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations. For example, Aristotle believed Empedocle's theory that everything was made out of four elements.

Service Workers - WD

Method that enables applications to take advantage of persistent background processing, including hooks to enable bootstrapping of web applications while offline.

responsivedesign.is	0%	+ 56.94%	= 56.94%
Global	0%	+ 60.7%	= 60.7%
U.K.	0%	+ 58.1%	= 58.1%

Current aligned
Usage relative
Date relative
Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			37						
			39						
		35	40						
		36	41	5.1					
		37	42	7.1					
		38	43	8		7.1			
11	14	49	54	10	41	10	all	53	53
		50	55	TP	42				
		51	56		43				
		52	57						

Accelerated Mobile Pages (AMP)

ALL IMAGES 28

Google

● Unknown - Use precise location

AMP Success Stories

- **Washington Post** — **23% increase** in mobile search users who return within 7 days
- **Slate** — **44% increase** in monthly unique visitors and a **73% increase** in visits per monthly unique visitor
- **Gizmodo** — **80%** of Gizmodo's traffic from AMP pages is **new traffic**, **50% increase** in **impressions**
- **Wired** — **25%** increase in **click through rates** from search results, with **CTR** on **ads** in **AMP stories up by 63%**.
- **Relay Media** — in the last 30 days alone has **converted over 2.5 million AMP** pages for publishers like The Daily Dot, Hearst Television and The Miami Herald which says **mobile users** who start with an AMP article **spend 10% more time** than those who land on regular mobile pages.

What AMP should be used for

Implementing AMP

- ☑ Lazy Loading
- ☑ Extensive use of Preconnect
- ☑ Perfecting of lazy loaded resources
- ☑ All async Javascript
- ☑ Inline style sheets
- ☑ Zero http requests block font downloads
- ☑ Instant loading through pre rendering
- ☑ Prerendering only resources above the fold
- ☑ Not prerendering things that might be expensive in terms of CPU
- ☐ Intelligent resource prioritisation
- ☑ Remove document layout from resource downloads
- ☑ Maximum size for a style sheet

~~Latest approaches~~

~~Ensure performance across devices~~

Best practice implementation techniques

How others are approaching challenges

<http://max.adobe.com>



Bē
Takashi Yasui, Japan

Adobe MAX—The Creativity Conference

Nov 2–4, 2016, San Diego, CA
Preconference Oct 31–Nov 1

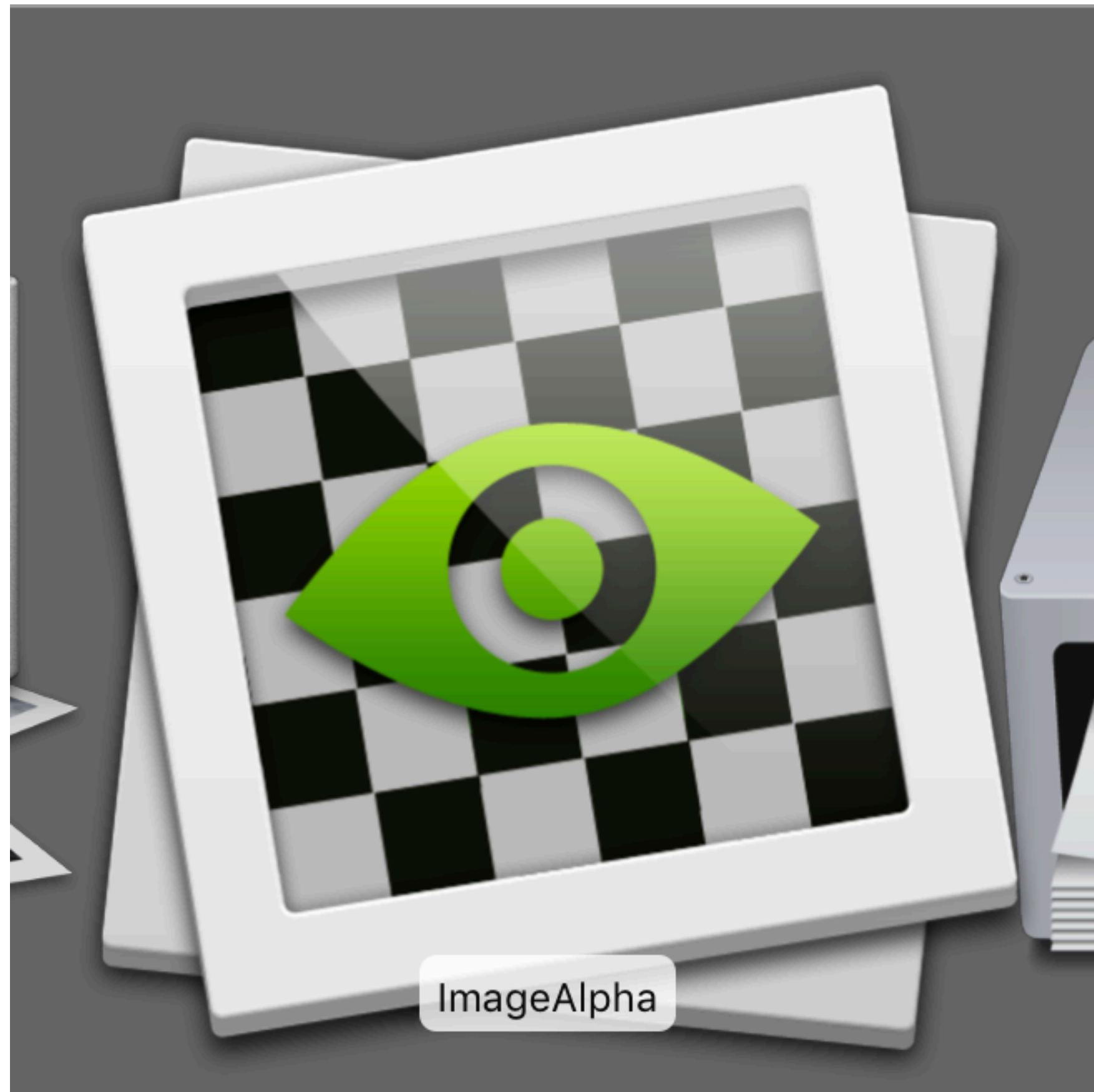
The world's premier creativity conference, MAX is an awe-inspiring mashup of over 9,000 of the world's top creatives and best-in-the-business experts who come together to learn, share, create, connect and play.

[Who should attend?](#)

[Register](#)

Optimise the images

Step 1



Saved 1.9MB out of 16.5MB. 11.3% overall (up to 91.8% per file)

Resize the images

Step 2





1.4MB



47kb

Apply GZIP & Browser caching

Step 3

9078387 on 7 Apr 2015
alrra Update Apache Server Configs to `v2.14.0`

1 contributor

985 lines (781 sloc) | 38.8 KB

Raw Blame History

```

1 # Apache Server Configs v2.14.0 | MIT License
2 # https://github.com/h5bp/server-configs-apache
3
4 # (!) Using `.htaccess` files slows down Apache, therefore, if you have
5 # access to the main server configuration file (which is usually called
6 # `httpd.conf`), you should add this logic there.
7 #
8 # https://httpd.apache.org/docs/current/howto/htaccess.html.
9
10 # #####
11 # # CROSS-ORIGIN #
12 # #####
13
14 # -----

```

1. TypeKit Code - the async version
2. Added Preload=None on the video elements because they were downloading for some reason.
3. Concat JS & CSS
4. Add Critical CSS
5. Applied responsive images SRCSET (remember the Alabama Shakes image earlier)
6. Lazy load images below the fold
7. Put on Cloudflare with https = HTTP2
8. Added a SVG Max image for the main banner
9. ~~Add a service worker with offline page.~~

RWD Max Adobe



0.0

Adobe Max



0.0

<https://max.adobe.com/>

0.0

<https://adobemax.responsivedesign.is/>

0.0

<https://max.adobe.com/>

0.0

<https://adobemax.responsivedesign.is/>

0.0

~~Latest approaches~~

~~Ensure performance across devices~~

~~Best practice implementation techniques~~

How others are approaching challenges

The Financial Times



Qualcomm agrees to buy NXP for \$47bn

Clinton and Obama's rift over an Egyptian despot

May's vow to pull Brexit 'levers' won over Nissan

claims of US election meddling

Bill's business comes back to haunt Hillary

Ford's net income drops

NEW YORK	LONDON	BEIJING	HONG KONG	TOKYO
16:02	21:02	04:02	04:02	05:02

Waiting for extension Live HTTP Headers...

www.ft.com

The Guardian

Unable to connect to the Internet

Person 1

https://www.theguardian.com/info#1-across

free become a member sign in search jobs more UK edition

theguardian

home > home UK world politics sport football opinion culture business all

Unable to connect to the Internet

In the meantime, how about a quick crossword?

Quick crossword No 14,188

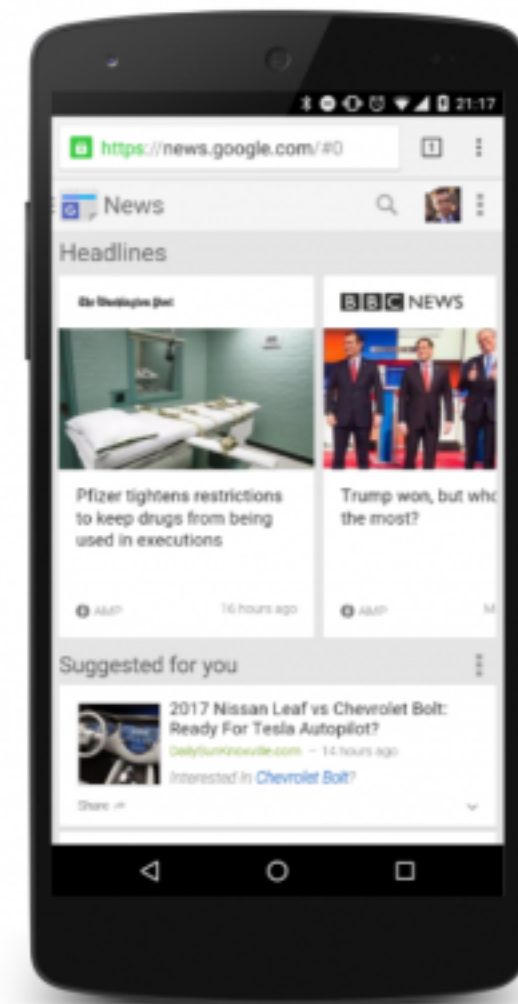
1	A	L	2	B	I	3	O	N		4	5		6		7
			I				8								
9			N						10						
			C												

Across

- 1 Poetic name for Britain (6)
- 4 Unpowered aircraft (6)
- 9 British royal house from 1714 (7)

**By 2019, 20% of brands will
abandon their mobile apps.**

Washington Post



`<amp;install-serviceworker>`

By 2020, 30% of web browsing sessions will be done without a screen.

annyang! SpeechRecognition that just works

annyang is a tiny javascript library that lets your visitors control your site with voice commands. annyang supports multiple languages, has no dependencies, weighs just 2kb and is free to use.





Go ahead, try it...


🗨 Say "Hello!"

Immersive Story Telling

PRODUCED BY SBS

 Tweet

 Like 5k

 Share



OUND

AUTO SCROLL

FULL SCREEN



Conversational UI



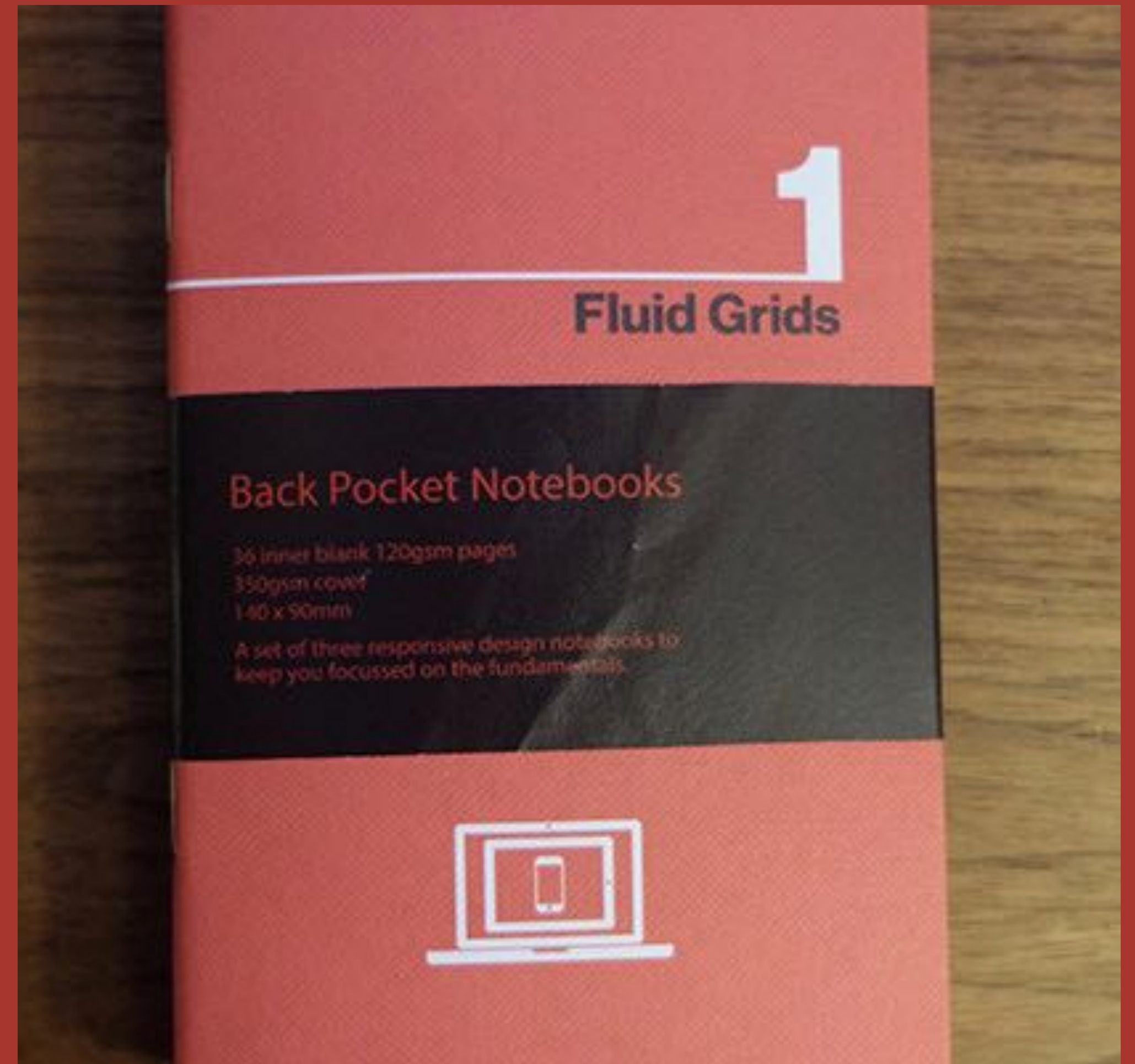
2017

2017

- Build Progressively
- Use Responsive Images on your site
- Take advantage of Flex
- Start creating your layouts in Grid
- Improve your story telling through the use CSS Image Shapes
- Embrace that no two browsers will look the same
- Embrace flexible Typography
- AMP if you need, but focus on your own site.
- Work out how to deal with giant screens
- Move your website offline
- Start preparing for voice
- Get Chatty (sort out your content)



- <https://responsivedesign.is>
- <https://backpocket.co>
- @justinavery / @reswebdes
- <https://max.simplethin.gs>



Thank you



- <https://responsivedesign.is>
- <https://backpocket.co>
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