

## Exercise 1

### HTML Body

```
<svg width="720" height="120" id="P-L-rocks">
  <circle id="1" cx="10" cy="60"
r="5"></circle>
  <circle id="2" cx="30" cy="60"
r="5"></circle>
  <circle id="3" cx="50" cy="60"
r="5"></circle>
</svg>
```

### Script

- 1 `var svg = d3.select("#P-L-rocks");`  
`var circle = svg.selectAll("circle").data(`  
 `[{x:40,y:20,id:"1"},`  
 `{x:80,y:20,id:"2"}]);`
- 2 `circle.enter().append("circle").style("opacity"`  
`, 0);`
- 3 `circle.attr("cy", function(d) { return d.y; });`  
 `.attr("cx", function(d) { return d.x; });`  
 `.attr("r", 5);`
- 4 `circle.transition().duration(500).style("opacit`  
`y", 1);`  
  
`circle.exit().transition().duration(500).style("opacity"`  
`, 0).remove();`
- 5

1	Exists? (T/F)	cx	cy
Circle with id "1"			
Circle with id "2"			
Circle with id "3"			

2	Exists? (T/F)	cx	cy
Circle with id "1"			
Circle with id "2"			
Circle with id "3"			

3	Exists? (T/F)	cx	cy
Circle with id "1"			
Circle with id "2"			
Circle with id "3"			

4	Exists? (T/F)	cx	cy
Circle with id "1"			
Circle with id "2"			
Circle with id "3"			

5	Exists? (T/F)	cx	cy
Circle with id "1"			
Circle with id "2"			
Circle with id "3"			

## Exercise 2

### HTML Body

```
<svg width="720" height="120" id="i-heart-CS">
</svg>
```

### Script

- ```
var svg = d3.select("#i-heart-CS");
var circle = svg.selectAll("circle").data(
  [{x:40,y:20,id:"1"},
  {x:80,y:20,id:"2"},
  {x:120,y:20,id:"3"}]);

circle.enter().append("circle");

circle.attr("cx", function(d) { return d.x; })
  .attr("cy", function(d) { return d.y; })
  .attr("r", 5)
  .attr("id", function(d) { return
d.id; });

circle.exit().remove();

circle = svg.selectAll("circle").data(
  [{x:80,y:20,id:"2"},
  {x:120,y:20,id:"3"}],
  function(d) { return d.id; });

circle.enter().append("circle");

circle.attr("cx", function(d) { return d.x; })
  .attr("cy", function(d) { return d.y; })
  .attr("r", 5);

1 circle.exit().transition().duration(250).attr("r", 0).remove();
2
```

| 1                  | Exists? (T/F) | cx | cy |
|--------------------|---------------|----|----|
| Circle with id "1" |               |    |    |
| Circle with id "2" |               |    |    |
| Circle with id "3" |               |    |    |

| 2                  | Exists? (T/F) | cx | cy |
|--------------------|---------------|----|----|
| Circle with id "1" |               |    |    |
| Circle with id "2" |               |    |    |
| Circle with id "3" |               |    |    |

### Questions to Consider

- Did you find any behavior surprising? Why?
- In this line:  
`circle = svg.selectAll("circle").data(`  
 `[{x:80,y:20,id:"2"},`  
 `{x:120,y:20,id:"3"}],`  
 `function(d) { return d.id; });`  
 What does `function(d) { return d.id; }` do?  
 What will happen if we remove this function?
- What will happen if we want to visualize data that we request from a server, but try to execute the visualization before the server responds?