

# MOLECULAR VOLUME

## LAB PP 5

From Flinn CHEM FAX #2050.

### PURPOSE

The purpose of this experiment is to use the concept of a mole to estimate the number of molecules in a granule of sugar and the volume of one molecule of sugar.

### EQUIPMENT/MATERIALS

Sucrose (table sugar), $C_{12}H_{22}O_{11}$ , 342.3 g MW	Weighing dishes
Balance (0.001 g precision)	Ruler, 1 mm precision
Beaker, 600 mL	Calipers, Vernier (optional)

### SAFETY

- Always wear an apron and goggles in the lab.
- Never consume any material stored or used in a science laboratory. Food and household items become laboratory chemicals when brought into a laboratory setting.

### PROCEDURE

1. Measure out one mole of sucrose. Place the mole of sucrose in a 600 mL beaker.
2. First determine the number of moles of sucrose in an average sugar crystal and then determine the approximate volume a sucrose molecule occupies in its crystal structure.
3. Write the structural formula for sucrose.