

The Rainbow Home Laboratory: Scope and Sequence

The crown jewel of *The Rainbow* curriculum is its laboratories. There students will unforgettably demonstrate for themselves the reality of the concepts taught in the textbook. Home schooling is uniquely suitable for these “A-ha!” experiences and *The Rainbow Home Laboratory* is uniquely designed around the home school environment. Every laboratory is completely provided for in the accompanying laboratory kit. The following is a list of the lab titles along with brief explanations of the concepts they illuminate.

Red Section

- 1: Crummy Marble (introduction to the effects of gravity on matter)
- 2: Acceleration
- 3: Motion (linear, curved, orbital, wave)
- 4: Energy and Work
- 5: Transfer of Energy
- 6: Devices for Changing Forms of Energy
- 7: Electric Heads (static electricity and current)
- 8: Magnetism: Force, Work, Energy and Field
- 9: Magnetism and Electricity (electromagnets and generators)
- 10: The Elements (atomic theory)
- 11: Fluid Properties (intermolecular forces and fluids)
- 12: Heat (An exploration of heat and its effects on matter.)
- 13: Light Bending (uses of the refractive property of light)
- 14: Color (exercises in light reflection and absorption)
- 15: Review

Yellow Section

- 1: Phase Changes (states of matter)
- 2: Density
- 3: The Periodic Table (exercises in understanding and familiarity)
- 4: Chemical Bonds and Compounds (building models of molecules)
- 5: Chemical Reactions, Part I: A Model Reaction (chemical reactions using model molecules)
- 6: Chemical Reactions, Part II: Atoms In = Atoms Out (the concept of mass balance)
- 7: Chemical Reactions, Part III: Balancing Chemical Equations (writing mass balances in equation form)
- 8: Chemical Reactions, Part IV: Fueling Reactions (the chemistry of burning fossil fuels)
- 9: Chemical Reactions, Part V: Oxidation (and reduction)
- 10: Biochemical Treasure Hunt (exercise in familiarity with biochemicals)

- 11: Solutions and Solubility (the chemical basis for solubility)
- 12: Suspensions (and separation techniques)
- 13: Water and Temperature (evaporative cooling)
- 14: Acid/Base Reactions (and acid/base neutralization)
- 15: Thermodynamics and Kinetics (heat evolution and absorption from chemical reactions; reaction spontaneity)
- 16: Review

Blue Section

- 1: Do You Really Drink That Stuff (bacteriology of drinking water)
- 2: The Classification Game (using keys to classify organisms)
- 3: Little Green Guys (algae)
- 4: Hay “Fever” (protozoa)
- 5: Fungi Amongi? (fungi)
- 6: Monowhatyledon? (growing plants for later lab in fundamental plant classification)
- 7: Cheeky Cells (observation of cells)
- 8: Fruits and Vegetables (gymnosperm seeds and flower anatomy)
- 9: Floral Surgery (angiosperm flower dissection)
- 10: Plant Taxonomy
- 11: Review I
- 12: Vermatomy (earthworm dissection)
- 13: The Naming of Parts (diagrammatic survey of human anatomy)
- 14: Where Do They Fit? (flash card game on animal taxonomy)
- Science in the Field (a series of outdoor labs to do throughout the school year)
- 15: Hugo Czechemov (find and identify one plant from each major classification)
- 16: Hugo Czechemov (continued)
- 17: Hugo Czechemov II (find and identify one animal from each major classification)
- 18: Hugo Czechemov II (continued)
- 19: One-Day Insect Extravaganza (different methods of collecting insects)
- 20: I’ve Got a Niche (study of the environmental range of an organism)
- 21: Review II

Rainbow Section

- 1: Hypothesis Testing (a true scientific experiment)
- 2: Popsicles of Paris and Portland (physical properties of construction materials)
- 3: How Salty is the Ocean? (creation and use of our own device for measuring salinity of water by its density)
- 4: Crystal City (making crystals)
- 5: Ground Water Chemistry (effects of acid on mineral dissolution underground)
- 6: Smokehouse (observing airflow patterns in a room)
- 7: The Science of Comfort (temperature, humidity and comfort index)
- 8: Bottled Water Vapor (evaporation and condensation)
- 9: Seeing Stars (family stargazing)
- 10: Review

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