



Responsive Web Design

PLETHORA OF DEVICES,
NEEDS AND BEHAVIORS

1

DESKTOP: *feast*



2

TABLET: *meal*



3

MOBILE: *snacks*

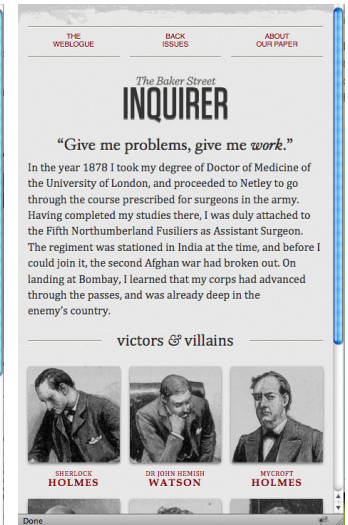
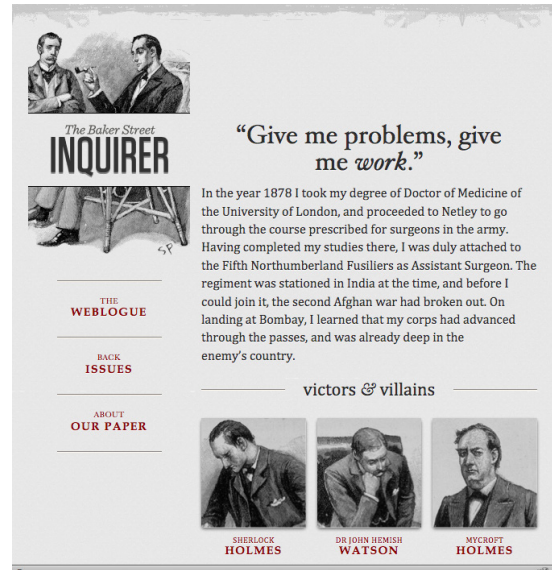
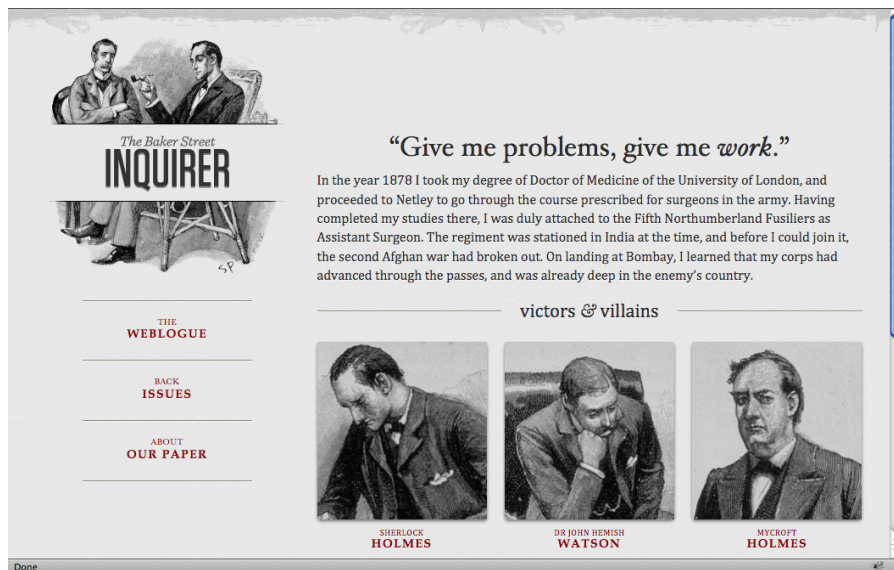


4

IOT / OTHER: ?



2010: HOW TO DO THIS? MEDIA QUERIES



INGREDIENTS OF RESPONSIVE DESIGN

1

FLEXIBLE LAYOUT

fluid layout
fluid grids

based in:

%

ems

rems

vw

vh

2

FLEXIBLE MEDIA

images / video
type

based in:

%

ems

rems

vw

vh

3

MEDIA QUERIES

allow css for media type:

print

screen

+ for characteristics:

size (viewport width)

screen resolution

screen orientation

aspect ratio

+ for preferences:

reduced motion

data usage

etc.

- **PURPOSE:** *Used to transform appearance of content for different media conditions*
- **SIMPLE + POWERFUL:** *Simple way to feed different css rules based on characteristics of user's device*
- **ADAPTABLE:** *Used to build responsive/adaptive designs*
- **THEY TARGET CONDITIONS:** *Can target specific css rules to replace with new css rules*
- **ORGANIZATIONAL FLEXIBILITY:** *Can be organized where desired: at the end of css rules, tucked near rules that get changed, or in an separate css file.*

MEDIA QUERIES CREATE POSSIBILITIES

www.21cmuseumhotels.com

21c MUSEUM HOTELS

MUSEUM LOCATIONS COMPANY NEWS+PRESS EVENTS SHOP CONNECT

BOOK NOW

21c Museum Hotels is on the move, bringing its unique experience to cities across the country. Born out of a desire to integrate contemporary art into everyday life, 21c launched in downtown Louisville, Kentucky in 2006. Come explore for yourself and discover how 21c is redefining the art of modern Southern Hospitality.

LOUISVILLE

TOUR ALTER EGO WITH ARTIST GAELA ERWIN
- Our favorite Friday is just around the corner! To celebrate First Frid...

THE RAMP HARVEST HAS BEGUN
- Our friends at Woodland Farm are

CINCINNATI

Cutting edge contemporary art, genuine hospitality and culinary experiences infused with local flavor are headed to the Queen City. Once home to downtown's Metropole Hotel, 21c Museum Hotel Cincinnati is embracing the architecture of the

BENTONVILLE

Within walking distance of the new Crystal Bridges Museum of American Art, 21c Museum Hotel Bentonville will support the renewal of downtown Bentonville and serve as an additional catalyst for culture, entertainment and economic growth

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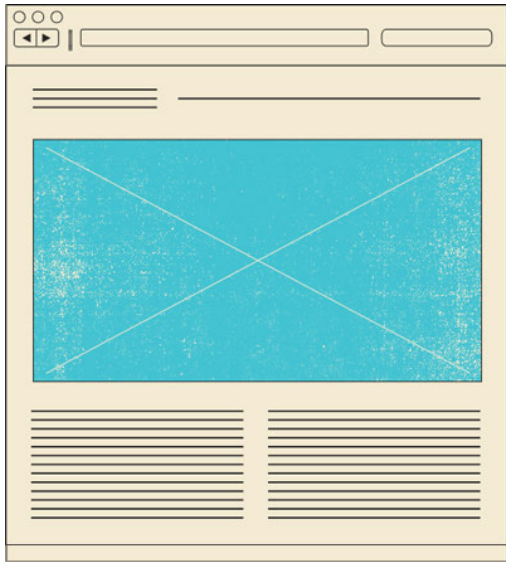
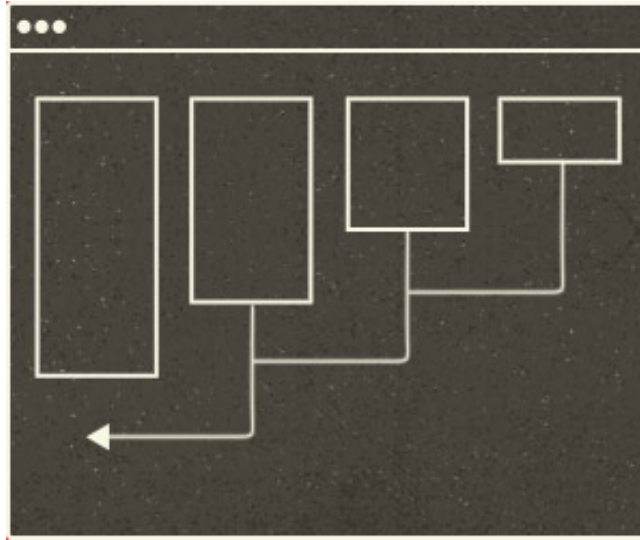
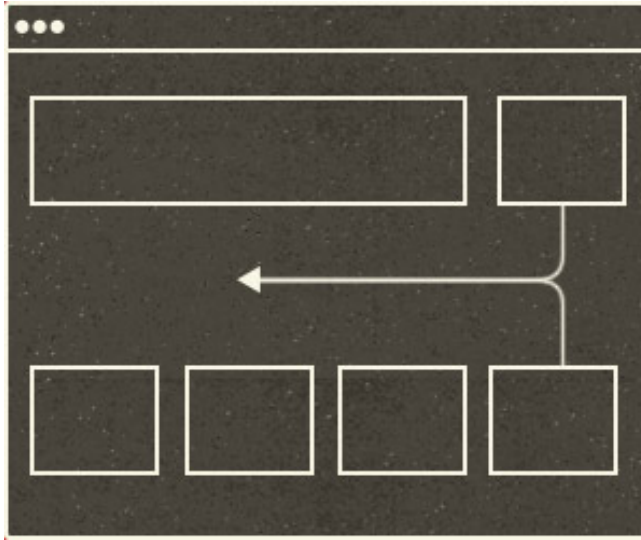
THE RAMP HARVEST HAS BEGUN
- Our friends at Woodland Farm are welcoming Mother Nature's first taste...

> Visit Louisville

CINCINNATI

Cutting edge contemporary art, genuine hospitality and culinary experiences infused with local flavor are headed to the Queen City. Once home to downtown's Metropole Hotel, 21c Museum Hotel Cincinnati is embracing the architecture of the historic landmark to create a new experience for visitors and locals alike.

ALLOW CONSIDERATION
OF ALTERNATIVES



MEDIA QUERY SYNTAX: CSS

```
#wrapper {  
  width: 70%;  
}
```

```
@media screen and (max-width: 500px) {
```

```
  #wrapper {  
    width: 100%;  
  }
```

```
}
```

MEDIA QUERY SYNTAX:
CSS

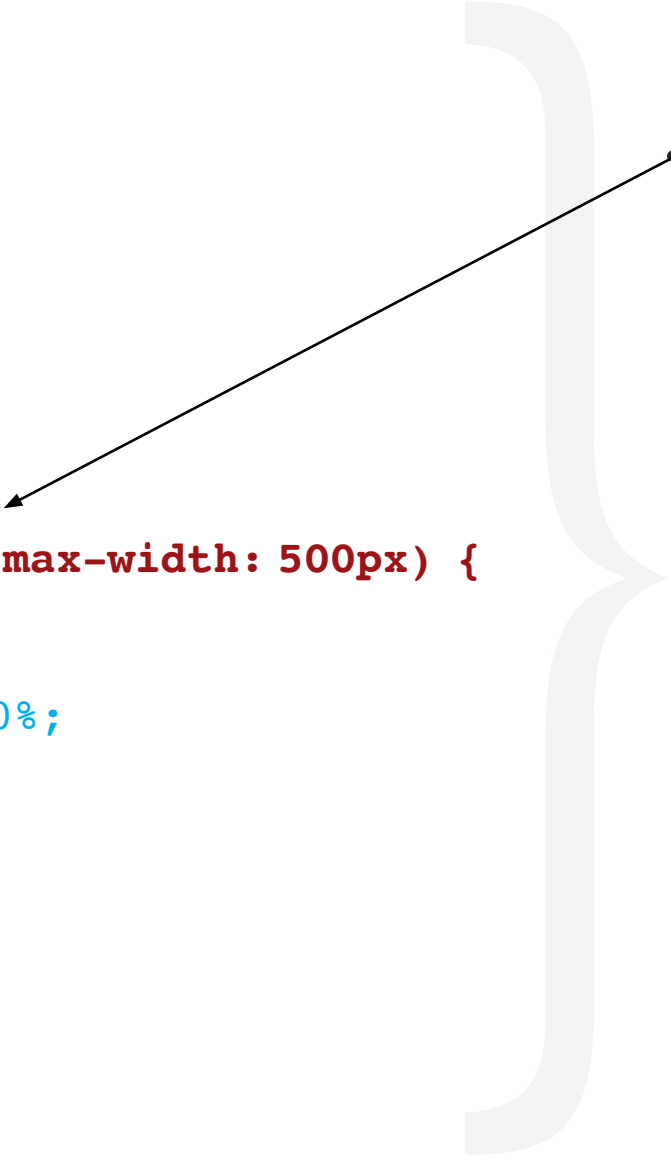
```
#wrapper {  
  width: 70%;  
}
```

```
@media screen and (max-width: 500px) {
```

```
  #wrapper {  
    width: 100%;  
  }
```

```
}
```

*Start with declaration of
media type and constraints
(usually size)*



MEDIA QUERY SYNTAX: CSS

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- *Start with declaration of media type and constraints (usually size)*

- *Double set of curly brackets to open and close the media query are required.*

MEDIA QUERY SYNTAX: CSS

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```
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```

- *Start with declaration of media type and constraints (usually size)*

- *Double set of curly brackets to open and close the media query are required.*

*Visual cue (in Dreamweaver):
Media query code is a
different color.*

- *min-width* [refers to a size *at least as big as* number listed]

```
@media screen and (min-width: 550px) { ... }
```

- *max-width* [refers to a size *up to* the size listed]

```
@media screen and (max-width: 550px) { ... }
```

- *device-width*
- *min-device-width*
- *max-device-width*
- *orientation*

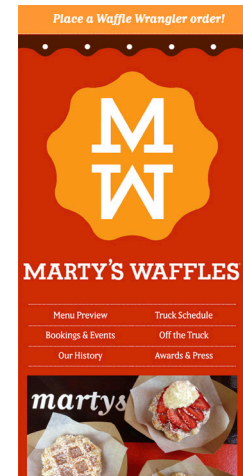
EXAMPLE 1: CHANGE A CONTAINER WIDTH



```
#wrapper {  
  width: 75%;  
}
```



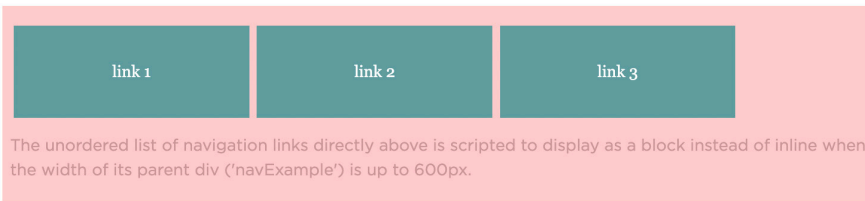
```
#wrapper {  
  width: 75%;  
}
```



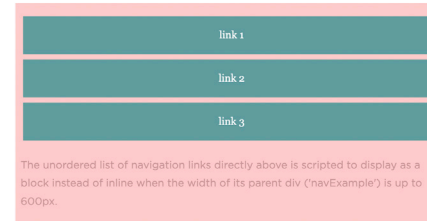
```
@media screen and (max-width: 450px) {  
  #wrapper {  
    width: 100%;  
  }  
}
```

EXAMPLE 2: CHANGE DISPLAY: INLINE TO BLOCK

Example: Responsive Navigation



Example: Responsive Navigation



```
#navExample li {  
  display: inline-block;  
}
```

```
#navExample li {  
  display: inline-block;  
}
```

```
@media screen and (max-width:  
550px) {  
  #navExample li {  
    display: block;  
  }  
}
```

EXAMPLE 3: CHANGE GRID UNITS

Example: Simple Responsive Layout Change

This div is a child in a grid that is set to have three 1fr columns when the screen is wider. The grid is set to change to 1fr when it's in mobile size, so the grid children stack on top of each other for phones.

This div is a child in a grid that is set to have three 1fr columns when the screen is wider. The grid is set to change to 1fr when it's in mobile size, so the grid children stack on top of each other for phones.

This paragraph is a child in a grid that is set to have three 1fr columns when the screen is wider. The grid is set to change to 1fr when it's in mobile size, so the grid children stack on top of each other for phones.

```
section {  
  display: grid;  
  grid-template-columns: 1fr 1fr 1fr;  
  grid-gap: 10px;  
}
```

Example: Simple Responsive Layout Change

This div is a child in a grid that is set to have three 1fr columns when the screen is wider. The grid is set to change to 1fr when it's in mobile size, so the grid children stack on top of each other for phones.

This div is a child in a grid that is set to have three 1fr columns when the screen is wider. The grid is set to change to 1fr when it's in mobile size, so the grid children stack on top of each other for phones.

This paragraph is a child in a grid that is set to have three 1fr columns when the screen is wider. The grid is set to change to 1fr when it's in mobile size, so the grid children stack on top of each other for phones.

```
section {  
  display: grid;  
  grid-template-columns: 1fr 1fr  
  1fr;  
  grid-gap: 10px;  
}  
  
@media screen and (max-width:  
600px) {  
  #section {  
    grid-template-columns: 1fr;}  
}
```


- *Start with mobile, layer on wider styles*
- *Start with desktop, layer on narrower styles*
- *Start with something in between*

RESPONSIVE WEB GALLERY

mediaqueri.es

Intrinsic Web Design Era

NEW TOOLKIT OF CSS
OPTIONS + PRIOR TOOLS

CSS Grid
Flexbox
Alignment
Writing Modes
Multicolumn
Viewport Units
Transforms
Object Fit
Clip-path
Masking
Shape-outside
Initial-letter

Flow
Overflow
Floats
Block
Inline
Inline-block
Display: table
Margin
Negative margins
Padding
Positioning
& everything else in CSS



JEN SIMMONS

[@jensimmons](#)

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SIMMONS: 4 MAJOR
LAYOUT APPROACHES

1

FLOW LAYOUT

2

CSS GRID

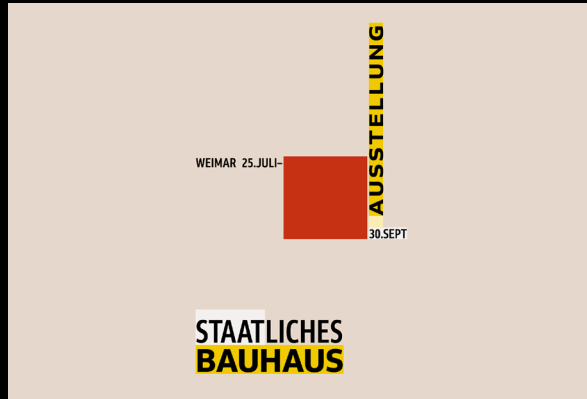
3

FLEXBOX

4

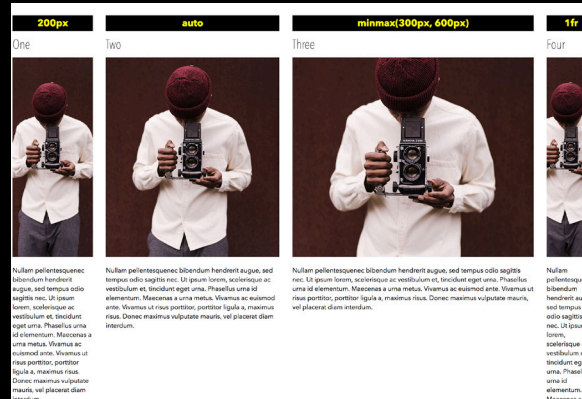
MULTICOLUMN

SIMMONS: INSTRINSIC DESIGN CAPABILITIES



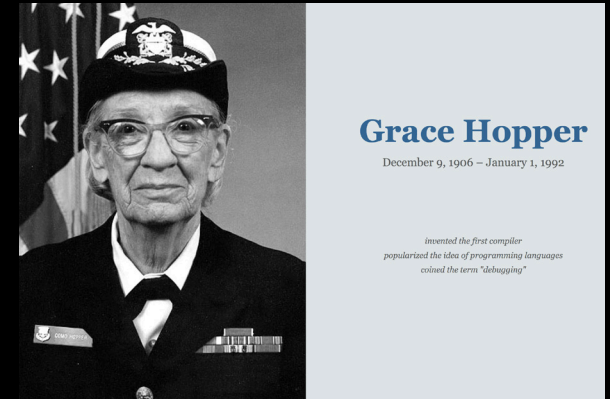
1

**CONTRACTING
& EXPANDING**
*wrap & reflow
enlarge & shrink
add & remove whitespace
slide & overlap*



2

FLEXIBILITY
*columns
fixed
min- and max-content
%
fr units
minmax()
auto*



3

NEW VIEWPORT USE
*vertical centering
vertical viewport units
grid rows*



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Grid by Example

Everything you need to learn CSS Grid Layout

Start Here

Examples

Patterns

Video tutorial

Resources

CSS Grid Layout

This site is a collection of examples, video and other information to help you learn CSS Grid Layout. Developed and maintained by [Rachel Andrew](#).

The Video Tutorial

A collection of short and to the point videos, demonstrating various parts of the CSS Grid Layout specification.

New!

Get Started Guide

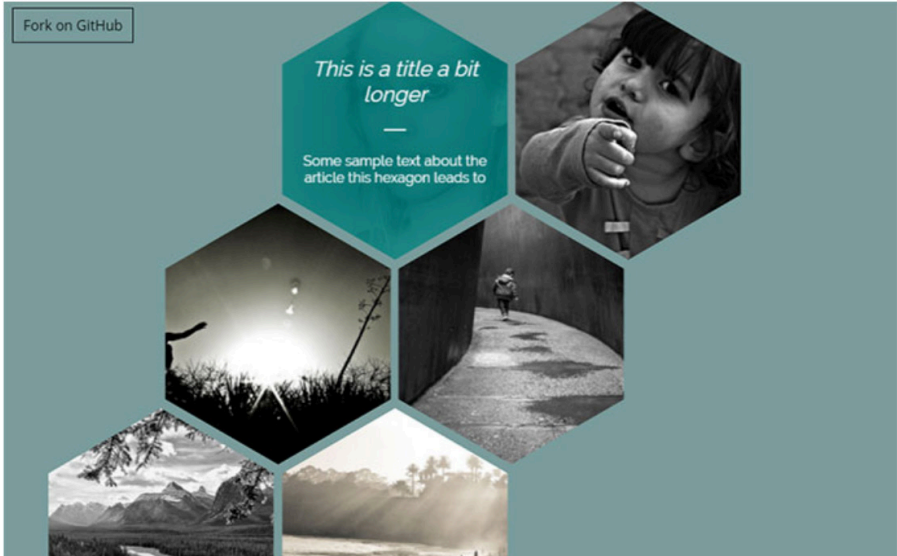
A structured guide to resources that will help you to start learning CSS Grid Layout.

New!

The Examples

Patterns

CSS GRID:
DESIGN POSSIBILITIES



CSS GRID: INVISION'S DESIGN GENOME PROJECT

The **Design Genome Project**

By InVision

What powers great design? We studied design-forward companies and found one thing in common: they all do it differently. Organizational structure, design process, tool stacks, and more play a significant role in how they achieve competitive advantage through design.

8 Industries

15 Companies

36% Hybrid Org

29% Decentralized Org

36% Centralized Org

1:3 Designers to Engineers

86% Use a Design System

Explore

Fb
Tw
Ln

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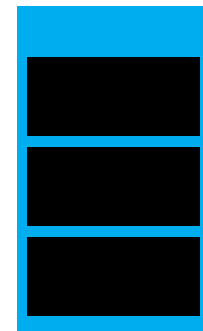
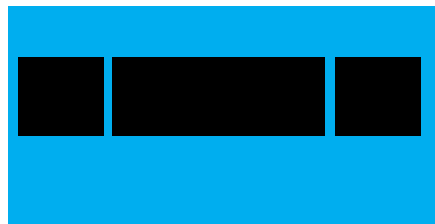
Explore

Fb
Tw
Ln

Deep dive into these organizations to see how their unique approaches enable them to succeed.

GRID: REponsive TO SINGLE COLUMN

Grid layout allows for simple media query adaptation to a single column layout for handheld devices.



```
#content-main {  
  display: grid;  
  grid-template-columns: 25% 50% 25%;  
}
```

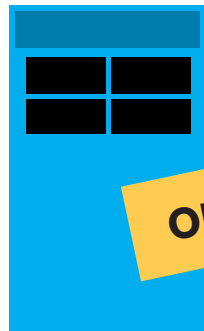
```
#content-main {  
  display: grid;  
  grid-template-columns: 25% 50% 25%;  
}
```

```
@media screen and (max-width: 550px) {
```

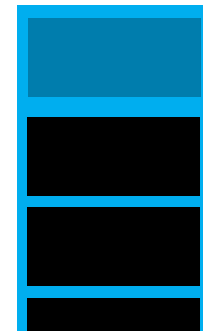
```
  #content-main {  
    display: block;  
  }  
}
```

GRID: INTRINSIC TO SINGLE COLUMN

Grid autofit and minmax() removes the requirement for a media query to adapt to a single column layout:



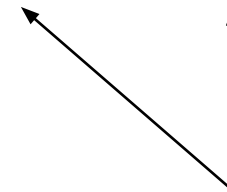
OUCH!



```
#content-main {  
  display: grid;  
  grid-template-columns: 50% 50%;  
}
```

```
#content-main {  
  display: grid;  
  grid-template-columns:  
  repeat(auto-fit, minmax(320px, 1fr));  
}
```

HOW MANY **HOW BIG**



WELL-DESIGNED
EVENT WEB SITES

siteinspire.com