The Periodic Table of the Elements is a classification system for the elements, listing them in order of atomic number. Each element is represented by a symbol and its atomic number, and its electron configuration is shown. The table is divided into families, such as the alkali metals, halogens, transition metals, and noble gases. The properties of each element, such as melting and boiling points, electronegativity, and ionization energy, are also listed. The table also includes information on the isotopes of each element, their abundances, and their atomic masses. The table is used in chemistry to understand the behavior of elements and to predict their properties. It is a fundamental tool in the field of chemistry and is used in everyday life in various industries, such as medicine, manufacturing, and energy production.
Cesium: The frequency of microwave radiation from this atom in atomic clocks such as the NIST-F2 (2014), is used to define the second.

Sodium: NIST scientists used lasers to cool a gas of these atoms to more than theoretically expected to temperatures even closer to absolute zero. (Nobel Prize 1997)

Rubidium: These atoms were used by researchers at JILA (NIST-CU Boulder) to create the first Bose-Einstein condensate (Nobel Prize 2001).

Deuterium: This rare heavy isotope of hydrogen was concentrated at NIST and then identified by Columbia University’s Harold Urey (Nobel Prize 1934). On the left is a deuterium lamp; the light on the right comes from the NIST SURF III Synchrotron Ultraviolet Radiation Facility.

Krypton: Wavelengths of light from this atom, measured by NIST researchers, defined the official meter until 1963.

Potassium and Rubidium: JILA researchers married these elements into an ultracold gas of molecules and demonstrated striking predictions of quantum physics by hitting the atoms with “rulers of light” known as frequency combs (Nobel Prize 2005) and trapping them in webs of light known as optical lattices.

Beryllium and Aluminum: Individual ions of these atoms were probed in a NIST trap to create “quantum logic” clocks that measured the second more precisely than before and tested Einstein’s general theory of relativity. Such quantum manipulations were recognized in the 2012 Nobel Prize.