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| **Dalton’s model** | **Plum Pudding model** | **Rutherford’s model** | **Bohr’s model** | **Quantum model** |
| Atoms are indivisible | Atoms have positive and negative charges scattered throughout the atom | Gold foil experiment | Electrons are in energy levels, orbiting the nucleus as planets orbit the sun | Electrons are in orbitals within sublevels within energy levels |
| No protons, neutrons, or electrons | No neutrons | Protons are all concentrated together at the center of the atom, making up the nucleus. | Electrons have specific amounts of energy determined by their distance from the nucleus | Orbitals are regions where an electron has a 90% chance of being. |
| Said that all atoms of a given element were identical (later proven to not be completely true) | First to mention negatively charged particles | First to say electrons are located outside of the protons | Evidence for this model includes line emission spectrum of hydrogen | Electrons act as waves |
| 5 postulates made up his atomic theory | Proposed the existence of protons | First to say the atom was mostly empty space | Electrons can move from one energy level to the next | Uses Schrodinger’s wave equation to predict electron location |
| Image result for dalton atom | Image result for plum pudding model | Image result for rutherford's model | Image result for bohr model | Image result for quantum model of the atom |
| Introduced the idea that atoms make up everything around us | Proposed by JJ Thomson | No neutrons | Includes protons, neutrons, and electrons | Includes protons, neutrons, and electrons |
|  | Positive charge is evenly spread throughout atom | The nucleus contains nearly all of the weight of the atom, but occupies less than 1% of the volume |  | Most modern model of the atom; currently accepted view of the atom |
|  |  | The nucleus is incredibly dense |  | Electrons have specific amounts of energy determined by their distance from the nucleus |
|  |  |  |  | Electrons’ positions can be represented by orbital notation or electron configuration |