Lab-aids
Proven Science Programs

PHET* ALIGNMENT TO *A NATURAL APPROACH TO CHEMISTRY

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Ch 1 The Science of Chemistry

Density	https://phet.colorado.edu/en/simulation/legacy/density
States of Matter: Basics	https://phet.colorado.edu/en/simulation/states-of-matter-basics

Ch 2 Matter & Atoms

Build an Atom	https://phet.colorado.edu/en/simulation/build-an-atom
Build a Molecule	https://phet.colorado.edu/en/simulation/legacy/build-a-molecule
Sugar and Salt Solutions	https://phet.colorado.edu/en/simulation/legacy/sugar-and-salt-solutions
Concentration	https://phet.colorado.edu/en/simulation/concentration

Ch 3 Temperature, Energy & Heat

Energy Forms & Changes	https://phet.colorado.edu/en/simulation/energy-forms-and-changes
States of Matter: Basics	https://phet.colorado.edu/en/simulation/states-of-matter-basics

Ch 4 Physical and Chemical Change

pH Scale: Basics	https://phet.colorado.edu/en/simulation/ph-scale-basics
Reactions & Rates	https://phet.colorado.edu/en/simulation/legacy/reactions-and-rates

Ch 5 The Structure of the Atom

Isotopes & Atomic Mass	https://phet.colorado.edu/en/simulation/isotopes-and-atomic-mass
Models of the Hydrogen Atom	https://phet.colorado.edu/en/simulation/legacy/hydrogen-atom
Electron Diffraction	https://phet.colorado.edu/en/simulation/legacy/davisson-germer
Rutherford Scattering	https://phet.colorado.edu/en/simulation/rutherford-scattering
Photoelectric Effect	https://phet.colorado.edu/en/simulation/legacy/photoelectric

Ch 6 Elements and the Periodic Table

Atomic Interactions	https://phet.colorado.edu/en/simulation/atomic-interactions
Neon Lights & Discharge Lamps	https://phet.colorado.edu/en/simulation/legacy/discharge-lamps

Ch 7 Bonding

Atomic Interactions	https://phet.colorado.edu/en/simulation/atomic-interactions
Molecule Shapes: Basics	https://phet.colorado.edu/en/simulation/molecule-shapes-basics
Molecule Shapes	https://phet.colorado.edu/en/simulation/molecule-shapes
Molecule Polarity	https://phet.colorado.edu/en/simulation/molecule-polarity

Ch 9 Water & Solutions

Molarity	https://phet.colorado.edu/en/simulation/molarity
Beer's Law Lab	https://phet.colorado.edu/en/simulation/beers-law-lab

Ch 10 Chemical Reactions

Reactants, Products & Leftovers	https://phet.colorado.edu/en/simulation/reactants-products-and-leftovers
Balancing Chemical Equations	https://phet.colorado.edu/en/simulation/balancing-chemical-equations

Ch 12 Reaction Rates & Equilibrium

Reactions & Rates	https://phet.colorado.edu/en/simulation/legacy/reactions-and-rates
Reversible Reactions	https://phet.colorado.edu/en/simulation/legacy/reversible-reactions

Ch 13 Acids & Bases

pH Scale	https://phet.colorado.edu/en/simulation/ph-scale
Acid-Base Solutions	https://phet.colorado.edu/en/simulation/acid-base-solutions

Ch 14 Gases

Balloons & Buoyancy	https://phet.colorado.edu/en/simulation/legacy/balloons-and-buoyancy
Gases Intro	https://phet.colorado.edu/en/simulation/gases-intro
Gas Properties	https://phet.colorado.edu/en/simulation/gas-properties
Diffusion	https://phet.colorado.edu/en/simulation/diffusion

Ch 15 Electrochemistry

Battery Voltage	https://phet.colorado.edu/en/simulation/legacy/battery-voltage

Ch 19 The Chemistry of the Earth

The Greenhouse Effect	https://phet.colorado.edu/en/simulation/legacy/greenhouse

Ch 20 Nuclear Chemistry & Radioactivity

Alpha Decay	https://phet.colorado.edu/en/simulation/legacy/alpha-decay
Beat Decay	https://phet.colorado.edu/en/simulation/legacy/beta-decay
Nuclear Fission	https://phet.colorado.edu/en/simulation/legacy/nuclear-fission
Radioactive Dating Game	https://phet.colorado.edu/en/simulation/legacy/radioactive-dating-game

Ch 21 The Chemistry of the Solar System

Blackbody Spectrum https://phet.colorado.edu/en/simulation/blackbody-spectrum