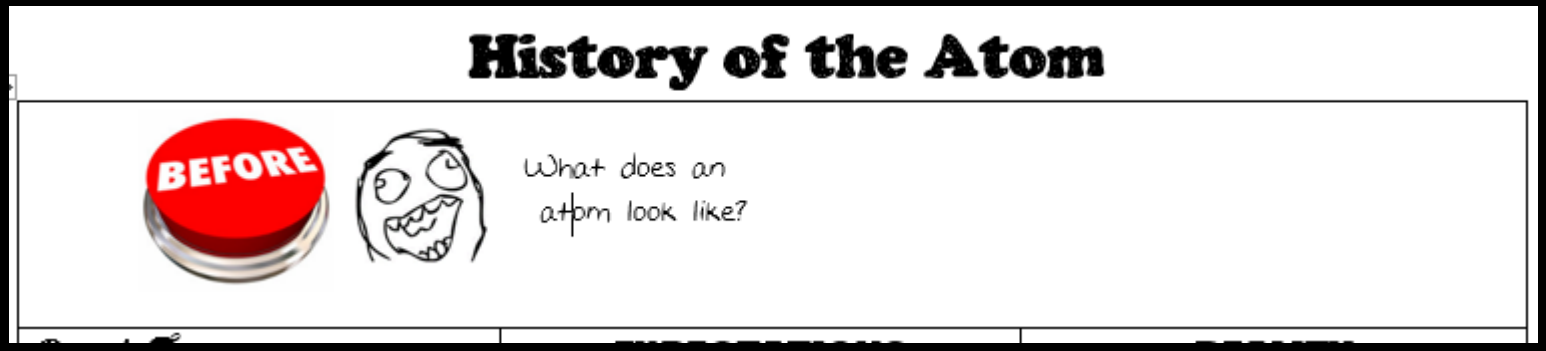

DAY 2

On the WS….



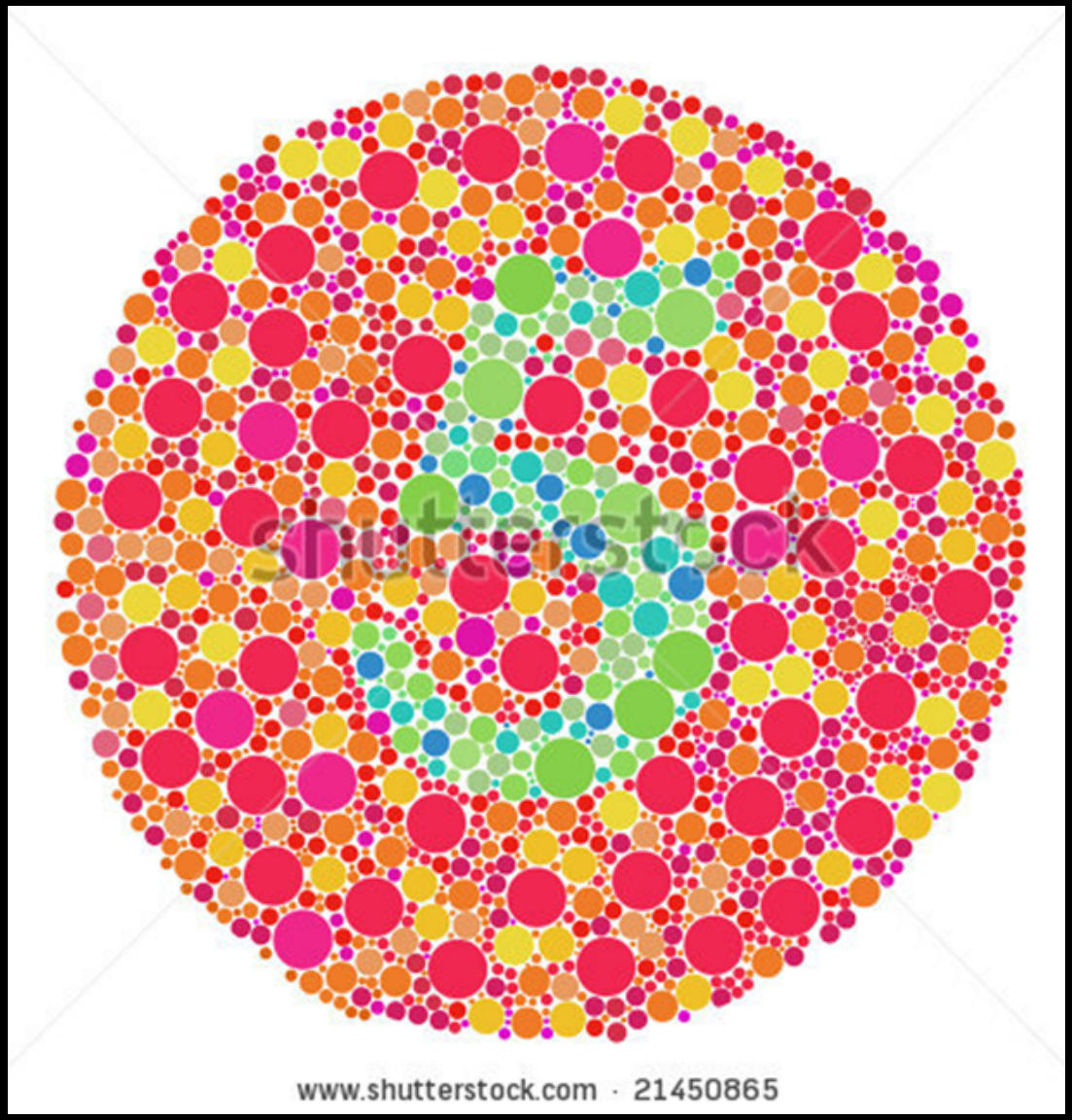
Draw what do you think an atom looks like

Let's meet the modern scientists of the Atom…

1808 - Meet John Dalton

- He was color blind
- He liked studying the weather
- He experimented with **gases** – a lot!
- He wrote: **Dalton's Atomic Theory**

Dalton was colorblind.. How about you?



1808 John Dalton

Like Democritus he suggested that **all matter was made up of tiny spheres** that were able to bounce around like smooth hard balls and called them

ATOMS

Draw your idea of Dalton's Atom

Dalton's Theory 	**EXPECTATIONS** What do you THINK it looks like?	**REALITY** What it ACTUALLY looks like:

Dalton's Model

Description –
Smooth hard sphere

Dalton's Atomic Theory of Matter -

most of these "postulates" are true to this day!

- All **elements** are composed of small particles called **atoms**.
- Atoms of the **same** element are exactly alike.
- Atoms of **different** elements are **different**.
- Atoms are **not created or destroyed** in a chemical reaction
- **Compounds** are formed by the joining of atoms of two or more elements.

Opposites Attract

Background information – People have known for many years that certain objects could “attract” other objects.

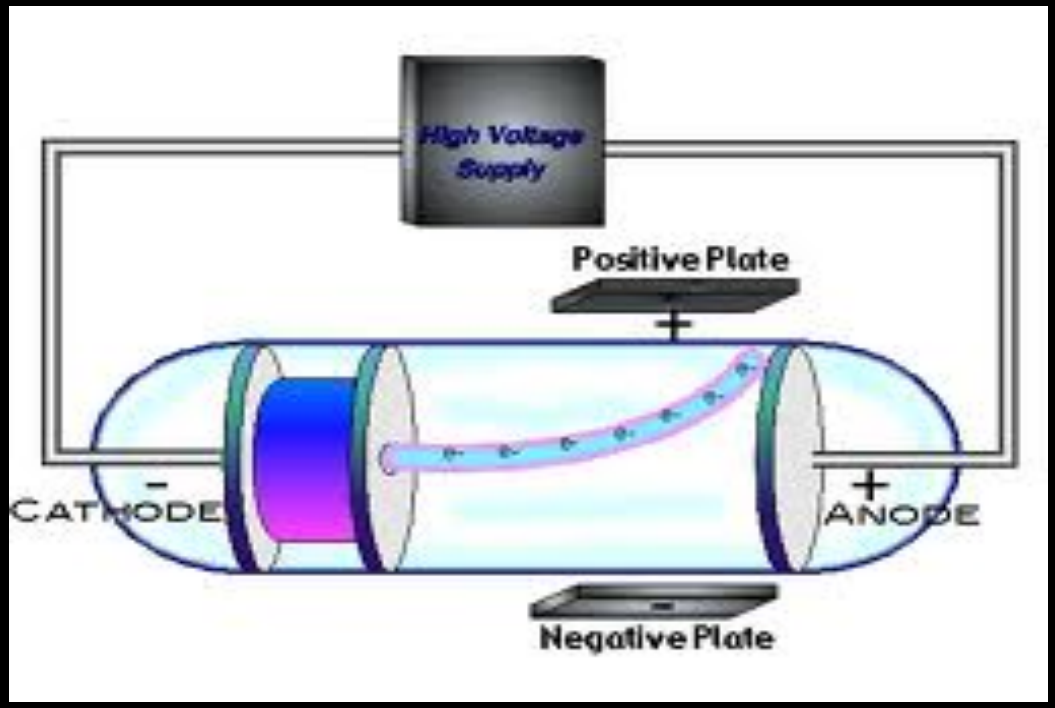
Let’s explore the concept of **Opposites Attract**.

CER: Playing with Charges

Thomson model evidence

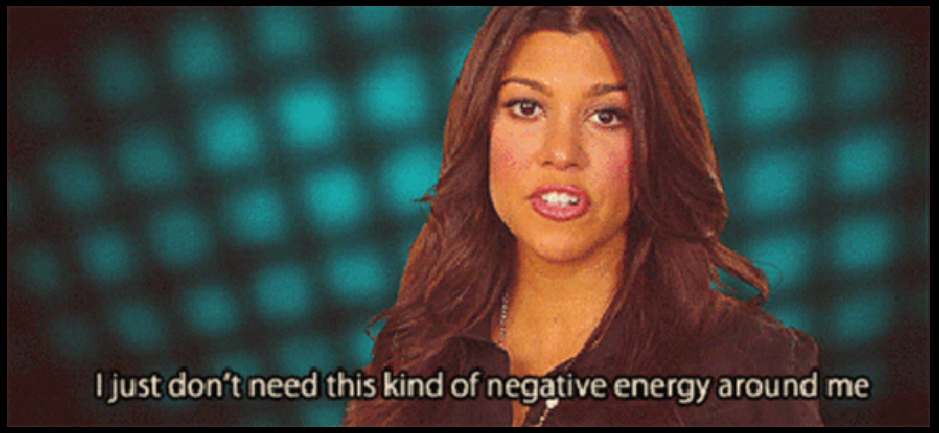
Cathode Ray Tube:

Passing a current through a gas, gives off rays that bend toward a positively charged plate



1898 J.J. Thompson

found that atoms could sometimes eject a far smaller negative particle which he called an **ELECTRON**

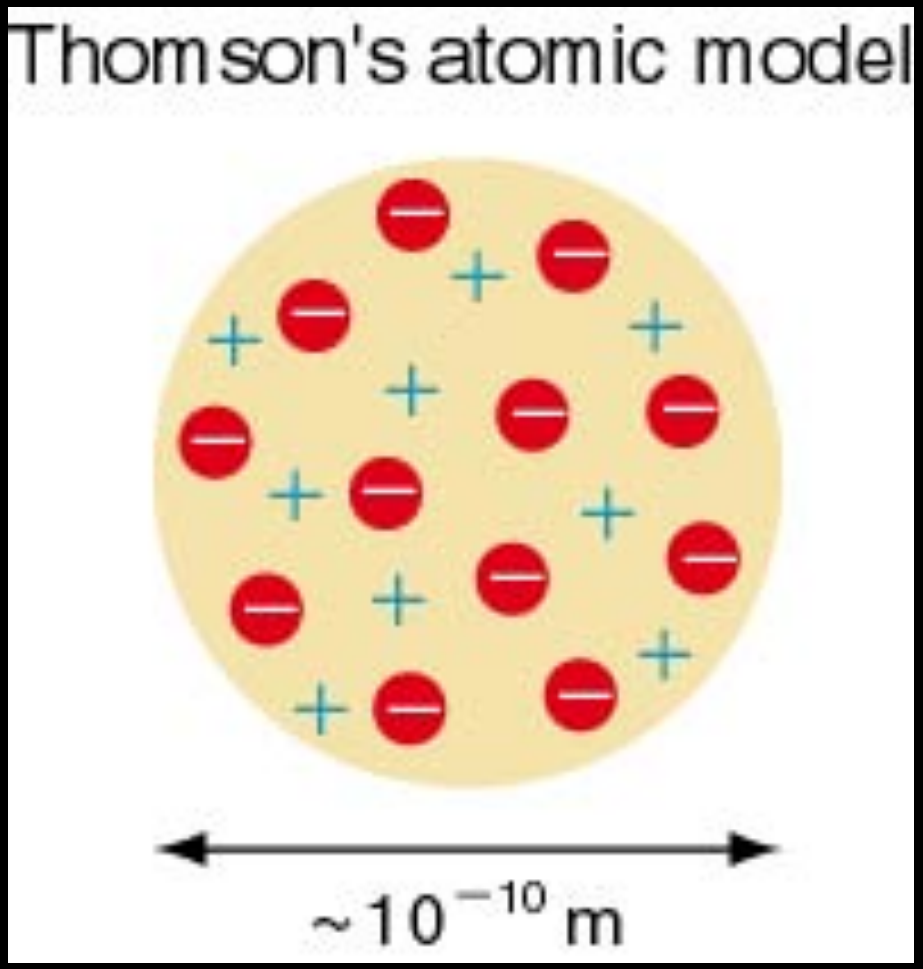


https://www.youtube.com/watch?v=O9Goyscbazk&disable_polymer=true

Draw your idea of J.J Thompson's Atom

Thomson's Theory	**EXPECTATIONS** What do you THINK it looks like?	**REALITY** What it ACTUALLY looks like:
		

Thomson Model *Plum Pudding*

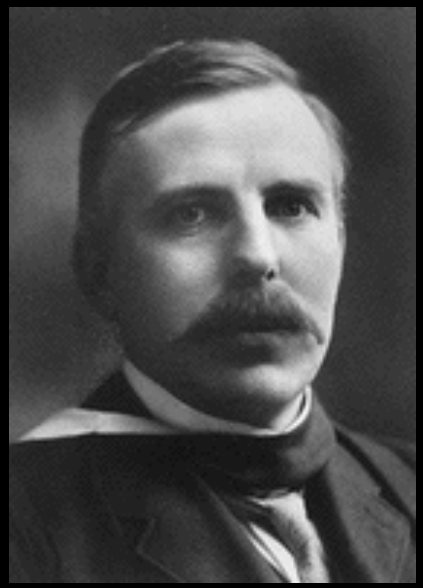


Description

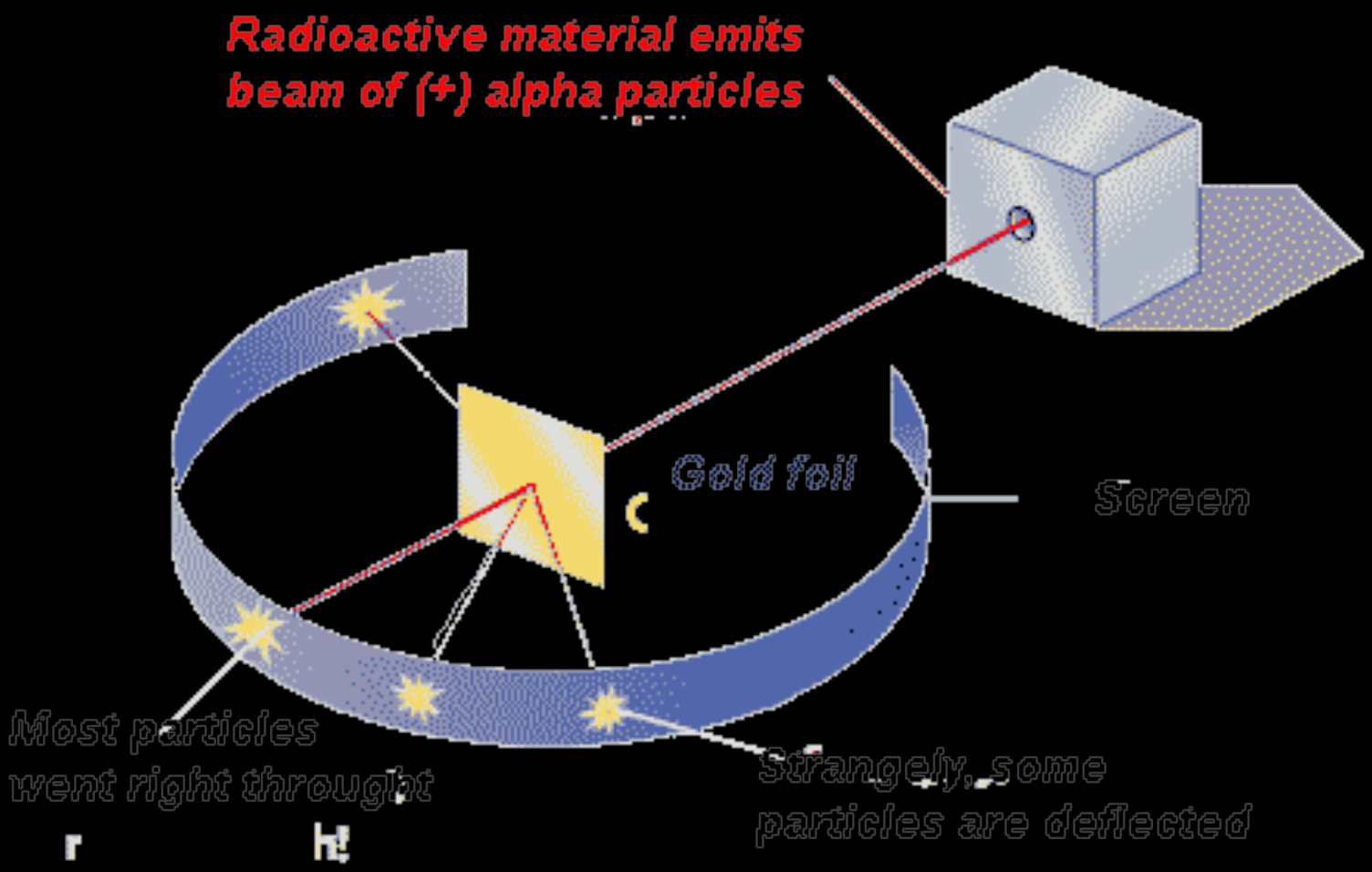
Negative charge electrons in a positive sphere

1910 Meet Ernest Rutherford

Played Rugby in College



Rutherford's evidence for a new model of the atom



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GOLD FOIL EXPERIMENT

When firing positive alpha particles through thin gold foil, a small number of particles bounced back - why???

Draw your idea of Rutherford's model of the atom

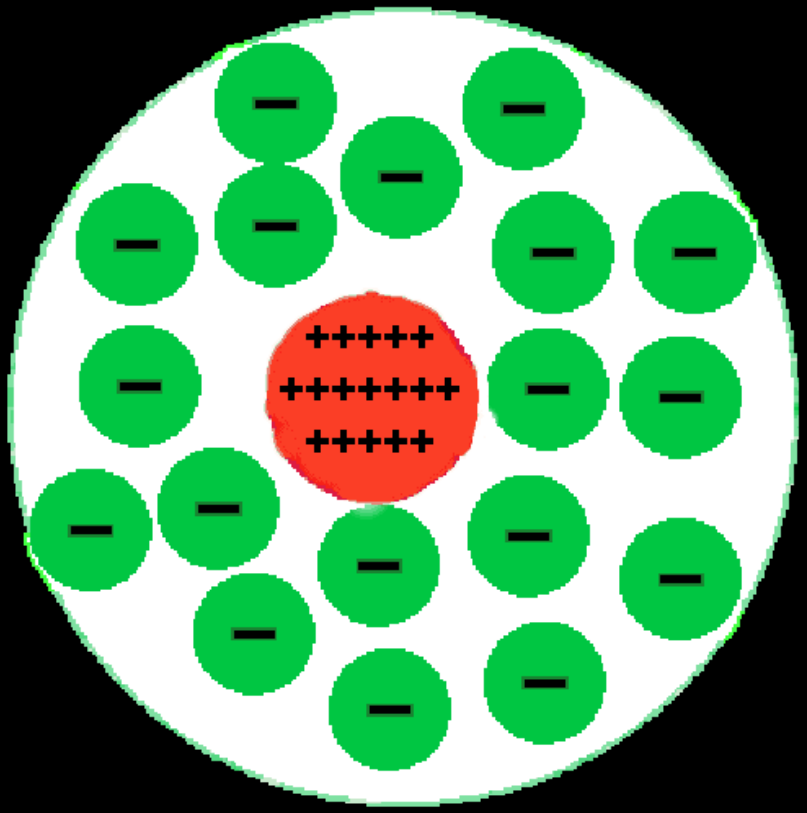
Rutherford's Theory	EXPECTATIONS	REALITY
	What do you THINK it looks like?	What it ACTUALLY looks like:

Rutherford Model of the Atom

Gold foil gave evidence that atoms have concentrated positive charges he called a nucleus, which is surrounded by negative charges, the electrons.

Rutherford's new evidence allowed him to propose a more detailed model:

Rutherford Model



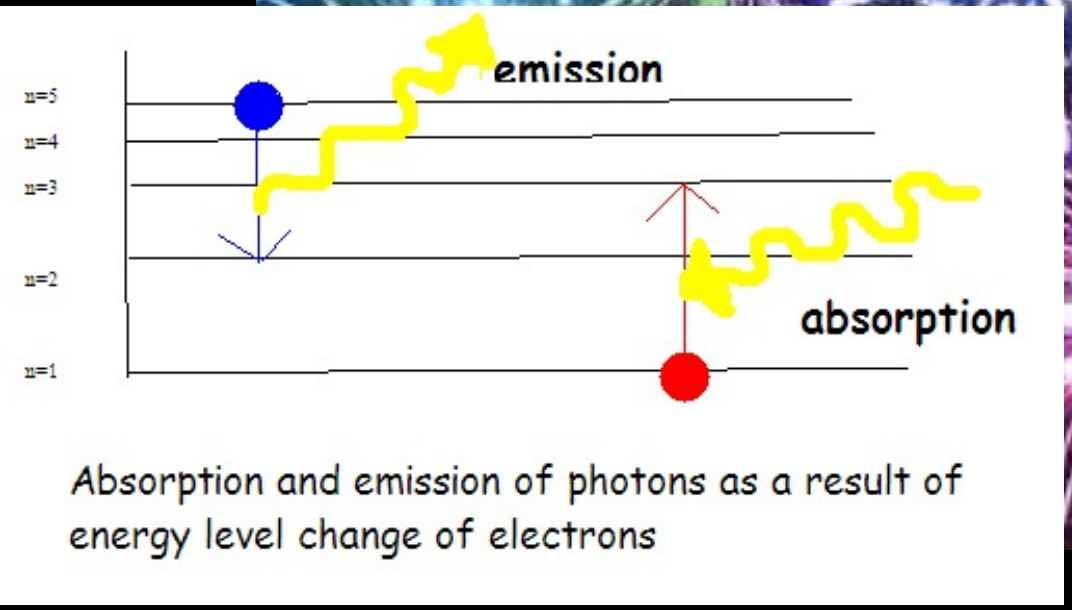
Positive charged center called a **nucleus** with negative electrons moving around the outside

1913 Meet Niels Bohr

- Played soccer in college
- His Institute was sponsored by a Beer Company

Bohr Model - Evidence

Atoms of elements glow with unique colors of light when heated



Absorption and emission of photons as a result of energy level change of electrons

Niels Bohr's Model of the atom

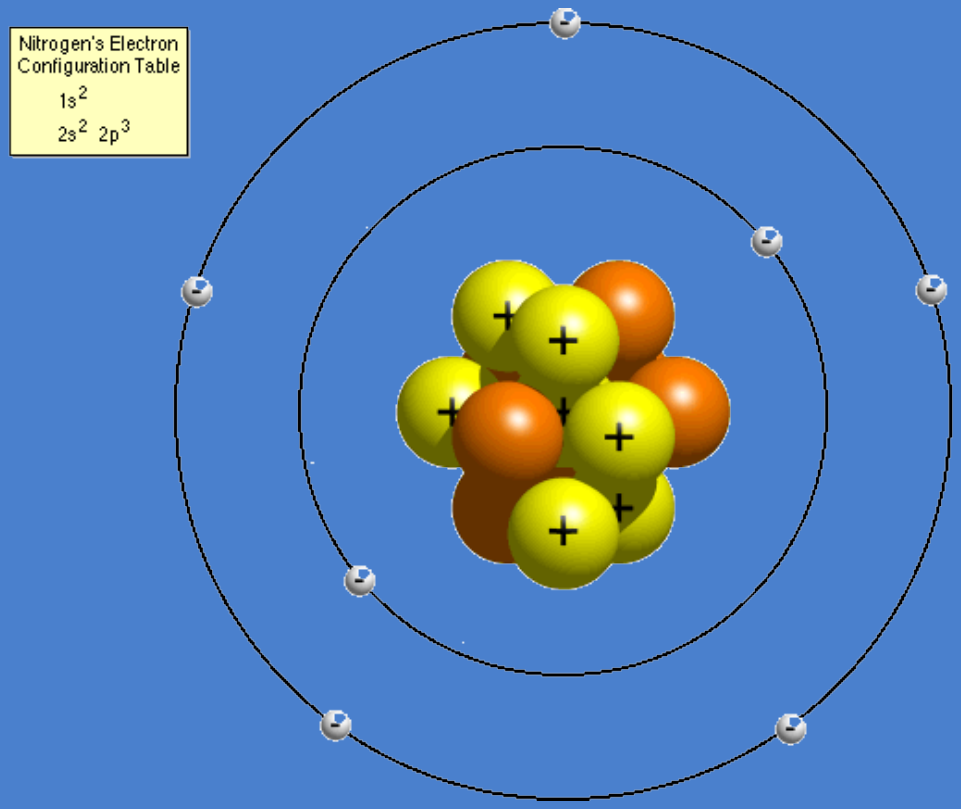
Bohr added that the electrons were in orbits based on energy levels. *Rather like planets orbiting the sun.*

With each orbit only able to contain a set number of electrons.

Draw your idea of Bohr's model of the atom

Bohr's Theory 	**EXPECTATIONS** What do you THINK it looks like?	**REALITY** What it ACTUALLY looks like:

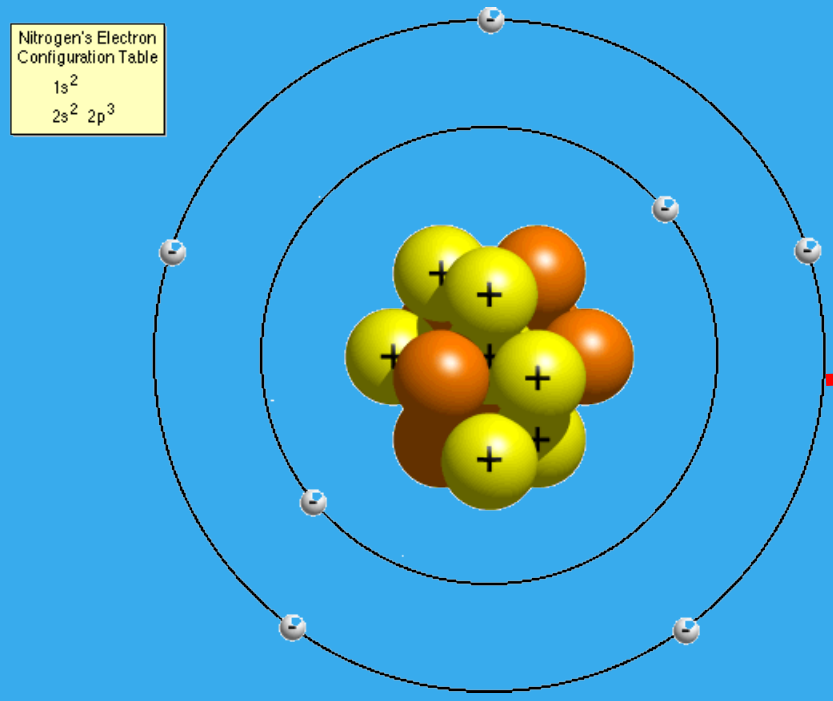
Bohr Model

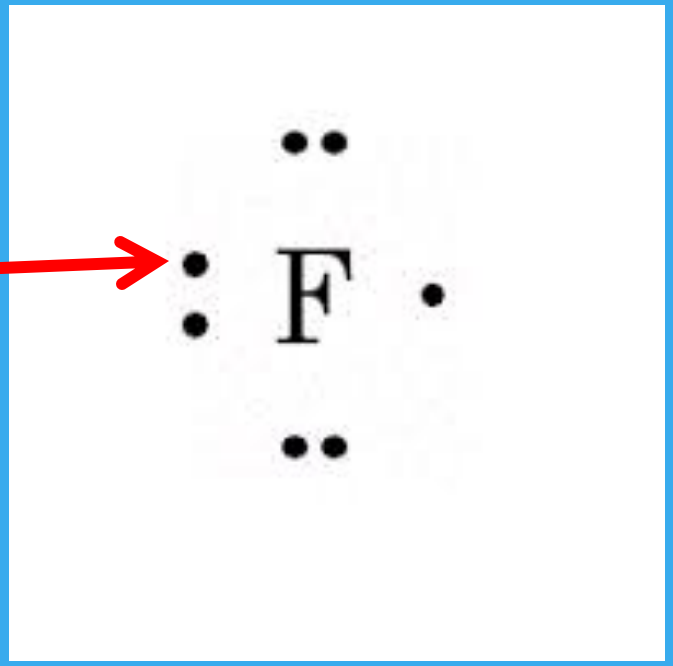


Negative electrons move in specific orbits around a positive nucleus

Lewis Model

Simplified representation of electrons in **last** energy level





1930 Modern Atomic Theory

Quantum Mechanical Model

- Atoms do have a small **positively charge nucleus**
- An electron's location is based on it's energy, but their exact location **cannot** be determined

Draw your idea of The Quantum Mechanical Model of an atom.

1930 Modern Atomic Theory

Homework:

- Modern Atomic Theory Doodle Notes: L-side must be colored and completed for stamp
- Video Notes: History of Atomic Chemistry - CCC#37