SCIENCE
(11-14-11)

MIDDLE SCHOOL SCIENCE

Earth and Space Science

Course Description: Earth and Space Science is the focus for the sixth grade curriculum. The units in this study include: Earth Materials (The Nature of Science, Matter, Minerals, and Rocks), Earth's Internal Processes (Plate Tectonics, Earthquakes, and Volcanoes), Earth's Air and Water (Atmosphere, Weather, Climate, Ocean Motion, and Oceanography), and Astronomy (Exploring Space, The Sun-Earth-Moon System, The Solar System, and Stars and Galaxies).

As these topics are discussed the design and organization of God's creation are emphasized. Efforts are made to align the physical evidences we see with the Biblical accounts of God's interplay with the world He prepared for man. Students will be involved with hands-on activities. A lab fee will be charged.

Grade Level: This course is taken by all 6^{th} graders.

Life Science

Course Description: In this course students will experience tremendous growth and development during the school year. This life science curriculum strives to help them with those changes as well as begins to teach pupils roles which they must assume in the living world of adults.

Life Science units include: Life's Structure and Function (Exploring and Classifying Life, Cells, Cell Processes, Cell Reproduction, and Heredity), Human Body Systems (Structure and Movement, Nutrients and Digestion, Circulation, Respiration and Excretion, Control and Coordination, Regulation and Reproduction, Immunity and Disease), and Ecology (Interactions of Life, The Nonliving Environment, and Ecosystems).

All aspects of human life and life in general are taught in view of Christian values and Biblical teaching. Man is

presented as the creation of God and as His special dwelling place.

Students will be involved in microscope studies as well as hands-on activities which may be experimental in nature. A laboratory fee will be charged.

Grade Level: This course is taken by all 7th graders.

Introduction to Physical Science

Course Description: This course is the link between the earlier middle school courses and those to be found in the high school curriculum. More emphasis is placed on the scientific method and combining reasoning and thinking skills with scientific knowledge.

Content for this curriculum includes: basic principles of chemistry (atomic structure, periodic table and bonding patterns); laws of motion; simple machines as well as various types of energy and their transformations.

Just as God created the earth and its life, He set into motion the physical laws that govern his creation. This course examines those laws in light of the scriptures. God's laws of nature are demonstrated and examined in hands-on activities and experiments. A lab fee will be required.

Grade Level: This course is taken by all 8th graders.

HIGH SCHOOL SCIENCE

Physical Science

Course Description: This course involves a study of the fundamentals of chemistry as well as a study of energy, motion, electricity, and matter, and their relation to and interactions with each other. A laboratory fee is charged for this course.

Grade Levels: This course is open to ninth graders, who do not score an average of 90 or higher in 8th grade science, or who enroll in Algebra IA, enroll in this course.

Biology

Course Description: This course involves the study of the conditions necessary for life, the continuity of life, taxonomy of the six biological kingdoms, and environmental ecology. Special attention is given to a comparison of the Biblical account of creation and the theory of evolution. Laboratories include, but are not limited to, microscope work, dissections and activities to demonstrate various biological concepts. A lab fee is charged.

Grade Level: This course is taken by 9th & 10th grade students. Ninth grade students must have completed 8th grade science with an average of 90 or higher and are enrolling in Algebra I (year long) in order to enroll in biology.

Chemistry

Course Description: Chemistry is required at ACA. Topics included in this course are atomic theory, formulas and equations, phases of matter, solutions, carbon compounds, reactions, period three elements, metals and electronegative metals and stoichiometry. Basic laboratory safety and procedures are also covered. A laboratory fee is charged.

Grade Levels/ Prerequisites: This course is for students in grades 10-12 who have completed and passed Biology and Algebra 1 or Algebra 1-A and 1-B.

Anatomy & Physiology

Course Description: This course includes the study of the anatomy and physiology of each of the human body systems as well as common diseases and disorders of these systems. Human reproductive behavior and general care of the body are approached from a Christian viewpoint. Laboratory work includes dissections, microscope studies and other student participation activities. A laboratory fee is charged. Credit may not be received in both Medical and regular Anatomy & Physiology.

Grade Levels/ Prerequisites: This course is available to students in grades 11 and 12 who have completed Biology and Chemistry.

Medical Anatomy & Physiology

Course Description: This course includes the examination of the anatomy and physiology of each of the human body systems as well as common diseases and disorders of these systems. Human reproductive behavior and general care of the body are approached from a Christian viewpoint. Laboratory work includes dissections, microscope studies and other student participation activities. This course is set apart from the Anatomy & Physiology course in that the students will be required to write abstracts of articles of medical interest and one term paper during the year. The pace of the material will be accelerated to accommodate guest speakers. A laboratory fee is charged. Credit may not be received in both Medical and regular Anatomy & Physiology.

This course will satisfy the Science Department requirement for an Advanced Diploma.

Grade Levels/ Prerequisites: This course is available to students in grades 11 and 12 who have completed Biology and Chemistry.

Physics

Course Description: This course involves the study of motion (force, velocity and acceleration), wave theory, sound, optics, electricity, magnetism and quantum theory. A laboratory fee is charged.

Grade Levels/ Prerequisite: This course is open to students in grades 11 and 12 who have completed Algebra 2 with a final average of 78% or higher. Enrollment in or completion of pre-calculus with trigonometry is required.

This course will satisfy the Science Department requirement for an Advanced Diploma.

Honors Biology

Course Description: This is an honors course which carries an honor point when figuring students' grade point averages. Topics covered in this study include the nature of science, biochemistry, cell structure and function, biological processes, taxonomy, and ecology. Emphasis is given to the development of scientific thinking through laboratory activities. An awareness and sense of responsibility of ethics in science as well as an appreciation of our environment is fostered. A laboratory fee is charged.

Grade Levels/ Prerequisite: This course is ONLY available to students in grades 11 and 12 who have completed Biology and Chemistry. Credit may not be earned in both Honors Biology and Advanced Placement Biology.

Advanced Placement Biology

Course Description: AP Biology is a college level course designed to meet the specifications of the College Board for a first year course in biology. Because most college biology courses provide 4 or 5 hours of credit it will be necessary for students to meet for 2 class periods each day. Students will receive 2 science credits for AP Biology. Outside reading and study materials will be a major part of this course. The student should be highly motivated and willing to accept an academic challenge. An honors point will be added to the student's grade for each semester's credits.

This course will focus on the major themes in biology, specific content and laboratory activities. All students who complete this course will be required to take the Advanced Placement exam. Those who score well usually receive college credit based on the Advanced Placement policy of the student's chosen college. A fee will be charged.

Credit may not be earned in both Honors Biology and Advanced Placement Biology. A more detailed description of course content and requirements is available from the science department chairperson.

Grade Level: AP Biology will satisfy the science requirement for 11th or 12th grade students.

Prerequisite: Completion of Biology and Chemistry

***Exceptions to science department grade levels/ prerequisites will be considered on an individual basis by the teacher and science department head.

PHYSICAL EDUCATION

Health

Course Length: One Semester

Course Description: In this required course students learn how to live longer, happier and healthier lives. Study consists of healthful growth and development in four areas – mental, social, physical and spiritual. Pupils learn many practical skills including first aid, CPR, and positive peer pressure techniques. Resource speakers, videos and computer programs will be used to enrich the basic facts, concepts and principles presented by the text. A fee is charged for this course.

Grade Level: This course is taken by all students. It is usually taken in the 9th or 10th grade or by older transfer students who have not taken it before enrolling at ACA.

Driver's Education

Course Description: ACA's Driver Education class is taught by a certified instructor and the student will receive a certificate of completion at the end of the course. The class will consist of six weeks of classroom instruction and six hours driving instruction. Driving will not occur until a student has obtained a learner's permit.

Prerequisite: Students who have already obtained an Alabama Driver's Permit or Driver's License OR will receive a permit by the beginning of the class session will be eligible to take the class. There will be a $300 fee which will help offset the cost of car maintenance and fuel.

P.E.

Course Description: This required course is designed to develop physical skills, self-discipline, leadership, citizenship and sportsmanship in students. Strength, endurance, flexibility, range of motion, agility, and coordination are all areas targeted for improvement during the course of this program. Students will also learn the rules for various sports and engage in followup applications via game experiences. Such games will include: flag football, kickball, volleyball, badminton, whiffle or nerf baseball, relay races, basketball, tennis, archery, soccer, softball, and bowling. Students are also taught the different components of health, and fitness. They engage in various activities that promote health and are encouraged to work on improving their personal health and fitness levels.

Grade Level: This course is required for all 6th, 7th, 8th and 9th graders or for transfer students who have not taken it or an equivalent. Band is accepted as a substitute for this course.

Weight Training

Course Description: This program is offered to all athletes in grades 7-12. Participation in one or more school-sponsored sports and off-season workouts are required. The coaching staff will verify participation. The purpose of this course is to provide athletes with an opportunity to develop strength, endurance and flexibility during the daily school schedule.

Grade Levels: These courses are available to all athletes in grades 7-12 with the approval of the Athletic Director.