

Module 2: Drawing Using SVG

This module focuses on SVG alone without the addition of JavaScript. Some assignments will incorporate SVG images into HTML web pages.

Assignment 1: First SVG image

- Create an SVG images that has rect, circle, line, polygon, polyline, ellipse, and text elements.
- The image must use the following attributes: stroke, stroke-width, fill, stroke-linecap, font-family, font-size, and text-anchor.
- The image must use the rotate transform.

Assignment 2: Venn Diagram

- Create an image that shows a serious or humorous Venn diagram.
- In addition to previously used elements, the image must use the g element to group other elements.
- The image will use the fill-opacity attribute.
- The image will include a filter of the feDropShadow type.
- The image will use primary colors that blend well together to form secondary colors.
- The image will have a caption and will use fonts that work well together, enhancing the image content.

Assignment 3: Water Molecule

- Create an image that shows the three atoms of a water molecule using shaded circles.
- The hydrogen atoms will be small and gray; the oxygen atom will be larger and red.
- The bonds between the atoms will be lines that have a thick stroke.
- The bonds will use a linear gradient for shading. The atoms will use a radial gradient.
- The image will require a total of four different gradients.
- The angle formed by the atoms will be chemically accurate. (We will calculate the atom locations together in class using trigonometry. Students are not expected to recreate this calculation independently unless they have taken trigonometry, but they are expected to understand the explanation.)
- The image will include a caption that uses an appropriate font.

Assignment 4: Benzene Ring

- Create an image that shows the six carbon atoms of a benzene ring. In contrast to the previous chemically accurate drawing, this drawing will use bright colors and be more artistic.
- Use six different radial gradients to shade the atoms six different colors.
- Use another radial gradient to put a subtle ripple effect shading on the background of the image.
- The benzene ring should be precisely centered on the image.
- The atoms should be placed precisely using an online tool that calculates regular polygon coordinates. Students are not expected to calculate the coordinates independently.
- Students will connect the atoms with lines that represent the atomic bonds. In a benzene ring, some of the bonds are double bonds.

Module 2: Drawing Using SVG (continued)

Assignment 5: Navigation Icons

- Students will create a set of icons: left triangle, right triangle, left arrow, right arrow, home, hamburger, and waffle.
- Students will duplicate the icons and generate a new set of icons in a different color.
- Students will create a web page that shows all the icons with different color backgrounds and padding.
- Students will use copy and paste and duplicate as much as possible. For example, students can make the left triangle by copying the right triangle and reversing the coordinates. Students can make the white house duplicating the black house and changing the color attribute inside the file.
- Students will add a caption that is spelled correctly.
- Students will choose fonts and colors that create an artistic end product.

Assignment 6: Theobromine Molecule

- Students will create a scientific drawing that shows all the atoms and bonds of a Theobromine (chocolate) molecule. The molecule consists of more than 20 atoms and many atomic bonds.
- Students will color the atoms in the appropriate colors, according to scientific drawing standards.
- The
- Create a web page about a topic in current events that directly relates to students. Topics might include drug abuse, smoking, gun violence, mental health issues, physical health issues, and others.
- The page will include information derived from other sources, properly attributed.
- The page will use colors, fonts, images, and layout that enhance the readability and user comprehension of the information.
- Students will place the atoms correctly using rotate and translate transforms.
- The page will include one or more captions.
- The page will be centered nicely with appropriate margins and spacing.

Assignment 7: Introduction to paths: Letter D and S and m

- Students will draw the letters D, S, and m using SVG paths.
- Students will draw the S shape on graph paper and calculate all the coordinates before entering them into the computer.

Assignment 8: Letter Logo using paths

- Students will recreate a simple lettermark company logo such as the Google logo using SVG paths.
- The logo will include the use of clipping paths.

Assignment 9: Apple Logo

- Students will recreate the striped Apple logo by drawing the enclosing path using SVG paths, then splitting it into stripes using clipping paths and the <use> element.
- Students will draw the apple shape on graph paper and calculate all the coordinates before entering them into the computer.

Assignment 10: Company Icon Set

- Create a series of simple logos such as the Adobe app logos, the MS app logos, the Chrome logo and other similar logos, or other examples.
- Drawing the logos will exploit student knowledge of vector shapes, paths, clipping paths, and duplication.