

Lesson 2 Protons, Neutrons, and Electrons—How Atoms Differ

Skim Lesson 2 in your book. Read the headings and look at the photos and illustrations. Identify three things you want to learn more about as you read the lesson. Record your ideas in your Science Journal.

Main Idea



Different Elements—Different Numbers of Protons

I found this on page _____.

Neutrons and Isotopes

I found this on page _____.

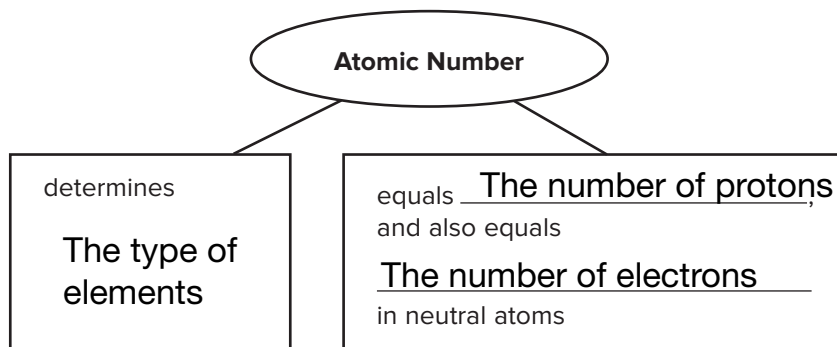
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Details

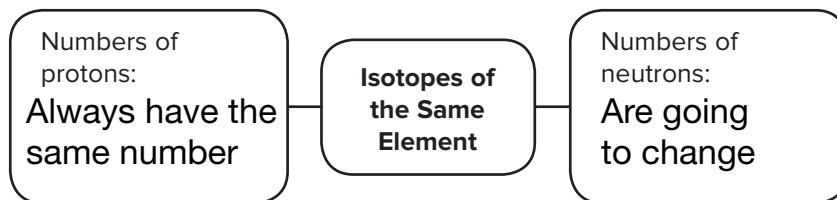
Distinguish parts of the atom.

Part	Electron	Proton	Neutron
Symbol	e^-	p^+	n^0
Charge	$-$	$+$	0
Location	Electron cloud	nucleus.	Nucleus
Relative Mass	1/1,840.	1	1

Relate details about atomic number.



Differentiate numbers of protons and neutrons in different isotopes of the same element.



Contrast the numbers of particles represented by an element's mass number and atomic number.

Atomic Number	Mass Number
Some protons	Some neutrons

Main Idea

I found this on page _____.

Radioactivity

I found this on page _____.

Ions—Gaining or Losing Electrons

I found this on page _____.

Details

Define average atomic mass.

The average mass of an elements isotopes, weighted according to the abundance of each isotope

Differentiate three types of nuclear decay that occur in radioactive elements.

Type	Change	Result
Alpha decay	Two protons and neutrons	New elements atomic number decreased by two
Beta decay	Neutrons becomes a proton	New elements atomic number increase by one
Gamma decay	Release of the gamma rays	Same elements no change in the protons

Contrast the formation of ions.

Positive Ion	Negative Ion
A neutral atom <u>Loses one or more Electrons</u> Result: <u>The atom has a positive charge</u>	A neutral atom <u>Gains one or more Electrons</u> Result: <u>The negative becomes a positive</u>

Synthesize It Summarize why people were unsuccessful over 1,000 years ago when they tried to transform lead into gold. What process would they have needed to complete in order to have been successful?

They did not have the technology to make this change