Web Development

Responsive Web Design

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Responsive web design makes your web page look good on all devices.

Responsive web design uses only HTML and CSS.

Web pages can be viewed using many different devices: desktops, tablets, and phones. Your web page should look good, and be easy to use, regardless of the device.

Viewport

The viewport is the user's visible area of a web page.
The viewport varies with the device, and will be smaller on a mobile phone than on a computer screen.
HTML5 introduced a method to let web designers take control over the viewport, through the `<meta>` tag.

You should include the following `<meta>` viewport element in all your web pages:

```
<head>
  <title>Page Title</title>
  <meta charset="utf-8">

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

Additional Rules

1. Do NOT use large fixed width elements.
   If an image is displayed at a width wider than the viewport it can cause the viewport to scroll horizontally.

2. Do NOT let the content rely on a particular viewport width to render well.
   Since screen dimensions and width in CSS pixels vary widely between devices, content should not rely on a particular viewport width to render well.

3. Use CSS media queries to apply different styling for small and large screens
   Consider using relative width values, such as width: 100%. Also, be careful of using large absolute positioning values. It may cause the element to fall outside the viewport on small devices.

Media Query

Media query is a CSS technique introduced in CSS3.

It uses the @media rule to include a block of CSS properties only if a certain condition is true.

```
@media only screen and (min-width:100px) and (max-width:500px) {
  ...
}
```

Responsive Images

Max-width property:

If the `max-width` property is set to 100%, the image will scale down if it has to, but never scale up to be larger than its original size.

```
1 img {
2     max-width: 100%;
3     height: auto;
4 }
```

Background Images

```
div {
    height: 400px;    /* height of the image */
    background-image: url('image.jpg');
    background-repeat: no-repeat;

    /* Contain will keep the aspect ratio */
    background-size: contain;

    /* OR 100%:
    The background image will stretch to cover the entire content area
    */
    background-size: 100%;
}
```

Responsive Typography

Relative design use percentage and em (relative) widths for things that allow you to build a style that will scale to **any** size of user agent.

Relative length units specify a length relative to another length property. Relative length units scales better between different rendering mediums.

Most common relative units

%	
em	Relative to the font-size of the element (2em means 2 times the size of the current font)
vw	Relative to 1% of the width of the viewport *
vh	Relative to 1% of the height of the viewport *
vmin	Relative to 1% of viewport's* smaller dimension
vmax	Relative to 1% of viewport's* larger dimension

* Viewport = the browser window size. If the viewport is 50cm wide, 1vw = 0.5cm.

Resources

- CSS Tricks
- W3Schools
- Responsive Viewport Units
- Flexible Box