

Northshore Christian Academy Science Program Curriculum 2012-2013

Elementary School Science Program

Kindergarten

The students will explore and experience a variety of areas within the field of science including life, physical, and earth sciences through the use of reading, research, discussion, participation in group and individual projects, and the utilization of science experimentation. Content will include Leaves/Trees, Pumpkins, Weather, Insects, Plants, Planets, Animal Families, and Float/Sink.

1st Grade

Students will learn 5 science topics. Students will rotate through all classrooms for 6 weeks of multisensory lessons on Space, Balance and Motion, Water, Rocks, and Plants. Students will utilize the process skills such as observe, classify, predict, and infer to communicate ideas about science by speaking and/or writing. Students will have opportunities for integrating reading, art, language arts, math, social studies, and Bible.

2nd Grade

Science is a yearlong science program that integrates direct instruction; inquiry based instruction and differentiated instruction. Hands on science kits, technology resources and textbooks are used as learning tools. Sciences units include life science, earth science, physical science, space and technology. Based on inquiry-rich content with a sequence of structured and supportive inquiry activities, the science curriculum provides materials for both students and teachers in print, video, and online. This method of developing scientific knowledge is called scaffolded inquiry and is aimed at developing the independent investigative skills of the students through hands-on activities and through the use of text materials. Classroom science kits provide for hands-on activities designed to maximize the students' time on exploration and data gathering provide the substance of the inquiry-driven investigations. Leveled Readers are used to differentiate instruction by providing at and above grade level material.

3rd Grade

The students will explore and experience a variety of areas within the field of science including life, physical, and earth sciences with a focus on the scientific process. Science is a yearlong science program that integrates direct instruction; inquiry based instruction and differentiated instruction. Hands on science kits, technology resources and textbooks are used as learning tools. Sciences units include life science, earth science, physical science, space and technology. Based on inquiry-rich content with a sequence of structured and supportive inquiry activities, the science curriculum provides materials for both students and teachers in print, video, and online. This method of developing scientific knowledge is called scaffolded inquiry and is aimed at developing

the independent investigative skills of the students through hands-on activities and through the use of text materials. Classroom science kits provide for hands-on activities designed to maximize the students' time on exploration and data gathering provide the substance of the inquiry-driven investigations. Leveled Readers are used to differentiate instruction by providing at and above grade level material.

4th Grade

Science is a yearlong science program that integrates direct instruction; inquiry based instruction and differentiated instruction. Hands on science kits, technology resources and textbooks are used as learning tools. Science units include life science, earth science, physical science, space and technology. Based on inquiry-rich content with a sequence of structured and supportive inquiry activities, the science curriculum provides materials for both students and teachers in print, video, and online. This method of developing scientific knowledge is called scaffolded inquiry and is aimed at developing the independent investigative skills of the students through hands-on activities and through the use of text materials. Classroom science kits provide for hands-on activities designed to maximize the students' time on exploration and data gathering, which provide the substance of the inquiry-driven investigations. Leveled Readers are used to differentiate instruction by providing at and above grade level material.

5th Grade

Students will learn that God is the creator and sustainer of all life. Order is found throughout all of God's creation. Students will learn that nature operates on orderly principles and that we may learn more about God's creation by investigating the world around us. Students will learn and use the scientific method to investigate scientific concepts. Science is a yearlong science program that integrates direct instruction, inquiry based instruction and differentiated instruction. Hands on science kits, technology resources and textbooks are used as learning tools. Science units include life science, earth science, physical science, space and technology. Based on inquiry-rich content with a sequence of structured and supportive inquiry activities, the science curriculum provides materials for both students and teachers in print, video, and online. This method of developing scientific knowledge is called scaffolded inquiry and is aimed at developing the independent investigative skills of the students through hands-on activities and through the use of text materials. Classroom science kits provide for hands-on activities designed to maximize the students' time on exploration and data gathering and provide the substance of the inquiry-driven investigations. Leveled Readers are used to differentiate instruction by providing at and above grade level material.

Middle School Science Program

Students will explore God's creation of the universe, life, technology, and the interaction of natural systems. Using the scientific method, with hands-on experiments, students will deepen their understanding and application of science.

General Science (Grade 6)—Required: 2 semesters

Students explore the diversity and intricacy of God's creation in the area of physical science. Students will be expected to critically analyze scientific concepts using a Biblical worldview. Emphasis will be on the scientific process and God's sovereign creation. Students will be challenged intellectually as they ask questions, gather research, design procedures to test their hypotheses, determine the type and amount of data to collect, and formulate a response that communicates and justifies the outcome. Students study from the Prentice Hall Science Explorer: Electricity and Magnetism text.

Chemistry and Earth Science (Grade 7)—Required: 2 semesters

Geology is a one-quarter course taught in the seventh grade. It is usually taught in the first quarter of the year. The course begins with an introduction to Geology and God's creation of the Universe. Students will be taught God's creation as outlined in Genesis, the Big Bang Theory and other alternative theories. While it is a fundamental belief of this church and school that the Bible presents the absolute truth, students should be exposed to theories taught in many public high schools and universities. The introduction concludes with a review of famous scientists throughout history, many of whom were Christian.

Students next study minerals, ores, and the three types of rocks (sedimentary, igneous, and metamorphic). Students will learn the characteristics of common specimens and will be able to identify them. The course concludes with a study of plate tectonics, volcanoes, earthquakes and safety precautions regarding earthquakes. The students will participate in a variety of labs, investigations, and will be encouraged to visit a local gem and mineral show. The students will also develop a power point presentation on an aspect of Geology or Oceanography. Geology should provide the students an appreciation for the enormity and beauty of God's creation

Chemistry is taught as a one-quarter course in the seventh grade. It is usually taught in the second quarter of the year. The course provides the students with an introduction to matter, with an emphasis on the differences between solids, liquids, and gases. The students also study gas behavior, including Boyle's Law and Charles' Law. The students learn about the Periodic Table and how it is used to predict the behavior of various elements. The structure of atoms is presented with an emphasis on the valance electrons and how they combine to form molecules. Students participate in Chemistry Labs and Investigations including using molecular models to construct molecules. Chemistry should provide the students an appreciation for the detail and organization of God's creation.

Meteorology is a one-quarter course taught in the seventh grade. It is usually taught in the third quarter of the year. The students study the characteristics of our atmosphere including the layers of the atmosphere. There is an emphasis on environmental responsibility for the quality of our atmosphere. The students study weather, including weather predicting, masses, fronts, precipitation, severe storms and safety from those storms. There is special attention paid to the weather in Northwest Washington and how it is influenced by the mountains and the ocean. The course concludes with a review of climates. The students participate in labs, investigations, weather mapping activities, and develop a power point presentation on an aspect of meteorology. Meteorology should provide the students an appreciation for the life cycles, diversity and beauty of

God's creation.

Astronomy is taught as a one-quarter course in the seventh grade. It is usually taught in the fourth quarter of the year. Students study the history of astronomy, the development of the telescope and the mapping of the stars. There is an emphasis on stars and their life cycle, galaxies, and planets in our solar system. Students will participate in labs and investigations, including observing terrestrial and celestial objects using the telescope. Astronomy should provide the students an appreciation for the enormity and beauty of God's creation.

Life Science (Grade 8) —Required: 2 semesters

In this content course, students learn about life science facts, systems and vocabulary. Participants will observe, draw, dissect, apply critical thinking skills and use the scientific method. Life Science topics include taxonomy (classification), cellular biology, molecular biology, a special unit on chemistry, the tissues and structures of plants and animals, cellular respiration and photosynthesis, ecology, and the systems of the human body. The objectives of this course are mastery of basic life science facts along with the development of interest in and enjoyment of the amazing living things our Creator has designed.

Pre-AP Physics (Grades 7 – 8)—Elective: 1 semester

Pre-AP physics introduces students to the study of nature in its most simple form. Topics covered include one and two dimensional motion, Newton's Laws, forces, vectors, gravity, momentum, work and energy. Also considered are wave motion, sound, light and electricity.