

The Evolution of the Atomic Model

<p>Democritus proposed in 400 BCE:</p> <ul style="list-style-type: none"> Matter could be divided further and further until it no longer could be divided – he called it _____ Atomos means: _____ 	<p>Atomos = indivisible!</p>
<p>John Dalton proposed in 1803:</p> <ol style="list-style-type: none"> All elements are composed of _____ particles called _____. Atoms of the _____ element are exactly alike Atoms of different elements are _____. Compounds are formed by joining atoms of two or more elements. 	<p>“Billiard Ball” Atomic Model</p>
<p>JJ Thomson discovered _____ in 1897</p> <p>He proposed that:</p> <ul style="list-style-type: none"> An atom was composed of a _____ charged material with _____ charged _____ scattered evenly throughout it. 	<p>“Cookie Dough” Atomic Model</p>
<p>Rutherford's Model (1908)</p> <p>Ernest Rutherford discovered the _____.</p> <p style="text-align: center;">How? The Gold Foil Experiment</p> <ul style="list-style-type: none"> Some particles were _____ instead of passing right through as expected. Since alpha particles are positively charged, he proposed that a small region of positive charge in the atoms repelled them. Rutherford proposed that all the positively charged material in an atom formed a _____ called the _____. 	<p>Rutherford's Atomic Model</p>
<p>Niels Bohr added to Rutherford's model in 1913:</p> <ul style="list-style-type: none"> Electrons could only move in fixed regions or _____, instead of being able to move anywhere around the nucleus. For an electron to move from one energy level to another, it must absorb a specific amount of energy called a _____. 	<p>Bohr-Rutherford “Planetary” Atomic Model</p>

Atomic Models: Key Terms + Matching

Atom	a negatively charged particle within the atom
Electron	coined the term "Atomos", meaning indivisible
Subatomic Particle	the smallest particle of an element that retains the identity of the element
Nucleus	a positively charged particle that is part of every atomic nucleus
Proton	a particle that is smaller than the atom
Neutron	in chemistry, the positively charged centre of an atom
Bohr	came up with the "Billiard Ball" atomic model
Rutherford	added to Rutherford's model by proposing that electrons could only move in fixed regions called Energy Levels
Dalton	an uncharged particle that is part of almost every atomic nucleus
Thomson	came up with the "Cookie Dough" Atomic Model
Democritus	discovered the Nucleus using the Gold Foil Experiment

T/I

Rutherford used alpha particles in his gold foil experiment. How might the results of his experiment have changed if he had used negative particles instead of positive particles?

T/I

Why is Rutherford's model of the atom called the planetary model?

C

Name the particles labelled A, B, and C in the diagram below.



This is a Bohr-Rutherford model of an atom.

A. _____

B. _____

C. _____