

Multi-layer parallax scrolling

The illusion of depth provided by parallax scrolling (as executed in CSS) can be further enhanced through multiple-layer parallax scrolling using javascript.

For multi-layer parallax, we need to set each div's position independently using javascript assignments. Some special tools for this exercise:

Event:

onscroll

This event runs a function whenever the user scrolls an object. This can be activated by the scroll bar, 2-finger scroll or any other method of scrolling. It will usually be applied to the <body> object.

For more information:

https://www.w3schools.com/jsref/event_onscroll.asp

Embedded function:

document.getElementById('foo')

This function searches for an HTML element named in the parenthesis (in this case 'foo') so we can operate on it. Pay special attention to the intercaps (getElementById) and the quotation marks. We can save this object in a variable so it's easier to manipulate.

For example:

```
bar = document.getElementById('foo');
```

The object with the id 'foo' is now stored in a variable called 'bar'.

For more information:

https://www.w3schools.com/jsref/met_document_getelementbyid.asp

Embedded Variable:

window.pageYOffset

This variable holds the current y-position of the page. Basically, how far you've scrolled down. It is measured in pixels, so the first value is 0, and it increases from there. We can store this in a shorter variable so it's easier to use. For example:

```
yscroll = window.pageYOffset;
```

It can not be set through code. If you want to use code to scroll, please use this function:

```
window.scrollTo(xval, yval);
```

Where xval and yval are the pixel amounts you want to scroll.

For more information:

https://www.w3schools.com/jsref/prop_win_pageoffset.asp

HTML

Inside the body, build 3 divs, with the ids:

- slowbox
- fastbox
- standardbox

Put text in each div to identify them. I used 'Standard' 'Slow' and 'Fast'

CSS

body:

Height of 1000px (give yourself some space to scroll)

slowbox, fastbox and standardbox:

Height and width of 50x80, absolute positioning

slowbox:

background color- greenish, left 200px

fastbox:

background color- light blue, left 100px

standardbox:

background color-dark blue, left 0px, top 100px

Javascript

1. Begin by creating a function called 'parallax'

```
function parallax(){  
  
}
```

And assign this function to the onscroll event in the body tag

```
<body onscroll="parallax()">
```

2. Inside the function, we will be doing 2 things, initializing variables and setting their style elements. Our initialization is not necessary to the program, but will hopefully make it easier to understand.

Let's store the div 'slowbox' in a variable called 'slow'.

```
slow = document.getElementById('slowbox');
```

Next, store the div 'fastbox' in a variable called 'fast'. You can do this on your own.

3. Store the current pageYOffset in a variable called 'scrolly'

```
scrolly =window.pageYOffset;
```

Our initialization is complete. Now let's change their style elements.

4. Change slow's 'top' value based on how far we've scrolled.

```
slow.style.top = 100+(scrolly*.9) +"px";
```

Let's break this down:

slow.style.top

slow is our variable holding the div with id 'slowbox'

slow.style is the variable containing all of slow's CSS elements

slow.style.top is the variable containing slow's 'top' value in css. We did not set it to anything yet.

100+(scrolly*.9) +"px"

100 is the base value of the top position. I want this div to start at 100px from the top of the screen (remember these divs all have absolute positioning!)

(scrolly*.9) means 90% stationary. Remember that 'scrolly' is a variable holding our pageYOffset. If I left this as just 'scrolly' (100+scrolly+"px"), then the div would stay perfectly still, as if it had 'fixed' positioning. If I took scrolly out completely (100+"px") then the div would move as a normally positioned object. The decimal works as follows:

scrolly*0: Move as normal

scrolly*.5: move at 50% the speed of scrolling

scrolly*1: stay fixed in one location

scrolly*2: move in the opposite direction I'm scrolling

So .9 is very slow. .8 would be a little faster, and .95 would be a little slower.

"px" adds the unit measurements that CSS needs. As you may recall, we usually set 'top' values in CSS as follows:

top: 100px;

so adding the +"px" is fairly important.

In a nutshell, I've said this:

slow's CSS's top value is SET TO 100 plus 90% of my current y scroll position, with 'px' added to the end of it.

5. change fast's 'top' value based on how far we've scrolled. Make it move faster than 'slow'. You can do this yourself.

Completion:

CSS:

```
<style>
  body{ height: 1000px; }
  #slowbox, #fastbox, #standardbox{
    width: 80px;
    height: 50px;
    position: absolute;
  }
  #slowbox{
    background-color: #009966;
    left: 200px;
  }
  #fastbox {
    background-color: #0080A0;
    left: 100px;
  }
  #standardbox{
    background-color: #0050B0;
    top: 100px;
  }
</style>
```

Javascript

```
<script>

function parallax(){

  slow=document.getElementById('slowbox');
  fast=document.getElementById('fastbox');

  scrolly = window.pageYOffset;

  slow.style.top = 100+(scrolly*.9)+"px";
  fast.style.top = 100+(scrolly *.5)+"px";
}
</script>
```

HTML

```
<body onscroll="parallax()">
  <div id="slowbox">Slow</div>
  <div id="fastbox">Fast</div>
  <div id="standardbox">Standard</div>
</body>
```

Exercise:

Using the images provided (parallax1.png, parallaxbg.jpg) create a 3-layered scrolling experience. The foreground and mid-ground should contain parallax1.png, and the background should contain the parallaxbg.jpg. Use similar methods to the tutorial above to get this accomplished.

Post this to your wordpress site under your 'Javascript Exercises' post.

Summary:

In this tutorial, we saw how we can assign different divs to move based on our current scroll position on a page. While this can easily be used to set parallax scrolling, there may be other uses for it. Can you come up with other reasons you might link an object's position on the page to how far you've scrolled? Post your thoughts to your 'Javascript Exercises' post.