3. Chemical notation

Why we've included this: good example of evolution from iconic to more abstract, with improved modifiability

SKETCH

originally alchemists named substances by where they 'came from': spirit of salt = hydrochloric acid, made by mixing sulphuric acid ("spirit of vitriol", where "vitriol" is the glassy metal sulphate) and salt

http://www.dalkescientific.com/writings/diary/archive/2003/10/14/molecular_formula.html

Bercelius early 1800s said chemicals should be named for what they are, not where they came from, and created the 1-letter and 2-letter symbols used today with the letters taken from the Latin words for the element (hence "Pb" for plumbum; lead).

"He proposed that compounds be described by chemical formulas based on their elemental composition. His paper on the topic, published in 1813, is a short and enjoyable read. The purpose of a molecular formula is to facilitate the expression of chemical proportions, and to enable us to indicate, without long periphrases, the relative number of volumes of the different constituents contained in each compound body. By determining the weight of the elementary volumes, these figures will enable us to express the numeric result of an analysis as simply, and in a manner as easily remembered, as the algebraic formulas in mechanical philosophy."

"Chemists like carbon so they actually use a slightly more complicated set of rules called the Hill order.

An element, if present, is written as the atomic symbol followed by a subscript for the number of times the an atom of that element occurs in the molecule. If the element occurs only once, don't use the subscript.

- If there is carbon in the molecule write:
  - carbon counts first
  - hydrogens second
  - the remaining elements in alphabetical order.
- If there is no carbon write all elements in alphabetical order (hydrogen chloride is written ClH and not HCl because C comes before H)

Thus, ethanol and dimethyl ether are both written C_2H_6O."

That's called Hill notation I think. Has no structural representation.