

Pioneers of Atomic Theory

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Discoverers of the Atom


Democritus- Greek Philosopher proposed that if something was divided enough times, eventually the particles would be too small to divide any further.

Ex: Identify this Greek philosopher who postulated that if an object was divided enough times, there would eventually be small particles that could not be divided any further.

Discoverers of the Atom

John Dalton- English chemist who made the “billiard ball” atom model. First to prove that rainfall was a result of temperature change. He was the first scientist after Democritus to build on atomic theory. He also created a law on partial pressures.

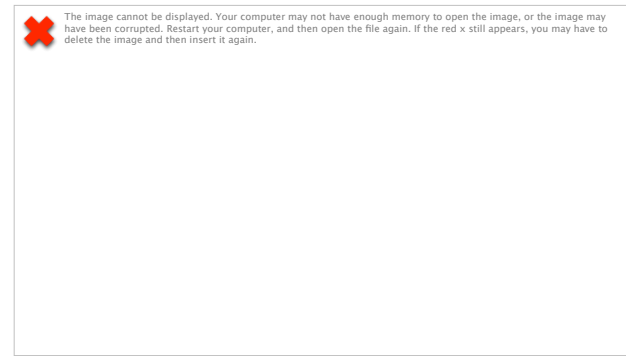
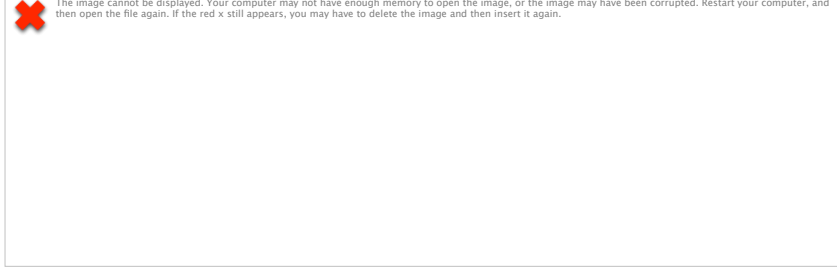
Common Clues: Partial pressures, pioneer of atomic theory, and temperature change causes rainfall.

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Discoverers of the Atom

J.J. Thomson- English Scientist who discovered electrons through a cathode. Made the “plum pudding model” with Lord Kelvin (Kelvin Scale) which stated that negative charges were spread about a positive charged medium, making atoms neutral.

Common Clues: Plum pudding, Electrons had negative charges, disproved by either Rutherford or Mardsen and Geiger




Discoverers of the Atom

Ernest Rutherford- New Zealand Physicist who disproved Thomson's model with his Gold foil experiment that was conducted by his students Geiger and Mardsen, where he shot alpha particles a gold foil, and some were deflected and others were simply passed through, thus discovering the nucleus.

Common Clues: Geiger and Mardsen, Alpha particles, disproved Thomson's model, gold foil experiment, nucleus


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Discoverers of the Atom

Niels Bohr- Danish physicist who created a more accurate model of the atom with energy levels of electrons. Bohr's theory states that a light quantum is emitted when an electron jumps orbits. Bohr Magneton expresses magnetic movement of an electron using the Lande g factor. His model uses the Rydberg Formula.

Common Clues: Magneton(ization) + Lande g factor, Reproduced Rydberg Formula, stressed electrons as being in orbits and in different energy levels.

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Discoverers of the Atom

Gilbert Newton Lewis- American Chemist who designed the Lewis-Dot Structure, which is used to assign formal charge or oxidation state. Shows electrons as either paired (bonded) or unpaired. “Thermodynamics and the Free Energy of Chemical Substances”, co-authored with Merle Randall. Lewis acids: compounds that can accept an electron pair

Common Clues: Electron dot structures, “Thermodynamics and the Free Energy of Chemical Substances” with Merle Randall, Namesake acids associated with electron pairs



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