

## Assignment 6: Theobromine Molecule

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### Student learning outcomes:

1. Students will use SVG to create a scientific drawing that uses standard chemical atom (CPK) coloring.
2. Students will add radial and linear gradients to give the drawing 3D shading.

### Real world applications:

1. Scientific and medical drawing are demanding fields that pay well.
2. Employees who can pay sufficient attention to detail are also in demand in any field.

### Assignment requirements

- The file will be called theobromine.svg or chocolate.svg.
- The molecule consists of 21 different atoms connected by about 25 atomic bonds.
- All the atoms will have 3D shading.
  - a. Carbon, Oxygen, and Nitrogen atoms will be gray, red, and blue (respectively).
  - b. Hydrogen atoms will be gray and they will be a little smaller.
- Some of the atoms are connected by double bonds.
- Some of the bonds are difficult to render in 3D as lines, so it may be necessary to reformulate some of the lines as narrow rectangles in order to render the shading.
- Use the polygon vertex calculator (on Math Open Reference) to determine the precise locations of the atoms.
- Center the molecule by grouping its contents if necessary, moving (translate transform) and scaling (scale transform) as needed.
- Add a two-line caption that says both Theobromine on one line and Chocolate in the other line (in either order).
- Use a background color and caption font that are suitable for a scientific drawing that might be included in a textbook, scientific journal, or scientific magazine.

