

Responsive design

Objective

- What is responsive design
- Media types
- Breakpoints
- Viewport
- Mobile first design

What is Responsive Web Design?

- Responsive Web Design is about using HTML and CSS to automatically resize, hide, shrink, or enlarge, a website, to make it look good on all devices (desktops, tablets, and phones):
- A responsive web design will automatically adjust for different screen sizes and viewports.



Media types

Media queries in CSS3 extended the CSS2 media types idea: Instead of looking for a type of device, they look at the capability of the device.

- **Media queries can be used to check many things, such as:**

- width and height of the viewport
- width and height of the device
- orientation (is the tablet/phone in landscape or portrait mode?)
- resolution

- **Examples:**

- https://www.w3schools.com/css/css3_mediaqueries_ex.asp

Value of media type	Description
all	Used for all media type devices
print	Used for printers
screen	Used for computer screens, tablets, smart-phones etc.
speech	Used for screenreaders that "reads" the page out loud

Sizes, breakpoints



(min-width:800px)
(min-device-aspect-ratio: 1/1)



A



B

(min-device-width:768px)
(max-device-width:1024px)



A



B

(min-device-width:320px)
(max-device-width:480px)

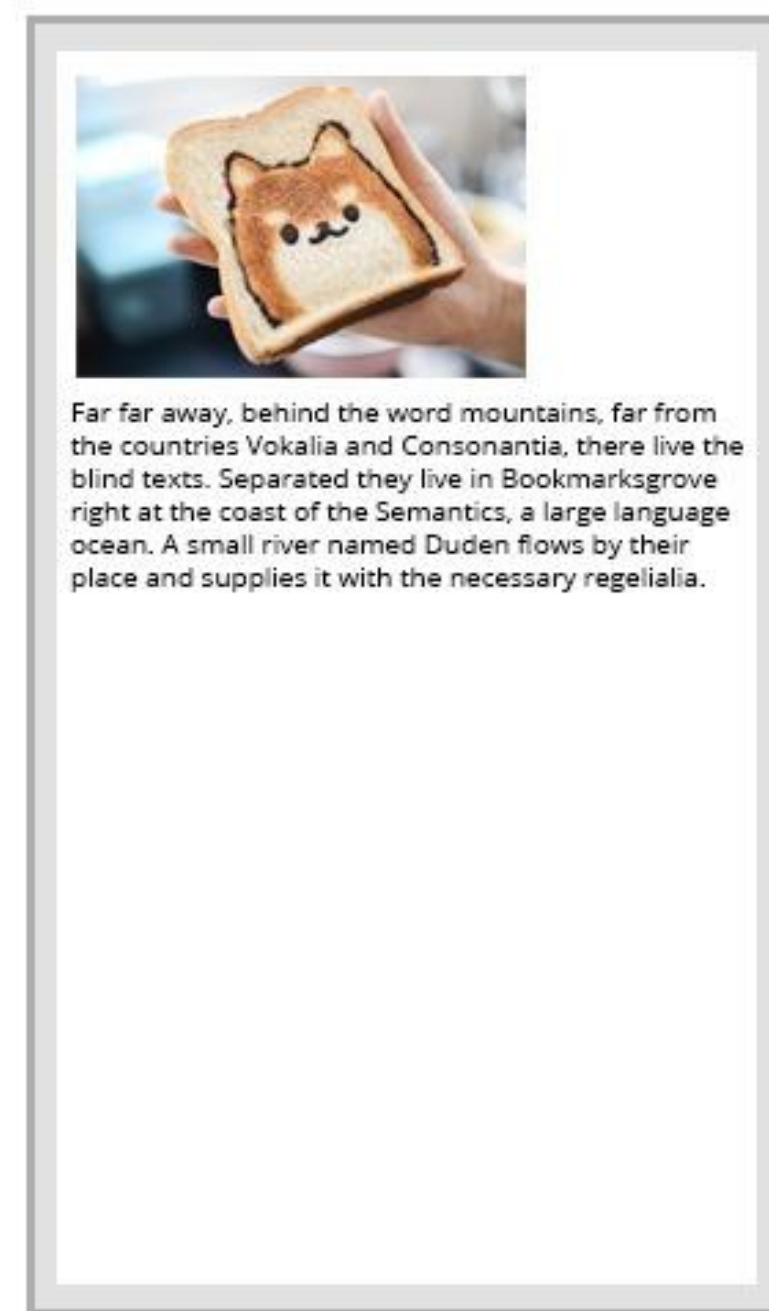
↑ Designing mobile-friendly web mapping applications using CSS3 media queries can provide an improved experience to your end users.
A @media screen and (orientation: portrait) B @media screen and (orientation: landscape)

Setting the viewport

- To create a responsive website, add the following `<meta>` tag to all your web pages:

- **Example:**

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```



Without the viewport meta tag



With the viewport meta tag

The form

Target a min-width with **@media** and provide property and its value inside of the current style sheet.

```
.text-design {  
    font-size:28px;  
}  
  
@media (min-width:480px){  
    .text-design{  
        font-size:34px  
    }  
}
```



CSS viewport units

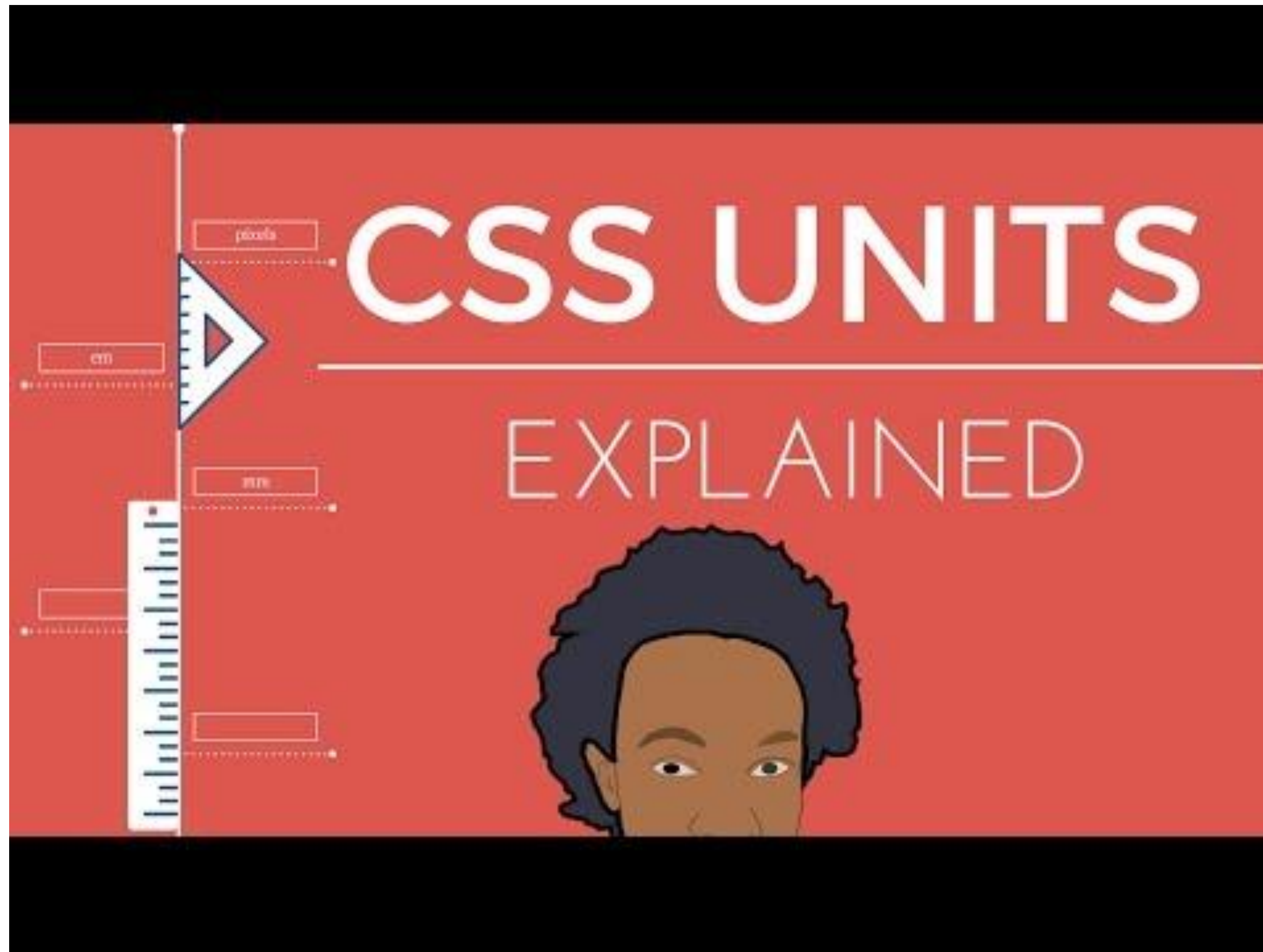
CSS viewport units were specially created to allow measurements in CSS (including font-size) to be relative to the viewport size. They allow a truly responsive font-size, by defining the size as a percentage of the viewport width or height. We have four possible values:

- **vw**. Viewport width. 1vw equals 1% of the viewport width.
- **vh**. Viewport height. 1vh equals 1% of the viewport height.
- **vmin**. Viewport minimum. It's relative to the shortest dimension (width or height).
- **vmax**. Viewport maximum. It's relative to the longest dimension.

Pixels, ems, rems and Media Queries

The other way to implement a responsive font size is to use media queries along with fixed-size text. For fixed-size text we can use:

- **px.** It specifies the height of the letters in CSS pixels
- **em.** It's relative to parent's font size. i.e. $2\text{em} = 20\text{px}$ if parent element's font-size is 10px.
- **rem.** It's relative to the html font size. i.e. $1\text{rem} = 10\text{px}$ if html element's font-size is 10px.



Mobile First Design

Widespread usage of mobile devices to access the web has led to new development methods like mobile-first design which encourages mobile-friendly web design.



Different Images Depending on Browser Width

The HTML `<picture>` element allows you to define different images for different browser window sizes.

`<picture>`

```
<source srcset="img_smallflower.jpg" media="(max-width: 600px)">
```

```
<source srcset="img_flowers.jpg" media="(max-width: 1500px)">
```

```
<source srcset="flowers.jpg">
```

```

```

`</picture>`



Summary

- What is responsive design
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Resources

- [HTML Responsive Web Design](#)