



Science Benchmark Achievements Elementary Science

The Third Day: Geology and Botany

Ages 8-12

Objectives at this age:

Begin student-created science textbooks for geology and botany

Discover the why and how behind God's creations

Introduction to basic science concepts and vocabulary

Introduction to famous scientists: Alfred Wegener, Louis Agassiz, Charles Darwin,

Charles Richter, Friedrich Mohs, George Washington Carver

Beginning at age 8, children will begin creating a science textbook for each of the scientific disciplines. Even though the textbooks will not be completed until their senior years, students are encouraged to prepare a geology and botany journal at this age to begin recording and illustrating their discoveries.

Geology

- Earth's Creation . . . Theories (nebular, tidal/gaseous, double star, condensation)
- Bible-based creation
- Inner core
- Outer core
- Mantle
- Gravity
- Magnetic Poles

The Sea

- Waters of the Ocean (sea level, saltwater, currents, tides, waves)
- Difference between salt water and fresh water
- Land on Water/Water on Land
 - Continental drift
 - Continental shelf/slope
 - Erosion
 - Water cycle

- Waterfalls
- Lakes and Rivers
- Streams and Brooks
- Irrigation
- Salt and Ice

The Land

- Volcanoes (magma, magma chamber, lava, conduit, eruption, crater, volcanic dust)
- Valleys and Mountains (fossils, metamorphic rock, igneous rock, sedimentary rock, minerals)
- How Mountains Form
- Earth's Crust (lithosphere, plate tectonics, continents, islands, faults, glaciers, topsoil)
 - What is dirt?
 - Rocks and Soil
 - The Rock Cycle

Present-Day Challenges

- Earthquakes
- Weather Patterns – Meteorology
 - Water Cycle
 - Earth's atmosphere
 - Air pressure and movement
 - Cold and warm fronts
 - Thunderstorms
 - Hurricanes
 - Tornadoes
 - Forecasting weather

Earth's Destiny

- Man's theories and fears (global warming, pollution, environmental disasters, nuclear holocaust, famine, plague, pestilence)
- Biblical New World – Coming of the Messiah

Botany

- What is a seed? The embryo, the food storage tissue, the seed coat
- Seeds: Growth pattern of a seed (seed, sprout, seedling, plant, plant with blossom, plant in full production)
 - The first stage of germination
 - Roots and water
 - Leaves, water, and transpiration
 - The importance of leaves and light - photosynthesis
 - How plants store food (starch)
 - Plants and movement
 - Plant cell structure
 - Plant cell division and reproduction
- Divisions of Botany
 - Primitive plants (algae, fungus, diatoms, moss, parasite, mold, mushroom)
 - Ferns (fossils, fronds, spore cases, coal)
 - Herbs (medicinal, healing, nourishment)
 - Grasses (grazing, turf, ornamental, sugar cane, wood grasses, grains)
 - Flowers (annuals, biennials, perennials, wild)
 - Fruits (pomology, temperate, subtropical, tropical, citrus)
 - Vegetables (rapidly-growing, hardy, tender, leafy greens, perennial)
 - Shrubs (woody, flowering, herbal, ornamental)
 - Trees (broadleaf, needle leaf, palm, cycad, ginkgo, petrified)
 - Weeds (common, noxious, weed control)