

Atoms & Elements Part 1:

Atomic Structure: Isotopes and the Nucleus

Atoms are the building blocks of matter.

What is the definition of matter?

There are 3 subatomic particles that are the building block of atoms.

What are the 3 subatomic particles and their charges?

Which subatomic particle(s) create the mass of an atom?

Which subatomic particle(s) create the volume of an atom?

What is the atomic number of an atom? What is its symbol?

What is the mass number of an atom? What is its symbol?

Is every atom of an element identical? Why or why not?

What are isotopes?

Distinguishing between Isotopes

What is the mass number of an atom containing 42 protons, 42 electrons, and 47 neutrons?

Write the elemental symbol for the isotope above using the ${}^A_Z\text{E}$ format.

Iodine has an atomic number of 53. I-131 is used in the medical treatment of thyroid conditions. How many neutrons and protons are contained in the nucleus of this isotope?

The Average Atomic Mass of an element is a weighted average of the mass of its isotopes based on their natural abundance.

Do all elements have the same distribution of isotopes?

The isotopic distribution for chromium is shown below.
The atomic number for chromium is 24.

Isotope	% Abundance
^{50}Cr	4.345
^{52}Cr	83.79
^{53}Cr	9.50
^{54}Cr	2.365

Which isotope is the lightest?

Which isotope is the most abundant?

Which isotope has the largest number of neutrons?

The Atomic Number and Average Atomic Mass are listed with each element on the periodic table.

24
Cr
51.996

