



I'M
YOURS

Beating Hearts Animation - Student Instructions

1. Start by copying the 280 by 280 grid from the lessons page
<http://steamcoded.org/lessons/grid280x280.svg.txt>
Save the file as BeatingHearts.svg and open the file in a browser.
Keep both applications open.
2. Create a <path> element defining a Cubic Bézier Curve starting at (140,58) and ending at (270,58) with control points at (170,-2) and (250,-2)
The path element should look like:

```
<path d="M140,58C170,-2,250,-2,270,58" style="fill:red;stroke:black;" />
```
3. Define another Cubic Bézier Curve by appending to 'd' attribute of the path element of step 2. The starting point is where the curve from step 2 ended (270,58). This curve will have control points at (300,158) and (160,208) and end at (140,268)
Append to the d attribute of the path in step 2 "C300,158,160,208,140,268"
4. Define another Cubic Bézier Curve by appending to 'd' attribute of the path element of step 3. The starting point is where the curve from step 3 ended (140,268). This curve will have control points at (120,208) and (-20,158) and end at (10,58)
Append to the d attribute of the path from step 3 "C120,208,-20,158,10,58"
4. Define another Cubic Bézier Curve by appending to 'd' attribute of the path element of step 4. The starting point is where the curve from step 4 ended (10,58). This curve will have control points at (30,-2) and (110,-2) and end at (140,58)
Append to the d attribute of the path in step 2 "C30,-2,110,-2,140,58"
5. Create a <symbol> for the heart shape in a <defs> element. Give the symbol id="heart" and move the path element to be a child of the <symbol> element. Then remove the style attribute on the path element. The code should be below the <desc> element and look like:

```
<defs>  
  <symbol id="heart">  
    <path d="M140,58C170,-2,250,-2,270,58C300,158,160,208,140,268  
          C120,208,-20,158,10,58C30,-2,110,-2,140,58" />  
  </symbol>  
</defs>
```
6. Create a <use> element where the <path> element was before moving it. Give the <use> element these attributes: xlink:href="#heart" style="fill:red;stroke:black;"
7. On the next line, create a group <g> element with attribute: transform="scale(1)". Remember the closing </g>
8. Create another group <g> element as a child of the group from step 7 and give it attribute: transform="translate(0,0)" Remember to indent child elements and don't forget the closing </g> tag.
9. Add a <use> element as a child of the group element of step 8 with attributes: xlink:href="#heart" transform="translate(14,14) scale(0.9)" style="fill:pink;"
10. Add another <use> element as a child of the group element of step 8 with attributes: xlink:href="#heart" transform="translate(28,28) scale(0.8)" style="fill:red;"

Animate the Hearts

11. Add an <animateTransform> element to the group from step 7, outside the group of step 8 to scale the size of the heart from 100% to 90% in 0.8 seconds by adding attributes: attributeName="transform" type="scale" from="1" to="0.9" dur="0.8s" repeatCount="indefinite"
12. Add an <animateTransform> element to the group from step 8 to move (translate) the scaled heart from (0,0) to (14,14) in 0.8 seconds by adding attributes: attributeName="transform" type="translate" from="0 0" to="14 14" dur="0.8s" repeatCount="indefinite"
Note: 10% of 280 = 28, to keep it centered, move left and down by 1/2 of 28 or 14 pixels.

Add Messages for your Valentine

13. Add a `<style>` element (below the `<defs>` element) as shown:

```
<style type="text/css"><![CDATA[
  @import 'https://fonts.googleapis.com/css?family=Roboto+Mono:700';

  .message {font-family:'Roboto Mono',Arial,sans-serif;font-size:36px;font-weight:700;}
  .message {fill:#fcc;stroke:none;stroke-width:1px;text-anchor:middle;}

  .show {visibility:visible;}
  .hide {visibility:hidden;}

  .m1 {visibility:visible;}
  .m2 {visibility:hidden;}
  .m3 {visibility:hidden;}
]]>
</style>
```

14. Outside the group created in step 7, add a group `<g>` element with attributes: `transform="translate(140,115)" class="message"`. And remember the closing `</g>` tag
15. Add a group `<g>` element as a child of the group in step 14 with attribute: `class="m1"`
16. Add a `<text>` element as a child of the group in step 15 with text I'M, as shown
`<text>I'M</text>`
17. Add another `<text>` element as a child of the group in step 15 with text YOURS, as shown
`<text y="36">YOURS</text>`
18. Copy code from steps 15-17, and paste on the next line, then change the class from `m1` to `m2` and the text from I'M to BE and YOURS to MINE
19. Paste the code again on the next line, then change the class from `m1` to `m3` and the text from I'M to LOVE and YOURS to YOU
20. Add an `<animate>` element to the group with `class="m1"` as shown:
`<animate attributeName="class" values="show;hide;hide;" dur="2.4s" repeatCount="indefinite" />`
21. Add an `<animate>` element to the group with `class="m2"` as shown:
`<animate attributeName="class" values="hide;show;hide;" dur="2.4s" repeatCount="indefinite" />`
22. Add an `<animate>` element to the group with `class="m3"` as shown:
`<animate attributeName="class" values="hide;hide;show;" dur="2.4s" repeatCount="indefinite" />`

When complete, change the style attribute of the first `<g>` 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"`