

Physics of the Universe integrates physics with Earth and space science. Throughout the course, students apply fundamental physics concepts to better understand the impact of human activities on Earth's systems and how forces, energy, and matter interact throughout the universe.

Course topics include electricity and magnetism, energy consumption and resources, dynamics, momentum and gravitation, waves, cosmology, and an exploration of Earth's physical systems. Students discover new concepts through guided instruction and confirm their understanding in an interactive, feedback-rich environment. Scientific inquiry skills are embedded in the direct instruction, wherein students learn to ask scientific questions, form and test hypotheses, and use logic and evidence to draw conclusions about the concepts.

A variety of activities encourage students to think scientifically. Lab and Project activities reinforce critical thinking, writing, and communication skills and help students develop a deeper understanding of the nature of science and engineering. Virtual Lab activities enable students to engage in investigations that require long periods of observation at remote locations and to explore simulations that allow scientists to test predictions. In Discussions, students compare their lab or project results and exchange ideas about their investigations. Checkup and Practice activities provide additional opportunities for students to apply learned concepts and practice their writing and scientific reasoning skills.

This course is built to Next Generation Science Standards. Throughout the course, students are evaluated via a variety of assessments designed to prepare them for the content, form, and depth of state exams.

Length: One Semester

Unit 1: Introduction to Physics of the Universe

Unit 2: Energy in the Universe

Unit 3: Electricity and Magnetism

Unit 4: Energy Consumption and Resources

Unit 5: Dynamics

Unit 6: Semester Wrap-Up

Unit 7: Momentum and Gravitation

Unit 8: Waves

Unit 9: Cosmology

Unit 10: Geophysics

Unit 11: Semester Wrap-Up