## CSS3 Transforms and Translations:

### Transforms:

* Transform: property that lets you rotate, translate, scale, and/or skew any element.
  + The value of this property is one or more transform functions, separated by spaces, applied in order as they are provided.

#### Translation:

* + - The *translate(x,y)* function allows you to move elements up, down, left, and right. It is similar to the behavior of *position: relative;* when declaring *top* and *left*, moving elements along the x and y axes.
    - This moves elements without impacting the document flow.
    - Unlike *position: relative;* (which allows to position an element either against its current position or a parent/other ancestor), a translated element can ***only*** be moved *relative* to its current position.
    - The function *translate(x,y)* moves an element *x* from the **left**, and *y* from the **top**.
    - **Note: transforms require vendor prefixing for IE9, Android (up to 4.4.3), iOS8, and Blackberry 10.**

#### Scaling:

* + - *scale(x,y)*: scales an element by the defined factors, **horizontally,** then **vertically**.
    - A scaled element will grow outwards from or shrink inwards towards its *center*, keeping the center of the element at the same relative position as its dimensions change. To change this default behavior, use the *transform-origin* property.
    - Scaling is like translating, having no impact on the document flow.

## Canvas, SVG, and Drag-and-Drop:

### Canvas API:

* Supported in:
  + Chrome 4+
  + Firefox 2+
  + Opera 9.6+
  + Safari 3.1+
  + iOS 3.2+
  + Internet Explorer 9.0+
  + and Android 3.0+

### SVG:

* Supported in:
  + Chrome 4+
  + Firefox 3+
  + Opera 9.6+
  + Safari 3.2+
  + iOS 3.2+
  + Internet Explorer 9.0+
  + and Android 4.4+
* Unlike Canvas, SVG images are accessible via the DOM

#### Drawing in SVG:

* [Drawing a circle in SVG](https://www.sitepoint.com/premium/books/html5-css3-for-the-real-world-2nd-edition/read/12/jzj69b3w/?fromShare=true) is easier than in canvas. It is done using:
  + - <svg xmlns={{ http://www.w3.org/2000/svg }} viewbox={{ 0 0 400 400 }}>
      * <circle cx={{ 50 }} cy={{ 50 }} r={{ 25 }} fill={{ red }}/>
    - </svg>
  + The *viewbox* attribute defines the starting location, width, and height of the SVG image.
  + The *circle* element defines a circle, with *cx* and *cy* as the X and Y coordinates of the center of the circle. The radius is represented by *r*, while *fill* defines the fill style.
  + To view an SVG file, simply open it using the File menu in any browser that [supports](#_SVG:) SVG.

### Drag-and-Drop:

* Drag and Drop is supported in:
  + All recent versions of Chrome, Firefox, and Safari
  + Partial support in Internet Explorer 7.0+ (IE10 does not allow setting the drag image, but supports all other features)
  + Opera 12+
* The API is unsupported by Android, and by design in iOS (Apple redirects you to use the [DOM Touch API](http://developer.apple.com/library/safari/#documentation/AppleApplications/Reference/SafariWebContent/HandlingEvents/HandlingEvents.html) instead).
* There are two kinds of functionality that are most important: dragging files from your computer to the webpage, in combination with the File API, or [dragging elements into other elements on the same page.](https://www.sitepoint.com/premium/books/html5-css3-for-the-real-world-2nd-edition/read/12/jzj69b67/?fromShare=true)