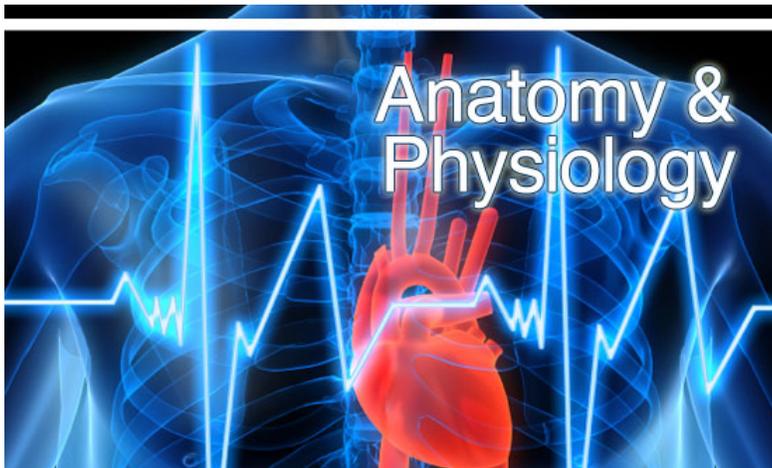


# Anatomy and Physiology Science

## Key Instructional Activities

Human anatomy and physiology is designed to continue student investigations that began in grades K-8 and high school biology. This curriculum is extensively performance and laboratory based. It integrates the study of the structures and functions of the human body, however rather than focusing on distinct anatomical and physiological systems (respiratory, nervous, etc.) instruction should focus on the essential requirements for life. Areas of study include organization of the body; protection, support and movement; providing internal coordination and regulation; processing and transporting; and reproduction, growth and development. Whenever possible, careers related to medicine, research, healthcare and modern medical technology should be emphasized throughout the curriculum. Case studies concerning diseases, disorders and ailments (i.e. real-life applications) should be emphasized.



The Science Georgia Standards of Excellence drive instruction. Hands-on, student-centered, and inquiry-based approaches should be the emphasis of instruction. The standards are a required minimum set of expectations that show proficiency in science.



What resources are available for students and parents?

- ✓ Online Science Textbook
- ✓ Parent Portal
- ✓ Overview of Units and Pacing

# Anatomy and Physiology Course Overview

## **Unit 1: Orientation of Body Parts and Regions**

**Expected Dates: Beginning of School Year to Mid-August**

Students will develop and use models to demonstrate the orientation of structures and regions of the human body.

## **Unit 2: Structure and Function of Cells and Tissues**

**Expected Dates: Mid-August to Beginning of September**

Students will construct an explanation about the relationship between a body structure (i.e., cells, tissues, organs, and organ systems) and its function within the human body.

## **Unit 3: Integumentary System**

**Expected Dates: Beginning of September to Mid-September**

Students will construct an explanation about the relationship between the structures of the integumentary system and their role in protection, eliminating waste products, and regulating body temperature.

## **Unit 4: Skeletal System**

**Expected Dates: Mid-September to End of September**

Students will develop and use models to relate the structure of the skeletal system to its functional role in movement, protection, and support.

## **Unit 5: Muscular System**

**Expected Dates: End of September to Beginning of October**

Students will develop and use models to determine the relationship between structures of the muscular system and their role in movement and support.

## **Unit 6: Interdependence of Integumentary, Skeletal, and Muscular Systems**

**Expected Dates: Beginning of October to Mid-October**

Students will ask questions about how the interdependence of the integumentary, skeletal, and muscular systems makes support, protection, and movement possible.

## **Unit 7: Structures of the Nervous System and Information Processing**

**Expected Dates: End of October to Beginning of November**

Students will ask questions to investigate how the structures of the nervous system support the function of information processing (detection, interpretation, and response).

## **Unit 8: Hormones of the Endocrine System and Regulation**

**Expected Dates: Beginning of November to Mid-November**

Students will analyze and interpret data to explain how the hormones of the endocrine system regulate physical and chemical processes to maintain a stable internal environment.

## **Unit 9: Interdependence of the Endocrine and Nervous Systems**

**Expected Dates: Beginning of December to Mid-December**

Students will ask questions about how the interdependence of the endocrine and nervous systems makes information processing (detection, interpretation and response) possible.

**Unit 10: Structure and Function of Cardiovascular and Respiratory Systems**

**Expected Dates: Beginning of January to Beginning of February**

Students will plan and carry out an investigation to explore the structures and role of the cardiovascular and respiratory systems in obtaining oxygen, transporting nutrients, and removing waste.

**Unit 11: Structure and Function of Digestive and Urinary Systems**

**Expected Dates: Second Week of February to Beginning of March**

Students will develop and use models to explain the relationship between the structure and function of the digestive and urinary systems as they utilize matter to derive energy and eliminate waste.

**Unit 12: Interdependence of Cardiovascular, Respiratory, Urinary and Digestive Systems**

**Expected Dates: Second Week in March to Beginning of April**

Students will ask questions about the interdependence of the cardiovascular, respiratory, urinary and digestive systems.

**Unit 13: Reproductive System: Structures, Regulation and Processes**

**Expected Dates: Second Week in April to End of April**

Students will ask questions to gather and communicate information about how the structures of the reproductive system allow for production of egg and sperm, fertilization, and the development of offspring.

**Unit 14: Human Embryology**

**Expected Dates: End of April to Beginning of May**

Students will develop and use models to describe the stages of human embryology and gestation.

**Unit 15: Role of Reproductive System in Growth and Development**

**Expected Dates: Beginning of May to Mid-May**

Students will ask questions about how the reproductive system makes growth and development possible.

## Helpful Tips for Parents and Guardians

Believe that every child can be successful in science.

Science has led to the discovery of everything from gravity to medicine. Science is a way of understanding the world, a perspective, and a pattern of thinking that begins in the very early years. That is why parent involvement is so important in a child's science education.

### Tips to Help Children Learn Science

**Explore, explore, explore. See science everywhere.** Always encourage your child to question their surroundings, and then discuss. Parents can take opportunities to ask, "What would happen if ...?" questions or present brainteasers to encourage children to be inquisitive and seek out answers.

**Lead family discussions on science-related topics.** Dinnertime might be an ideal time for your family to have discussions about news stories that are science based, like space shuttle missions, severe weather conditions, or new medical breakthroughs. Over time, children will develop a better understanding of science and how it affects many facets of our lives. Movies and TV shows with science-related storylines are also great topics for discussion.

**Encourage girls and boys equally.** Many fathers might be inclined to fix a problem for a daughter without challenging her to find the solution on her own. Many girls are left out of challenging activities simply because of their gender. Be aware that both girls and boys need to be encouraged and exposed to a variety of subjects at a very early age.

**Do science together.** Children, especially elementary-age children, learn better by investigating and experimenting. Simple investigations done together in the home can bolster what your child is learning in the classroom. Check with your child's teacher on what your child is currently learning in class and what activities you can explore at home. There are also many books on the market and numerous websites that present ideas for investigations.

In addition to exploring and communicating as a family, it is important to invest in your child's willingness to learn. There are many programs available that are fun and interactive, helping them build a solid foundation in science.

From life sciences to environmental science, physical science to earth science, when children express interests in these subjects, encourage them and learn with them.

### How You Can Support Your Child's Success?

Although Georgia's approach to teaching and learning K-12 science is different than the past, you can still actively support your child's success in the classroom.

1. Speak to your child's teacher(s) about how these important changes affect your school.
2. Ask your child's teacher thoughtful questions based on the information provided in this brochure.
3. Learn how you can help the teacher(s) reinforce classroom instruction at home.
4. Visit [www.georgiastandards.org](http://www.georgiastandards.org) for more information.