

# Needham Public Schools

## Elementary Curriculum Information

### Curriculum Center

Located at the Emery Grover School Administration Building, the Center serves as the central resource and support for curriculum, instruction and assessment throughout the district.



September 2018

## Elementary Curriculum Guiding Principles



Welcome to Needham and the 2018-2019 school year! The Elementary Curriculum Leadership Staff is pleased to share information about the elementary curriculum that we believe will be helpful as you begin your work with our students this year. The 2017 Massachusetts Common Core Frameworks for ELA and Mathematics, and the 2016 MA Frameworks for Science, Technology & Engineering, along with the MA Curriculum Frameworks for other subject areas, serve as the basis of the curriculum that is taught in the Needham Public Schools.

These documents are available at the following link:  
<http://www.doe.mass.edu/frameworks/>

We subscribe to an integrated system of curriculum, instruction, and assessment commonly known as *Standards-Based-Practice*. Curriculum is driven by agreements about content that every student should know and skills every student should master; instruction is guided by data from assessments that tell how well students have learned; and scaffolding strategies are in place to assure every student access to effective opportunities to learn.

*Current District Goals & Objectives, and the District's Standards-Based Learning Framework* are documents that contain information about the knowledge, skills, and attitudes that our curriculum and instructional practices aspire to instill in all students. Documents referenced here can be found in the Elementary Curriculum Guiding Principles folder at: <http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>

## Curriculum Leadership Staff

Asst. Supt. Terry Duggan, Ed.D.  
*Asst. Superintendent for Student Learning*

K-8 Literacy Lisa Messina,  
*Literacy Coordinator*

K-5 Math Judy Wojtczak,  
*Math Coordinator/Coach*

K-5 Science Elise Morgan  
*Science Center Director/K-5 Science Coordinator*

Adm. Assistant Corinne MacDonald  
*Office of Student Learning*

Curriculum Summaries for each grade level are regularly updated. They can be shared with parents during the fall parent curriculum night and can be found at:

<http://www.needham.k12.ma.us/cms/One.aspx?portalId=64513&pageId=984080>

# Progress Reports

In January and June, students in grades 1-5 receive a standards-based progress report that is common across all schools and grade levels. A parent brochure that describes student proficiency in the various disciplines accompanies each progress report. Copies of the progress reports and associated parent brochures can be found at:

<http://www.needham.k12.ma.us/cms/One.aspx?portalId=64513&pageId=3893461>

The parent brochures and report card templates are handy tools for focusing discussions during fall and spring parent conferences.



## “Next-Gen” MCAS

MCAS has changed. The new test, informally called "MCAS 2.0," builds upon the best aspects of the MCAS assessments that have served us well for the past two decades. The test includes innovative items that take advantage of the new online testing environment, along with new items specifically created to assess the Massachusetts learning standards. The assessments are aligned to the 2017 MA ELA and Math Common Core Frameworks and are in transition for the 2016 Science Standards. They are more rigorous than the original MCAS.

The Next-Gen MCAS is designed to be taken on a computer. The DESE has been phasing in computer-based testing over the last several years. Across the state, students in grades 3, 4, 5, 6, 7, and 8 will be taking the test online in the spring of 2019 (this school year).

Each school develops its own testing schedule within the prescribed testing period determined by the Department of Elementary and Secondary Education (DESE). Schedules are published by principals at each school.

## Completing Progress Reports in PowerSchool

Guidelines for completing the progress reports, “help” documents for using PowerTeacher Pro, our electronic grade book, and copies of the progress report can be found in the ***Elementary Report Card folder located in the District Folder under Program Development in your Google account.***

<https://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>



*Your school's library teacher and technology integration specialists are available to work with you to develop curriculum related lessons and activities that enable students to acquire a variety of information and technology skills.*

## Library & Digital Learning

The library & digital learning curriculum integrates information and technology literacy skills with classroom curriculum learning. Students learn a variety of tools and resources to become information gatherers and creators of new knowledge products. They practice reading, writing, and mathematics skills while engaged in research and information tasks for science and social studies learning. This area of the curriculum is assessed within the context of the activity in which it is embedded. Technology also provides incredible opportunities for students to learn, connect, create, and collaborate in new ways.

Norms of appropriate, responsible technology use are taught as part of the Digital Citizenship curriculum. Students are taught to navigate cyberbullying, privacy, safety, and other digital dilemmas that pose real challenges for them when using technology.

# Literacy

Using the MA Common Core Curriculum Framework for English Language Arts and Literacy (2017), the Needham Public Schools subscribes to a Balanced Literacy approach to literacy instruction. Guiding documents that articulate our vision, beliefs, and best practices of an effective balanced literacy program can be found in the Literacy Guiding Documents folder at:

<http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>

## The Literacy Curriculum

The district subscribes to a Reader's/Writer's Workshop model of instruction. The Literacy Task Force developed standards-based curriculum maps for reading and writing that are aligned with the MA Curriculum Frameworks and the Common Core. Maps for reading and writing are available online in our ATLAS curriculum management system:

<http://needham.rubiconatlas.org>

Each map includes essential questions, learning objectives, and resources to support teaching. (Please see instructions for access to the ATLAS system in the Curriculum Resources Section that appears at the end of this newsletter).

Massachusetts Curriculum Frameworks and **The Continuum of Literacy Learning** by Fountas & Pinnell (available in your Benchmark kit) also provide specific goals, examples, and information to inform reading instruction.

### Reading Units of Study

The district is in the process of creating a coherent curriculum that will include several core units (taught at all schools) as well as recommended units of study. In 2014-15, teachers began to implement four core units of study in grades 1-5 and two in Kindergarten, and these units were revised for the 2015-16 school year based on feedback from teachers and specialists. As part of our curriculum update, the district will begin transitioning to the new Lucy Calkins *Units of Study for Teaching Reading* in the 2019-20 school year.

### Writing Units of Study

Writing maps in ATLAS include the types of writing taught at each level and rubrics for assessing student writing (6 +1 Traits) along with exemplar and anchor papers. In 2015-16, Literacy Task Force members piloted new units of study in writing in order to inform future district work on writing instruction. In 2016-17, the district provided optional professional development sessions for teachers who were interested in implementing two new units of study in writing from the narrative and opinion strands. These two units became core units for all classrooms beginning in the 2017-18 school year. Two additional units will be required in the 2018-19 school year, and professional development sessions will continue to be offered as part of our early release day professional learning strands.

## Phonics Instruction

The district uses the Wilson-based phonics program, **FUNDATIONS**, to teach phonological/phonemic awareness, phonics, and spelling in all K-3 classrooms. The program consists of research-validated instructional strategies incorporated into daily 30-minute lessons. The district provides professional development in early September for K-3 teachers who are new to Needham or to a grade level. **FUNDATIONS** includes a handwriting program that is used in all K-2 classrooms.

## Spelling

The **spelling program** for grades K-3 is integrated with the **FUNDATIONS** Program. The district has not adopted a formal spelling program for grades 4-5. The Literacy Task Force is exploring research-based spelling programs that include grade level expectations, explicit instructional strategies, and meaningful assessments that guide instruction.



*Your school's Literacy Coaches are available to help with matters of literacy curriculum, instruction & assessment.*

## Literacy Assessment

Ongoing assessment is at the heart of sound practice. The district expects teachers to use ongoing and multiple forms of educationally relevant formative and summative assessments to monitor student learning. However, it is important that we also have a core set of consistent and common assessments that are used at each level throughout the district.

For reading, we require that the **FOUNTAS & PINNELL BENCHMARK ASSESSMENT** be administered in grades 1-5 twice per year to gauge student growth. For students not meeting the grade-level benchmark in the spring, the test is administered again at the end of the school year. Each year the district provides professional development in the fall for teachers who have not yet been trained in administering the Fountas & Pinnell Benchmark Assessment.

A district-developed literacy assessment for kindergarten students is also administered twice per year.

The use of ongoing formative assessments to record anecdotal evidence, observational notes, and comments to document performance as well as to inform instruction is also an expectation. In addition to the Fountas & Pinnell Benchmark Assessment, the following assessments are available from your school's literacy specialist:

- *Columbia Teachers' College Benchmark Assessments*
- *Core Scholastic Assessments*

# Mathematics

Math instruction in Needham is based on a combination of EDC's **THINK MATH!** program and selected Engage New York lessons in grades K-5 across the district. The program balances mathematical skill fluency with the development of conceptual understanding and problem solving within the five domains of the MA Mathematics Common Core Standards. The concepts in these five content domains: Operations & Algebraic Thinking; Numbers and Operations in Base Ten; Numbers and Operations-Fractions; Measurement and Data; and Geometry are taught within the context of the standards for mathematical practice that describe the expertise that mathematics educators seek to develop in their students. The Needham K-5 Math Curriculum is aligned to the Massachusetts Common Core Standards for Mathematics.



Every classroom is equipped with all the student and teacher materials required to teach the curriculum. The instructional sequence, timeline, and resources to support the learning goals for the aligned THINK MATH! / Engage New York (ENY) curriculum at each grade level are available in electronic format in the Grade Level K-5 Math folder at: <http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>

Information regarding parent communication at curriculum nights, parent conferences, assessments, grading, etc. will be shared with new classroom teachers via email, and can also be found in the District Folders (see link above).

## Math Assessment

An online benchmark assessment is administered three times a year (September, January and June) in grades 1-5. The online benchmark assessment in Grade 1 occurs two times a year (January and June). Kindergarten students are assessed in the fall, winter, and the spring each year using a district developed assessment.

## Professional Development

Professional development sessions by Math Coaches to support teachers as they navigate through the program are available upon request by grade level teams and/or individual teachers. The Math Coaches will provide professional development in September to introduce the math program, curriculum, materials, and instructional strategies to K-5 teachers who are new to Needham or to the grade level.

## Math Coaches Available at Each School

*Math coaches in all elementary schools are available to support, consult, model lessons, analyze data, and assist you in all aspects of math instruction and curriculum implementation.*



*The MA Common Core Literacy frameworks encourages integrating social studies lessons with literacy instruction. Under these standards, students read a true balance of informational and literary texts. Students access the world—science, social studies, the arts and literature through text. At least 50% of what students read is informational.*

# Social Studies

The curriculum maps for social studies provide a framework for the essential questions, content, skills and key terms that constitute the Needham Public Schools' social studies program. The social studies curriculum aligns with the 2003 MA state frameworks, spirals topics and themes, and reduces the amount of content to be taught. O With the adoption of the 2018 MA History and Social Science Curriculum Frameworks our program will be reviewed and revised in the future.

The K-5 social studies maps represent the curriculum that should be taught at each grade level. They can be found at:

<http://needham.rubiconatlas.org>

# Science

Aligned with the Massachusetts Curriculum Framework for Science and Engineering, the district subscribes to a hands-on, inquiry-based approach to teaching science. Units are designed to develop students' science and engineering practices, which are:

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

For more information on how children progress through these practices, see <http://www.doe.mass.edu/frameworks/scitech/2016-04/AppendixI.pdf>

The K-5 science curriculum topics, outlined at the link below, provide a framework for these practices.

[http://www.needham.k12.ma.us/departments/curriculum\\_and\\_academics/science\\_center/k\\_5\\_science\\_science\\_curriculum/](http://www.needham.k12.ma.us/departments/curriculum_and_academics/science_center/k_5_science_science_curriculum/)

The K-5 science curriculum is in the midst of a multi-year extensive updating cycle in order to align with the newly released Massachusetts Science and Technology/Engineering (STE) Curriculum Framework. In the 2018-19 school year, curriculum units will be introduced in Grade 1 and piloted in Grade 3.

The use of science notebooks by all elementary students is an essential part of the curriculum and helps build students' science and engineering skills. Teachers are encouraged to use a science notebook format that best suits their students' learning styles and abilities and supports writing across the content.

## Materials & Resources

The Needham Science Center provides teacher guides, kits and science notebooks for every science unit in grades K-5. Teachers can request other materials from the science center to support student learning, which include live animals, equipment, books, media, animal and plant specimens and exhibits. These items can be accessed using the online database, which can be accessed here: [http://www.needham.k12.ma.us/departments/curriculum\\_and\\_academics/science\\_center/resources\\_for\\_teachers/](http://www.needham.k12.ma.us/departments/curriculum_and_academics/science_center/resources_for_teachers/)

The Science Center also offers engaging field trips and programs to align with topics for each grade. For a list of current program offerings, please see [http://www.needham.k12.ma.us/departments/curriculum\\_and\\_academics/science\\_center/programs\\_and\\_field\\_trips/](http://www.needham.k12.ma.us/departments/curriculum_and_academics/science_center/programs_and_field_trips/)

## Professional Development

The Science Center provides professional development to all elementary teachers in the district. In-service workshops bring grade level staff together at the Science Center, where teachers work collaboratively with hands-on materials to learn content, inquiry-based instructional practices, and more. In addition, teachers new to Needham receive a two-hour session to introduce them to the Science Center and the science curriculum. All teachers are encouraged to work with Science Center staff with modeling, co-teaching and/or lesson development.



## Needham Science Center

The Science Center is located in the Newman School. Its vision is to be a state-of-the-art resource for elementary students and teachers that inspires teaching and learning about our natural and engineered world. The Science Center provides live animals, and teacher loan items and also offers field trips to enhance the curriculum. Elise Morgan, Elementary Science Curriculum Coordinator at the Science Center (781.455.0475) and is available to teachers to assist with all aspects of science instruction.

Information about the science program, curriculum and resources provided by the Science Center can be found on the Science Center website:

[http://www.needham.k12.ma.us/departments/curriculum\\_and\\_academics/science\\_center](http://www.needham.k12.ma.us/departments/curriculum_and_academics/science_center)

## Literacy Update

- In 2018-19, two additional units from the Lucy Calkins *Units of Study in Opinion, Information, and Narrative Writing* will be implemented in all classrooms in grades 1-5.
- This fall, the district will transition to the 3<sup>rd</sup> edition of the Fountas and Pinnell Benchmark Assessment System. The 3<sup>rd</sup> edition features updated texts, improved prompts and key understandings, and more clarity and rigor in the scoring process and guidelines. Training and support will be provided by literacy specialists at each school.
- Literacy department will continue to offer a professional development strand during district early release days to support the implementation of the new Lucy Calkins writing units of study.
- Literacy Task Force members (teacher leaders and literacy specialists) will continue to pilot units of study in order to inform future district-wide implementation. The team will also work in three critical areas: revising the literacy portion of the report cards, articulating expectations and guidelines for teaching grammar/mechanics, and communicating across schools about the implementation of required units of study at each school.
- Literacy specialists at each school are available to assist teachers with implementing new units of study and strengthening classroom literacy instruction through individual coaching cycles, team collaborative learning, and professional development sessions.

## Mathematics Update

- The Math curriculum is aligned to the MA Common Core Frameworks at grades 1-5 and pacing guides are available in the Grade Level-K-5 Math folder at: <http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>.
- Resources beyond THINK MATH that are needed to support the math curriculum can be accessed in the Grade Level K-5 Math folder at: <http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>.
- Math Coaches are in each school to help implement the pacing guides and the math practice standards. The Math Coaches can also assist in using new resources, co-planning lessons, and interpreting the math benchmark assessments data.
- Math Coaches are offering two professional development strands during district early release days with a focus on developing mathematical mindsets and modeling math.
- During the 2018-19 school year all grade 1 and 2 classrooms and a few grades 3-5 classrooms will assess using the STARMath benchmark assessment. All other classrooms will continue with aMath.

## Curriculum Goals 2018-2019

### Literacy

1. *Support the implementation of new units of study in each classroom through individual coaching and team collaborative learning, as well as through school-based and district-wide professional learning sessions.*
2. *Support our transition to the 3<sup>rd</sup> edition of the Fountas and Pinnell Benchmark assessment system.*
3. *Strengthen communication about literacy teaching and learning across schools using the Literacy Task Force.*
4. *Investigate the teaching of grammar and mechanics within the units of study and provide guidance and recommendations in these areas.*

### Math

1. *Continue implementation of revised THINK MATH /ENY pacing guide at each grade level*
2. *Continue math implementation of online benchmark assessments and the use of its data to inform instruction.*
3. *Provide professional development on key content areas at each grade level.*
4. *Provide math professional development tailored to each school as requested.*

# STEAM & Spanish

## STEAM



Students in Grades 1-3 are provided with a year-long STEAM experience as part of “special” area programming.

STEAM is an acronym for **S**cience, **T**echnology, **E**ngineering, the **A**rts, and **M**athematics. It is not a program, but a philosophical approach to learning that integrates

the design process with the knowledge from the various disciplines. It is taught through, project-based experiences that also emphasize the 21<sup>st</sup> century skills of collaboration, cooperation and communication. The STEAM experience is divided into four, 9-week segments, with each component focusing on a common grade level theme such as “Earth,” “Sound,” and “Air & Weather,” and how the design process is applied within each of the disciplines.

- In the Arts portion of STEAM, students use their skills and concepts learned in visual art and music to reinforce, express, practice and demonstrate knowledge and skills in other academic areas such as science, math or literacy. Examples of topics include: how patterns occur in music, using drama to demonstrate solutions to math problems, how patterns and symmetry are important in design, and the important role that length, width and depth play in sculptural form. As the STEAM program evolves this year, increased emphasis will be placed on strengthening connections between the Arts and the other STEAM components via the over-arching themes of “Earth,” “Sound” and “Air & Weather.”
- As part of the STEAM program, students are engaged in project based engineering activities. As in all STEAM classes, students experience the engineering design process (ask, imagine, plan, create, improve and share) to solve a problem. Activities in the engineering class are extensions/reinforcements of the science and engineering standards for each grade and are based on the common grade level themes. First graders design sails and windmills, second graders explore the properties of sound to design musical instruments and third graders engineer model buildings that are earthquake resistant.
- In the Technology segment of STEAM, students are introduced to computer programming and robotics via sites such as Botlogic, Code.org, and MIT’s Scratch. In the process they will be developing the basic computer and navigation skills needed to support general computer use as well as their programming activities. They explore programming through the use of robotic devices (BeeBots, Lego WeDots, and MakeyMakey) to make hands on connection with these concepts. Through this experience, students will be exposed to a new literacy, have opportunities to develop their critical and logical thinking skills, and will begin to develop an understanding of the relationship between programming and the technologies that are part of their everyday lives.

## Spanish



Students in grades 1-5 learn how to speak and understand Spanish. The curriculum builds on what they have learned previously. Experiences focus on listening and repeating new vocabulary that is used to talk about every day topics such as:

- Greetings and introductions
- Colors, Numbers 0-100
- Calendar and Weather
- School
- Family, Home, Food
- Animals
- Clothing, Body Parts
- Cultural connections

Students will also:

- Ask and respond to simple questions.
- Show comprehension by following basic classroom instructions.
- Produce simple expressions and conversations.
- Demonstrate an awareness, curiosity and appreciation for different cultures in the places where Spanish is spoken.

# Curriculum Resources

Massachusetts Common Core Curriculum Frameworks: <http://www.doe.mass.edu/frameworks/>

Grade Level Curriculum Overview: <http://www.needham.k12.ma.us/cms/One.aspx?portalId=64513&pageId=984080>

## Math:

Grade Level—K-5 Math folder in the District Program Development Folder in Google:

<http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>

## Literacy:

<http://needham.rubiconatlas.org> (Enter your email address and log in with the password integrity) If you need access to ATLAS, please email Corinne MacDonald in the Office of Student Learning.

Reading Units of Study 2015-2016 folder in the District Program Development Folder in Google:

<http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>

## Science:

[http://www.needham.k12.ma.us/departments/curriculum and academics/science center](http://www.needham.k12.ma.us/departments/curriculum%20and%20academics/science%20center)

[http://www.needham.k12.ma.us/departments/curriculum and academics/science center/k 5 science science curriculum/](http://www.needham.k12.ma.us/departments/curriculum%20and%20academics/science%20center/k%205%20science%20science%20curriculum/)

## Social Studies:

<http://needham.rubiconatlas.org> (Enter your email address and log in with the password integrity) If you need access to ATLAS, please email Corinne MacDonald in the Office of Student Learning.

## Progress Reports:

[http://www.needham.k12.ma.us/departments/curriculum and academics/curriculum/student learning/elementary/progress report/](http://www.needham.k12.ma.us/departments/curriculum%20and%20academics/curriculum/student%20learning/elementary/progress%20report/)

Elementary Report Card folder in the District Program Development Folder in Google:

<http://sites.google.com/a/needham.k12.ma.us/staffportal/district/program-development>

## Math Coaches

### Broadmeadow

Liz Silva

### Eliot

Elizabeth Heins

### Hillside

Elaine McKenna

### Mitchell

Judy Wojtczak

### Newman

Lindsey Sawyer

## Literacy Specialists

### Broadmeadow

Abby Siegel, Julia Reichheld,  
Martha Winokur

### Eliot

Margaret Berges, Melanie Sullivan

### Hillside

Carol-Ann Hurley, Aly Schenker

### Mitchell

Amy Cocivera, Katherine Lansdale

### Newman

Holly McMackin, Andrea Chang,  
Pamela McKelvey

## Science Center Program Specialists

Lisha Goldberg

Sarah Huber

Jane Borjas,  
STEAM Engineering Teacher

