

TRANSITIONS, TRANSFORMS, & ANIMATIONS with CSS3

COMP 126: Practical Web Design &
Development for Everyone

transitions

allow property changes in CSS values to occur smoothly over a specified duration

animations



you can combine transitions and transforms to animate elements

transforms

allow elements styled with CSS to be moved or changed in two-dimensional or three-dimensional space

transitions



simple nav transition

[//codepen.io/tkjin/embed/RdOmMq/?height=265&theme-
id=0&default-tab=css,result](https://codepen.io/tkjin/embed/RdOmMq/?height=265&theme-id=0&default-tab=css,result)

anatomy of a transition

- **transition-property:** the property you want to transition.
Note: not every property can be transitioned.
- **transition-duration:** in seconds or milliseconds: 4s or 4000ms (250-300ms is considered the "sweet spot").
- **transition-timing-function:** "cushioning" for the transition, defaults to ease; optional.
- **transition-delay:** the number of milli/seconds to delay the transition before firing it; optional.

Shorthand syntax:

```
transition: [property] [duration] [timing-  
function][delay];
```

simple hover transition

[//codepen.io/tkjin/embed/xQGZzK/?height=265&theme-id=0&default-tab=css,result](https://codepen.io/tkjin/embed/xQGZzK/?height=265&theme-id=0&default-tab=css,result)

transitioning multiple

```
transition-property: color, transform;  
transition-duration: 2s, 300ms;  
transition-delay: 0, 1s;
```

or, in shorthand:

transition:
color 2s,
transform 300ms 1s;

The diagram illustrates the shorthand syntax for multiple transitions. Red arrows point from descriptive labels to specific parts of the shorthand code: 'transition-properties' points to 'color' and 'transform'; 'transition-durations' points to '2s' and '300ms'; and 'transition-delay' points to '1s'.

transition-properties

transition-durations

transition-delay

transforms



transforms

...allow you to change the *shape and positioning of an element* without interfering with the document flow (the other elements on the page); can be coupled with transitions for an animation-style effect

translate (move)

rotate/scale (size)

skew

(distortion/squish)

2D transforms

- horizontal (x-axis)
- vertical (y-axis)

3D transforms

- horizontal (x-axis)
- vertical (y-axis)
- depth (z-axis)

simple transform

[//codepen.io/tkjin/embed/aQONVB/?height=265&theme-id=0&default-tab=css,result](https://codepen.io/tkjin/embed/aQONVB/?height=265&theme-id=0&default-tab=css,result)

more transitions & transforms

[//codepen.io/tkjin/embed/MzwaEo/?height=265&theme-id=0&default-tab=css,result](https://codepen.io/tkjin/embed/MzwaEo/?height=265&theme-id=0&default-tab=css,result)

transform-origin

changes the position of the origin of transformation from its default origin (i.e., its own center and/or the boundaries of the parent element); values, examples, and more demos [here](#)

[//codepen.io/tkjin/embed/RqrpYN/?height=265&theme-id=0&default-tab=css,resultundefined&editable=true](https://codepen.io/tkjin/embed/RqrpYN/?height=265&theme-id=0&default-tab=css,resultundefined&editable=true)

transform-origin

Just a cool little CSSTricks demo to show you how different transform-origin values affect transformations

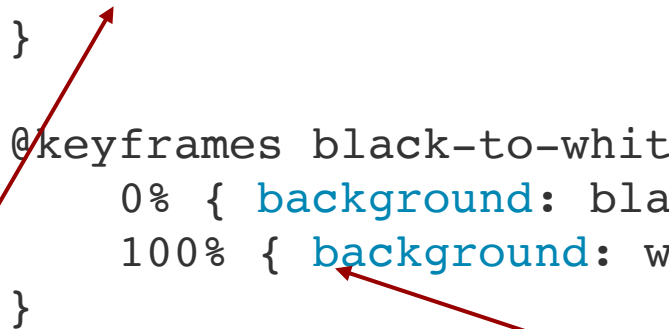
[//codepen.io/tkjin/embed/mQVWxy/?height=265&theme-id=0&default-tab=css,resultundefined&editable=true](https://codepen.io/tkjin/embed/mQVWxy/?height=265&theme-id=0&default-tab=css,resultundefined&editable=true)

animations



animation property + @keyframes block

```
.animated-div {  
  animation: black-to-white 1s linear 1;  
}  
  
@keyframes black-to-white {  
  0% { background: black; }  
  100% { background: white; }  
}
```

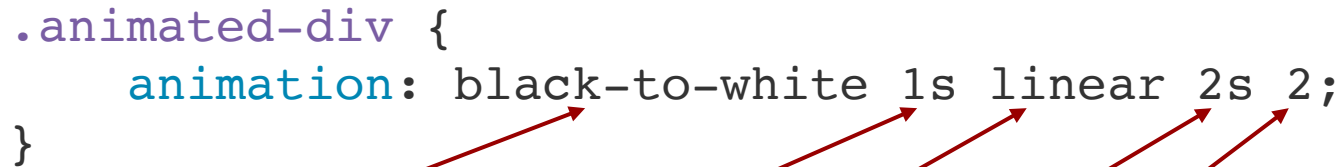


the animation property binds
a named animation to an
element and specifies its
duration

the @keyframes block names the
animation and specifies what its
properties are animating "from" (at
0%) and "to" (at 100%)

animation property/values

```
.animated-div {  
  animation: black-to-white 1s linear 2s 2;  
}
```

The diagram shows five red arrows originating from the values in the CSS code block and pointing to their respective definitions in the list below. The arrows are: 1. From 'black-to-white' to 'animation-name'. 2. From '1s' to 'animation-duration'. 3. From 'linear' to 'animation-timing-function'. 4. From '2s' to 'animation-delay'. 5. From '2' to 'animation-iteration-count'.

- **animation-name:** The name of the keyframe block you want to use. Can be anything.
- **animation-duration:** How long the animation takes to proceed from 0% complete to 100% complete.
- **animation-timing-function:** Just like transition-timing-function; defaults to ease.
- **animation-delay:** The number of seconds to delay the start of the animation from its trigger; **optional**.
- **animation-iteration-count:** The number of times you want the animation to proceed from 0% to 100%; "infinite" if you don't want to it stop. Defaults to 1; **optional**.

the @keyframes block

...allows you to define a group of properties and values to animate, rather than simply changing one or two values (as in transitions)

start (0%): white text on black

the name I chose for this animation
(black-to-white)

```
@keyframes black-to-white {  
  0% /* or from */ {  
    background: black;  
    color: white;  
  }  
  100% /* or to */ {  
    background: white;  
    color: black;  
  }  
}
```

you can control the
animation in stages with
multiple percentages

```
@keyframes black-to-white  
  0% { color: black; }  
  50% { color: grey; }  
  100% { color: white; }  
}
```

end (100%):

black text on white

animation timing functions

linear, ease, ease-in, ease-out, ease-
in-out

- **linear:** The animation has the same speed from start to end.
- **ease:** Default value. The animation has a slow start, then fast, before it ends slowly.
- **ease-in:** The animation has a slow start.
- **ease-out:** The animation has a slow end.
- **ease-in-out:** The animation has both a slow start and a slow end.

black-to-white animation

[//codepen.io/tkjin/embed/pQgRvX/?height=265&theme-id=0&default-tab=css,result](https://codepen.io/tkjin/embed/pQgRvX/?height=265&theme-id=0&default-tab=css,result)

animation timing function

<https://codepen.io/tkjin/embed/ExyyKEm?height=265&theme-id=light&default-tab=css,result>

why animations?

<https://codepen.io/tkjin/embed/eYzzdzb?height=265&theme-id=dark&default-tab=css,result>

<https://codepen.io/yohaanchokhany/embed/wvGNzmw?height=265&theme-id=dark&default-tab=js,result>

gradient animation

<https://codepen.io/tkjin/embed/yLobbay?default-tab=html%2Cresult>