

**BUCKINGHAM BROWNE & NICHOLS
LOWER SCHOOL**



**CURRICULUM OVERVIEW
GRADE FOUR
2022-2023**

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*** Includes Language Arts, Mathematics and Social Studies instruction**

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GRADE FOUR CURRICULUM OVERVIEW

Language Arts

Language Arts activities and lessons are taught daily and focus on developing skills in the areas of listening, speaking, reading and writing. Lessons are often integrated with other curricular areas. In fourth grade:

- Reading instruction focuses on comprehension and analysis of a variety of fiction and non-fiction texts.
- Read alouds and independent reading occurs on a regular basis in class, and children are expected to read at home daily.
- Children participate in literature circles to build meta-cognitive skills and practice peer discussions.
- Students develop the process of writing, which includes drafting, conferencing with peers or teachers, improvements through revising and editing.
- Students also use pre-writing strategies such as graphic organizers to plan their writing on some assignments.
- Grammar and mechanics are taught as group lessons and may be reviewed individually during teacher or peer conferences.
- Students experiment with writing various genres
- Spelling rules and patterns are reviewed and taught. Additional spelling words and vocabulary come from reading material and word frequency lists.
- Handwriting instruction builds fluency in cursive and extends usage with the goal of using cursive for some assignments.
- Formal and informal assessments and evaluations occur throughout the year.
- Reading specialists work with the homeroom teachers to plan consistent, interconnected lessons and to provide additional support for children who are in need of further help in developing language arts skills.

Social Studies

The social studies curriculum aligns with the science program, and begins with an in-depth study on electricity and different forms of renewable energies. Through readings, cooperative projects, research and discussion, students develop and practice skills while becoming more aware of environmental issues. Students examine their relationship with nature, and explore the ideas of conservation and stewardship. Students also investigate the natural resources that exist across the fifty states and abroad.

Students learn valuable research skills as they explore four sources of renewable energy (fuel cell, wind, solar, and hydro), and interact with experts both on and off campus to further their understanding of how these energy sources work. Students use various platforms to educate others on sustainability, and the importance of renewable energies for the future of the planet. Through exhibits and publications, students develop their communication and presentation skills.

In the later part of the year, the curriculum shifts to focus on how change is created through systems of government, and how, in a democracy, people can bring about

Social Studies (continued)

change through advocacy. Students look at the American Constitution and the structure of government, examining the roles of the different leaders, and are able to describe the responsibilities of government at the federal, state, and local levels. The students address the larger question of what it means to be an American, and look at different systems of government around the world.

Mathematics

At BB&N we believe that math should be joyful and engaging. Our program grows children's fluency with numbers and is rich in numbers-based experiences. We provide opportunities at every level for students to engage in mathematical explorations, to reason mathematically, and to express their ideas. We strive to strike a balance between larger conceptual understandings and specific skills and procedural fluency. We believe that all of our students can and will learn math.

Fourth graders solidify the foundation of whole number operations, building their proficiency with multiplication and division. Students extend their knowledge of the number system to both larger whole numbers (millions and beyond) and with decimals. In fourth grade students build a conceptual understanding of fractions with simple operations and applications. Angles in triangles are used to extend the students' ability to classify shapes.

Fourth grade uses high quality, research-based resources including the *Bridges in Mathematics* curriculum. Classes are co-taught by the homeroom teacher and a math specialist with an interactive approach in whole group investigations, small group activities, and individual practice. Students continue having math homework a few times a week.

In fourth grade students will:

- Work with the number system in whole numbers and decimals
- Estimate using a variety of approaches including rounding numbers
- Fluently recall multiplication combinations to 12x12 and related division facts
- Find factor pairs for a number and find common multiples
- Multiply multi-digit numbers
- Divide whole numbers with a single digit divisor with and without remainders
- Find equivalent fractions, compare and order fractions
- Add and subtract fractions with common denominators
- Read, write, and order decimals
- Classify regular and irregular polygons using attributes such as angles and lines
- Use efficient strategies to model and solve multi-operation problems
- Represent problems using equations

Science

The fourth grade curriculum emphasizes exploration, collaboration, and innovation. Our highly integrated curriculum combines science, social studies, reading, writing and art to create a year long study on sustainability, in particular, sustainable cities. Connections are drawn between the different subject areas, and students are able to view all these topics through different perspectives, whether it be through the lens of a scientist, a poet, or a critical thinker. Woven throughout the curriculum are discussions on values, respect, and the responsibility our students have as members of our community, and of the world. The curriculum is aligned with BB&N's Global Competencies Framework and highlights many of the UN Sustainability Goals. In doing so, the curriculum allows fourth graders to develop a global mindedness that can carry them beyond our classroom as they become lifelong learners and effective activists for change.

Below are some highlights of the topics and skills that fourth graders employ.

Practicing Observation, Experimentation Skills and Communication

- Investigate the properties of a lens while observing common household items.
- Learn the parts of a microscope and its correct use.
- Use the microscope to observe a natural object and create a detailed scientific drawing.

Mapping

- Communicate effectively to direct someone to an unknown location on campus using a map.
- Create a map to direct someone to the Middle School or Upper School campus.
- Explore and understand the maps of Cambridge and Boston.
- Create a map of Cambridge and Boston in the past and present day.

Fossil Fuels, Alternative Energy Sources and the Environment

- Acquire note taking and research skills to understand Energy.
- Plan and design electric generators that can power an LED bulb using copper wire, cardboard and magnets.
- Discuss common environmental and relevant environmental problems occurring in the world.
- Compare and contrast different means of producing electricity from fossil fuel burning to clean technologies.
- Investigate solar, wind, and hydropower technologies while assembling science kits.
- Recommend sources of energy that will be the most effective and sustainable during the planning and designing of a sustainable city of the future.

Astronomy – Navigation and Colonization

- Explore how humans have navigated using the stars.
- Research the solar system to understand which planets could be habitable in the future and why.
- Design a sustainable human colony on another planet (if time allows).

Lower School World Languages

Our goal is to help students to build a foundation for future language learning and to be prepared to communicate as global citizens of an interconnected world. To do this, we want to highlight and embrace student identities and provide an environment where they are comfortable taking risks and applying a growth mindset to language learning.

The Lower School World Language Department uses an approach to teaching languages that focuses on proficiency and communication in an engaging and low stress environment. Teaching with comprehensible input prioritizes the delivery of understandable messages that are personalized, meaningful, interesting and relevant to our students. The goal of our classes is for students to acquire Spanish or French through communication and active participation. When age appropriate, we aim to spend at least 90% of our classes in the target language focusing on listening and reading to provide input (as opposed to formal vocabulary and grammar instruction).

We also strive to provide opportunities to explore other cultures and to do interdisciplinary work that allows students to connect and expand upon what they are learning in other places.

Fourth graders explore Spanish or French twice a week for 45 minutes each time. Spanish students continue to build upon their foundational skills from B-3 while French students are beginning the language for the first time. In both languages, speaking/listening warm-ups, daily routines and closing activities create predictable structure to support confidence and practice content learned in class. Students are expected to speak the target language in class and are supported and encouraged to do so with a variety of strategies. Class content strives to be engaging, focused on high-frequency words, and connected to meaningful content for the student. Repetition and spiral techniques allow students to begin to build proficiency and overall comfort in the language. Typical classroom activities include songs, reading, story listening, drawing, writing, short video clips, projects, role playing, and games.

Information Science/Library

Fourth grade students visit the library once a week in half groups for book selection, book talks, search skills and stories. Topics covered include:

- Practice using sites like FEMAkids, NASAkids, Google Earth, World Book Student Online and World Atlas online to find information.
- Using the school library catalog to locate books by author, title, keyword and subject.
- Using and comparing print nonfiction and electronic materials such as National Geographic Kids and articles they find using 'Kiddle'.
- Using websites posted on the school library homepage to explore different kinds of information.

Information Science/Library (continued)

- Practice choosing appropriate sources to gain confidence with using different reference tools.
- Discussing literature in small and whole group settings; using terms of character, setting, plot, themes and point of view, as well as personal response.
- Writing short book reviews to post on the school library website.

Technology

At the BB&N Lower School, it is our intention to integrate technology into the classroom in meaningful ways, and our goal is to teach students the skills necessary to be successful throughout the school year as well as to prepare them for future years.

Coding:

In the technology lab students are taught coding using the Scratch programming language. In a safe and inclusive lab setting students are given the freedom to create and work on projects that are engaging to them. They are free to work autonomously or (when appropriate) they can collaborate on projects.

Responding to students' individual learning style, lab learning goals are set (as needed) that allow students to work at their own pace. Engaging project ideas and observational learning are used to deliver a rigorous learning experience for the students.

Robotics:

Students are presented with engaging open-ended real-world problems. They work in teams to develop solutions. Students **begin** to formally learn about critical thinking and apply it to lab challenges. Students take turns playing a leadership role as they build knowledge and develop ideas thru research and observation.

Students continue to:

- Develop their executive function skills
- Define their own personal learning goals
- Develop the skills required to collaborate on joint project
- Develop their communications skills by sharing project ideas and expressing them non-verbally (storyboarding)

Music

Curriculum Statement: Fourth grade students will engage in practicing, performing, improvising, and creating music using their voice, various types of drums, and other percussion instruments. All concepts listed below will be explored through a diverse

Music (continued)

repertoire of songs while highlighting various indigenous and oral tradition based music genres. Students will engage in listening exercises to expand their knowledge of different styles of music and will also explore the historical background and contextual aspects of the repertoire.

Key Musical Concepts:

- Rhythm
 - Explore rhythmic concepts of: syncopation, polyrhythm, ostinato, call and response, and improvisation
 - Listen to, perform, and identify time signatures and rhythms building on concepts covered in grade 3.
 - Time signatures: 12/8
 - Sixteenth notes, eighth and sixteenth note variations

Melody and Harmony

- Utilize solfege to identify treble clef notes, major/minor/major pentatonic scales
- Learn 2- or 3-part split vocal pieces and multi-instrumental accompaniments
- Demonstrate artistic melodic phrasing on voice and various classrooms instruments utilizing proper technique
- Identify and read treble clef keys and melodic passages using solfege
- Learn various songs

Form and Composition

- Listen to, identify, learn, and perform multi-part vocal and instrumental pieces
- Compose and improvise multi-instrumental arrangements

Articulation, Dynamics, and Tempo

- Continue work from grade 3 to identify proper forms of musical articulation, dynamics, and tempo as appropriate to the musical literature explored
- Students will focus on deep listening skills, rote instruction, intuiting the music, and the improvisatory aspects of the genres explored.
- Timbre
 - Watch, listen to, discuss, and identify musical instruments using the Western European Classical model (brass, woodwind, percussion, and strings) and the [Hornbostel-Sachs](#) classification system.

Integrated Arts

The goal of fourth grade art is for learners to gain exposure to a wide variety of artistic ideas. Through exploring cultural traditions, art history, and contemporary art, students come to understand that there are many ways to be an artist. Children investigate various materials, techniques, approaches, and styles. They have opportunities to reflect on the subject matter, ideas and aesthetics that excite them, and consider ways they hope to grow as makers and artists. They are also given time and space to play and experiment to discover new methods of their own. In short, students are encouraged to have an open, creative mind.

Integrated Arts (continued)

Fourth graders also begin to take greater ownership over our studio and its material resources. They learn to use tools and materials safely, and they are expected to play an active role in organizing and maintaining our space. As the school year progresses, they gradually gain access to a wider variety of choices which they can access independently.

Key Content:

- Drawing, Painting & Printmaking
- Ceramics & wire sculpture
- Fiber Arts
- Abstraction
- Installation Art & Environmental Art
- Architecture, Public Art & Street Art

Integrated arts acts as a platform for collaboration across disciplines. This collaboration helps students see the connectivity between subjects and the interconnectivity of our world. These interdisciplinary connections emerge over the course of our studies, as students explore key questions and ideas through art-making. Our final products will vary from year to year based on the questions and curiosities of our students.

Interdisciplinary Concepts We May Explore Include:

- Mapping & geography
- Natural resources & power
- Architecture & the built environment across cultures & throughout history
- Sustainability & future cities

Physical Education

The fourth grade physical education curriculum will focus on the introduction of team sports, individual skill development, and mindfulness with a focus on relaxation breathing that will help students to prepare themselves for a healthy lifestyle. The goal of the fourth grade program is to properly prepare the students to not only play team sports, but to understand the concepts of each sport. The individual student will be introduced to new terminology such as cardiovascular, aerobic, and anaerobic activity. The students will also focus on individual physical fitness, while working on the individual skill development of each student needed for team sports. The fourth grade curriculum will use assessments based on individual skill growth for each unit. Sportsmanship and teamwork will be the cornerstone of each unit.

Fall

- Physical Fitness: Concepts and components of fitness are covered throughout the year through various activities and exercises that can help to improve fitness level.
- Soccer: Develop skills, strategies, and knowledge of the rules.

Physical Education (continued)

- Football: Review of throwing, catching and kicking skills.
- Kickball: Develop throwing, catching and kicking skills.

Winter

- Basketball: Develop basic skills, learn rules, positions and strategies.
- Volleyball: Review the skills of the bump, set, serve and positional play.
- Floor Hockey: Review of skills and used in lead-up and full court games.
- Fitness and Yoga: Introduce students to yoga stretching and fun fitness exercises.
- Gymnastics: Practice and review tumbling skills, routines on the balance beam and mats, as well as climbing activities to increase upper body strength.

Spring

- Frisbee: Concentrate on throwing and catching techniques in preparation to play ultimate frisbee.
- Track and Field: Identify skills and strategies for track and field events.
- Wiffle ball: Introduce basic throwing, fielding, base running and batting skills.
- Group Games: Cooperative games and skills in large group games such as Capture the Flag and Cricket.

Responsive Classroom

The Lower School uses the social curricular practices of *The Responsive Classroom*. Fourth graders build up their repertoire of greetings, as well as practice a good firm handshake and eye contact. These skills are used when they approach or greet adults and new students, as they are encouraged to explore new friendships and working partnerships. Students learn to resolve differences in a non-confrontational, open forum with mediation as needed. Students practice self-control and continue to develop the ability to focus during morning meeting or class discussions and speaking clearly and respectfully in morning meetings. Finally, students work on ways to include peers of both genders in group games and to play fairly; then they try to accept losses or setbacks without causing conflict.

Homework

Please refer to the BB&N Website: www.bbns.org/handbook, Lower School Policies and Procedures. Another resource, [HOMEWORK - A Guide for Lower School Parents](#), was first published and distributed to all LS parents in 1999, and is available for parents at Back-to-School Nights.