

# CROSS-GROUP ANALYSIS

## Newton Public Schools Mathematics Curriculum Survey

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### ***BACKGROUND OF RESPONDENTS: Teachers***

#### **Teachers' Years of Teaching Experience**

Number of Years	Elementary n=80	Middle School n=30	High School n=32
0-2 Years	13%	0%	13%
3-5 Years	15%	23%	19 %
6-10 Years	20%	30%	28%
11-15 Years	18%	20%	9%
16-30 Years	24%	20%	9%
More than 30 Years	11%	7%	22%

#### **Teachers' Grade Level Taught This Year**

Grade Level	Elementary n=80	Middle School n=30	High School n=32
Kindergarten	15%		
Grade 1	18%		
Grade 2	21%		
Grade 3	10%		
Grade 4	15%		
Grade 5	21%		
Grade 6		40%	
Grade 7		33%	
Grade 8		27%	
Grade 9			59%
Grade 10			63%
Grade 11			53%
Grade 12			53%

#### **Education Attainment of Responding Teachers**

Degree Earned or Pursuing	Elementary n=80	Middle School n=30	High School n=32
Earned Master	84%	87%	59%
Pursuing Master	15%	13%	38%
Earned Doctorate	1%	0%	3%
Pursuing Doctorate	0%	0%	0%

## **BACKGROUND OF RESPONDENTS: Administrators**

**Administrators' Years of Experience as an Administrator, n = 36.**

<b>YEARS EXPERIENCE</b>	<b>PERCENTAGE RESPONSE</b>
0-2 years	6%
3-5 years	17%
6-10 years	17%
11-15 years	14%
16-30 years	42%
More than 30 years	6%
<b>Total Percent</b>	<b>100%</b>

**Administrators' Current Administrative Position, n = 36**

<b>POSITION TITLE</b>	<b>PERCENTAGE RESPONSE</b>
Principal or Headmaster	31%
Assistant Principal or Housemaster	25%
System-wide Administrator	44%
<b>Total Percent</b>	<b>100%</b>

**Level of Schools in which Administrators Work, n= 36 (Multiple responses by some administrators)**

<b>LEVEL OF SCHOOL</b>	<b>PERCENT RESPONSE</b>
Elementary School	38%
Middle School	42%
High School	31%

## **BACKGROUND OF RESPONDENTS: Students**

**Grade Levels of Responding Students**

<b>Elementary Grades</b>	<b>Percentage n=574</b>	<b>Middle School Grades</b>	<b>Percentage n=2020</b>	<b>High School Grades</b>	<b>Percentage n=416</b>
1		6	33% (665)	9	33% (137)
2		7	32% (646)	10	34% (143)
3		8	35% (709)	11	20% (83)
4	49% (282)			12	13% (53)
5	50% (286)				
<b>Unknown</b>	1% (6)				

### Student Demographics

GENDER AND ETHNICITY	Elementary n=574	Middle School n=2020	High School n=416
Male	50% (281)	52% (1031)	49% (196)
Female	50% (282)	48% (958)	51% (207)
<b>African American/ Black</b>	4% (20)	4% (84)	5% (20)
Hispanic	2% (13)	4% (69)	2% (7)
White	70% (386)	70% (1356)	75% (287)
Asian	13% (74)	13% (260)	12% (45)
Mixed	10% (54)	8% (157)	6% (24)
Native American	1% (3)	1% (15)	1% (2)

### Students' Years in Newton Public Schools

ENTRY POINT TO NPS	Elementary n=574	Middle School n=2020	High School n=416
Continuously since Kindergarten	77% (430)	69% (1363)	68% (273)
Entered in 1 <sup>st</sup> or 2 <sup>nd</sup> grade **	11% (59)	10% (191)	
Entered in 3 <sup>rd</sup> or 4 <sup>th</sup> grade**	8% (43)	12% (228)	
Entered in 3 <sup>rd</sup> , 4 <sup>th</sup> , or 5 <sup>th</sup> grade*		12% (228)	
Entered in elementary school*			16% (65)
Entered in middle school		5% (105)	
Entered in high school			4% (14)
Started this year	5% (29)	5% (95)	5% (19)
* Middle school and High School students only			
**Elementary students only			

### Educational Aspirations of Family According to Students

ITEM How far in school do you think your parents/family want you to go? *	Middle School Students n=2020	High School Students n=416
High school	2% (42)	1% (2)
Attend a 2-year college	3% (49)	1% (3)
Attend a 4-year college	44% (850)	43% (167)
Attend a trade school	1% (23)	0% (0)
Attend graduate school	43% (840)	52% (204)
Other	7% (135)	4% (14)
* Middle School and High School students only		

## **BACKGROUND OF RESPONDENTS: Parents**

### **Grade Level of Oldest Child Attending Newton Public Schools**

<b>Oldest child attends Elementary School n=171</b>		<b>Oldest child attends Middle School n=173</b>		<b>Oldest child attends High School n=40</b>	
<b>Kindergarten</b>	9%	<b>Grade 6</b>	36%	<b>Grade 9</b>	23%
<b>Grade 1</b>	17%	<b>Grade 7</b>	32%	<b>Grade 10</b>	23%
<b>Grade 2</b>	15%	<b>Grade 8</b>	32%	<b>Grade 11</b>	23%
<b>Grade 3</b>	20%			<b>Grade 12</b>	33%
<b>Grade 4</b>	21%				
<b>Grade 5</b>	18%				

### **Number of Years That Oldest Child Has Attended Newton Public Schools\***

<b>ITEM</b>	<b>Middle School Parents n=173</b>	<b>High School Parents n=40</b>
<b>How many years has your child attended Newton Public Schools?</b>		
<b>Continuously since Kindergarten</b>	79%	70%
<b>Entered in Elementary School</b>	14%	15%
<b>Entered in Middle School</b>	5%	10%
<b>Entered in High School</b>		5%
<b>Started this year</b>	2%	0%

\*Middle and High School responses only

## MATHEMATICS STANDARDS

Familiarity with Mathematics Standards , Percent Responding 4 or 5 (5=Extremely Familiar, 1=Not at All Familiar)

Item To what extent are you familiar with:	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
NCTM Standards	40%	56%	75%	47%
MA Mathematics Curriculum Framework	73%	80%	69%	53%
Newton Mathematics Benchmarks	86%	70%	34%	56%

Agreement with Mathematics Standards, Percent Responding 4 or 5, (5=To a Great Extent, 1=Not at All)

ITEM To what extent do you agree with the overall vision of the:	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
NCTM Standards	56%	70%	53%	64%
MA Mathematics Curriculum Framework	59%	80%	40%	48%
Newton Mathematics Benchmarks	71%	73%	31%	75%

## MATHEMATICS CONTENT / STUDENT LEARNING GOALS

Emphasis Teachers Place on Student Learning Goals, Percent Responding 4 or 5, (5=Extremely Strong, 1=Extremely Weak)

ITEM How much emphasis do you place on each of the following student learning goals?	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32
Increase interest	85% (4)*	90% (4)	78% (4)
Learn concept	95% (1)	100% (1)	94% (3)
Learn procedures	76%	77%	94% (3)
Problem Solving	90% (2)	97% (2)	97% (2)
Reasoning	88% (3)	93% (3)	100% (1)
Idea Connections	83% (5)	87% (5)	94% (3)
Further study preparation	71%	70%	72% (5)
Understand logical structure	75%	67%	69%
History of Mathematics	10%	3%	13%
Nature of Mathematics	24%	17%	53%
Explain ideas	78%	83%	97% (2)
Speed and accuracy	60%	53%	63%
Prepare for MCAS and other tests	35%	60%	59%

\* Top five for each level

# MATHEMATICS CURRICULUM

Elementary and Middle School Teacher Satisfaction with Curricula They Use, Percent Responding 4 or 5, (5=To a Great Extent, 1=Not at All)

ITEM	CURRICULA IN USE				
	Everyday Math	Connected Math		Gateways	McDougal-Little
	Elementary Teachers n=62	Elementary Teachers n=18	Middle School Teachers n=12	Middle School Teachers n=10	Middle School Teachers n=8
To what extent are you satisfied with:					
Text book or curriculum as a whole	38%	83%	50%	40%	38%
Sequence of topics	27%	83%	42%	20%	63%
Coverage of topics	37%	67%	33%	30%	75%
Allows children to construct own meaning	34%	78%	92%	10%	25%
Considers different learning styles	19%	33%	25%	20%	13%
Allows access for all students	23%	28%	0%	10%	0%
Reflects diversity of our society	15%	44%	17%	20%	0%
Provides opportunities to show how a mathematician thinks	35%	56%	50%	20%	13%
Emphasizes connections between strands of mathematics	40%	67%	33%	60%	25%
Emphasizes interdisciplinary connections	27%	50%	33%	10%	0%
Provides for inquiry-based investigations	29%	72%	67%	30%	0%
Involves use of manipulatives	55%	78%	67%	10%	0%
Provides for exploration of concepts	47%	56%	34%	20%	0%
Encourages reflection	27%	89%	83%	30%	0%
Encourages collaboration	50%	89%	67%	10%	0%
Provides relevance to day-to-day experiences	50%	78%	58%	0%	0%
Provides for diverse cultural backgrounds, abilities, and learning styles	11%	17%	17%	10%	0%
Involves students in active learning	50%	83%	67%	30%	0%

**High School Teacher Satisfaction with Curricula They Use, Percent Responding (5=To a Great Extent, 1=Not at All)**

ITEM To what extent are you satisfied with:	CURRICULA IN USE				
	Honors n=19	1A n=26	SIMMS n=14	1B n=23	2 n=21
Curriculum matches state standards	74%	77% (2)	57% (1)	74% (1)	43%
Texts/materials appropriate for the course	79% (3)	69% (3)	57% (1)	52%	39%
Curriculum challenges students	89% (1)	81% (1)	50%	70% (2)	52% (2)
Course allows for students to construct own meaning	53%	39%	50%	13%	15%
Allows for differences in learning styles	53%	62%	42%	43%	19%
Connections between mathematical topics	68%	54%	57% (1)	43%	19%
Provides for inquiry-based investigations of concepts	58%	43%	57% (1)	22%	15%
Emphasizes interdisciplinary connections	16%	19%	57% (1)	4%	0%
Adequate time to cover the curriculum	63%	50%	14%	56%	48% (3)
Involves students in active learning	68%	65%	57% (1)	65% (3)	30%
Expectations for student ability at year end high enough	84% (2)	77% (2)	50%	65% (3)	53% (1)
Expectations defined by curriculum match students' ability	74%	62%	36%	52%	38%

**Resources that High School Teachers Use, Percent Responding to Items on a Checklist**

Please check all that apply:	Honors n=19	Curriculum 1A n=26	SIMMS n=14	1B n=23	2 n=21
Handouts you create	95%	96%	89%	100%	100%
Handouts copied from other materials	95%	96%	89%	100%	89%
Websites	45%	50%	22%	35%	21%
Computer software	77%	73%	67%	74%	37%
Other	18%	31%	33%	17%	21%

**Administrator Satisfaction with Curriculum Materials, Percent Response, n = 36 administrators**

ITEM	To a great extent (5)	(4)	(3)	(2)	Not at all (1)
Considering the curriculum materials teachers in your school or district are expected to use, how satisfied are you:					
With a textbook or curriculum as a whole?	6%	36%	50%	6%	3%
With the sequence of topics provided in this textbook or curriculum?	0%	44%	50%	0%	6%
With the coverage of topics?	8%	42%	44%	3%	3%
With the way this curriculum provides relevance to students' day-to-day experiences?	11%	36%	39%	11%	3%
With the way this curriculum provides for diverse cultural backgrounds, abilities, and learning styles?	0%	17%	50%	28%	6%
With the way this curriculum involves students in active learning?	11%	44%	28%	11%	6%
With the level of implementation of the curriculum by the majority of teachers?	11%	39%	42%	6%	3%

## **MATHEMATICS INSTRUCTION: Classroom Activities, Use of Technology, and Homework**

Instructional Strategies Used in Mathematics, Percent Responding 4 or 5 (5=All or Almost All Math Lessons, 1=Never)

<b>ITEM How often do you do the following in your classroom*:</b>	<b>Elementary Teachers n=80</b>	<b>Middle School Teachers n=30</b>	<b>High School Teachers n=32</b>	<b>School and District Administrators n=36</b>
<b>Introduce content through formal presentations</b>	85% (3)	97% (2)	91% (3)	75% (3)
<b>Pose open-ended questions</b>	75% (4)	70%	75%	70% (4)
<b>Engage the class in whole group discussions</b>	89% (1)	87% (5)	63%	81% (2)
<b>Require students to explain their responses when giving an answer</b>	89% (1)	93% (3)	94% (2)	67% (5)
<b>Ask students to explain concepts to one another</b>	71% (5)	87% (5)	79% (5)	19%
<b>Ask students to consider alternative methods for solutions</b>	85% (3)	90% (4)	81% (4)	58%
<b>Ask students to use multiple representations</b>	64%	43%	62%	53%
<b>Allow students to work at their own pace</b>	88% (2)	73%	62%	31%
<b>Help students see connections between mathematics and other disciplines</b>	59%	47%	59%	20%
<b>Assign mathematics homework</b>	70%	100% (1)	100% (1)	84% (1)
<b>Provide feedback to students on reflections students have written</b>	14%	17%	9%	17%

\*Question for administrators was "How often do the majority of teachers in your school or district do the following..."

**Student Activities during Mathematics Class, Percent Responding 4 or 5 (5=All or Almost All Math Lessons, 1=Never)**

<b>ITEM</b> How often do students in your mathematics class take part in the following types of activities*:	<b>Elementary Teachers</b> n=80	<b>Middle School Teachers</b> n=30	<b>High School Teachers</b> n=32	<b>School and District Administrators</b> n=36
Listen and take notes during presentation by teacher	10%	73% (5)	94% (1)	45%
Work in groups	86% (2)	87% (3)	65%	64% (4)
Read from a mathematics textbook in class	24%	33%	22%	25%
Read other (non-textbook) mathematics-related materials in class	24%	17%	6%	8%
Engage in mathematical activities using concrete materials	94% (1)	50%	18%	44%
Practice routine computations/algorithms	64% (5)	63%	73% (4)	81% (1)
Review homework/worksheet assignments	55%	90% (2)	94% (1)	66% (3)
Follow specific instructions in an activity or investigation	86% (2)	77% (4)	69% (5)	72% (2)
Design their own activity or investigation	19%	0%	0%	11%
Use mathematical concepts to solve applied problems	70% (4)	90% (2)	78% (3)	50% (5)
Answer textbook or worksheet questions	71% (3)	97% (1)	91% (2)	81% (1)
Record, represent, and/or analyze data	63%	33%	31%	50% (5)
Write reflections	21%	10%	3%	17%
Make formal presentations to the rest of the class	9%	7%	6%	3%
Work on extended mathematics investigations or projects (a week or more in duration)	11%	10%	3%	6%

\*Question for administrators was "How often do students in the classes of the majority of teachers in your school do the following..."

**Student Views of Classroom Activities, Percent Responding 4 or 5 (5=All or Almost All Math Lessons, 1=Never)**

<b>ITEM</b> How often does your math teacher ask you to do the following?	<b>Elementary Students</b> n=574	<b>Middle School Students</b> n=2020	<b>High School Students</b> n=416
Explain how you solve a problem	72% (2)	86% (2)	78% (3)
Think about another, alternative way to solve a problem *		70% (3)	62%
Take notes while the teacher talks *		51%	70%
Write in a math journal*		21%	13%
Use manipulatives to solve a problem	28%	30%	26%
Use manipulatives to learn new ideas in math	26%	30%	28%
Read the math textbook in class	53% (3)	46%	20%
Read other math related materials in class *		35%	23%
Answer textbook or worksheet questions	77% (1)	90% (1)	91% (1)
Talk to the whole class about how you solved a problem	39%	64%	61%
Talk to a few students about how you solved a problem	32%	51%	63%
Explain your solution to a problem in writing	47%	50%	37%
Work on a math investigation or project that lasts a week or more	22%	15%	10%
Use a calculator to solve a problem **		14%	53%
Use a graphing calculator to solve a problem *		14%	53%
*Use a spreadsheet program to analyze data		12%	11%
Use a calculator to do your homework	5%	46%	84% (2)

**Teacher Use of Technology with Students, Percent Responding 4 or 5 (5=All or Almost All Math Lessons, 1=Never)**

Item Please answer these questions regarding use of technology in your classroom:	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
How often are students allowed to use calculators during math class?	34%	60%	97%	50%
How often are students allowed to use calculators for math homework?	23%	50%	100%	55%
How often do you use computer spreadsheets as part of your math instruction?	3%	0%	3%	0%
How often do you use the internet as part of your math instruction?	8%	0%	3%	3%
How often do you use other applications of technology for your math instruction?	10%	10%	25%	0%

*\*Question for administrators was "How often do students in the classes of the majority of teachers in your school do the following..."*

**Hours Spent on Homework by Elementary Students on a Typical DAY, n = 574 elementary students**

Time spent on Math homework	Percent Response Elementary Students
0-15 minutes	50%
16-30 minutes	36%
31-45 minutes	7%
46-60 minutes	5%
More than one hour	3%

**Hours Spent on Homework in a Typical WEEK by Middle School and High School Students**

Time spent on Math homework	Middle School Students n=2020	High School Students n=416
0-30 minutes	13%	16%
31-60 minutes	17%	21%
61-90 minutes	19%	18%
91-120 minutes	16%	13%
2-3 hours	21%	16%
More than three hours	14%	17%

**Time Teacher Spends Each Day in Class Going over Homework**

<b>Time spent reviewing homework in class</b>	<b>Elementary Students n=574</b>	<b>Middle School Students n=2020</b>	<b>High School Students n=416</b>
<b>None</b>	7%	1%	1%
<b>Less than 15 minutes</b>	59%	33%	27%
<b>15-30 minutes</b>	31%	54%	60%
<b>More than 30 minutes</b>	3%	12%	12%

**Time Required by Mathematics Homework Assigned in a Typical Week (According to Teachers)**

<b>Time required for homework assignments</b>	<b>Elementary n=80</b>	<b>Middle School n=30</b>	<b>High School n=32</b>
<b>0-30 minutes</b>	55%	7%	9%
<b>31-60 minutes</b>	19%	10%	6%
<b>61-90 minutes</b>	18%	10%	28%
<b>91-120 minutes</b>	8%	40%	22%
<b>2-3 hours</b>	1%	27%	31%
<b>More than 3 hours</b>	0%	7%	3%

## MATHEMATICS INSTRUCTION: Classroom Assessment

### Teacher Assessment of Student Progress, Percent Responding to Checklist Items

ITEM In which of the following ways do you assess student progress in mathematics*:	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
Conduct a pre-assessment to determine what students already know	100% (1)	50%	44%	37%
Observe students and ask questions as they work individually	100% (1)	97% (2)	91% (3)	71% (4)
Observe students and ask questions as they work in small groups	98% (2)	97% (2)	81% (5)	74% (3)
Ask students questions during large group discussions	96% (3)	93% (3)	97% (1)	89% (2)
Use assessments embedded in class activities to see if students are "getting it"	91% (4)	83% (4)	69%	63% (5)
Review student homework	73% (5)	100% (1)	94% (2)	97% (1)
Review student notebooks or journals	51%	33%	22%	43%
Review student portfolios	21%	10%	9%	6%
Have students do long-term math projects	21%	53%	50%	17%
Have students present their work to the class	38%	70%	72%	37%
Give predominantly short-answer tests	48%	67%	59%	63% (51)
Give predominantly multiple choice or true/false tests	4%	10%	6%	20%
Give tests requiring open-ended responses	49%	83% (4)	88% (4)	54%
Grade student work on open-ended problems or tasks using defined criteria	36%	63%	56%	23%
Have students assess each other (peer evaluation)	30%	73% (5)	75%	
Give students a problem-solving task and ask them to explain their results in writing	61%	63%	56%	
Use homework as a formative assessment	30%	73% (5)	75%	
Use summative assessments provided by a textbook company	60%	30%	31%	

\*Question for administrators was "In which of the following ways do the majority of the teachers in your school or district assess student progress in mathematics?"

**Administrator Familiarity with School or District Mathematics Assessment, Percent Response, n=36**

ITEM	Extremely Familiar (5)	(4)	(3)	(2)	Not at all (1)
How familiar do you consider yourself to be with the ways in which teachers in your school or district assess student learning in mathematics?	14%	33%	39%	6%	8%

**Extent to which Formative Assessment Informs Teacher Instructional Decisions , Percent Responding 4 or 5 (5=To a Great Extent, 1=Not at All)**

ITEM	Elementary n=80	Middle School n=30	High School n=32
To what extent does your formative assessment inform your instructional decisions?	69%	60%	78%

**Teacher Actions When Formative Assessment Reveals Students Do Not Understand Material, Percent Responding to Items on a Checklist**

ITEM	Elementary n=80	Middle School n=30	High School n=32
What do you do is a student's formative assessment indicates material being taught is not understood?			
Offer extra help before or after school, or during lunch or recess	48% (3)	97% (1)	100% (1)
Try to teach a different way	3%	3%	94% (2)
Suggest to parent the s/he hire a tutor	3%	10%	10%
Plan small group instruction during class time	94% (1)	57% (3)	31%
Assign additional homework	5%	7%	31%
Suggestion s/he move to a lower level course	0%	7%	47%
Confer with parents	69% (2)	60% (2)	72% (3)

**Teacher Actions When Formative Assessment Reveals Students Have Mastered Material,  
Percent Responding to Items on a Checklist**

<b>ITEM</b> What do you do if a student's formative assessment indicates the material has been mastered?	<b>Elementary</b> n=80	<b>Middle School</b> n=30	<b>High School</b> n=32
<b>Ask him or her to help another student</b>	66% (2)	70% (2)	91% (1)
<b>Ask student to work on something else</b>	49% (3)	40% (3)	25% (3)
<b>Give student more problems like the ones you already did</b>	9%	3%	6%
<b>Give student more challenging work on the same topic</b>	96% (1)	93% (1)	84% (2)
<b>Give student a different math assignment from the rest of the class</b>	45%	40% (3)	22%

## STUDENTS' EXPERIENCE WITH MATHEMATICS

Student Classroom Activities in Mathematics, Percent Responding 4 or 5 (5=All or Almost All Math Lessons, 1=Never)

ITEM How often does your math teacher ask you to do the following?	Elementary Students n=574	Middle School Students n=2020	High School Students n=416
Explain how you solve a problem	72% (2)	86% (2)	78% (3)
Think about another, alternative way to solve a problem *		70% (3)	62%
Take notes while the teacher talks *		51%	70%
Write in a math journal*		21%	13%
Use manipulatives to solve a problem	28%	30%	26%
Use manipulatives to learn new ideas in math	26%	30%	28%
Read the math textbook in class	53% (3)	46%	20%
Read other math related materials in class *		35%	23%
Answer textbook or worksheet questions	77% (1)	90% (1)	91% (1)
Talk to the whole class about how you solved a problem	39%	64%	61%
Talk to a few students about how you solved a problem	32%	51%	63%
Explain your solution to a problem in writing	47%	50%	37%
Work on a math investigation or project that lasts a week or more	22%	15%	10%
Use a calculator to solve a problem **		14%	53%
Use a graphing calculator to solve a problem *		14%	53%
Use a spreadsheet program to analyze data *		12%	11%
Use a calculator to do your homework	5%	46%	84% (2)

What Students Do When They Finish Their Math Work Before Others, Percent Responding to Items on Checklist

ITEM If you already finish something in math, or finish your assignment before most other students, which of the following does your teacher do? Please check all that apply.	Elementary Students n=574	Middle School Students n=2020	High School Students n=416
Ask you to help another student	57% (2)	55% (2)	52% (2)
Ask you to work on something else	81% (1)	71% (1)	57% (1)
Give you more problems like the ones you already did	42%	48% (3)	46% (3)
Give you more challenging work on the same topic	52% (3)	47%	33%
Give you a different math assignment from the rest of the class	20%	16%	8%

**What Students Do When They Don't Understand Something in Mathematics, Percent Responding to Items in a Checklist**

<b>ITEM</b> If you don't understand something in math, which of the following do you do? Check all that apply	<b>Elementary Students</b> n=574	<b>Middle School Students</b> n=2020	<b>High School Students</b> n=416
Ask another student	71% (1)	82% (1)	87% (1)
Ask someone in your family	57% (3)	62%	40%
Ask your teacher later	53%	65% (3)	68% (3)
Get extra help from your teacher before or after school, during lunch	17%	43%	51%
Try to figure it out yourself from books	34%	51%	68% (3)
Try to figure it out yourself using the internet	7%	12%	13%
Ask your teacher a question during math class	69% (2)	72% (2)	69% (2)
Ask your tutor during school	2%	4%	2%
Ask you tutor after school	6%	9%	12%
Think about transferring to a lower level class **		4%	3%
<b>** Middle School and High School Students Only</b>			

**High School Students who have changed curriculum levels, n=416**

<b>RESPONSE</b>	<b>Percentage</b>
Yes	14%
No	86%

**High School Student Curriculum Level Changes, n=416**

	<b>Percent Response</b>
<b>From Curriculum IA to Curriculum IB</b>	26% (17)
<b>From Curriculum IA to Curriculum 2</b>	6% (4)
<b>From Curriculum IA to Honors</b>	12% (8)
<b>From Curriculum IA to SIMMS</b>	6% (4)
<b>From Curriculum IB to Curriculum 2</b>	6% (4)
<b>From Curriculum IB to Honors</b>	0% (0)
<b>From Curriculum IB to SIMMS</b>	2% (1)
<b>From Curriculum IB to Curriculum IA</b>	2% (1)
<b>From Curriculum 2 to SIMMS</b>	2% (1)
<b>From Curriculum 2 to Curriculum IB</b>	5% (3)
<b>From Curriculum 2 to Curriculum IA</b>	2% (1)
<b>From Honors to SIMMS</b>	2% (1)
<b>From Honors to Curriculum IB</b>	0% (0)
<b>From Honors to Curriculum IA</b>	2% (14) <sup>2</sup>
<b>From SIMMS to Honors</b>	0% (0)
<b>From SIMMS to Curriculum 2</b>	3% (2)
<b>From SIMMS to Curriculum IB</b>	6% (4)
<b>From SIMMS to Curriculum IA</b>	0% (0)

**Parent Use of Extra Mathematics Support, Percent Responding to Items on a Checklist**

<b>ITEM</b> Please indicate any extra mathematics help that your child has received in the last twelve months.	<b>Elementary Parents</b> <b>n=171</b>	<b>Middle School Parents</b> <b>n=173</b>	<b>High School Parents</b> <b>n=40</b>
Extra help with own teacher before or after school	9%	46%	38%
After school program or tutoring at your child's school	7%	3%	5%
An after school or weekend program that is not affiliated with your child's school	12%	6%	5%
Help from a parent or other family member * (Middle and High School ONLY)		79%	40%
A paid tutor	6%	14%	25%
A summer program offered by Newton Public Schools	1%	2%	0%
A private summer program	2%	1%	3%
In school extra MCAS support or class (Middle School and High School ONLY)		6%	3%
None of the above			30%

**Student Attitudes / Experiences in Mathematics, Percent Responding 4 or 5 (5=Strongly Agree, 1=Strongly Disagree)**

<b>ITEM</b> Choose the response that best indicates your level of agreement or disagreement with each of the following:	<b>Elementary Students</b> n=574	<b>Middle School Students</b> n=2020	<b>High School Students</b> n=416
I usually do well in math.	71%	77%	82%
I enjoy doing math in school.	45%	50%	57%
You have to be good at memorizing to do well in math.	30%	47%	44%
You need to be persistent in solving problems to do well in math. *		69%	78%
I enjoy math class.*		54%	49%
Beyond passing a required course or getting into a good school, I don't see any reason for learning the math I am studying.*		16%	21%
I need to learn math to get the kind of job I want in the future.	45%	58%	50%
I don't want to take any more math classes than I absolutely have to.*		34%	33%
Working with other students usually helps me understand math better.	45%	64%	62%
I feel comfortable answering my teacher's questions during math, even if I'm not sure my answer is right.	56%	56%	62%
If I get stuck on a math problem, I am confident that I can solve it eventually.	63%	60%	53%
Using a graphing calculator helps me understand math.*		40%	45%
Using manipulatives helps me to understand math.**	36%		
Using a calculator helps me to do math efficiently.**	49%		
I use math in other classes (subjects such as science).	41%	20%	71%
I feel comfortable with the pace of my math class.*		17%	78%
My current math class is too easy for me.*		24%	21%
I worry that I need to be in a higher level in math.*		23%	18%
If I need more challenge in math, I know I can arrange to go up a level.***			47%
My current math class is too hard for me.*		16%	7%
I worry that I may have to go down a level in math.*		12%	9%
If I need a slower pace in math, I know I can arrange to go down a level.***			61%
I worry that I won't do well enough in the math section of the MCAS.	17%	21%	14%
I feel confident that I can always get the help that I want from my teacher.	78%	77%	75%

\*Middle School and High School Only \*\* Elementary School Only

## **STUDENTS' EXPERIENCE WITH MATHEMATICS (ACCORDING TO PARENTS)**

Parent Views of Their Children's Experience with Mathematics This Year, Percent Responding 4 or 5 (5=Strongly Agree, 1=Strongly Disagree)

<b>ITEM</b> Please indicate your level of agreement with the following statements:	<b>Elementary Parents</b> n=171	<b>Middle School Parents</b> n=173	<b>High School Parents</b> n=40
<b>My child enjoys math at school.</b>	68%	63%	48%
<b>My child feels successful in math class.</b>	78%	65%	60%
<b>My child is confident in her or his ability to do math.</b>	74%	60%	63%
<b>My child's teacher teaches to my child's learning level.</b>	42%	57%	55%
<b>The way students are grouped for math instruction this year fits my child's learning needs.</b>	22%	53%	50%
<b>The math content is demanding enough to meet the learning needs of my child.</b>	39%	64%	60%
<b>My child receives the additional instruction needed from the teacher when s/he doesn't understand something in math.</b>	48%	60%	45%
<b>My child spends too much time on math homework.</b>	11%	13%	23%
<b>My child doesn't get enough math homework. **</b>	40%		
<b>If my child already knows something in math or finished his or her assignment before most other students, the teacher gives her or him more challenging work.</b>	22%	14%	8%
<b>My child experiences anxiety about doing well on the math portion of the MCAS. *</b>		29%	18%

\*Middle School and High School Only    \*\* Elementary School Only

## STUDENTS' LEARNING AND SKILLS (ACCORDING TO PARENTS)

Parent Views of Their Children's Learning and Skills in Mathematics, Percent Responding 4 or 5 (5=Strongly Agree, 1=Strongly Disagree)

ITEM Please indicate your level of agreement with the following statements:	Elementary Parents n=171	Middle School Parents n=173	High School Parents n=40
My child uses a number of strategies to solve math problems.	79%	66%	65%
My child can verbally explain his or her thinking to me.	80%	76%	65%
My child can use pictures, drawings, writing, or models to explain his or her understanding of math.	82%	72%	73%
My child is persistent in trying to solve math problems.	72%	65%	70%
My child is able to solve a variety of open-ended questions.	68%	64%	83%
My child's knowledge of math facts is appropriate for his or her grade level. 1, 2	68%	76%	
My child's computational skills are appropriate for his or her grade level.	64%	75%	88%
I am comfortable with my child's progress in using a variety of strategies to solve problems. 2,3		58%	73%
My child knows how to use a calculator as a math tool appropriately.	55%	86%	98%
My child knows how to use a graphing calculator as a math tool appropriately. 2,3		27%	80%
I worry about the consequences of moving my child to a lower level in math. 2,3		57%	55%
I worry about the consequences of moving my child to a higher level in math. 2,3		31%	15%
I worry that my child will not be placed in a high enough level in math when s/he enters high school. 2		32%	
I am confident that my child would be allowed to move to a higher level in math if his/her achievement warrants it. 3			48%
I worry that my child won't pass MCAS.1	9%		
I worry that my child won't do well on the math portion of the MCAS. 2,3		17%	2%

1 Elementary School 2 Middle School 3 High School

## COMMUNICATION WITH PARENTS

Teacher and Administrator Views Concerning Communication with Parents, Percent Responding 4 or 5 on scales shown below

ITEM	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
Administrators: How familiar do you consider yourself to be with information that teachers in your school or district provide to parents about mathematics? (5=Extremely Familiar, 1=Not at All Familiar)				31%
Administrators: Teachers in my school or district provide adequate information to parents about what is expected in their math classrooms. (5=Strongly Agree, 1=Strongly Disagree)  Teachers: Parents are provided adequate information about what is expected in math in my classroom. (5=Strongly Agree, 1=Strongly Disagree)	85%	93%	91%	47%
Administrators: Teachers in my school or district provide the information parents need about their children's progress in math in a timely fashion. (5=Strongly Agree, 1=Strongly Disagree)  Teachers: Parents are provided the information on their child's/children's progress in a timely fashion. (5=Strongly Agree, 1=Strongly Disagree)	83%	83%	78%	34%

Parent Concerns Heard by Teachers and Administrators, Percent Responding to Items on a Checklist

ITEM	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
I frequently hear concerns from my students' parents about the following: (Please check all that apply)				
The student needs more challenging work.	40%	30%	6%	53%
The student is struggling with math.	40%	57%	41%	61%
The parents don't understand why the student is doing math "this way."	31%	10%	3%	31%
The parents are worried that the students don't have adequate computational skills.	29%	30%	6%	36%
The parents are concerned that the student needs more support in math.	29%	N/A	N/A	N/A
The parents are concerned that the student is in too low a level for math	N/A	33%	25%	42%
The parents are concerned that the student is in too high a level for math	N/A	20%	16%	11%
I don't hear any of these comments frequently.	41%	37%	50%	25%

**Parent Views of Communication with Children's Teacher or School about Mathematics, Percent Responding 4 or 5 (5=Strongly Agree, 1=Strongly Disagree)**

<b>ITEM</b> Please indicate your level of agreement with the following statements:	<b>Elementary Parents</b> n=171	<b>Middle School Parents</b> n=173	<b>High School Parents</b> n=40
I receive enough information about what is expected in math in my child's classroom.	48%	43%	35%
I get the information I need about my child's progress in math.	49%	55%	43%
My child's math teacher encourages parents to help with math homework.	50%	16%	5%
I receive enough information about additional support available for my child in math. *		23%	18%
I receive enough information about levels of math classes in Newton. *		47%	53%
My child's teacher has encouraged me to hire a tutor for additional support for my child. *		3%	3%
I feel that the best way to support my child in math is to pay for a tutor. *		17%	13%
I receive enough information about the Newton math curriculum	35%	28%	28%

\*Middle School and High School Only

# OVERALL ASSESSMENT OF NEWTON MATHEMATICS PROGRAM

Teacher and Administrator Attitudes/Views of Newton Mathematics Program, Percent Responding 4 or 5 (5=Strongly Agree, 1=Strongly Disagree)

ITEM Please indicate your level of agreement with the following statements:	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32	School and District Administrators n=36
I enjoy teaching mathematics.	91%	100%	100%	
The testing program in Massachusetts dictates what mathematics content I teach.	49%	70%	56%	
Students learn mathematics best in classes with students of similar abilities.	18%	77%	88%	20%
I believe students in Newton would benefit from more heterogeneous (mixed ability) grouping in mathematics.				63%
Overall, the way we group students results in the best possible education for every student.	26%	37%	56%	22%
I consider myself a “master” mathematics teacher.	35%	63%	47%	
I consider myself an effective supervisor of teachers in the area of mathematics.				48%
My colleagues and I regularly share ideas and materials. *	66%	77%	84%	66%
Mathematics teachers in my school (or district) regularly observe each other teaching classes.	3%	7%	47%	8%
I am comfortable with my students’ * overall progress in mathematics.	86%	83%	90%	39%
I have confidence in the long-term benefits of the math program for students.	55%	83%	94%	64%
Overall, I think the program we use at my grade level * provides students with an excellent mathematics education.	53%	53%	90%	55%
If I could, I would change the mathematics program we use at my grade level *.	41%	50%	16%	33%
Overall, MCAS has had a positive effect on the mathematics program.	11%	20%	13%	55%
My more able students * are adequately challenged.	58%	80%	88%	64%
My more able students * are adequately supported.	59%	70%	81%	67%
My less able students * are adequately challenged.	73%	70%	88%	39%
My less able students * are adequately supported.	60%	36%	78%	36%

\*Items on Administrator Questionnaire refer to students, teachers, or activities “ in my school or district”

**Parent Attitudes/Views of Newton Mathematics Program, Percent Responding 4 or 5 (5=Strongly Agree, 1=Strongly Disagree)**

<b>ITEM</b> Please indicate your level of agreement with the following statements:	<b>Elementary Parents</b> n=171	<b>Middle School Parents</b> n=173	<b>High School Parents</b> n=40
<b>A good understanding of math is important for my child's future.</b>	100%	100%	98%
<b>Being proficient in math prepares a student for his/her next math class, but that's about all.</b>	10%	12%	5%
<b>The mathematics I learned in school is useful to me in my everyday life.</b>	96%	91%	87%
<b>I feel comfortable helping my child with his/her homework.</b>	88%	77%	36%
<b>Beyond passing a required course or getting into a good school, I don't see any reason for learning math.</b>	0%	2%	3%
<b>I am comfortable with my child's overall progress in mathematics.</b>	54%	60%	55%
<b>I am comfortable with my child's current placement (level) in mathematics. *</b>		73%	63%
<b>I believe my child would benefit from more heterogeneous (mixed ability) grouping in mathematics. *</b>		12%	18%
<b>I am satisfied with the support my child receives at school in preparing for the MCAS. *</b>		54%	63%
<b>I have confidence in the long-term benefits of Newton's math program for my child.</b>	42%	55%	68%
<b>Overall I am satisfied with the mathematics education my child has received in the Newton Public Schools.</b>	40%	57%	61%

\*Middle School and High School Only

## MATHEMATICS PROFESSIONAL DEVELOPMENT

Teacher Views of Their Own Preparation in Mathematics Content Areas, Responding 4 or 5  
(5=Extremely Well-Prepared, 1=Not at all Prepared)

ITEM Please indicate how well prepared you currently feel to teach each of the following topics at the grade level(s) you teach, whether or not they are currently included in your curriculum.	Elementary Teachers n=80	Middle School Teachers n=30	High School Teachers n=32
Numeration and number theory	98%	100%	94%
Computation	99%	97%	91%
Estimation	93%	100%	94%
Measurement	96%	93%	97%
Pre-algebra	75%	100%	94%
Algebra	56%	97%	100%
Patterns and relationships	96%	97%	94%
Geometry and spatial sense	93%	90%	94%
Data collection and analysis	89%	87%	72%
Probability	68%	90%	78%
Topics from discrete mathematics	20%	53%	81%
Technology	39%	47%	72%

**Teacher Views of Areas in Which They Most Need Professional Development or Ongoing Support, Percent Responding to Items on a Checklist**

<b>ITEM</b> In which of the following areas do you believe you most need professional development or ongoing support?	<b>Elementary Teachers</b> n=80	<b>Middle School Teachers</b> n=30	<b>High School Teachers</b> n=32
<b>Deepening my own mathematics content knowledge</b>	28%	23%	34%
<b>Developing students' conceptual understanding of mathematics</b>	43% (3)	30%	34%
<b>Understanding student thinking in mathematics</b>	30%	30%	34%
<b>Providing deeper coverage of fewer mathematics concepts</b>	36%	43% (3)	41%
<b>Learning how to use inquiry/investigation-oriented teaching strategies</b>	56% (2)	40%	56% (2)
<b>Learning how to use technology in mathematics instruction</b>	59% (1)	63% (1)	47%
<b>Using the textbook as a resource rather than the primary instructional tool</b>	15%	17%	13%
<b>Teaching groups that are heterogeneous in ability</b>	29%	63% (1)	59% (1)
<b>Teaching students who have limited English proficiency</b>	20%	1%	47%
<b>Making connections between mathematics and other disciplines</b>	33%	40%	53% (3)
<b>Learning how to assess student learning in mathematics</b>	31%	40%	22%
<b>Learning how to teach mathematics in a class that includes students with special needs</b>	41%	57% (2)	31%
<b>Involving parents in the mathematics education of their children</b>	30%	33%	31%

**Teacher Preferences for Mathematics Professional Development Format, Percent Responding to Items on a Checklist**

<b>ITEM</b> Please indicate the formats for mathematics professional development that you would most prefer.	<b>Elementary Teachers</b> n=80	<b>Middle School Teachers</b> n=30	<b>High School Teachers</b> n=32
<b>College / University mathematics course</b>	10%	37%	56% (3)
<b>College / University course in teaching of mathematics</b>	31%	60% (3)	53%
<b>Observation of other teachers</b>	64% (2)	70% (1)	63% (2)
<b>Meeting with a local group of teachers to study / discuss mathematics</b>	59% (3)	47%	44%
<b>Collaborating on mathematics teaching issues with a group of teachers at a distance using telecommunications</b>	6%	10%	6%
<b>Mentoring or coaching with an experienced teacher at your school</b>	23%	20%	25%
<b>Workshops on mathematics teaching held at your school</b>	66% (1)	63% (2)	72% (1)
<b>District-wide workshops on mathematics teaching</b>	55%	50%	47%
<b>Attendance at a national or state mathematics teacher association meeting</b>	19%	37%	41%
<b>Working toward certification from the NBPTS</b>	6%	17%	13%
<b>Developing curriculum or curriculum support materials in Newton or outside</b>	31%	63% (2)	53%
<b>Building-based department meetings</b>	31%	30%	56% (3)
<b>Lesson study conducted with a group of teachers from your school</b>	24%	30%	56% (3)
<b>Case study work with a group of teachers from your school</b>	18%	7%	22%
<b>Combination of workshop / course and coaching from a colleague</b>	23%	20%	25%
<b>Combination of workshop / course and working with colleagues in a study group</b>	19%	27%	34%
<b>On-line course with no face-to-face activities</b>	10%	7%	16%
<b>On-line course with some face-to-face activities</b>	13%	20%	13%