



Coding a Simple Atom in SVG on a 400 by 400 grid

To get started, copy the code at this link into your editor: <http://steamcoded.org/lessons/numberedgrid400x400.svg.txt>

Save the file as **atom.svg** and open the file in a browser. Keep both applications open.

In the editor, add the SVG elements (per instructions below) where indicated in the SVG code, i.e. inside the second grouping (<g> element).

Important: Save the file and refresh the browser after each step.

Syntax Examples:

An circle centered at (200,200) with a radius of 100 would have the following code:

```
<circle cx="200" cy="200" r="100" />
```

An ellipse centered at (200,200) with an x-radius of 50 and a y-radius of 150 would have the following code:

```
<ellipse cx="200" cy="200" rx="50" ry="150" />
```

- 1: Draw a ellipse at (200,200) with a x-radius of 50 and y-radius of 150. Add the style attribute as shown.

```
<ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:red;" />
```

- 2: Add group element around the <ellipse> element so the code looks like:

```
<g transform="rotate(0,200,200)">
```

```
<ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:red;" />
```

```
</g>
```

- 3: Add style attribute stroke-dasharray:3,2; to the ellipse as shown.

```
<ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:red;stroke-dasharray:3,2;" />
```

- 4: On the line after the ellipse, draw a circle at (150,200) with a radius of 5 as shown

```
<g transform="rotate(0,200,200)">
```

```
<ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:red;stroke-dasharray:3,2;" />
```

```
<circle cx="150" cy="200" r="5" style="fill:red;" />
```

```
</g>
```

- 5: On the line after the circle, draw another circle at (250,200) with a radius of 5 as shown

```
<g transform="rotate(0,200,200)">
```

```
<ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:red;stroke-dasharray:3,2;" />
```

```
<circle cx="150" cy="200" r="5" style="fill:red;" />
```

```
<circle cx="250" cy="200" r="5" style="fill:red;" />
```

```
</g>
```

- 6: Copy the 5 lines of code shown in step 5 and paste on next line down.

Then change attribute transform="rotate(0,200,200) to transform="rotate(60,200,200) to rotate the ellipse and circles 60 degrees about point (200,200)

Then change the color red to blue in 3 places.

```
<g transform="rotate(60,200,200)">
```

```
<ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:blue;stroke-dasharray:3,2;" />
```

```
<circle cx="150" cy="200" r="5" style="fill:blue;" />
```

```
<circle cx="250" cy="200" r="5" style="fill:blue;" />
```

```
</g>
```

- 7: Copy the 5 lines of code shown in step 5 and paste on next line down after step 6.
Then change attribute transform="rotate(0,200,200) to transform="rotate(120,200,200) to rotate the ellipse and circles 120 degrees about point (200,200)
Then change the color red to green in 3 places.

```
<g transform="rotate(120,200,200)">  
  <ellipse cx="200" cy="200" rx="50" ry="150" style="fill:none;stroke:green;stroke-dasharray:3,2;" />  
  <circle cx="150" cy="200" r="5" style="fill:green;" />  
  <circle cx="250" cy="200" r="5" style="fill:green;" />  
</g>
```

- 8: On the next, draw a circle at (204,196) with a radius of 8 and color it cyan.
<circle cx="204" cy="196" r="5" style="fill:cyan;" />
- 9: On the next, draw a circle at (194,194) with a radius of 8 and color it orange.
<circle cx="194" cy="194" r="5" style="fill:orange;" />
- 10: On the next, draw a circle at (194,200) with a radius of 8 and color it cyan.
<circle cx="194" cy="200" r="5" style="fill:cyan;" />
- 11: On the next, draw a circle at (206,206) with a radius of 8 and color it orange.
<circle cx="206" cy="206" r="5" style="fill:orange;" />

When complete, change the style attribute of the first element from "display:initial" to "display:none" which hides the grid. Then change the style style attribute of the second element from "opacity:0.5" to "opacity:1"