

## **The Public Schools of Brookline GRADE FOUR CURRICULUM OVERVIEW**

Dear Parents and Guardians,

*High achievement for all* has been a core value in the Public Schools of Brookline for nearly two decades. There are many variables that contribute to a student's academic achievement, one of the most important being a strong connection between the home and school. When families support their child's learning at home, express interest in their studies, and hold high expectations for achievement, a partnership between home and school is created. We hope that this Curriculum Overview will be a useful tool for you as you support and encourage your child's academic success.

Curriculum Coordinators created this overview to highlight the concepts, skills, and knowledge central to each subject area in every grade level, K-8. This document is not intended to represent the entire curriculum for this grade; rather it provides you with the key elements taught to children across the eight K-8 Brookline schools in this grade. If you are interested in learning more about the curriculum as outlined in our Learning Expectations, visit the Public Schools of Brookline website ([www.brookline.k12.ma.us](http://www.brookline.k12.ma.us)).

Each year brings new learning challenges and a world of possibilities. Your involvement and knowledge about your child's school experience will help to nurture his or her learning far beyond the four walls of the classroom. As your child begins a new year in the Public Schools of Brookline, please know that we welcome your involvement and value your support.

Respectfully,

Jennifer Fischer-Mueller, Ed.D.  
*Deputy Superintendent for Teaching and Learning*

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## *Goals of the Public Schools of Brookline*

### **Goal 1: Every Student Achieving**

Ensure that every student meets or exceeds Brookline’s high standards and eliminate persistent gaps in student achievement by establishing educational equity across all classrooms, schools, and programs.

### **Goal 2: Every Student Invested in Learning**

Increase every student’s ownership of his/her learning and achievement by using rigor, relevance, and relationships to foster a spirit of inquiry and the joy of learning.

### **Goal 3: Every Student Prepared for Change and Challenge**

Instill in every student the habits of mind and life strategies critical for success in meeting the intellectual, civic, and social demands of life in a diverse, ever-changing, global environment.

### **Goal 4: Every Educator Growing Professionally**

Foster dynamic professional learning communities that inspire inquiry, reflection, collaboration, and innovation, and use data to improve teaching, advance student learning, and refine the programs and practices of the Public Schools of Brookline.

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## **SOCIAL EMOTIONAL LEARNING & BULLYING PREVENTION/INTERVENTION**

The Public Schools of Brookline has created a comprehensive social emotional learning and bullying prevention and intervention program to nurture school culture and provide the knowledge, skills, procedures, and processes required to foster positive student behavior in support of learning. With the effective implementation of the comprehensive program, we envision all Brookline schools reflecting a safe, welcoming, respectful, and nurturing school culture that supports the development of all children through their preK-12 experiences.

The PSB Comprehensive Social Emotional Learning and Bullying Prevention and Intervention Program is characterized by the following program elements in the specified grade(s):

### **Social Emotional Learning**

*Social Thinking* (K-12)

*Responsive Classroom* (K-5)

*Developmental Designs* (6-8)

*Facing History and Ourselves* (8)

*Brookline High School Advisory* (9-12)

### **Bullying Prevention and Intervention**

*Olweus* (K-12)

*Understanding Disabilities* (4)

*Second Step* (7-8)

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### EDUCATIONAL TECHNOLOGY AND LIBRARIES

The Public Schools of Brookline encourages a culture of inquiry that regularly investigates and experiments with promising new practices that engage students as 21st century learners and prepares them for the evolving global society. The Educational Technology and Library staff works in collaboration with the entire school community to help students become:

- Enthusiastic, independent readers for information and pleasure
- Independent, skillful information users who know how to access, analyze and produce information in a variety of formats using a variety of tools
- Responsible digital-age citizens
- Skillful learners and innovators who use digital tools to develop the “Four Cs:”
  - critical thinking
  - communication
  - collaboration
  - creativity

The integration of these skills is typically addressed through classroom projects within the major curriculum units of study in the core subjects. School libraries are complex hubs of student learning and engagement, with the ability to enhance all curriculum areas. Emerging technologies and near ubiquitous access creates new opportunities to deepen and extend learning, often connecting with people, resources, and perspectives beyond the walls of our classrooms.

In grades three and four students develop information literacy skills that correspond to their developing reading abilities and greater capacity for critical thinking. Students begin exploring features of non-fiction texts and developing search strategies to use with the library catalog and online sites. Students begin to organize found information in order to synthesize and produce new meaning. Students explore different genres in their independent reading and curricular study.

Technology skills are developed through daily tasks and special projects that provide students with opportunities to develop intermediate skills with hardware and software. Students develop the ability to use the computer as a writing tool with basic word processing skills, create simple multimedia presentations, and use a variety of technology resources for problem solving, communication, and illustration of thoughts, ideas, and stories.

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### ENGLISH LANGUAGE ARTS

Brookline’s Learning Expectations in ELA meet or exceed the standards outlined in the Massachusetts Frameworks. To reach these demanding standards, Brookline educators use the *Continuum of Literacy Learning PreK-8* (Heinemann, 2011) as their day-to-day guide when teaching specific behaviors in reading and writing. The description of the successful fourth grade reader and writer below comes primarily from the *Continuum*.

#### Reading

Students at the end of fourth grade automatically read and understand a full range of genres, including biographies on less well-known subjects, more complex fantasy, and hybrid genres that blend more than one genre in a coherent whole. Students can also identify and discuss the characteristics of these texts.

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Fourth grade students read chapter books and shorter informational texts, along with special forms such as mysteries, series books, books with sequels, short stories, diaries, and logs. The fiction narratives they read are straightforward, but have both elaborate plots and many complex characters that develop and change over time. As readers, fourth graders understand perspectives different from their own, as well as settings and people far distant in time and space. They can process longer complex sentences containing prepositional phrases, introductory clauses, and lists of nouns, verbs, or adjectives. They can solve new vocabulary words, some defined in the text and others unexplained. Most reading is silent; fluency and phrasing in oral reading are well established. Fourth grade readers are challenged by many longer descriptive words and by content-specific and technical words that require using embedded definitions, background knowledge, and readers' tools, such as glossaries. They can take apart multisyllabic words and use a full range of word-solving skills. The student at the end of fourth grade reads and understands texts in a variety of layouts and consistently searches for information in illustrations and increasingly complex graphics. (*PreK-8 Continuum*, p. 324)

#### **Writing**

Fourth graders are able to introduce, develop and conclude topics in nonfiction writing across science, social studies and math topics. Narratives have a clear sequence of events. Fourth graders write in many genres for a variety of purposes. They understand the purposes and characteristics of these genres.

Fourth grade writers begin to hone their craft and use voice in their writing. They incorporate a variety of beginnings and endings to engage the reader and sustain that reader's interest. Paragraphs are used to organize ideas and information is organized according to purpose.

Fourth graders incorporate descriptive language, sensory language and details to aid the reader in understanding the piece of writing. Students support their written claims and opinions with relevant and accurate evidence. They also use information from a variety of sources when writing in all genres.

Fourth grade writers craft both simple and complex sentences, use correct punctuation, and they spell high frequency words accurately. They are familiar with typing using a computer and they can write legibly.

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### **MATHEMATICS**

Brookline's Mathematics Learning Expectations, built on the 2011 MA Curriculum Frameworks for Mathematics, are comprised of two main components: the Standards for Mathematical Practice and Standards for Mathematical Content. To achieve mathematical understanding, students are engaged in mathematical experiences that balance mathematical procedures and conceptual understanding.

#### ***Mathematical Practices***

Two of the mathematical practices that we will be highlighting this year involve making sense of problems and constructing mathematical arguments. Fourth grade mathematicians are involved in solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Fourth graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, "Does this make sense?" They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.

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In fourth grade, students may construct arguments concretely, for example, by using objects, pictures, and drawings. They explain their thinking and make connections between models and equations. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking.

#### **Mathematical Content**

Building on a foundation of strategies for multiplication and division within 100 and fraction understanding, we focus on these three critical areas:

**Place Value and Operations:** Developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends.

**Fractions:** Developing understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers.

**Geometry:** Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

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### PERFORMING ARTS

Fourth grade students have music class twice per week in which they joyfully create music while developing the following skills:

**Performing:** Students will develop skills in singing, reading music, playing instruments, movement and dramatization of music.

**Reading and Notating:** Students will learn to interpret and apply visual representations for the sounds they hear (musical notation).

**Listening and Appreciation:** Students will learn to critically respond with understanding when they describe, analyze and interpret music. Students will study music from different periods and locations.

**Creating:** Students will improvise and compose original works of music.

**Connecting:** Students will develop understanding of artistic heritage through investigation of the historical and cultural contexts of music.

Every student in fourth grade learns an instrument. Learning an instrument allows students to experience the joy of being an instrumentalist, play with others in a performance group, and work together. All fourth graders continue with general music class once a week, and begin our *Conservatory* music program once a week.

In fourth grade Conservatory, all students choose to study a band instrument (flute, clarinet, trumpet, trombone, percussion) or string instrument (violin, viola, cello), developing the following skills:

- Ability to play band/string instruments at beginning level
- Ability to perform with emerging intonation, blend, dynamics and rhythmic precision
- Ability to follow and respond to conductor

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In their general music class, fourth graders continue to advance their musical skills developing the ability to sing in two-part song with an expanded range, demonstrating more advanced musical qualities of phrase, texture, tempo, and dynamics. Students advance their ability to read and notate more complex rhythms and simple melodies.

The **Performing Arts Learning Expectations** meet the **National Standards for Arts Education** music learning outcomes that are integral to the comprehensive K-12 education of every student.

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### PHYSICAL EDUCATION

In the Grade 3-5 span, children's thinking is becoming more orderly, more structured, and more logical. Therefore, students will be more realistic and more rule-oriented. Play will reflect a developing need for order. A challenge to the emerging self-concepts of these students is to demonstrate to themselves and others that they are competent, and that they have skills and abilities of which they can be proud. Physical education classes offer an environment of effective socializing. The Physical Education teacher helps children differentiate between acceptable and unacceptable ways of expressing feelings. Children need to internalize and understand the merits of participation, cooperation, and competition.

Cooperation precedes the development of competition and it is emphasized in the physical education class. The nature of competitive games demands cooperation, fair play, and sportsmanship, and when these are not present, the joy of participation is lost. Cooperative games teach children that all participants are needed.

The Tactical Games Approach is used when teaching sport skills, using student interest in the game itself to promote skill development and tactical knowledge. In essence, students are playing the game as they work on skills and tactics.

At this age, students begin to relate the value of movement and healthy nutrition practices to personal, long-term healthy lifestyles. Students develop a better understanding of the components of fitness and how these relate to their overall fitness status.

The Physical Education Curriculum was developed with the National Standards in mind; these standards describe the physically literate individual. (<http://www.shapeamerica.org/standards/pe/index.cfm>) In the 3-5 grade span, students work on the skill progressions within each of the following areas:

**Motor Skills and Movement Patterns:** Develop skills in dribbling with hands/feet, striking with varied implements, jumping rope with rhythm, overhand throwing, and catching. In these grade levels, skills are increasingly incorporated into game play. The Tactical Games Approach is employed when learning sport skills.

**Physical Activity & Fitness:** Participate for longer periods of time in a variety of vigorous activities. Throughout this grade level cluster, students begin to relate the fitness components to overall personal fitness status.

**Personal and Social Behavior:** Demonstrate positive behaviors throughout cooperative activities. Students begin to learn skills in leadership and followership.

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**Value of Physical Activity and Social Interactions:** Recognizes the value of physical activity for health, enjoyment, challenge, self-expression and social interaction.

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### SCIENCE

In fourth grade science, students explore plants, changes in state, and changes in the Earth. Science and engineering practices are woven throughout all of the science content, as well as the use of science notebooks and integration with the other curriculum areas.

**Plant Explorers:** Building on what they learned in the Third Grade Mammal Detectives unit, fourth graders study the same big ideas in the context of plants. They explore: what plants are; how plants can be classified; the needs of plants; how to determine where plants live; ways that plants adapt to survive in their environment; plant life cycles; and how all life on Earth depends on plants. During these investigations, students use science practices, such as observing, recording in notebooks, making claims based on evidence, and sharing their ideas with others. The unit focuses on outdoor explorations whenever possible.

**What are Changes in State and Why Do They Matter?:** In this unit, students explore the states of matter (solids, liquids and gases) focusing on how and why they change from one state to another. After an initial experience with a mystery substance, students are introduced to the properties of solids, liquids and gases and the concept of matter. Building on this foundation, students investigate the changes in state of water (melting, evaporation, condensation, and freezing) via hands-on inquiry activities. All the while, the theme of why changes in state are important in our daily lives is woven throughout the unit (such as cooking, cooling our bodies). Ultimately, students apply what they have learned by analyzing the role of changes in state (and temperature) in weather and in the water cycle. They do this by creating a model of the water cycle in a terrarium.

**Earth's Changing Story:** In this unit, students build on what they learned in the 2<sup>nd</sup> Grade Where Does Soil Come From? Part II: Changes in the Earth unit. They are introduced to Earth Scientists and find out what they do before diving into an exploration of earth materials and how they are changed over time by the processes of weathering, erosion and deposition. After investigating these processes via hands-on inquiry activities, students apply what they have learned to read landscapes in order to explain how they may have changed over time (and the forces that caused the changes). Next students are introduced to how rocks are formed, look for patterns that explain plate tectonics, and begin to explore the concept of geologic time. This leads to activities that focus on how paleontologists use fossils as sources of evidence to help tell the story of Earth's changing past, as well as comparisons of fossil organisms and living organisms. The unit ends with an exploration of how changes in the Earth affect organisms and solutions that humans can engineer to minimize the effect of changes on our lives.

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### SOCIAL STUDIES

In the fourth grade social studies course of study, Continental Connections: North American Geography, History, and Culture, students will study North American geography, history, and culture. They will begin with an introduction to a variety of mapping skills through the study of North American geography. They will explore the regions and states of the United States, as well as the provinces of Canada and the major cities of Mexico. They will then delve into the changing American cultural

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landscape through the investigation of the influence of various groups who settled in the continent over time: Native Americans, colonizers from the European empires, internal migrants, and immigrants. Finally, students will identify the physical and cultural characteristics of our neighboring countries, Canada and Mexico.

**North American Geography:** In this unit, students will develop essential mapping skills such as interpreting map features like scale and legend. They will also explore the climate landforms, vegetation zones, and natural resources of regions of the United States and investigate how scarce resources are allocated.

**Native America:** This unit calls upon students to inquire as to how the physical geography of various Native American cultural regions influenced the way people lived there.

**Exploration and Colonization:** This unit addresses the causes and consequences of the Age of Exploration and offers students the opportunity to research the settlement of North America by explorers and colonizers from five different European countries.

**Changing American Cultural Landscape:** In this unit students will address the experiences and contributions of African-American, European, Latino, and Asian internal migrants and immigrants and scrutinize the naturalization process.

**Canada and Mexico:** Students will examine the climate, major physical characteristics, and major natural resources of these two countries and research selected cultural features such as government, languages, and economy.

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### VISUAL ARTS

Students in grade four work with intention to communicate their ideas. They are naturally inquisitive and develop skills of observation, perseverance and reflection. The visual arts instruction asks questions of the young artists: What are we thinking about? What are we able to do with materials to communicate ideas through art? What are we learning as we make art? This builds strong artistic habits of mind as the students create work with various tools, processes, and media, and make choices that improve their ability to communicate their ideas, feelings and understandings.

Art lessons are developed to engage students in rich tasks that develop their critical and creative thinking skills, and allow them to develop artistry through deliberate practice. Students develop their artistic skills in the following areas:

**Drawing:** Creating compositions through mark making, lines and forms that communicate the artists' intention with multiple drawing tools

**Painting:** Creating a composition using paint that tells a story, expresses an emotion, suggests a feeling, develops a pattern or illustrates the relationship of colors.

**Collage:** Creating a cohesive composition that communicates the artists' intention by gluing multiple pieces of paper/found materials together in one image.

**Printmaking:** Creating a composition that transfers images using printmaking tools, stamps, stencils, plates to other surfaces multiple times.

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**3D Construction:** Building a form that has multiple sides, has structural integrity, and embodies the artists' vision.

Lessons have an array of beginning points: interdisciplinary work connected to grade specific themes in other curriculum studies, art history, contemporary art, and student generated curiosities. The work focuses on developing strong artistic habits of mind that develop skill and craftsmanship. The Visual Arts classes meet once a week throughout the year.

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#### WORLD LANGUAGE

Students in grade four continue their journey as language learners, developing a deeper understanding of culture and becoming conversation partners. Our K-5 elementary world language program focuses on developing oral proficiency, with lessons conducted almost exclusively in Spanish or Chinese. This provides students with many opportunities to hear words in context and make meaning out of them without direct translation. This repetition, coupled with visual supports, first develops comprehension, followed by oral production.

Students continue to comprehend more than they can produce in the target language, but lessons are built around interactive activities and tasks that develop students' conversation skills. They use sentences and start to create with the language; participate in simple, direct conversations, asking and answering questions about the topics they are learning. The themes in grades three and four are community, leisure time, climate and food, with the cultural focus on Mexico in grade three and Southern Cone countries of South America in grade four. Lessons increase to thirty minutes, three times a week.