

Just How Small is an Atom_.mp4

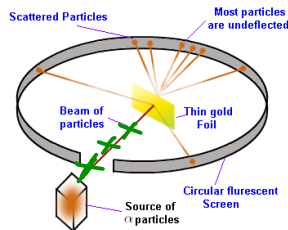
Atomic Model

Model used to demonstrate what particles are in the atom.

Past knowledge: An atom is generally in a neutral state.
This means it has the same amount of p^+ and e^- .

Rutherford- 1911

Used a Gold foil experiment to come up with his theory.



His theories:

1. The atom is very big and almost empty. ☒ T or F

Why? *Because most of the particles went straight through the atom.*

2. The atom has a small dense nucleus in the middle. ☒ T or F

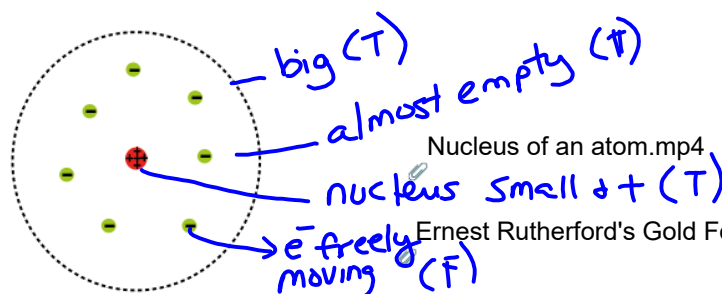
Why? *Because sometimes the Alpha particle rebounded back.*

3. The nucleus is positively charged. ☒ T or F

Why? *Because sometimes the alpha particle bounced back from the nucleus.*

4. Electrons revolve around the nucleus and are freely moving. ☒ T or F

Why? *e^- would then be attracted to the + nucleus*



Nucleus of an atom.mp4

Ernest Rutherford's Gold Foil Experiment Che

Bohr-1913

Agreed with all of Rutherford's theories except for the placement of the electrons.

Why can electrons not be placed the way Rutherford believed? *They would be attracted to the nucleus.*

Bohr's theory on e^-

Bohr.mp4

Electrons were found on orbits which were continually moving. The orbits can hold a specific number of e^-

Orbit 1 holds up to: *2 e^-*

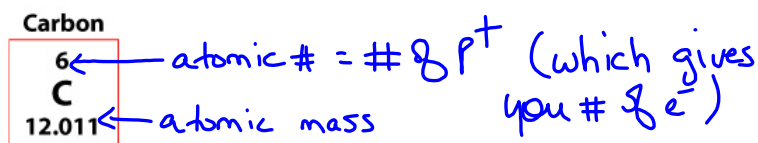
Orbit 2 holds up to: *8 e^-*

Orbit 3 holds up to: *8 e^-*

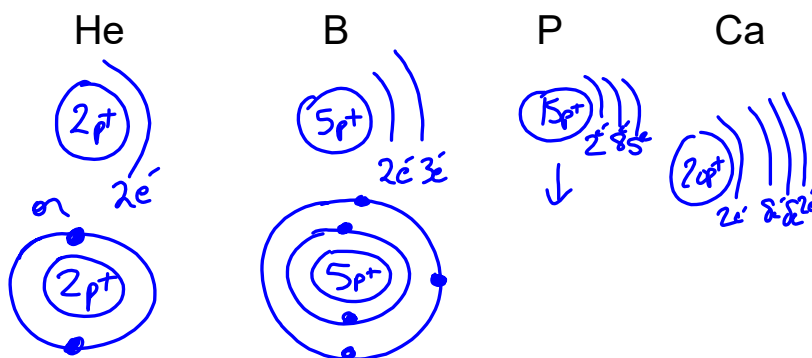
Orbit 4 holds up to: *2 e^- **

Electrons stick to the orbits because of the speed the orbit is moving at. Electrons can move from one orbit to another when stimulated by heat or electricity.

Rutherford-Bohr Model

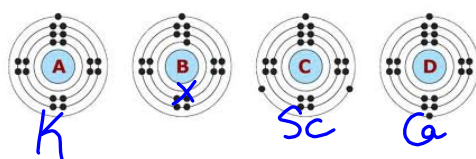


Making models



Which picture is incorrect?

Human Bohr Model.mp4



Name the elements of the correct pictures?

Past exam questions

1. Rutherford modified the atomic model after doing experiments where the alpha particles were dispersed by a sheet of gold foil. Considering the statements below, which statements are based on Rutherford's experiments only?

1-The number of protons is equal to the number of electrons. ✗

2-Protons are concentrated in a small positive space at the center of the atom. ✓

3-Atoms consist of mostly empty space. ✓

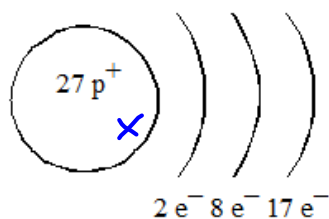
4-Electrons are contained in a positive sphere made up of protons. ✗

5-Electrons move about in specific energy levels. ✗

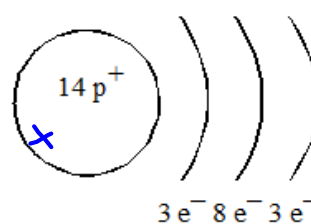
A) 1 and 2 B) 1 and 4 **C) 2 and 3** D) 2, 3 and 5

2. Which of the following best represents the aluminum (Al) atom according to the Rutherford-Bohr model?

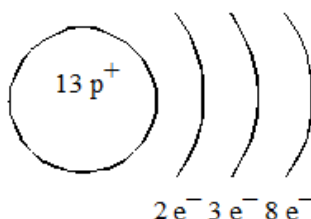
A)



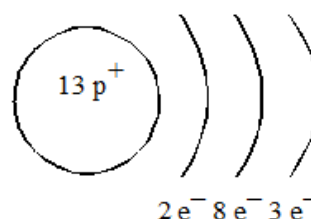
C)



B)







D)



Attachments

Bohr.mp4

-  Nucleus_of_an_atom.mp4
-  Ernest_Rutherford's_Gold_Foil_Experiment_Chemistry_Visual.mp4
-  Human_Bohr_Model.mp4
-  Just How Small is an Atom_.mp4