BIOLOGY

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Welcome to Biology! 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 biology 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 biology teacher.

In the biology 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 common biology concepts and principles. Your child will use science and engineering practices and crosscutting concepts to explore and explain cellular and genetic processes and relationships of living things. 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

BIOLOGY

Ask questions, plan investigations, develop models, and construct explanations and arguments to describe cell structure and function, cellular transport, and flow of energy within a cell though the processes of photosynthesis and cellular respiration.
Ask questions, construct explanations, and arguments to describe how genetic information is expressed, how genetic variation is heritable, and how genetics are altered though biotechnology.
Ask questions, use mathematical models, and construct explanations to describe how genetic information is passed to successive generations. Use mathematical models and construct arguments using Mendel's laws and describing advantage and disadvantage of different types of reproduction for populations.
Analyze data and construct arguments about how organisms are classified, and the relationships among major groups of organisms. Construct an argument about the similarities and differences between viruses and organisms.
Plan investigations, develop models, and construct explanations and arguments to describe how organisms, non-living things, energy, and matter all interact in various ecosystems when stable and changing.
Analyze data, develop models, use mathematical models, and construct explanations and arguments to describe how species have changed over time, and how organisms are related. Construct an argument, develop and use models and analyze data that show how natural selection, genetic drift, and biological resistance change populations.

Georgia Department of Education

Educating Georgia's Future

How will your child be engaged in learning science?

Science and Engineering Practices

Students will engage in making sense of phenomena and solving problems by asking questions and defining problems, analyzing and interpreting data, 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 life science ideas. Students will explore energy and matter, stability and change, and structure and function within Earth's ecosystems, between organisms, and within organisms.

Phenomena

Phenomena are the real-world observable events to which students can apply the science ideas, concepts, and practices. Some examples of phenomena include tiny emerald sea slugs can live more than half their life without eating, some antibiotics don't work like they used to, and grass survives but the weeds die after the application of lawn fertilizer.

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 biology. The resource links below are provided to help support learning at home as you engage your child in meaningful work while learning biology. If at any time you have additional questions or need to request additional support, please reach out to your child's biology teacher.

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