

PHYSICS



Image credit: Monkey Business Images, Shutterstock.com

Welcome to Physics! Our goal is to help you understand the ways your child will engage in science in this course. This letter will help you better understand the science expectations for physics and the supporting resources to provide ideas of how to work with your child at home throughout the course. For additional support and questions, please contact your child's physics teacher.

In the physics course, there are six content standards designed to engage your child in student-centered instruction to make sense of phenomena and design solutions to problems focused on physics concepts and principles. Your child will use science and engineering practices and crosscutting concepts to explore and explain properties, interactions, and conservation of matter and energy in physical systems. Your child will develop an understanding of how these practices, concepts, and principles can be used to make sense of new phenomena and solve new problems.

SCIENCE CONCEPTS

PHYSICS

Ask questions, investigate, and use data to model one- and two-dimensional motion as functions of time

Investigate, model, and explain based on evidence using Newton's laws and free body diagrams how various forces affect the motion of objects

Ask questions, investigate, and argue from evidence the conservation of energy and momentum in physical systems

Investigate, model, and argue the properties and behaviors of mechanical and electromagnetic waves

Investigate, model, and explain the transfer of charges and the relationships between electrical and magnetic force interactions

Use models to explain and argue the conservation of mass and energy in nuclear processes including fission, fusion, and radioactive decay

How will your child be engaged in learning science?

Science and Engineering Practices

Your child will engage in the following practices of scientific inquiry and engineering design to make sense of phenomena and solve problems in physics: asking questions and defining problems, developing and using models, constructing explanations and designing solutions, planning and carrying out investigations, engaging in argument from evidence, using mathematics and computational thinking, and obtaining, evaluating, and communicating information.

Crosscutting Concepts

Students will explore patterns, cause and effect, and systems and system models while examining physics ideas. Students will explore energy and matter, stability and change, and structure and function within systems. Students will identify and interpret patterns in cause and effect relationships in physical systems to help them explain, model, and argue the interactions and relationships between matter and energy at various scales.

Phenomena

Phenomena are the real-world observable events to which students can apply the science ideas, concepts, and practices. Some examples of phenomena include a ball dropped and a ball launched horizontally hit the ground at the same time, nuclear accident sites remain unsafe for humans for years, and a moving car comes to a sudden stop and loose objects continue to move.

Getting to know your child's teacher is important, and communication with the teacher throughout the year will support your child's individual growth while learning physics. The resource links below are provided to help support learning at home as you engage your child in meaningful work while learning physics. If at any time you have additional questions or need to request additional support, please reach out to your child's physics teacher.



[GaDOE Inspire](#)



[Georgia Classroom](#)



[Georgia Standards](#)