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The mission of The Birches Academy is to cultivate a learning community that promotes excellence in core academics and the arts while valuing the individual qualities and strengths of each child.

Grade 7 and 8 at a Glance

ENGLISH LANGUAGE ARTS

The Language Arts curriculum is aligned to the ELA Common Core (<http://www.corestandards.org/ELA-Literacy/>), which outlines grade-level expectations in the form of standards. The grade-specific standards are categorized as reading, writing, language and speaking and listening. Students engage in a variety of activities while building language arts skills through an arts integration approach to learning.

The teachers at Birches Academy utilize a variety of instructional strategies and multiple resources to meet the needs of all learners. These strategies include mini-lessons, small group instruction, independent reading and writing sessions, which focus on process. Students enrolled in The Birches Academy of Academics and Art can expect to develop proficiency in all four areas of the Common Core as they advance through the grade levels.

Overview of Expectations

- Support analysis with textual evidence and draw inferences.
- Consider literature from different genres and determine the relationship to characters, setting and the plot.
- Discuss various techniques that authors employ to create suspense or humor.
- Evaluate the accuracy of a drama or poem to its multi-media version.
- Demonstrate proficiency in English grammar and usage and punctuation.
- Write a variety of pieces ranging from arguments to narratives and informative using effective techniques.
- Examine the process of writing with a focus on organization, style, draft and revision.
- Explore the use of technology and the opportunity to collaborate in the completion of a project-based assignment.
- Engage in collaborative discussions and prepare articulate ideas, claims and findings.

Compare & Contrast!

Make Inferences!

MATHEMATICS

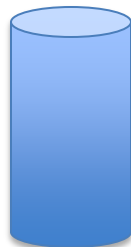
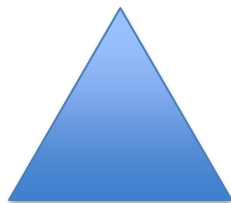
The mathematics curriculum is aligned to the Mathematics Common Core (<http://www.corestandards.org/Math/>) with a focus on concept development, big ideas and the essentials of understanding. The Mathematics Common Core is comprised of strands and specific grade-level standards that define what students should know and be able to do. The grade 7 strands include ratios and proportional relationships, the number system, expressions and equations, geometry, statistics and probability. The grade 8 strands reinforce and expand upon the grade 7 strands and introduce functions.

The instructional resource in grades 7 and 8 is Houghton Mifflin's *Big Ideas in Math*. Teachers combine instruction with hands-on activities where students apply knowledge, reason abstractly, explain mathematical rules and further develop procedural skills to solve problems. The instructional approach allows for the daily reinforcement of mathematical processes and operational skills as students gain a deeper understanding of each strand and demonstrate proficiency in grade-level expectations. Based on assessment student may engage in advanced mathematical studies consistent with the learning progression.

Overview of Expectations

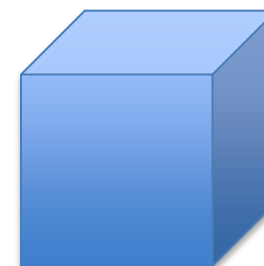
Grade 7

- Use proportional relationships to problem solve.
- Add, subtract, multiply and divide rational numbers.
- Use numerical and algebraic expressions to solve problems.
- Draw and identify geometrical figures
- Solve problems related to angles, area, and volume.
- Make informal comparative inferences about two populations and draw inferences.
- Evaluate probability models.



$$h^2 = a^2 + b^2$$

$$2x + 4y$$



Grade 8

- Solve problems using radical and integer exponents.
- Analyze and solve linear equations.
- Gain an understanding of functions.
- Define congruence and explore geometry software.
- Apply the Pythagorean theorem.
- Solve for volume of cylinders, cones and spheres.
- Compare data from two variables.

SCIENCE

The science curriculum is aligned to the Next Generation of Science Standards (<http://www.nextgenscience.org/next-generation-science-standards>), a framework for K-12 Science education developed through a collaborative process. The framework is comprised of three disciplinary areas including physical science, life science, and Earth and space science where instruction is guided by grade-level performance expectations. A fourth area—engineering, technology and applications of science—identifies performance expectation by grade span.

The focus of study in grade 7 is life sciences including diversity of life, cells and heredity and the human body. The focus of study in grade 8 is the Earth and space including the Earth-sun-moon system, gravity and events that continually change the Earth's surface. Science instruction combines classroom discussion, hands-on activities, experiments and research. The science instructional resource, Pearson *Interactive Science*, provides for a blended learning experience and features write-in student modules along with an e-learning digital path.

Overview of Expectations

Year A

Life Sciences

- Understand that living things are made of different cell types.
- Describe the function of the cell.
- Identify specific parts of a cell that contribute to a function.
- Describe sensory receptors and transmission of signals.
- Understand that changes to genes located on chromosomes may result in harmful, beneficial or no changes in an organism.
- Compare and contrast asexual and sexual reproduction.
- Compare patterns of embryologic development to better understand the relationship between species.
- Understand that genetic variation of certain traits may increase the probability of survival rate of a given population.
- Describe the role of photosynthesis and the flow of energy.
- Study patterns in fossil record that document the history of life on Earth.

Year B

Earth and Space Science

- Describe the patterns of lunar phases, and eclipses of the sun and moon.
- Describe the role that gravity plays within the solar system.
- Investigate the geologic time scale to organize Earth's 4.6-billion-year-old history.
- Identify the processes of erosion and weathering.
- Research plate tectonics and plate motion and relate to the changing Earth's surface.
- Describe the water cycle and the movement of water through the Earth.
- Identify the primary air masses that result in changes of weather across the United States.
- Recognize that the unequal heating of air and the rotation of the Earth cause patterns of circulation affecting climate.

SOCIAL STUDIES

The social studies curriculum is aligned to the New Hampshire State Curriculum Framework for Social Studies (http://www.education.nh.gov/instruction/curriculum/social_studies/documents/frameworks.pdf). The Framework is divided into five content strands including civics, economics, geography, New Hampshire and United States history, world history and contemporary issues. Instruction combines classroom discussion, project-based learning, current topics in history and research.

Overview of Expectations

Year A

Geography

- Make connections between geographic regions using maps.
- Identify air and water transportation routes.
- Discuss conflicts and political causes of regional divisions.

US and NH History

- Explain the rationale for entering into war.
- Explore how American ideals and economics influence US foreign policy.
- Identify the societal changes that influence family-child labor and elder care.
- Examine the expansion of suffrage across the nation.
- Trace the role that New Hampshire voters have played in presidential primaries and elections.

World History

- Explore the use and abuse of power that results in mass murder and genocide.
- Consider the causes and impacts of the spread of disease.
- Explore the influences on architecture.

Year B

Civics and Government

- Explain why limiting the powers of government is essential to the protection of individual rights.
- Explore the Constitution of the U.S. and the Bill of Rights
- Understand the importance of countries working together to resolve problems—UN, NATO and the EU.
- Analyze environmental, economic and technological developments and their impact on society.
- Describe how Americans participate in civic and political life at the local, state and federal levels.

Economics

- Understand the principle of supply & demand.
- Discuss the stock market and its effect on the economy.
- Explain how interest rates affect individual decisions such as saving, borrowing or lending money.
- Explain the impact of government policies such as tariffs, quotas and embargoes on trade.
- Recognize the role of economics in international diplomacy.

ART

The art program provides students with an opportunity to reflect on art forms with an appreciation and passion for the arts. Students use the vocabulary of art and their knowledge of colors, tones and shades to demonstrate creativity and growth through individual artwork. Mediums, textures and artist tools continue to be of importance to the further study of art. Teachers work collaboratively with the art teacher to give students every opportunity to express thoughts and ideas through the arts.

Overview of Expectation

Drawing

- Create drawing depicting a variety of trees.
- Explore advanced techniques of incise and press.



Paper Mache

- Create skeletal bones using various techniques.



Construction Studio

- Create two-dimensional maps with a focus on visual interest and accuracy.
- Explore and create landmark structures such as bridges and tunnels.

MUSIC

The music program is designed to instill a love of music and an introduction to the art of music. The study of both vocal and instrumental music provides the opportunity for further growth in music and an understanding of musical elements. Students participate in selected performances and serve the Birches school community. Teachers work together to ensure that students have every opportunity to express thoughts and ideas through the arts.

Overview of Expectations

- Continue to study music as a subject.
- Gain an understanding of musical elements including rhythm, melody, harmony and style.
- Engage in performances both individually and as a group.



FOREIGN LANGUAGE

The Grade 7 and 8 Foreign Language program provide students with an entire year of level one Spanish. Studies are conducted through the Virtual Learning Academy Charter School (VLACS) where one semester equals one year of study. Students earn high school credit at the end of Grade 8 and completion of both semesters.

Overview of Expectations

- Instructor facilitates and assists students in maintaining pace and language immersion.
- Students are expected to network and communicate with fellow classmates after school and in the evening.
- Completion of both semesters of VLACS is required for high school credit.



¡Hola!

PHYSICAL EDUCATION

Students participate in age appropriate, safe and effective physical activities based on the New Hampshire K-12 Physical Education Curriculum Guidelines. The program encourages students to perform a variety of physical activities that focus on building motor skills and the qualities of movement. A pre and post "Pacer" assessment is conducted to determine cardiovascular endurance. This assessment demonstrates student growth and indicates what students need to improve on and/or maintain for physical health and well-being.

The content has been curated from the Common Core ELA and Math, Next Generation Science Standards (NGSS), and the K-12 NH Social Studies Curriculum Framework (July 2014).