

M/J Comprehensive Science 1

Pre-Requisites: Recommended for 6th grade

Credits: 0.5 (per segment)

Estimated Completion Time: 2 segments / 32-36 weeks

Earliest Start Date: March 2014

Description

Comprehensive Science 1 is the first in a series of three consecutive science classes. This course provides an introduction to science, energy, forces, weather, climate, Earth's systems, and the living world. Some topics are explored in depth while others are introduced to serve as building blocks for M/J Comprehensive Science 2 and 3. Students explore science through everyday examples and experiences and participate in activities and online laboratory experiences to apply what they have learned.

Major Topics and Concepts

Segment 1:

- What is science?
- Scientific Theories
- Scientific Laws
- Scientific Method- purpose
- Scientific Method –steps
- Metric System
- Metric Conversions
- Graphing for Science
- What is energy?
- Potential and Kinetic Energy
- Law of Conservation of Energy
- Energy transfers and transformations
- Heat and Temperature
- Heat Transfer Convection
- Heat Transfer Conduction
- Heat Transfer Radiation
- Nonrenewable Energy
- Renewable Energy
- What is force?
- What is mass?
- How does mass effect force?
- Contact forces
- Contact forces friction
- Balanced forces
- Unbalanced forces
- Distance Forces
- Distance Force: Gravity
- Distance Force: Magnetism
- Distance Forces: electrical
- What is speed
- Determining speed (mathematical approach)
- Graphing for speed and distance

Segment 2:

- What is weather?
- Cloud formation and types
- Precipitation
- Air pressure
- Temperature
- Temperature Graphing , Mathematical approach
- Wind currents
- Humidity and temperature
- Historical weather events and folklore
- Earth's Systems
- Interactions between Earth's Systems
- Jet Stream
- Ocean Currents
- Natural Disasters
- Natural Disasters: Hurricanes
- Natural Disasters: Tornadoes
- Protection from Natural Disasters
- Dangers and Protection from the Sun
- How weather effects the physical features of the earth
- Physical Weathering

- Chemical Weathering
- What is climate?
- Global Warming
- Hierarchical organization of organisms
- Cell theory
- Organelles
- Cell Processes: Respiration
- Cell Processes: Waste removal
- Cell Processes: Mitosis
- Human Body Systems
- Classification of the Living World

Required Materials

Course Objectives

Grading Policy

Besides engaging students in challenging curriculum, the course guides students to reflect on their learning and evaluate their progress through a variety of assessments. Assessments can be in the form of practice lessons, multiple choice questions, writing assignments, projects, research papers, oral assessments, and discussions. The course will use the state-approved grading scale and each course contains a unique end of course assessment. This assessment counts for 20% of the student's overall grade and must be passed with a score of 60% or higher.

Communication Policy

To achieve success, students are expected to submit work in each course weekly. Students can learn at their own pace; however, "any pace" still means that students must make progress in the course every week. To measure learning, students complete self-checks, practice lessons, multiple choice questions, projects, discussion-based assessments, and discussions. Students are expected to maintain regular contact with teachers; the minimum requirement is monthly. When teachers, students, and parents work together, students are successful