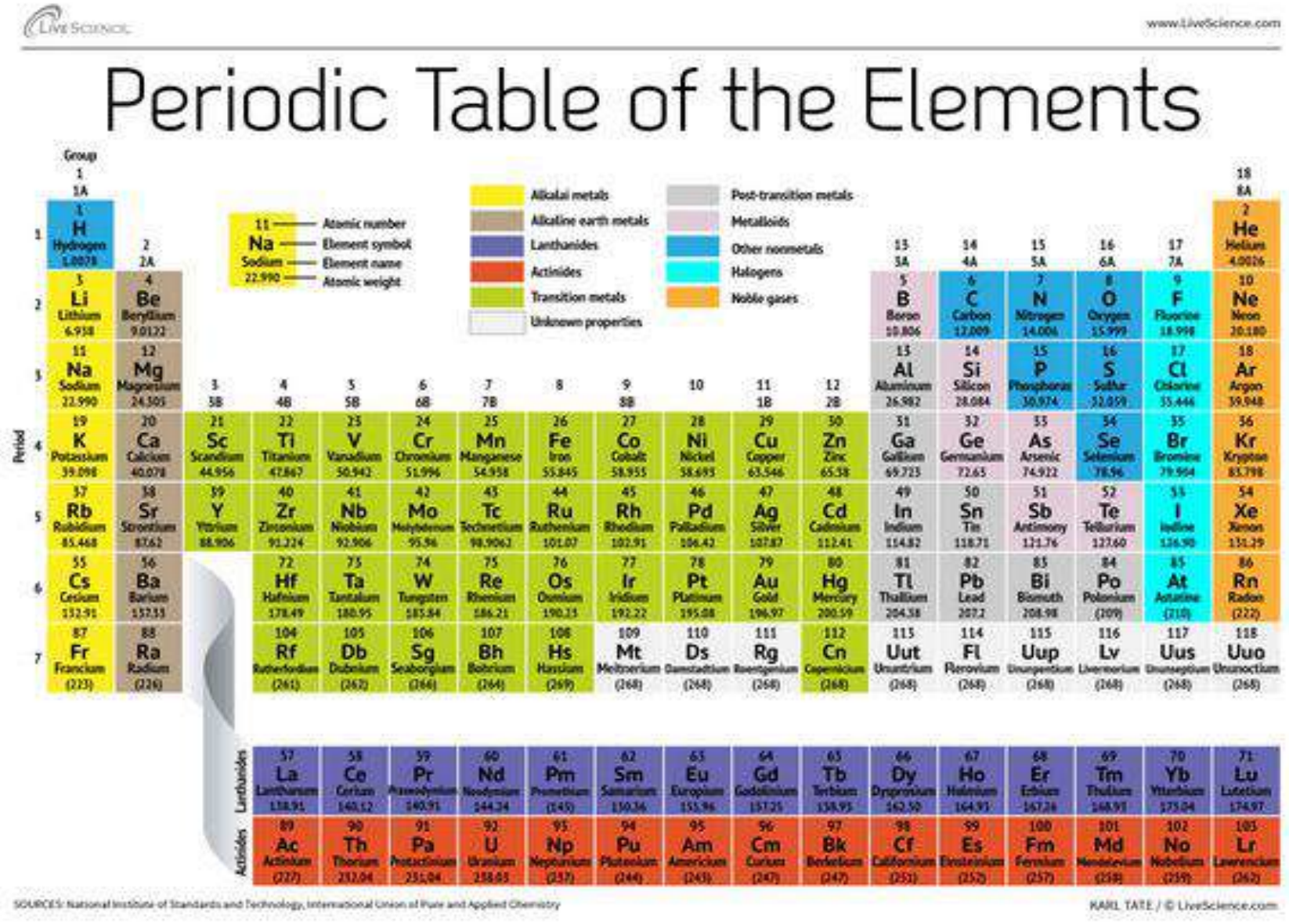
# Elements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Periodic Table of the Elements
Group
Period
Atomic number
Element symbol
Element name
Atomic weight
Alkalai metals
Alkaline earth metals
Lanthanides
Actinides
Transition metals
Unknown properties
Post-transition metals
Metalloids
Other nonmetals
Halogens
Noble gases
Lanthanides
Actinides
SOURCES: National Institute of Standards and Technology, International Union of Pure and Applied Chemistry
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# I. Elements, the Simplest Substances

A. An **element** is a pure substance that cannot be separated into simpler substances by physical or chemical means.

B. **Only One Type of Particle:** A pure substance is a substance in which there is only one type of particle (atoms).

   1. **Ex.** Every atom in a 5 g nugget of gold is

      like every other atom of gold.

# II. Properties of Elements

A. Each element has its own characteristic properties that don't depend on the amount of the element present.
   1. Ex. Physical properties such as boiling point and density.
   2. Ex. Chemical properties such as reactivity with acid.

# III. Classifying Elements by Their Properties

## A. Categories of Elements

1. Metal: An element that is shiny and conducts heat and electricity well.
2. Nonmetal: An element that is dull and conducts heat and electricity poorly.
3. Metalloid: An element that has properties of both metals and nonmetals.

# The Periodic Table