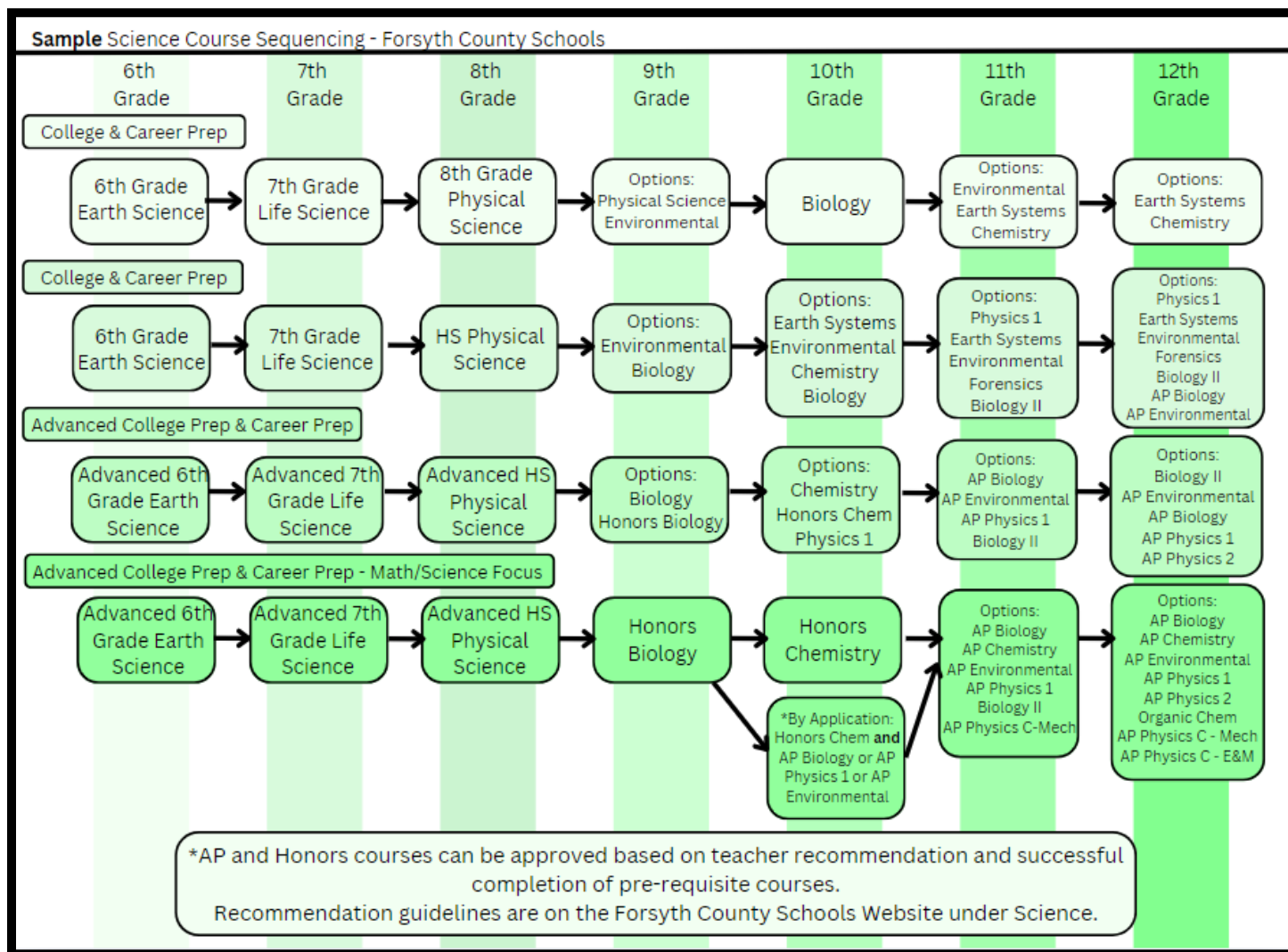


Forsyth County Schools Secondary Science Course Handbook

SY 2025-26

Sample Secondary Science schedules are listed below. Based on interest and aptitude, students may move between tracks to accelerate learning.



*****Students in Honors Biology in 9th Grade MIGHT HAVE the option in 10th grade to concurrently take Honors Chemistry and either AP Biology, AP Environmental, or AP Physics I through a teacher recommendation process. Recommendations are based on mastery of science and engineering practices, science course average, and math placement and course average during 9th grade. If you have additional questions regarding placement options, please contact the high school's science department chair.**

****ALL placement is based on seat availability.**

Science-Specific Differentiation for Advanced and Honors Courses

- **Depth and Complexity:** Exploring topics in greater depth, covering more complex theories and applications.
- **Critical Thinking and Problem-Solving:** Encouraging students to apply their knowledge to solve intricate problems and/or analyze advanced scenarios.
- **Research and Exploration:** Offering opportunities for independent research projects or investigations into new, cutting-edge scientific topics.
- **Debate and Discussion:** Engaging students in debates and discussions or Socratic seminars to delve deeper into controversial or complex scientific issues.
- **Collaborative Projects:** Assigning collaborative projects that require higher-level thinking, creativity, and application of learned concepts (e.g., science fair, Science Olympiad, etc.).
- **Advanced Learning Tasks:** Designing learning tasks that challenge students to analyze, synthesize, and evaluate information rather than focusing on recall.

*To be successful in Advanced and Honors courses, students must demonstrate independent critical thinking and problem solving as well as maturity in a laboratory setting.

Courses offered by Forsyth County Schools

Middle School Courses:

6th Grade Earth Science

The Sixth Grade Georgia Standards of Excellence for Science are designed to give all students an overview of common strands in earth science including, but not limited to, meteorology, geology, astronomy, and oceanography. Through hands-on activities and engaging discussions, students develop a deep understanding of our planet's processes.

Advanced 6th Grade Earth Science

Explore the depths of earth science in our Advanced Earth Sciences course for sixth graders. Building upon the Georgia Standards of Excellence, students delve into meteorology, geology, astronomy, and oceanography. Through hands-on activities and engaging discussions, students develop a deep understanding of our planet's processes. Emphasizing critical thinking and problem-solving, this course fosters a profound appreciation for the natural world while equipping students with essential scientific skills.

7th Grade Life Science

The Seventh Grade Georgia Standards of Excellence for Science are designed to give all students the necessary skills for a smooth transition from elementary life science standards to high school biology standards. The purpose is to give all students an overview of common strands in life science including, but not limited to, the diversity of living organisms, the structure and function of cells, heredity, ecosystems, and biological evolution. Through engaging labs, interactive experiments, and collaborative projects, students deepen their understanding and hone their scientific reasoning skills.

Advanced 7th Grade Life Science

Explore the depths of life science in our Advanced Life Sciences course for seventh graders. Serving as a bridge between elementary and high school standards, this course delves into key strands including organism diversity, cellular structure, heredity, ecosystems, and evolution. Through engaging labs, interactive experiments, and collaborative projects, students deepen their understanding and hone their scientific reasoning skills. By course end, students are not only prepared for high school biology but also equipped with a profound appreciation for the living world as they design, create, and engage in argumentation.

8th Grade Physical Science

The Eighth Grade Georgia Standards of Excellence for Science are designed to give all students the necessary skills for a smooth transition from elementary physical science standards to high school physical science standards. The purpose is to give all students an overview of common strands in physical science including, but not limited to, the nature of matter, conservation of energy, energy transformations, conservation of matter, kinematics, and dynamics. These standards are not intended in any way to take the place of the high school physical science standards.

***The state-mandated Georgia Milestones End of Grade Assessment is required.**

Prerequisites: A strong K-7 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Physical Science

The Physical Science Georgia Standards of Excellence are designed to continue student investigations of the physical sciences that began in grades K-8, and provide students the necessary skills to have a richer knowledge base in physical science. The standards in this course are designed as a survey of the core ideas in the physical sciences. Those core ideas will be studied in more depth during the chemistry and physics courses. The physical science standards include abstract concepts such as the conceptualization of the structure of atoms and the role they play in determining the properties of materials, motion and forces, the conservation of energy and matter, wave behavior, electricity, and the relationship between electricity and magnetism. The idea of radioactive decay is limited to the understanding of whole half-lives and how a constant proportional rate of decay is consistent with

declining measures that only gradually approach zero. Students investigate physical science concepts through the study of phenomena, experiences in laboratory settings, and fieldwork.

***The state-mandated Georgia Milestones End of Course Assessment is required.**

Prerequisites: A strong K-7 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Advanced Physical Science

An exploration of advanced pre-chemistry and pre-physics survey course delves into abstract concepts including atomic structure, motion dynamics, conservation laws, and wave phenomena. Through a blend of rigorous theoretical discussions and hands-on laboratory experiments, students engage in inquiry-based learning to investigate these fundamental principles. By fostering student-driven critical thinking skills and instilling a deep appreciation for scientific inquiry, students emerge equipped for honors high school science courses. With an emphasis on cultivating practical laboratory competencies and real-world applications, students attain a profound comprehension of the subject matter and also gain the proficiency to adeptly tackle multifaceted scientific challenges.

***The state-mandated Georgia Milestones End of Course Assessment is required.**

Prerequisites: A strong K-7 science background, the ability to plan/carry out an investigation, and analyze/interpret data. Prior advanced/accelerated science and math are recommended for student success.

High School Courses :

Astronomy

This course will provide the student with an introduction to the concepts of modern astronomy, the origin and history of the Universe, and the formation of the Earth and the solar system. Students will compare the Earth's properties with those of the other planets and explore how the heavens have influenced human thought and action. The course gives a description of astronomical phenomena using the laws of physics. The course treats many standard topics, including planets, stars, the Milky Way and other galaxies, black holes to more esoteric questions concerning the origin of the universe and its evolution and fate. Although largely descriptive, the course will occasionally require the use of Algebra, Geometry and Advanced Algebra. Laboratory exercises include experiments with light properties, measurement of radiation from celestial sources, and observations at local observatories and/or planetariums.

Prerequisites: A strong K-10 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Biology

The Biology curriculum is designed to continue student investigations of the life sciences that began in grades K-8 and provide students with the necessary skills to be proficient in biology. This curriculum includes more abstract concepts, such as the interdependence of organisms, the relationship of matter, energy, and organization in living systems, the behavior of organisms, and biological evolution. Students investigate biological concepts through experience in laboratories and field work using the processes of inquiry.

***The state-mandated Georgia Milestones End of Course Assessment is required and counts as 10% of a student's overall course average.**

Prerequisites: A strong K-8 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Biology II

See Human Anatomy & Physiology.

Honors Biology

The Biology curriculum is designed to continue student investigations of the life sciences that began in grades K-8 and provide students with the necessary skills to be proficient in biology. This curriculum includes more abstract concepts, such as the interdependence of organisms, the relationship of matter, energy, and organization in living systems, the behavior of organisms, and biological evolution. Students investigate biological concepts through experience in laboratories and field work using the processes of inquiry. Other topics and instructional methods specific to preparing students for the rigors of future honors science courses, Advanced Placement, and IB science courses are also included.

***Georgia Milestones End of Course Assessment is required and counts as 10% of a student's overall course average.**

Prerequisites: A strong K-8 science background, the ability to plan/carry out an investigation, analyze/interpret data, think independently, and write. Advanced middle school courses are recommended for student success.

AP Biology

AP Biology is an introductory college-level biology course. Students cultivate their understanding of biology through inquiry-based investigations as they explore the following topics: evolution, cellular processes—energy and communication, genetics, information transfer, ecology, and interactions. Students are expected to take the AP Biology exam in May. This course conforms to College Board topics for preparation for the Advanced Placement Biology Examination. This course requires a rigorous

college-level lab component and utilizes a college text. The prerequisites for this course as indicated by the College Board are successful completion of Biology and Chemistry.

Prerequisites: Biology and Chemistry. Honors are HIGHLY recommended for student success. Honors courses are AP prep courses.

IB Biology

The Biology HL course will provide students with higher-order investigative experiences and activities to promote a deeper understanding of critical concepts in Biology. Such concepts will include basic biochemistry, cell structure and function, genetic patterns of inheritance, plant form and function, evolution, ecology, animal physiology and the international nature of science. It emphasizes the development of inquiry skills and higher-order thinking via experiential learning. Students will be required to demonstrate knowledge in experimental methodology, data collection, and the interpretation of experimental data. The curriculum stimulates student understanding and open-mindedness by providing application to Theory of Knowledge (TOK) concepts and global connections will be discussed and integrated throughout the course.

IB Biology includes an internal assessment project that requires students to conduct an investigation in the field of biology research. It will also include a Group 4 collaborative project and an externally assessed IB exam at the end of the course.

Prerequisites: *By application only.

Chemistry

The Chemistry curriculum is designed to continue student investigations of the physical sciences that began in grades K-8 and provide students with the necessary skills to be proficient in chemistry. This curriculum includes more abstract concepts such as the structure of atoms, the structure and properties of matter, and the conservation and interaction of energy and matter. Students investigate chemistry concepts through experience in laboratories and fieldwork using the processes of inquiry.

Prerequisites: Biology and Algebra: Concepts and Connections. Geometry: Concepts and Connections co-requisite.

Honors Chemistry

The Chemistry curriculum is designed to continue student investigations of the physical sciences that began in grades K-8 and provide students with the necessary skills to be proficient in chemistry. This curriculum includes more abstract concepts such as the structure of atoms, the structure and properties of matter, and the conservation and interaction of energy and matter. Students investigate chemistry concepts through experience in laboratories and field work using the processes of inquiry. Other topics specific to preparing students for the rigors of an Advanced Placement course will be integrated

throughout the course. The rigor and instructional techniques will model the Advanced Placement course requirements as much as possible.

Prerequisites: Biology (honors highly recommended for student success) and Algebra: Concepts and Connections. Geometry: Concepts and Connections co-requisite.

AP Chemistry

AP Chemistry is an introductory college-level chemistry course. Students cultivate their understanding of chemistry through inquiry-based lab investigations as they explore the four Big Ideas: scale, proportion, and quantity; structure and properties of substances; transformations; and energy. Students are expected to take the AP Chemistry exam in May. This course conforms to College Board topics for the Advanced Placement Chemistry Examination. This course requires a rigorous college-level lab component and utilizes a college text. The prerequisite for this course as indicated by the College Board is successful completion of Chemistry.

Prerequisites: Chemistry and Advanced Algebra: Concepts and Connections. Honors/Accelerated HIGHLY recommended for student success. Honors courses are AP/IB prep courses.

IB Chemistry

The IB Chemistry SL course is a year-long, second-year chemistry course. This is a rigorous experimental science that combines academic study with the acquisition of practical and investigational skills, similar to a college-level introductory chemistry course. In-depth topics of study include models of the particulate nature of matter, models of bonding and structure, classification of matter, factors that drive chemical reactions, factors that determine the rate and extent of a chemical reaction, and mechanisms of chemical change.

Students are expected to take the IB Chemistry SL exam at the completion of this course.

Prerequisites: *By application only.

Earth Systems

Earth Systems Science is designed to continue student investigations that began in K-8 Earth Science and Life Science curricula and investigate the connections between Earth's systems through Earth history. These systems – the atmosphere, hydrosphere, geosphere, and biosphere – interact through time to produce the Earth's landscapes, ecology, and resources. This course develops the explanations of phenomena fundamental to the sciences of geology and physical geography, including the early history of the Earth, plate tectonics, landform evolution, the Earth's geologic record, weather and climate, and the history of life on Earth.

Prerequisites: A strong K-8 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Ecology

In this course, students will learn about the study of the distribution and abundance of life and interactions between and among organisms and their environment, including the impact of human activities on the natural world. It draws on elements from biology, chemistry, physics, mathematics, and the social sciences. This curriculum is lab and field-based. Whenever possible, careers related to ecology and relevant case studies will be emphasized.

Prerequisites: A strong K-8 science background, the ability to collect field data, analyze/interpret data, and draw conclusions about real-world implications.

Environmental Science

The Environmental Science curriculum is designed to extend student investigations that began in grades K-8. It integrates the study of many components of our environment, including the human impact on our planet. The concepts integrated into this course include: the flow of energy and the cycle of matter, interconnection of all life, stability and change in an ecosystem, conservation and resource allocation, and evaluation of human activity and technology.

Prerequisites: A strong K-8 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

AP Environmental Science

This course conforms to College Board topics for the Advanced Placement Environmental Science Examination. The major themes for this course as indicated by the AP Environmental Science course guide include Earth systems and resources, the living world, populations, land and water use, energy resources and consumption, pollution, and global change. Students are expected to take the AP Environmental Science exam in May. This course conforms to College Board topics for the Advanced Placement Environmental Science Examination. This course requires a rigorous college-level lab component and utilizes a college text. The prerequisites for this course as indicated by the College Board are successful completion of 2 science lab courses, specifically Biology and Chemistry.

Prerequisites: Biology, Chemistry and Algebra: Concepts and Connections. Honors HIGHLY recommended for student success. Honors courses are AP prep courses.

IB Environmental and Societies

Environmental Systems and Societies is an interdisciplinary course firmly grounded in both a scientific exploration of environmental systems in their structure and function, and in the exploration of cultural, economic, ethical, political and social interactions of societies with the environment. As a result of

studying this course, students will become equipped with the ability to recognize and evaluate the impact of our complex system of societies on the natural world. The interdisciplinary nature of the course requires a broad skill set from students, including the ability to perform research and investigations, participation in philosophical discussion and problem-solving. The course requires a systems approach to environmental understanding and promotes holistic thinking about environmental issues. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, knowledge transfer and use of primary sources. They encourage students to develop solutions at the personal, community and global levels. Students have the option to participate in a collaborative group project where students from different subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge. The emphasis is on interdisciplinary cooperation and the scientific processes.

Prerequisites: *By application only.

Epidemiology

The Epidemiology Georgia Standards of Excellence are designed to extend student investigations that began in biology. This curriculum is performance-based. It integrates scientific investigations using real-world situations to find patterns and determine the causation of pathological conditions. Instruction should focus on the design, implementation, and evaluation of studies to increase students' media literacy and their understanding of public health.

Prerequisites: Biology, Chemistry, and Human Anatomy & Physiology or AP Biology or Healthcare Pathway.

Forensics

The Forensic Science Georgia Standards of Excellence are designed to build upon science concepts from previous courses and apply science to the investigation of crime scenes. Students will learn the scientific protocols for analyzing a crime scene, chemical and physical separation methods to isolate and identify materials, how to analyze biological evidence, and the criminal use of tools, including impressions from firearms, tool marks, arson, and explosive evidence.

Prerequisites: Biology. Chemistry is HIGHLY recommended for student success.

Human Anatomy & Physiology

The Human Anatomy and Physiology curriculum is designed to continue student investigations that began in high school biology and chemistry. 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. The course integrates lab work with opportunities for dissection as well as exploration of careers related to medicine, research, health-care and modern medical technology while utilizing case studies concerning diseases, disorders and ailments.

*Students that successfully complete the Essentials of Healthcare course will also earn credit for Human Anatomy and Physiology as an embedded credit. Biology II may be scheduled for students interested in continuing advanced curriculum and dissections.

Prerequisites: Biology (honors level highly recommended for student success) and Chemistry.

Meteorology

The meteorology course is designed to build on the foundation laid by the Earth systems and Earth science courses. Students will learn that Earth is a dynamic system and Earth's atmosphere is a result of processes that took millions of years. The learner then takes this knowledge of the composition and characteristics of Earth's atmosphere and transfers it to delve into the factors that can cause short-term and long-term changes in Earth's atmospheric conditions. Students will learn that the Earth is an interacting system of both energy and matter. To understand the interaction, students must build on prior knowledge of matter and the factors that affect its behavior. In addition, throughout this course, students will use science inquiry skills, manipulation of appropriate lab equipment and demonstration of appropriate safety practices.

Prerequisites: A strong background in Earth Systems.

Oceanography

The Oceanography curriculum is designed to emphasize the interconnectedness of multiple science disciplines and the power to stimulate learning and comprehension across broad scales. Thus, students must have a basis in the major disciplines of physics, chemistry, geology, and biology, from which this cross-disciplinary thinking can be nurtured. Students will recognize that the ocean is a dynamic system reflecting interactions among organisms, ecosystems, chemical cycles, and physical and geological processes, on land, in air, and in the oceans. Students will investigate oceanography concepts through experience in laboratories and fieldwork using the processes of inquiry.

Prerequisites: A strong K-8 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Organic Chemistry

Organic chemistry is the study of the structure, properties, composition, reactions, and preparation of carbon-containing compounds. Most organic compounds contain carbon and hydrogen, but they may also include any number of other elements (e.g., nitrogen, oxygen, halogens, phosphorus, silicon, sulfur). Students will learn the concepts and applications of organic chemistry. Topics covered include aliphatic

and aromatic compounds, alcohols, aldehydes, ketones, acids, ethers, amines, spectra, and stereochemistry. A brief introduction to biochemistry is also provided. Post-AP Chemistry only.

Prerequisites: AP Chemistry

Physical Science

This course is designed as a survey course in chemistry and physics. This curriculum includes abstract concepts, such as the conceptualization of the structure of atoms, motion and forces, and the conservation of energy and matter, the action/reaction principle, and wave behavior. Students investigate physical science concepts through experience in laboratories and field work using the processes of inquiry.

***No EOC if taken in High School.**

Prerequisites: A strong K-7 science background, the ability to plan/carry out an investigation, and analyze/interpret data.

Physics

The Physics curriculum is designed to continue student investigations of the physical sciences that began in grades K-8 and provide students with the necessary skills to be proficient in physics. This curriculum includes more abstract concepts such as interactions of matter and energy, velocity, acceleration, force, energy, momentum, and charge. Students investigate physics concepts through experience in laboratories and fieldwork using the processes of inquiry.

Prerequisites : Geometry: Concepts and Connections and Algebra: Concepts and Connections. Have taken or concurrently taking Advanced Algebra: Concepts and Connections.

AP Physics 1

AP Physics 1 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics through classroom study, in-class activity, and hands-on, inquiry-based laboratory work as they explore concepts like systems, fields, force interactions, change, conservation, and waves. Students are expected to take the AP Physics 1 exam in May. This course conforms to College Board topics for the Advanced Placement Physics 1 Examination. This course requires a rigorous college-level lab component and utilizes a college text.

Prerequisites : Geometry: Concepts and Connections and Algebra: Concepts and Connections and Biology (honors highly recommended for student success). Have taken or concurrently taking Advanced Algebra: Concepts and Connections.

AP Physics 2

AP Physics 2 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics through classroom study, in-class activity, and hands-on, inquiry-based laboratory work as they explore concepts like systems, fields, force interactions, change, conservation, waves, and probability. Students are expected to take the AP Physics 2 exam in May. This course conforms to College Board topics for the Advanced Placement Physics 2 Examination. This course requires a rigorous college-level lab component and utilizes a college text.

Prerequisites: AP Physics 1. Should have taken or be concurrently taking Pre-Calculus.

AP Physics C: Electricity & Magnetism

AP Physics C: Electricity and Magnetism is a one-semester, calculus-based, college-level physics course, especially appropriate for students planning to specialize or major in one of the physical sciences or engineering. Students cultivate their understanding of physics through classroom study and activities as well as hands-on laboratory work as they explore concepts like change, force interactions, fields, and conservation. Students are expected to take the AP Physics C: E & M exam in May. This course conforms to College Board topics for the Advanced Placement Physics C: E & M Examination. This course requires a rigorous college-level lab component and utilizes a college text.

Prerequisites: Calculus and AP Physics C - Mechanics. Physics or AP Physics 1 is HIGHLY recommended for student success.

AP Physics C: Mechanics

AP Physics C: Mechanics is a one-semester, calculus-based, college-level physics course, especially appropriate for students planning to specialize or major in one of the physical sciences or engineering. Students cultivate their understanding of physics through classroom study and activities as well as hands-on laboratory work as they explore concepts like change, force interactions, fields, and conservation. Students are expected to take the AP Physics C: Mechanics exam in May. This course conforms to College Board topics for the Advanced Placement Physics C Examination. This course requires a rigorous college-level lab component and utilizes a college text.

Prerequisites: Should have taken or be concurrently taking Calculus. Physics or AP Physics 1 is HIGHLY recommended for student success.

IB Physics

IB Physics is concerned with an attempt to understand the natural world; from determining the nature of the atom to finding patterns in the structure of the universe. It is the search for answers from how the universe exploded into life to the nature of time itself. Observations are essential to the very core of the subject. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain the observations. Besides leading to a better understanding of the

natural world, physics gives us the ability to alter our environments. IB Physics enables students to constructively engage with topical scientific issues. Students examine scientific knowledge claims in a real-world context, fostering interest and curiosity. By exploring the subject, they develop understandings, skills and techniques that can be applied across their studies and beyond. Integral to the student experience of the IB Physics course is the learning that takes place through scientific inquiry both in the classroom and the laboratory. As students progress through the course, they become familiar with traditional experimentation techniques, as well as the application of technology. These opportunities help them to develop their investigative skills and evaluate the impact of error and uncertainty in scientific inquiry. The scientific investigation then places a specific emphasis on inquiry-based skills and the formal communication of scientific knowledge. Finally, the collaborative sciences project extends the development of scientific communication in a collaborative and interdisciplinary context, allowing students to work together beyond the confines of physics. The mandatory external assessment of physics consists of three written papers.

Prerequisites: *By application only.

Scientific Research I

Students will develop projects that are mostly suggested or required by their teacher. It is expected that these students will receive strong support from their teacher and their research projects could be completed in a timeframe of weeks. Presentation of the projects developed at this level will happen mostly in a classroom setting or a school site science fair.

Prerequisites: The ability to conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. ***Teacher Recommendation/Application Only

Required Presentation of Work - Local

Scientific Research II

Students will develop projects based on their interests. These projects may be related to topics that they are covering in any of their science courses or could expand on those ideas. It is expected that the students will receive some support from their teachers but they will be working mostly independently. Projects at this level could be completed in a timeframe of weeks to months. Presentations of the projects developed at this level will take place at regional or state science fair competitions, for example.

Prerequisites: The ability to conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

***Teacher Recommendation/Application Only

Required Presentation of Work - Local/State

Scientific Research III

Students will develop projects based on their interests. Projects at this level would be original in nature and will investigate students' ideas to solve a particular problem. It is expected that the students will work with someone outside the school setting as they work towards the solution to their problem. This type of project may take the whole length of the course to be completed. Students completing these projects are expected to present their solutions to the appropriate interest groups (i.e. a particular company, an interest group, etc.) or in settings like the Best Robotics competitions, Siemens, the High School Engineering Competition, etc.

Prerequisites: See SRI and SRII plus: Ability to explicitly draw on that preparation by referring to evidence from professionals and other research on their personalized topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas with interest groups or national/global competitions.

***Teacher Recommendation/Application Only

Required Presentation of Work - National/International

Scientific Research IV

Students will develop projects based on their interests. Projects at this level would be original in nature and will investigate students' ideas to solve a particular problem. It is expected that the students will work with a university professor or in an industrial setting to find the answer to their research question. This type of project may take the whole length of the course to be completed. Students completing these projects are expected to present their solutions to the appropriate interest groups (i.e. a particular company, an interest group, etc.) or in settings like the Best Robotics competitions, Siemens, the High School Engineering Competition, etc.

Prerequisites: See SRI, SRII, and SRIII plus: Ability to collaborate with university or industry partners and other research on their personalized topic or issue to present a thoughtful, well-reasoned exchange of ideas in a national/global competition.

***Teacher Recommendation/Application Only

Required Presentation of Work - National/International

FCS Middle School Advanced Studies

The Georgia Standards of Excellence serve as the foundation for all FCS courses. These standards require that students gain, evaluate, and present increasingly complex information, ideas, and evidence of learning. The standards recognize that students must be able to build knowledge, read, write, problem-solve, speak using academic language, and engage collaboratively with peers.

Courses in the FCS Middle School Advanced Studies Program are differentiated to meet the needs of gifted and advanced learners. Additional topics and skills integrated throughout each course will prepare students for further advanced opportunities (such as AP, dual enrollment, honors, etc.). The table below outlines examples of student behaviors and attitudes for course success:

Cognitive Engagement	On-Level Path	Advanced/Accelerated Path
Academic Discourse	Peer-to-peer discussions are <u>guided by specific prompts</u> within a structured lesson where students are: - Using discipline-specific language - Contributing ideas - Reasoning and justifying their thinking - Asking questions	In addition to peer-to-peer discussion, students <u>drive academic conversation</u> in a variety of ways, which may include: - Synthesizing to establish a collective understanding - Listening, comparing, critiquing, debating, and responding to peers - Refining ideas and building on other's contributions
Textual Analysis	Students are <u>reading and interacting with a variety of texts</u> (data sets, images, videos, infographics, essays, stories, poems, articles, etc.) by: - Developing and confirming knowledge - Explaining analysis or evaluation - Observing and asking questions	In addition to explanation, analysis, and evaluation, students will <u>initiate detailed observations</u>, which may include: - Engaging in multiple interactions with texts - Allowing for diverse interpretations and responses - Extending analysis beyond provided texts and topics, connecting across disciplines
Evidence-Based Writing	Through writing, students <u>demonstrate understanding and create explanations</u> by: - Making thinking visible - Receiving authentic feedback - Choosing evidence for explanations - Engaging in the writing process	In addition to writing to demonstrate understanding and create explanations, students will <u>analyze a variety of topics and texts</u> which may include: - Using sufficient and relevant reasoning and evidence - Independently synthesizing evidence from a variety of sources to support

	• Reviewing their work with peers • Selecting and evaluating evidence to support claims and develop reasoning • Using tools (sentence stems/frames, graphic organizers, models, etc.)	reasoning • Comparing and critiquing the arguments of peers • Monitoring and adapting with minimal support • Demonstrating an awareness of the audience
Application of Learning	Students will apply their <u>learning through authentic tasks</u> by: • Defining problems and creating solutions • Embracing innovation • Using technology to access information and display learning • Making connections • Engaging in cross-curricular and project-based experiences	Students will engage in <u>increasingly complex tasks</u> such as: • Exploring their unique interests and passions • Independently investigating complex problems • Demonstrating creative thinking • Designing cross-curricular and project-based experiences • Participating in content-related competitions
Learner Characteristics	In on-level courses, teachers will support students to <u>exhibit strong personal qualities and interact effectively</u> by: • Evaluating strengths, limitations, motivations, interests, and aspirations • Displaying integrity, perseverance, and drive • Accepting responsibility for their actions • Advocating for self, others, and the community • Working collaboratively with others • Developing short-term and long-term goals and celebrating achievements	In advanced courses, students exhibit strong personal qualities, interact effectively, and <u>monitor their own learning</u> by: • Evaluating strengths, limitations, motivations, interests, and aspirations • Finding purposeful driving questions • Adapting strategies to grow from mistakes • Practicing independently beyond assigned tasks • Employing resiliency, curiosity, and intrinsic motivation

*Sources include [The FCS Learner Profile](#), [Pre-AP Shared Principles](#), and [Self-Direction](#) rubric.