



FOURTH "GRADE EXPECTATIONS"

MATH

Integral to our math program is the development of deep conceptual understandings of the number system, place value, addition, subtraction and early algebra. We do this through a variety of ways, but what is critical is that our math work has real-life application and that it is constantly being integrated into all times of day (during morning meeting when they look at how many kids are present in school or when they are making their own graph of what is the most popular playground structure). They also read a variety of books that touch on various mathematical concepts and ideas.

Children learn best through real problem solving experiences and where problems can be solved using a variety of strategies and individual approaches while meeting national mathematics standards. Students at each grade level to explore theories and functions through investigation, to develop a variety of strategies to solve problems and share their solutions, and to see math in the world around them. Students work in depth on a small number of problems, actively using mathematical tools and consulting with peers as they find their own ways to solve the problems. Significant time is allowed for students to think about the problems and to model, draw, write, and talk about their work. Each investigation is divided into several class sessions, approximately one hour long, and grouped together to reflect the continuity and flow of the activities as they actually happen in the classroom. During each investigation students work a number of activities that include pair and small-group work, individual tasks, and whole-class discussions. Math discussions are encouraged, where students can share and explain their strategies and thinking. Children represent their perspectives and findings through numbers, words, and pictures. Assessments occur through observations, studying student work and end of unit assessments.

Focus: Fractions are a major focus of fourth grade. Building fluency with multiplication & division. In Fourth Grade, we provide a balance of investigative problem solving, practice and review. We ask our students to revisit and evaluate their work. We encourage them to develop more efficient and effective strategies. As they work with larger numbers, we emphasize visualizing and reasoning skills. We support the development of clear written and oral communication of math concepts. We also challenge our Fourth Graders to become more independent in identifying ways in which they can apply math skills and concepts to their project work.

Math Units	Goals
Habits of Mind: Becoming a Mathematical Thinker	A unit that helps us develop routines and a mathematical community of discourse
TERC Factors, Multiples, and Arrays: Multiplication and Division	In this first unit in the multiplication and division strand, students deepen their understanding of the operation of multiplication. Students use rectangular arrays to represent the relationship between factors and multiples, use what they know to solve problems that increase in size, and focus on solving problems efficiently. They continue to develop fluency with multiplication combinations (facts up to 12×12).
TERC Landmarks and Large Numbers: Addition, Subtraction, and the Number System	Students extend their knowledge of the number system by examining the structure of 10,000 and practice and refine strategies for adding and subtracting whole numbers up to 10,000. They continue to study place value by adding and subtracting multiples of 10 and 100 to numbers in the thousands, and they consolidate their understanding of the operation of addition by studying a variety of addition strategies and algorithms, including the U.S. algorithm for addition. Students continue their study of subtraction by solving, representing, and discussing their strategies for a variety of subtraction problems.
TERC Multiple Towers and Division Stories: Multiplication and Division	Students develop strategies for solving multiplication problems with two-digit numbers and deepen their understanding of the operation of division by focusing on the relationship between multiplication and division. Using story contexts and multiple towers, students continue their investigation of the relationship between numbers and their factors. They practice multiplying by 10 and multiples of 10, break problems into smaller parts that can be multiplied easily, and find the multiples of two-digit numbers. They gain fluency with all multiplication combinations to 12×12 . Students solve, represent, and discuss division story problems, including some that have a remainder.

CFL Teacher's Lounge	The stocking of water and juice vending machines in The Teacher's' Lounge introduces big ideas related to division. As students consider different ways to inventory the contents of each machine, they employ a repertoire of strategies including the use of the ten-times strategy, partial products and partial quotients, the associative property, and the distributive property of multiplication over addition—the basis for the long division algorithm.
TERC Fraction Cards and Decimal Squares: Rational Numbers	Students develop ideas about fractions by identifying fractions of an area ($\frac{3}{4}$ of a rectangle), fractions of a group of objects ($\frac{3}{4}$ of 24), and decimal fractions (.75). They compare fractions of different wholes ($\frac{1}{3}$ of a 6 x 4 rectangle and $\frac{1}{3}$ of a 10 x 10 rectangle), and combine fractions using models and reasoning. Students use 10 x 10 grids to represent, compare, and combine common decimals in the tenths and hundredths.
CFL Field Trips and Fundraisers	The fair-sharing of submarine sandwiches on a school field trip provides the context for exploring big ideas related to fractions in Field Trips and Fundraisers. In attempting to settle arguments about the fair distribution of sandwiches, students explore the connection between division and fractions as well as ways to compare fractional amounts. As the unit progresses, students use the ratio table as a model and explore equivalent fractions.
TERC Size, Shape, and Symmetry: 2-D Geometry and Measurement	This geometry and measurement unit focuses on classifying two-dimensional shapes, comparing the size of angles, and working with linear and area measurement. Students define and categorize polygons by identifying sets of shapes that have a common attribute and use 90 degrees as a reference for finding the measurement of other angles. They continue their measurement work from earlier grades by measuring distance and perimeter, using both U.S. and metric units and finding the area of polygons in square units.
TERC Describing the Shape of the Data: Data Analysis and Probability	This unit develops ideas about collecting, describing, and representing data. Students collect data through counting and measuring and use bar graphs and line plots to represent their data involving one group and compare data of two groups. They interpret the data and draw conclusions based on the data using terms such as mode, median, range, and outlier. Students begin their study of probability by placing events on a "likelihood line" that goes from impossible to certain and work with mixtures of colored cubes to describe the probability of different outcomes.

*** The Co-op School uses TERC Investigations of Number, Data, and Space along with Math in the City's Contexts for Learning (CFL) Mathematics, programs that embrace individual approaches to problem solving while meeting national mathematic standards, form the foundation of our math program.**

LITERACY

Workshop model:

Students learn to listen, speak, write and read for a variety of purposes. They receive directed instruction to the skills they need to be successful and have opportunities to practice and apply those skills. The reading and writing workshop model is used, supported by **Units of Study for Teaching Writing** and **Units of Study for Teaching Reading**, workshop-based literacy instructional programs that were developed at Teachers College at Columbia University. Teachers begin by modeling one reading or writing strategy in a mini lesson. Students practice the focal strategy independently, with partners, and in small groups while teachers circulate and provide guidance. Selected students share their work to build confidence with sharing ideas and public speaking.

Balanced Literacy:

Beginning in Kindergarten, we use a balanced literacy approach, a researched and proven method which recognizes the need for both the explicit teaching of skills such as sound-symbol correspondence, phonemic awareness, encoding and decoding as well as the opportunity for children to participate in activities that are designed to build comprehension and meaning. Balanced literacy instruction provides students with opportunities for differentiated instruction, including small group work targeting specific needs in comprehension, phonics, grammar, spelling, and vocabulary building. Groups are formed on the basis of common needs and are fluid, recognizing that children may need different tools and supports at different times.

Literacy Assessment:

The literacy development of our students is assessed in a variety of ways and is used to inform instructional decisions for both the class as a whole, and for individuals. Assessment takes many forms. Teachers gather information during daily lessons and through careful examination of student work. Each reading and writing unit includes assessments used to evaluate student understanding of content, and benchmark assessments are used to evaluate reading fluency and comprehension as well as writing skill and development. Assessments are designed to be age-appropriate and individualized.

Beginning in 3rd grade we administer the CTP Test, a standardized achievement and reasoning test from the Educational Records Bureau (ERB), to all of our students. This test is designed for each grade level and the results help us assess and make decisions about our curriculum and instruction. For the students, taking the CTP Test provides experience with standardized test taking.

Reading:

In Fourth Grade, readers explore more sophisticated tools for analyzing texts and organizing their writing. Students continue to acquire and practice reading fluency and comprehension strategies while learning new strategies for interpreting more complex texts. Analyzing author’s craft and figurative language supports an increased understanding of abstract concepts, author’s purpose, and symbolism within all genres. Fourth Graders read independently each week, and over the course of the year they also engage in shared reading and discussion of books within small groups and as a whole class. A self-reflective growth mindset is essential to Fourth Grade learners as they begin to recognize new ways to engage with text and an expanded vision of their unique potential as readers.

Writing:

Fourth Grade learners write for a variety of purposes and audiences, increasing the number, length and detail of their published pieces, which include stories, essays and research projects. Fourth grade writers learn to structure their longer pieces of writing at the paragraph level and overall. Writers follow detailed student rubrics as they draft, revise and edit their pieces to create polished work. Writers apply more feedback to their writing in areas such as organizing ideas and applying grammar, spelling, and punctuation concepts. Fourth graders’ spelling grows through the regular introduction of sight words and tailored word study work exploring spelling patterns. Writing identities grow as students learn to write in different styles and formats, developing their unique voices as writers.

Reading Units	Goals
Launching the Reading Workshop.	Students practice the routines and procedures needed to be successful in the reading workshop. Readers learn how to participate fully and engage in thoughtful discussions with the class, in small groups, and with partners. Readers begin to record what they notice, wonder, and connected patterns in text to create meaning. Strategies include visualizing, predicting, questioning and annotating..
Personal Narrative	Students continue to practice the routines and procedures in reading workshop. Readers learn how authors use craft and story elements to write personal narratives. Readers recognize how writers use sensory details, descriptive language, showing instead of telling, dialogue and plot to help readers draw conclusions, strengthen understanding of point of view, and analyze characters in-depth.
Quest Stories	Readers explore the elements of fiction within the context of quest/adventure stories. Students identify elements of quest stories and study how authors use craft, structure, and figurative language to make quest stories rich and engaging.
Nonfiction	Readers explore the distinctive features of nonfiction. Readers learn strategies to read for information and practice these strategies as they read a variety of nonfiction genres.
Historical Fiction	Reading historical fiction challenges readers to draw on skills they have developed for reading both fiction and nonfiction as they read to understand and analyze the elements of the fictional narrative and recognize how factual information is used to make historical fiction accurate. Aligned with the inquiry study, readers draw on expert knowledge of a nonfiction text about the same time and place.
Persuasive Text	Readers explore the concepts of author’s opinion and purpose. Differentiating between fact and opinion, readers learn to distinguish between well-supported and unsupported claims. Analyzing how authors support arguments with purposeful sequencing, detailed information and clear explanations supports readers in developing informed individual opinions.
Poetry	Readers identify attributes of poems, recognize that poems can be written about different topics, and identify figurative language like similes and metaphors within poems. Readers connect the structure and title of poems to meaning and analyze how the senses connect everyday life to poetic expression. Exposure to many different poets and comparing themes across different poems supports student understanding of the genre and range of stylistic choices within poetry.

Writing Units	Goals
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Launching the Writing Workshop.	Students practice the routines and procedures needed to be successful in the writing workshop. Writers explore different types of writing and publish a piece using all steps in the writing process including brainstorming, drafting, revising, and editing. Learners begin conferring with teachers and with partners to practice the skills of giving, receiving, and applying thoughtful and detailed feedback.
Personal Narrative	Students identify and expand small moments to include feelings, sensory details, and dialogue as they draft their own personal narrative. Showing the traits of characters rather than telling the reader will allow writers to practice thinking abstractly, visually, and thematically.
Quest Stories	Drawing on their reading of a mentor text studied during reading workshop, students apply their understanding of the elements of a quest story to structure and write their own unique quest narratives.
Nonfiction	Students apply their understanding of nonfiction text elements to research and write an informational piece about a historical period or major historical event.
Historical Fiction	Writers will explore different mentor texts featuring historical fiction elements. Aligning with the inquiry study and the informational piece they wrote about a historical period or event,, writers will apply their expertise to write a historically-accurate narrative set during that same period.
Persuasive Writing	Writers learn how to create strong arguments and support them with detailed factual information. Using clear explanations of evidence, writers will structure their pieces to continually reinforce their arguments. Aligning to the inquiry study, writers will practice research skills by gathering and organizing facts and supporting details.
Poetry	Writers will create original poems using sensory details, thoughtful structure, and figurative language by studying mentor poets and analyzing a variety of poems for meaning. Student poets will learn to think visually and communicate abstract thoughts and symbolism with precise language. Peer editing and revising will continue to be a tool to help writers develop final drafts.
Research project	Writers will select a topic of interest and complete independent research projects. Gathering, organizing, and citing information will be practiced throughout each stage of the writing process. Conferring with peers and teachers will reinforce understanding of nonfiction text features, knowledge acquired through inquiry studies, and best practices for revising ideas and structure and for editing.

SOCIAL STUDIES

We are creating curriculum with and for children in order to help them think and communicate as readers, writers, scientists, mathematicians, artists and social scientists. Our social studies projects are the core of what is happening in our classrooms. This constructivist way of teaching is absorbed into our classrooms through a Reggio Emilia inquiry-based Open Work/Project Work periods. Projects are planned with attention to state standards, teacher goals and individual classroom interests and curiosities. The term "Project" refers to an in-depth look into a particular topic, usually undertaken by a class working on subtopics in small or whole group, occasionally even individually. The key feature is that it is an investigation, research that involves children seeking answers to their questions. This approach to learning emphasizes children's active participation in the planning, development, and assessment of their own learning. Long-term projects provide contexts where innate curiosity can be expressed purposefully. This enables children to experience the joy of self-motivated learning. They read, construct, research, interview and recreate in various mediums. They go on trips, interview experts and have lively debates and conversations. Our teachers are observers and facilitators to the children's interests. They step back and listen. They allow the children to have changes to problem solve. They document their ideas, questions, struggles, connections and insights. Teachers ask provoking questions to gather prior knowledge and learn about curiosities. They present materials that they suspect will engage and elicit even further interest of the study. We are creating curriculum with and for children to help them develop lifelong thinking and communication skills.

In Fourth Grade, the students are able to think about increasingly complex social, political, and economic factors that shape communities. Students expand their understanding of such civic concepts as justice, power, and equality in a variety of ways. We ask that our students think about multiple perspectives and about how history is constructed. They analyze primary source documents such as letters, newspapers, paintings, and historic maps. Students can demonstrate their learning through writing, graphing, creating simulations, and modeling.

Fourth Grade's "NY State: History and Government" Focus

- Settlements, Lenape & New Amsterdam

- Government Formation
- Revolutionary War

Essential Questions Anchoring Studies:

- Who gets to decide what the history is?
- What makes a complex society?
- Why does geography matter?
- How did NYC come to be ?
- What motivates people to explore and colonize other lands?
- What does it mean to be free?
- How do people, laws and new technology shape a nation?

The children will work on some of the following skills and abilities:

- Develop questions about New York State and its history, geography, economics and government. Notice patterns of change and continuity.
- Recognize, use, and analyze different forms of evidence used to make meaning in social studies (including sources such as art and photographs, artifacts, oral histories, maps, and graphs).
- Identify arguments of others.
- Create an understanding of the past by using primary and secondary sources.
- Explain how events are related chronologically to one another.
- Identify the relationship between multiple causes and multiple effects, using examples from his/her life or from a current event or history.
- Distinguish between long-term and immediate causes and effects of a current event or an event in history.
- Identify multiple perspectives on an historical event.
- Recognize the relationship between geography, economics, and history in social studies.
- Use location terms and geographic representations (maps and models) to describe where places are in relation to each other, to describe connections between places, and to evaluate the benefits of particular places for purposeful activities.
- Distinguish human activities and human-made features from “environments” (natural events or physical features—land, air, and water — that are not directly made by humans).
- Recognize relationships between patterns and processes.
- Describe how human activities alter places and regions.
- Explain how scarcity necessitates decision making; compare the costs and benefits of economic decisions.
- Explain the role of money in making exchange easier; examine the role of corporations and labor unions in an economy. Explain why individuals and businesses specialize and trade.
- Explain the meaning of unemployment.
- Explain the ways the government pays for the goods and services it provides, including tax revenue.

MULTICULTURALISM/ANTI-BIAS WORK

The Co-op School is committed to creating a community of diverse learners, families, and staff members. We believe strongly in embracing and respecting our differences. For us, diversity is about how we connect to each other. As a school we have committed ourselves to further strengthening our anti-bias curriculum through a series of trainings for our families and staff members. To create a foundation for our work, Co-op teachers will share personal histories and investigate their own biases and stereotypes. Our teachers then will thoughtfully create classroom environments and curricula that intentionally reflect the diversity of our school community and beyond. Throughout the school year, teachers and students together will collaborate in creating an inclusive classroom environment which explores differences, identities, and societal stereotypes. At The Co-op School, our aim is to create a welcoming community that is respectful of differences and to teach our students how to successfully navigate our increasingly global society. We want our Fourth Graders to begin exploring concepts of right and wrong, of morals and ethics. Discussing public goods and identifying when/where things aren't equitable in NYC. We introduce the concept of social- economic status.

Will achieve this by:

- Ensuring that The Co-op School's Core Values of compassion, uniqueness, innovation, community action and joy, guide our school community on what is important to us.
- Teaching Spanish daily to all our elementary school students.
- Speaking to children in an open way, not shutting down questions.
- Reading books about past experiences and events where people have faced adversity and created change. Additionally books that show examples of the disparity of goods made available to everyone.
- Exploring our government structure and how that contributes to the issues that arise.
- Exploring the concept of a public good.
- Exploring the idea of “fairness”
- Exploring how we can enact change and what we will need to do to make it happen.
- Selecting teaching materials and literature that reflect affirming depictions of a wide range of identities.
- Reading books that include a wide range of individual, cultural, and family identities.