

## High School Physical Science (NGSS-Aligned, A–G Certified)

This A–G certified Physical Science course is designed for high school students to explore fundamental concepts in chemistry and physics through hands-on labs, experiments, and project-based learning. The course meets once weekly for 90 minutes over 30 weeks per year (15 weeks per semester). Instruction integrates NGSS-aligned Science and Engineering Practices, including asking questions, planning and carrying out investigations, analyzing and interpreting data, constructing explanations, and using models.

Students investigate topics such as methods of scientific study, matter (solids, liquids, gases), atomic structure and chemical bonds, properties of substances, energy, motion, acceleration, momentum, Newton's laws, gas laws, light and sound waves, electricity, electronics, magnetism, nuclear reactions, and energy sources. Each week includes a live lecture and hands-on lab, with all lab supplies provided for in-person learners, and a supply list for online students. Lab costs may be covered by charter funds if purchased through an approved vendor. Students complete textbook readings, lab homework, and assessments at home, as well as a self-directed project, a science fair project, and a research paper to apply scientific reasoning in real-world contexts.

### NGSS Standards Alignment:

MS-PS1-1 through MS-PS1-6: Matter and its interactions, atomic structure, chemical reactions, and properties of substances

MS-PS2-1 through MS-PS2-4: Motion, forces, acceleration, momentum, and Newton's laws

MS-PS3-1 through MS-PS3-5: Energy transfer, conservation, and sources

MS-PS4-1 through MS-PS4-3: Waves, light, and sound

MS-ETS1-1 through MS-ETS1-3: Engineering design, problem-solving, and applications of physical science

This course develops critical thinking, laboratory skills, and scientific literacy, providing a strong foundation for advanced high school science courses.