Atomic Models

JOHN DALTON
- Early 1800’s
- Thought atoms were smooth, hard balls that could not be broken into smaller pieces.
- All elements are made of atoms.
- All atoms of the same element are exactly alike and have same mass.
- An atom of one element cannot be changed into an atom of a different element.
- Atoms cannot be created nor destroyed, only rearranged.
- Compounds are made from atoms of different elements.

JOHN DALTON

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<thead>
<tr>
<th>Atomic Model</th>
<th>Object used to represent theory</th>
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J.J. THOMSON
- 1897
- An atom consists of negative charges scattered throughout a ball of positive charges.

J.J. THOMSON

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ERNEST RUTHERFORD
- 1911
- Rutherford was a student of Thomson.
- Positive charge (protons) is located in the center of the atom.
- Center is called the nucleus.
- Almost all of the atom’s mass is located in the nucleus.
- Atom is mostly empty space with the electrons moving around the nucleus.
ERNEST RUTHERFORD

Atomic Model

Object used to represent theory

NEILS BOHR

- 1913
- Bohr was a student of Thomson & Rutherford
- Electrons could only have specific amounts of energy, leading them to move in certain orbits.
- This model is also compared to planets orbiting in the solar system.

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- 1920’s
- Electrons do not orbit the nucleus like planets, rather they can be anywhere in a cloudlike region around the nucleus.
- Electrons of the same energy are in the same energy level.

JAMES CHADWICK

- 1932
- Found that the atom has a particle that was electrically neutral (neutron).

MODERN SCIENTISTS / JAMES CHADWICK

Atomic Model

Object used to represent theory