

# Course Syllabus

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**Course Name:** Physical Science

**Description:** Ever wonder why more massive objects require more force to move? Perhaps you have questioned how new substances are made or how energy is involved in changes in matter? These are some of the concepts students will be exploring in Physical Science. This course teaches the foundational concepts of physics and chemistry. Students will use scientific inquiry, interactive experiences, higher order thinking, collaborative projects, and virtual labs to build and demonstrate an understanding of physical and chemical phenomena enabling them to apply these principles to their everyday lives.

**Estimated Completion Time:** 2 segments / 32–36 weeks.

## Major Topics and Concepts:

### Segment One:

- Speed, Velocity and Acceleration
- Newton's Laws of Motion
- Momentum
- Fundamental Forces
- Mechanical Work and Power
- Energy
- Energy Transfer
- Conservation of Energy
- Electrical Charges
- Electrical Current
- Electrical Circuits
- Magnetism
- Relationship Between Electricity and Magnetism
- Introduction to Waves
- Sound Waves
- Mechanical waves
- Electromagnetic waves
- Reflection and Refraction

### Segment Two:

- Classifying Matter
- States of Matter
- Properties of Matter
- Atomic Theory
- Atomic Mass

- Periodic Table of Elements
- Chemical Bonding
- Chemical Formulas
- Properties of Water
- Solubility and Concentration
- Acids and Bases
- Chemical Reactions
- Classifying Chemical Reactions
- Reaction Rates and Energy
- Radioactivity
- Nuclear Reactions

**Course Assessment and Participation Requirements:** 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, discussion-based assessments, discussions, and projects. Students are expected to maintain regular contact with teachers; the minimum requirement is monthly. When teachers, students, and parents work together, students are successful.

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