

HAMPTON BOROUGH PUBLIC SCHOOL

MATHEMATICS CURRICULUM GUIDE

KINDERGARTEN THROUGH EIGHTH GRADE

Adopted: November 20, 2007

HAMPTON BOROUGH PUBLIC SCHOOL
MATHEMATICS CURRICULUM GUIDE
K-8

ACKNOWLEDGEMENTS

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AFFIRMATIVE ACTION STATEMENT

It is the policy of the Board of Education to provide equal employment and educational opportunities regardless of race, color, creed, religion, sex, ancestry, national origin, place of residence, social or economic condition, or non-applicable handicap.

Affirmative Action Office:

Andrew Dunn
c/o Hampton School
32-41 South Street
Hampton, NJ 08827
(908) 537-4101

ADAPTATIONS FOR SPECIAL EDUCATION STATEMENT

Although this curriculum guide has been developed for general education delivery, the knowledge, skills, attitudes, and behaviors identified are appropriate for the special education pupils in Hampton Public School. Modifications necessary to accommodate the education needs of individual pupil's handicaps will be described in the Individualized Educational Program (IEP). They are on file at:

Office of Special Services
c/o Hampton School
32-41 South Street
Hampton, NJ 08827
(908) 537-4101

PURPOSE/RATIONALE

In our culturally diverse world the Hampton School District emphasizes the importance of a meaningful mathematics program with the goal of developing life-long skills. Our students will gain the mathematical concepts, understandings, and beliefs necessary for success in real-world applications. In order to excel in today's fast-paced, global society, students must be able to solve problems, make connections, and reason logically.

This program provides challenging experiences for intellectual exploration. Mathematics will be presented through a combination of processes including communication, decision-making, investigating, critical thinking, and an open exchange of ideas. The curriculum reflects the district's commitment to the infusion of technology as well as a manipulative approach. Pupils will be provided opportunities to develop their mathematical abilities to the fullest extent and emerge with a feeling of success.

FORMAT FOR INSTRUCTION

Mathematics instruction is made meaningful to students who are involved in an inquiry-based classroom. Children are more likely to "own" learning they have discovered for themselves. Consequently, math taught through problem solving and tactile experience will likely produce a deeper conceptual understanding. Manipulatives and experiments will be utilized to apply mathematical concepts.

Students will work together to use math in practical ways. Writing and talking about math topics stresses communication and fosters development of number sense, spatial reasoning, estimation skills, and higher-order thinking. Specialized strategies of instruction will maximize the success for students with special learning needs.

Students will have access to computers and calculators as tools of mathematical learning. These instruments will aid the study of new concepts, serve as components of representation, and assist in the sharing of knowledge. Technology can help illustrate to children the importance and wide use of mathematics in society today.

Kindergarten

MATHEMATICS SCOPE AND SEQUENCE

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING	NJCCCS 4.1 and all other math standards	<i>I</i>	<i>D</i>	<i>M</i>
Use logical reasoning			X	
Look for a pattern			X	
Make a graph			X	
Mix & match			X	
Try, check & revise			X	
Estimating & measuring length			X	
Estimating & measuring capacity			X	
Estimating & ordering by weight			X	
Act it out			X	
Make an organized list			X	
Draw a picture			X	
Choose an operation			X	
Look for a pattern			X	
OBJECTIVES AND SKILLS DATA ANALYSIS & PROBABILITY & DISCREET MATHEMATICS	NJCCCS 4.1, 4.2,4.3, 4.4,4.5, 4.6	<i>I</i>	<i>D</i>	<i>M</i>
Identify graphs		X		
Identify bar & line		X		
Explore concrete representations of geometric shape		X		

I=Introduce

D=Develop

M=Master

OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.1,4.2,4.3,4.4,4.5,4.6, 4.11, 4.8	<i>I</i>	<i>D</i>	<i>M</i>
Counting 1, 2, 3, 4, 5				X
Reading & writing 1, 2, 3,4,5				X
Reading & writing 0				X
Ordinal numbers through tenth		X		
Counting 6, 7, 8, 9,10				X
Reading & Writing 6, 7, 8, 9,10				X
Comparing numbers through 10		X		
Counting & writing numbers 11 – 20				X
Counting & writing numbers through 31				X
Estimating		X		
Recognize name & value of penny, nickel, dime, quarter, dollar		X		
Compare value of coins		X		
Identify equal parts		X		
Identify halves & fourths		X		
Readiness for addition & subtraction		X		
More & fewer		X		
Understanding addition & subtraction		X		
Using plus & minus sign		X		
Counting groups of 10		X		
Counting large quantities		X		
OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.1, 4.2, 4.3, 4.10, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
Understanding & extending patterns		X		
Sound & movement patterns		X		

I=Introduce

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Color patterns		X		
Shape patterns		X		
Skip counting		X		
Making addition & subtraction sentences		X		
Count by 2s, 5s & 10s		X		
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.1, 4.3, 4.9, 4.11	<i>I</i>	<i>D</i>	<i>M</i>
Numbers on a calendar		X		
Comparing & ordering by size		X		
Comparing & ordering by capacity		X		
Comparing & ordering by weight		X		
Identify days of the week		X		
Identify months of the year & seasons		X		
Understand yesterday, today & tomorrow		X		
Order of events		X		
Telling time on a digital & analog clock		X		
Identify & compare solid figures		X		
Identify flat surfaces on solid figures				
Identify plane shapes (squares & other rectangles), circles, triangles				
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.5	<i>I</i>	<i>D</i>	<i>M</i>
Use of computers for review & reinforce number recognition		X		
Use calculators for beginning addition and subtraction process		X		

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First Grade

MATHEMATICS SCOPE AND SEQUENCE

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

<p align="center">OBJECTIVES AND SKILLS</p> <p align="center">PROBLEM SOLVING</p> <p align="center">Building upon knowledge and skills gained in preceding grades, by the end of Grade 1, students will:</p>	<p align="center">NJCCCS</p> <p align="center">4.1 and all other standards</p>	<p align="center"><i>I</i></p>	<p align="center"><i>D</i></p>	<p align="center"><i>M</i></p>
Use manipulatives			X	
Use data from a picture			X	
Write a number sentence		X	X	
Choose an operation		X	X	
Extra information		X	X	
Draw a picture		X	X	
Make an organized list		X	X	
Use data from a chart		X	X	
Act it out			X	
Use data from a schedule		X	X	
Use data from a graph		X	X	
Look for a pattern			X	
Use objects			X	
Use data from a map		X	X	
Use data from a table		X	X	
Try, check & revise		X	X	
Look back & check		X	X	
Make a table			X	
Multiple-step problems			X	
Exact answer or estimate				
Make a graph			X	

***I*=Introduce**

***D*=Develop**

***M*=Master**

OBJECTIVES AND SKILLS DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4,4.6, 4.11, 4.12, 4.13, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
Using tally marks		X	X	
Collect data		X	X	
Organize a bar graph			X	
Certain or impossible		X	X	
More likely or less likely		X	X	
Use concrete materials to generate possibilities for a simple counting situation problem			X	
Follow a simple set of directions related to performing a given task or going from one location to another				
OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.1,4.2,4.3,4.4,4. 5,4.6, 4.11, 4.8	<i>I</i>	<i>D</i>	<i>M</i>
Making numbers-use objects to make 6, 7, 8, 9, 10			X	
Concept of 1 or 2 more			X	
Concept of 1 or 2 less			X	
Comparing numbers to 5 & to 10			X	
Ordering numbers through 12			X	
Use counters to add			X	X
Vertical addition		X	X	X
Vertical subtraction		X	X	
Counting on & adding 1, 2, 3		X	X	
Adding using a number line		X	X	X
Adding using doubles & doubles plus 1		X	X	
Addition facts to 12		X	X	
Counting back using a number line		X	X	
Using doubles to subtract		X	X	
Identify: equal parts, halves, thirds, and fourths		X	X	

I=Introduce**D=Develop****M=Master**

Numbers to 19			X	
Addition facts to 12		X	X	
Counting back using a number line		X	X	
Using doubles to subtract		X	X	
Counting by 10s to 100			X	
Odd & even numbers			X	
Ordinal numbers through twentieth		X	X	
Numbers made with tens		X	X	
Count combinations of pennies, nickels, dimes, quarters, & half-dollar coins totaling to \$1.00		X	X	
Addition and subtraction facts to 18		X	X	
Two-digit Addition and subtraction without regrouping		X	X	
OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
Translating patterns			X	
Use numbers to add		X	X	
Identify zero in addition		X	X	
Adding in any order		X	X	
Fact families		X	X	
Comparing and ordering numbers		X	X	
Using related facts		X	X	
Coordinate grids		X		
Multiple step programs		X	X	
Skip counting on 100 chart			X	

I=Introduce

D=Develop

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OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.1,4.2, 4.3, 4.4, 4.5, 4.7, 4.9, 4.10, 4.11, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
Identify solid figures			X	
Identify plane shapes			X	
Symmetry			X	
Understand the hour & minute hands			X	
Tell & write time to the hour and half-hour			X	
Identify days of the week and months of the year			X	X
Estimate length of time		X	X	
Estimate and measure with inches, feet and centimeters		X	X	
Estimating & comparing capacity and weight			X	
Identify the appropriate tools to measure length, weight		X	X	
Understand perimeter capacity, and temperature		X	X	
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5	<i>I</i>	<i>D</i>	<i>M</i>
Use computer for probability experiment		X	X	
Use calculators for computation		X	X	
Use computer for drill and review work		X	X	

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Second Grade**MATHEMATICS SCOPE AND SEQUENCE**

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING Building upon knowledge and skills gained in preceding grades, by the end of Grade 2, students will:	NJCCCS 4.1 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
Write a number sentence			X	
Choose an operation			X	
Use data from:			X	
Graph			X	
Chart			X	
Picture			X	
Map			X	
Table			X	
Make an organized list			X	
Try, check & revise			X	
Extra information			X	
Use logical reasoning			X	
Act it out			X	
Multiple step problems			X	
Make a graph			X	
Exact answer or estimate			X	
Draw a picture			X	
Choose an operation			X	

I=Introduce***D***=Develop***M***=Master

OBJECTIVES AND SKILLS DATA ANALYSIS & PROBABILITY & DISCREET MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5,4.6, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13,4.14, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
Predict the outcome of simple experiments			X	
Predict the outcome of simple experiments			X	
Record and analyze data			X	
Collect, record, and analyze data from a Venn diagram		X		
Collect and analyze data using a pictograph			X	
Create and analyze line plots		X		
Predict the outcome of simple experiments			X	
Follow a simple set of directions related to performing a given task or going from one location to another			X	
OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.1 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
• Addition				X
Joining groups to add				X
Adding in any order				X
Counting on				X
Writing addition sentences				X
Double facts to 18				X
Doubles plus 1				X
Adding tens				X
Adding ones				X
Adding tens and ones				X
Adding with and without regrouping			X	
Adding two digit numbers with and without regrouping			X	
Adding three digit numbers		X		

I=Introduce**D=Develop****M=Master**

• Subtraction				
Taking away to subtract				X
Counting back				X
Subtracting tens and ones				X
Subtracting with and without regrouping				X
Subtracting two-digit Numbers with and without regrouping			X	
Subtracting money			X	
Subtracting three digit numbers		X		
• Ordinal numbers through twentieth				X
• Place Value				
Using tens & ones				X
Counting with tens & ones			X	
Number words			X	
Counting hundreds, tens and ones			X	
Writing numbers to 1,000		X		
Changing numbers by hundreds and tens		X		
• Fractions				
Identify and model common fractions (Halves, thirds, fourths, sixths, eighths)			X	
Conceptualize a fraction as an equal part/share of a whole			X	
Read and write the following fractions: Halves, thirds, fourths, sixths, eighths			X	
• Explore the meaning of multiplication through modeling its relationship to skip counting & repeated addition			X	
• Use modeling to explore division as repeated subtraction of equal groups		X		
• Money				
Identify value in cents of penny, nickel, dime, quarter, half-dollar				X
Identify number of each coin to equal a dollar			X	
Determine a mixed value of coins to total to \$.99			X	

I=Introduce*D*=Develop*M*=Master

Use counting on as a way to make change up to \$.99			X	
Determine the value of a collection of dollar bills up to \$5.00 plus a mixed set of coins			X	
OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.10, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
Finding the missing part		X		
Adding in any order			X	
Using strategies to add three numbers		X		
Write a number sentence			X	
Even & odd numbers				X
Skip counting on the hundred chart			X	
Estimating sums			X	
Estimating differences			X	
Addition & subtraction patterns			X	
Finding parts of 100			X	
Coordinate graphs		X		
Parts of a 1,000		X		
Ordering numbers			X	
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9, 4.10, 4.11, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
• Identify solid figures: cone, cylinder, pyramid, rectangular prism & sphere			X	
• Recognize and name trapezoids, parallelograms & hexagons			X	
• Identify the number of sides and angles in a polygon			X	
• Investigate and predict the results of putting together and taking apart two and three dimensional shapes		X		

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• Time			X	
Tell time to five minutes			X	
Telling time to after the hour			X	
Telling time before the hour			X	
Identify A.M. and P.M		X		
Identify day of the week and month of the year				X
• Measure length & height using: inch, foot & centimeter and non-standard units			X	
• Explore the concept of perimeter			X	
• Compare length/height measurement			X	
• Explore concept of area using non-standard measure		X		
• Measure & compare weight of objects in relation to a pound and a kilogram		X		
• Estimate & compare capacities of the following types of containers: cup, pint, quart, gallon, liter		X		
• Describe and compare the temperature in degrees Celsius and Fahrenheit		X		
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.5, 4.12	<i>I</i>	<i>D</i>	<i>M</i>
Use of technology to validate solutions			X	
Use a calculator as a mathematical tool			X	
Use a computer as a mathematical tool			X	

I=Introduce

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Third Grade**MATHEMATICS SCOPE AND SEQUENCE**

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
PROBLEM SOLVING Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:	4.1, 4.2, 4.3, 4.4, 4.5, 4.10, 4.14, 4.16			
Choose an operation			X	
Make an organized list or table			X	
Make a schedule			X	
Guess and check			X	
Exact answer or estimate			X	
Look for a pattern			X	
Use objects			X	
Draw a picture			X	
Multi-step problems		X		
OBJECTIVES AND SKILLS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS	4.1, 4.2, 4.3, 4.4, 4.6			
• Graphs:				
Reading pictographs			X	
Reading bar graphs				X
Reading line graphs		X		
Making graphs and collecting data			X	
• Probability				
Exploring fair and unfair		X		
Using spinners and dice to explore		X		

I=Introduce***D***=Develop***M***=Master

OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.10, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Place Value (through hundred thousands)				
Expanded form			X	
Standard form			X	
Word names			X	
Comparing (>,<=)			X	
Ordering (least to greatest and greatest to least)			X	
Rounding numbers to the nearest tens and hundreds			X	
• Adding Whole Numbers				
Addition patterns			X	
Hundreds chart		X		
Estimating sums			X	
Adding greater numbers with		X		
Regrouping – up to four digits			X	
Column addition				
• Money				
Counting coins				X
Using dollars and cents				X
Making change			X	
Adding and subtracting money			X	
• Subtracting Whole Numbers				
Reviewing the meaning of subtraction				X
Subtraction patterns			X	
Hundred chart		X		
Estimating differences			X	
Subtracting with regrouping (up to four digits		X		
Subtracting greater numbers		X		
• Multiplication				
Writing equations		X		
Writing multiplication stories		X		

I=Introduce***D***=Develop***M***=Master

Using 1,2,3,4,5,6,7,8, and 9 as factors		X		
Multiplying with 3 factors		X		
Multiplying tens		X		
Estimating products		X		
Multiplying 2 and 3 digit numbers		X		
Multiplying money		X		
• Division				
Writing equations		X		
Writing division stories		X		
Dividing by 1,2,3,4,5,6,7,8, and 9.		X		
Division patterns		X		
Estimating quotients		X		
Division with remainders		X		
• Fractions				
Equal parts		X		
Naming and writing fractions		X		
Equivalent fractions		X		
Compare and order fractions		X		
Fractions and sets		X		
Mixed numbers		X		
Adding and subtracting fractions		X		
• Decimals				
Introduce tenths and hundredths		X		
Relate monetary system to decimals		X		
OBJECTIVES AND SKILLS ALGEBRA	4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Using patterns to find a rule		X		
• Finding missing numbers			X	
• Balancing scales		X		
• Making equations for each operation		X		
• Inequalities		X		

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• Number patterns and non-numerical			X	
Number patterns				
• Properties of operations			X	
Identity			X	
Zero			X	
Order			X	
• Explore the concept of functions using input and output charts			X	
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	4.3, 4.4, 4.7, 4.9, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
• Geometry				
Solids and shapes			X	
Lines and line segments		X		
Angles		X		
Slides, flips, and turns			X	
Symmetry and congruence			X	
Perimeter, area, and volume			X	
Coordinate grids / ordered pairs /		X		
Locating and naming points				
• Measurement				
Customary and metric linear measurement			X	
Length			X	
Capacity			X	
Weight				X
Temperature			X	
Telling time			X	
Elapsed time			X	
Ordinal numbers and the calendar			X	
Identify and use correct tools to measure length, weight, temperature and time			X	

I=Introduce***D***=Develop***M***=Master

OBJECTIVES AND SKILLS TECHNOLOGY	All standards	<i>I</i>	<i>D</i>	<i>M</i>
Use a calculator as a mathematical tool			X	
Study Island			X	

I=Introduce

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Fourth Grade

MATHEMATICS SCOPE AND SEQUENCE

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
PROBLEM SOLVING Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:	4.1, 4.2, 4.3, 4.4, 4.5, 4.10, 4.14, 4.16			
Choose an operation			X	
Make an organized list or table			X	
Work backwards			X	
Guess and check			X	
Look for a pattern			X	
Use objects / Act it out			X	
Draw a picture			X	
OBJECTIVES AND SKILLS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS	4.1, 4.2, 4.3, 4.4, 4.6			
• Graphs:				
Reading pictographs				X
Reading line graphs			X	
Scales and bar graphs				X
Reading stem and leaf graphs		X		
Range, mode, and median		X		
Reading line plots			X	
Making graphs and collecting data			X	
• Probability				
Likely and unlikely			X	
Fairness			X	
Predicting			X	

I=Introduce

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Listing possible outcomes		X		
OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.10, 4.11, 4.13	I	D	M
• Place Value (through millions)				
Standard form			X	X
Expanded form				X
Word names			X	
Comparing (>,<,<=)				X
Ordering (least to greatest and greatest to least)				X
Rounding numbers to the nearest million			X	
• Decimals				
Tenths, hundredths			X	
Equivalent decimals				X
Number line		X		
Comparing and ordering decimals			X	
Rounding decimals		X		
Exploring fractions as decimals		X		
Adding and subtracting decimals			X	
• Adding and Subtracting Whole Numbers				
Estimating sums and differences				X
Using a chart			X	
Adding and subtracting greater numbers with regrouping				X
Column addition				X
• Money				
Counting money				X
Making change			X	
Adding and subtracting money				X
• Multiplying with Whole Numbers				
Exploring multiplication patterns				X
Estimating products				X

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Multiplying greater numbers			X	
Exploring multiplication stories			X	
Multiplying money			X	
Multiplying 3 factors			X	
Grouping property		X		
Multiplying by 2 digit factors			X	
• Dividing Whole numbers				
Exploring patterns to divide				X
Estimating quotients			X	
Review dividing by 1-digit divisors			X	
Dividing by 2-digit divisors		X		
Zeros in the quotient			X	
Dividing greater numbers			X	
Division with remainders			X	
Prime and composite numbers		X	X	
Division with money			X	
Exploring mean		X	X	
• Fractions				
Estimating fractional amounts			X	
Mixed numbers			X	
Equivalent fractions			X	
Simplest form			X	
Comparing and ordering fractions			X	
Adding and subtracting fractions with like and unlike denominators			X	
OBJECTIVES AND SKILLS ALGEBRA	4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Using patterns to find a rule			X	
• Finding missing numbers			X	
• Using a balancing scale model			X	
• Making equations for each operation			X	

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• Inequalities				X
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	4.3, 4.4, 4.7, 4.9, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
• Geometry				
Lines, line segments, and angles				X
Solids				X
Polygons			X	
Slide, flip, and turn				X
Congruence				X
Symmetry;;			X	
Locate points on a coordinate grid			X	
• Measurement				
Linear			X	
Measuring fractional parts			X	
Perimeter and area			X	
Volume			X	
Weight			X	
Capacity			X	
Mass		X		
Temperature			X	
Telling time			X	
Elapsed time			X	
Calendars and schedules			X	
OBJECTIVES AND SKILLS TECHNOLOGY	All standards	<i>I</i>	<i>D</i>	<i>M</i>
Use a calculator as a mathematical tool			X	
Study Island			X	

I=Introduce***D***=Develop***M***=Master

Fifth Grade**MATHEMATICS SCOPE AND SEQUENCE**

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.10, 4.14, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
Choose an operation			X	
Draw a picture			X	
Guess and check			X	
Use objects / Act it out			X	
Look for a pattern			X	
Scale drawing			X	
Eliminate possibilities			X	
Multi-step problems			X	
Work backwards			X	
OBJECTIVES AND SKILLS DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.6	<i>I</i>	<i>D</i>	<i>M</i>
• Graphs:				
Reading line graphs			X	
Scales and bar graphs				X
Reading stem and leaf graphs			X	
Range, mode, and median			X	
Making graphs and collecting data			X	
• Probability				
Fairness				X
Predicting			X	
As fractions		X		

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OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.10, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Place Value (through millions)				
Standard form				X
Expanded form			X	
Word names			X	
Comparing (>,<=)				X
Ordering (least to greatest and greatest to least)			X	
Rounding numbers to the nearest ten million			X	
• Decimals				
Tenths, hundredths, and thousandths				X
Equivalent decimals				X
Number line			X	
Comparing and ordering decimals			X	
Rounding decimals			X	
Relate decimals to fractions			X	
Relate monetary system to decimals				X
Adding and subtracting decimals			X	
Estimating decimal products			X	
Multiplying decimals			X	
Dividing decimals			X	
• Adding and Subtracting Whole Numbers				
Estimating sums and differences				X
Adding and subtracting greater numbers with regrouping				X
• Multiplying with Whole Numbers				
Exploring multiplication patterns				X
Estimating products				X
Distributive property			X	
• Dividing Whole numbers				
Exploring patterns to divide				X
Estimating quotients				X

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Review dividing by 1-digit divisors				X
2-digit divisors		X	X	
Zeros in the quotient			X	
Dividing greater numbers			X	
Prime and composite numbers		X		
Dividing money		X		
• Ratios				
Tables		X		
Equality		X		
• Percent				
Percent to fraction		X	X	
Percent to decimal		X	X	
Finding percent of a number		X	X	
• Fractions				
As equal share, part of a whole, and as a subset				X
Location on a number line				X
Equivalent fractions			X	
Simplest form			X	
Least common denominator			X	
Greatest common factor			X	
Comparing and ordering fractions			X	
Multiplication of fractions		X		
Division of fractions		X		
Addition and subtraction of mixed numbers			X	
Connecting fractions decimals, and percents		X		
OBJECTIVES AND SKILLS ALGEBRA	4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Using patterns to find a rule			X	
• Making equations for each operation			X	
• Inequalities			X	
• Finding missing numbers				X

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• Properties of operations				
Associative			X	
Commutative		X		
Identity			X	
Distributive			X	
• Use letters to represent variables		X		
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	4.3, 4.4, 4.7, 4.9, 4.16	<i>I</i>	<i>D</i>	<i>M</i>
• Geometry				
Lines, line segments, and angles			X	
Polygons			X	
Congruence				X
Symmetry;;				X
Locate points on a coordinate grid			X	
• Measurement (Customary & Metric)				
Linear				X
Measuring angles		X		
Perimeter and area			X	
Converting units		X		
Circumference		X		
Weight			X	
Mass			X	
Temperature				X
Surface area		X		
Volume			X	
Capacity			X	
Identify and use appropriate measurement instruments			X	

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D=Develop

M=Master

OBJECTIVES AND SKILLS TECHNOLOGY	All standards	<i>I</i>	<i>D</i>	<i>M</i>
Use a calculator as a mathematical tool			X	
Study Island			X	

I=Introduce

D=Develop

M=Master

Sixth Grade**MATHEMATICS SCOPE AND SEQUENCE**

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING & MATHEMATICAL PROCESSES	NJCCCS 4.1 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:				
• Use the 4 step plan – Explore, Plan, Solve & Examine, selecting appropriate methods of problem-solving				
Guess & Check			X	
Use a graph			X	
Solve a simpler problem			X	
Make a list			X	
Eliminate possibilities			X	
Look for a pattern			X	
Reasonable answers			X	
OBJECTIVES AND SKILLS DATA ANALYSIS, PROBABILITY AND DISCRETE MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.12, 4.14	<i>I</i>	<i>D</i>	<i>M</i>
Frequency tables		X		
Bar graphs			X	
Line graphs			X	
Stem & Leaf plots			X	
Box & Whisker plots		X		
Interpreting graphs		X		
Mean, Median, Mode, & Range			X	
Experimental probability		X		

I*=Introduce**D*=Develop*****M*=Master**

OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.3, 4.5, 4.6, 4.8, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Whole numbers			X	
Addition			X	
Subtraction			X	
Multiplication			X	
Division			X	
• Order of operations – MDAS		X		
• Decimals -				
Addition, Subtraction, Multiplication, Division			X	
Comparing and ordering		X		
Rounding			X	
Estimation			X	
• The metric system		X		
• The Distributive Property		X		
• Divisibility patterns		X		
• Prime factorization		X		
• Greatest Common Factor		X		
• Least Common Multiple		X		
• Fractions and ratios				
Mixed numbers and improper fractions			X	
Comparing and ordering			X	
Fractions to decimals		X		
Decimals to fractions		X		
Rounding			X	
Estimating sums and differences			X	
Adding and subtracting with like and unlike denominators			X	
Adding and subtracting mixed numbers			X	

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Adding and subtracting with renaming			X	
Estimating products		X		
Multiplying – fractions, whole numbers and mixed numbers		X		
Dividing – fractions, whole numbers and mixed numbers		X		
OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.12, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Patterns		X		
• Sequences		X		
• Variables & expressions		X		
• Powers & exponents		X		
• Solving equations mentally		X		
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.7, 4.9	<i>I</i>	<i>D</i>	<i>M</i>
• Graphing ordered pairs , quadrant I only, positive-positive numbers		X		
• The Metric system				
Using		X		
Mass and capacity		X		
Converting units within		X		
• Measurement				
Perimeter (units)			X	
Area (square units)			X	
Use proper labeling when finding perimeter and area			X	
Apply proper formulas when finding the area and perimeter of a square or rectangle		X		
Length in the customary system			X	

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Converting units within the customary system			X	
Adding and subtracting measures of time			X	
• Circles and circumference				
Label the parts of a circle			X	
Learn the meaning of “pi”		X		
Find the circumference of a circle using the formula		X		
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.5 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
• Use a calculator as a mathematical tool				X
• Read spreadsheets			X	
• Study Island program				X
• On-line study tools				X
OBJECTIVES AND SKILLS FOR ACCELERATED STUDENTS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
Ratio, Proportion and Percent		X		
Ratios and rates		X		
Ratios and probability		X		
Solving proportions		X		
Scale drawings		X		
Percents and fractions		X		
Percents and decimals		X		
Estimating percents		X		
Percent of a number		X		
More Geometry				
Angles		X		
Constructions		X		
Triangles and quadrilaterals		X		

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Nets		X		
Symmetry		X		
Translations		X		
Area of irregular shapes		X		
Area of parallelograms, triangles & circles		X		
Making circle graphs		X		
Volume of rectangular prisms		X		
Surface area of rectangular prisms		X		
• Integers		X		

I=Introduce**D=Develop****M=Master**

Seventh Grade

MATHEMATICS SCOPE AND SEQUENCE

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING & MATHEMATICAL PROCESSES Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:	NJCCCS 4.1 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
<ul style="list-style-type: none"> • Use the 4 step plan – Explore, Plan, Solve & Examine, selecting appropriate methods of problem-solving 				
Guess & Check			X	
Use a graph			X	
Solve a simpler problem			X	
Make an organized list			X	
Eliminate possibilities			X	
Look for a pattern			X	
Draw a diagram			X	
Work it backward			X	
Act it out			X	
Make a model			X	
Reasonable answers			X	
Use logical reasoning			X	
OBJECTIVES AND SKILLS DATA ANALYSIS, PROBABILITY AND DISCRETE MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.12, 4.14	<i>I</i>	<i>D</i>	<i>M</i>
Frequency tables			X	
Bar graphs			X	
Histograms			X	

I=Introduce

D=Develop

M=Master

Line graphs			X	
Line plots		X		
Stem & Leaf plots			X	
Box & Whisker plots			X	
Interpreting graphs and making predictions			X	
Misleading statistics		X		
Mean, Median, Mode, & Range			X	
Experimental probability		X		
Theoretical probability		X		
Probability of simple events		X		
Tree Diagrams – listing outcomes		X		
The Fundamental Counting Principle—counting outcomes		X		
OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.3, 4.5, 4.6, 4.8, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Whole numbers				
Addition				X
Subtraction				X
Multiplication				X
Division				X
• Order of operations – MDAS			X	
• Decimals -				
Addition, Subtraction, Multiplication, Division			X	
Comparing and ordering			X	
Rounding			X	
Estimation			X	
• The metric system			X	
• The Distributive Property		X		
• The Commutative Property of addition & multiplication		X		

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• The Associative Property of addition & multiplication		X		
• The Identity Property of addition (0) and multiplication (1)		X		
• Additive Inverse Property		X		
• Properties of equality				
Addition		X		
Subtraction		X		
Multiplication		X		
Division		X		
• Multiplicative Inverse Property		X		
• Divisibility patterns			X	
• Prime factorization			X	
• Greatest Common Factor			X	
• Least Common Multiple			X	
• Fractions and ratios				
Mixed numbers and improper fractions			X	
Comparing and ordering			X	
Simplifying			X	
Fractions to decimals			X	
Decimals to fractions			X	
Rounding			X	
Estimating sums and differences			X	
Adding and subtracting with like and unlike denominators			X	
Adding and subtracting mixed numbers			X	
Adding and subtracting with renaming			X	
Estimating products			X	
Multiplying – fractions, whole numbers and mixed numbers			X	
Dividing – fractions, whole numbers and mixed numbers			X	
Converting to percents and decimals and then back to fractions		X		

I=Introduce**D=Develop****M=Master**

• Scientific Notation				
Write numbers in standard form		X		
Write numbers in scientific notation		X		
• Integers				
Understand the concept of absolute value and use proper notation for		X		
Compare and order		X		
Add, subtract, multiply and divide		X		
• Percent				
Changing fractions to decimals to percents and back		X		
Large and small percents (greater than 100% and less than 1%)		X		
Finding percent of a number		X		
Using the percent proportion		X		
Estimating		X		
The percent equation		X		
Percent of change – increase or decrease		X		
Sales tax		X		
Discounts		X		
Simple interest – using the interest formula		X		
• Square Roots				
Recognize the radical sign		X		
Find square roots of perfect squares		X		
Estimate square roots		X		
OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.12, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Patterns			X	
• Sequences			X	

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• Variables & expressions				
Writing expressions and evaluating			X	
Writing sentences as equations		X		
• Powers & exponents				
Understand powers of 1 and 0		X		
• Equations				
Solving equations mentally			X	
Solving one-step equations by balancing		X		
Solving two-step equations by balancing (for the accelerated students only)		X		
Graphing solutions to equations on the number line		X		
Solving one-step inequalities		X		
Graphing solutions to one-step inequalities on the number line		X		
Solving and graphing two-step inequalities (for the accelerated students only)		X		
Linear equations				
1. As a function		X		
2. Graph of		X		
3. Finding slope		X		
• Proportions				
Writing, solving and identifying		X		
Setting up to solve a problem		X		
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.7, 4.9	<i>I</i>	<i>D</i>	<i>M</i>
• Graphing ordered pairs , using all 4 quadrants on the coordinate plane			X	
• The Metric system				
Using			X	

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Mass and capacity			X	
Converting units within			X	
• Measurement				
Perimeter (units)			X	
Area (square units)			X	
Use proper labeling when finding perimeter and area			X	
Apply proper formulas when finding the area and perimeter of a square or rectangle		X		
Length in the customary system			X	
Converting units within the customary system			X	
Adding and subtracting measures of time			X	
• Circles and circumference				
Label the parts of a circle			X	
Learn the meaning of “pi”			X	
Find the circumference of a circle using the formula			X	
Find the area of a circle using the formula		X		
• Scale drawings		X		
• Angles				
Drawing and measuring		X		
Types of angles – acute, right, obtuse, straight, adjacent, complementary, supplementary, vertical		X		
Constructions – bisectors, perpendicular lines, congruent, parallel lines		X		
• Draw a circle graph		X		
• Triangles --classifying by its angles and its sides		X		
• Quadrilaterals -- classifying by its angles and its sides		X		
• Similar figures				
Setting up proportions to find the missing length		X		
Indirect measurement		X		
• Polygons				

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Classifying by number of sides		X		
Tessellations			X	
• Transformations				
Translations – slides		X		
Reflections - flips		X		
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.5 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
• Use a calculator as a mathematical tool				X
• Read spreadsheets			X	
• Study Island program				X
• On-line study tools				X
• Mind jogger video quizzes				
OBJECTIVES AND SKILLS FOR ACCELERATED STUDENTS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
• Permutations		X		
• Combinations		X		
• Probability		X		
Independent events		X		
Dependent events		X		
Area models		X		
• Graphing rotations		X		
• The Pythagorean Theorem		X		
• Area of parallelograms, triangles and trapezoids		X		
• Area of complex figures		X		
• Three dimensional objects				
Drawing		X		
Volume of prisms, cylinders and cones		X		
Surface area of prisms, cylinders, cones		X		
Precision of measurement – significant digits		X		

I=Introduce***D***=Develop***M***=Master

Pre-Algebra—Grade 7—Pre-Algebra combines the Grade 7 curriculum with the skills necessary to take Algebra I as an 8th grader. Readiness is determined by the Orleans-Hana readiness test. Eligible students take a first period Algebra I class at Voorhees High School

MATHEMATICS SCOPE AND SEQUENCE

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING & MATHEMATICAL PROCESSES	NJCCCS 4.1 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:				
• Use the 4 step plan – Explore, Plan, Solve & Examine, selecting appropriate methods of problem-solving				
Guess & Check			X	
Use a graph			X	
Solve a simpler problem			X	
Make an organized list			X	
Eliminate possibilities			X	
Look for a pattern			X	
Draw a diagram			X	
Work it backward			X	
Act it out			X	
Make a model			X	
Reasonable answers			X	
Use logical reasoning			X	
OBJECTIVES AND SKILLS DATA ANALYSIS, PROBABILITY AND DISCRETE MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.12, 4.14	<i>I</i>	<i>D</i>	<i>M</i>
Frequency tables			X	

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Bar graphs			X	
Histograms			X	
Line graphs			X	
Line plots		X		
Stem & Leaf plots			X	
Box & Whisker plots			X	
Interpreting graphs and making predictions			X	
Misleading statistics		X		
Mean, Median, Mode, & Range			X	
Experimental probability		X		
Theoretical probability		X		
Probability of simple events		X		
Tree Diagrams – listing outcomes		X		
The Fundamental Counting Principle—counting outcomes		X		
OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.3, 4.4, 4.5, 4.6, 4.8, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Whole numbers				
Addition				X
Subtraction				X
Multiplication				X
Division				X
• Order of operations –MDAS			X	
• Decimals -				
Addition, Subtraction, Multiplication, Division			X	
Comparing and ordering			X	
Rounding			X	
Estimation			X	
• The metric system			X	

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• The Distributive Property		X		
• The Commutative Property of addition & multiplication		X		
• The Associative Property of addition & multiplication		X		
• The Identity Property of addition (0) and multiplication (1)		X		
• Additive Inverse Property		X		
• Properties of equality				
Addition		X		
Subtraction		X		
Multiplication		X		
Division		X		
• Multiplicative Inverse Property		X		
• Divisibility patterns			X	
• Prime factorization			X	
• Greatest Common Factor			X	
• Least Common Multiple			X	
• Fractions and ratios				
Mixed numbers and improper fractions			X	
Comparing and ordering			X	
Simplifying			X	
Fractions to decimals			X	
Decimals to fractions			X	
Rounding			X	
Estimating sums and differences			X	
Adding and subtracting with like and unlike denominators			X	
Adding and subtracting mixed numbers			X	
Adding and subtracting with renaming			X	
Estimating products			X	
Multiplying – fractions, whole numbers and mixed numbers (including negative numbers)			X	

I=Introduce**D=Develop****M=Master**

Dividing – fractions, whole numbers and mixed numbers (including negative numbers)			X	
Converting to percents and decimals and then back to fractions		X		
• Scientific Notation				
Write numbers in standard form		X		
Write numbers in scientific notation		X		
• Integers				
Understand the concept of absolute value and use proper notation for		X		
Compare and order		X		
Add, subtract, multiply and divide		X		
• Percent				
Changing fractions to decimals to percents and back		X		
Large and small percents (greater than 100% and less than 1%)		X		
Finding percent of a number		X		
Using the percent proportion		X		
Estimating		X		
The percent equation		X		
Percent of change – increase or decrease		X		
Sales tax		X		
Discounts		X		
Simple interest – using the interest formula		X		
• Square Roots				
Recognize the radical sign		X		
Find square roots of perfect squares		X		
Estimate square roots		X		

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OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.12, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
<ul style="list-style-type: none"> • Patterns 			X	
<ul style="list-style-type: none"> • Sequences—Arithmetic and Geometric 			X	
<ul style="list-style-type: none"> • Variables & expressions 				
<ul style="list-style-type: none"> Writing expressions and evaluating 			X	
<ul style="list-style-type: none"> Writing sentences as equations 		X		
<ul style="list-style-type: none"> • Powers & exponents 				
<ul style="list-style-type: none"> Understand powers of 1 and 0 		X		
<ul style="list-style-type: none"> • Equations 				
<ul style="list-style-type: none"> Solving equations mentally 			X	
<ul style="list-style-type: none"> Solving one-step equations by balancing (may include rational numbers) 		X		
<ul style="list-style-type: none"> Solving two-step equations by balancing (for the accelerated students only) 		X		
<ul style="list-style-type: none"> Graphing solutions to equations on the number line 		X		
<ul style="list-style-type: none"> Solving one-step inequalities 		X		
<ul style="list-style-type: none"> Graphing solutions to one-step inequalities on the number line 		X		
<ul style="list-style-type: none"> Solving and graphing two-step inequalities (for the accelerated students only) 		X		
<ul style="list-style-type: none"> Linear equations 				
<ul style="list-style-type: none"> As a function 		X		
<ul style="list-style-type: none"> Graph of 		X		
<ul style="list-style-type: none"> Finding slope 		X		
<ul style="list-style-type: none"> • Proportions 				
<ul style="list-style-type: none"> Writing, solving and identifying 		X		
<ul style="list-style-type: none"> Setting up to solve a problem 		X		

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OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.7, 4.9	<i>I</i>	<i>D</i>	<i>M</i>
• Graphing ordered pairs using all 4 quadrants on the coordinate plane			X	
• The Metric system				
using			X	
mass and capacity			X	
converting units within			X	
• Measurement				
Perimeter (units)			X	
Area (square units)			X	
Use proper labeling when finding perimeter, area, and volume			X	
Apply formulas for area and perimeter of a square or rectangle		X		
Length in the customary system			X	
Converting units within the customary system			X	
• Adding and subtracting measures of time			X	
• Circles and circumference				
Identify the parts of a circle			X	
Learn the meaning of “pi”			X	
Find the circumference of a circle using the formula		X		
Find the area of a circle using the formula		X		
• Scale drawings		X		
• Angles				
Drawing and measuring		X		
Types of angles – acute, right, obtuse, straight, adjacent, complementary, supplementary, vertical		X		
Constructions – bisectors, perpendicular lines, congruent, parallel lines		X		
• Draw a circle graph		X		

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• Triangles				
Classifying by its angles and its sides		X		
• Quadrilaterals -- classifying by its angles and its sides		X		
• Similar figures				
Setting up proportions to find the missing length		X		
Indirect measurement		X		
• Polygons				
Classifying by number of sides		X		
Tessellations			X	
• Transformations				
Translations—slides		X		
Reflections—flips		X		
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.5 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
• Use a calculator as a mathematical tool				X
• Read spreadsheets			X	
• Study Island program				X
• On-line study tools				X
• Mind jogger video quizzes			X	
OBJECTIVES AND SKILLS FOR PREALGEBRA	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
Working with monomials				
Formulas for arithmetic and geometric sequences		X		
Fibonacci sequence		X		
Negative exponents		X		
Solving equations and inequalities with variables on both sides of the equation/inequality		X		
Graphing relations – lines, parabolas		X		

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Eighth Grade**MATHEMATICS SCOPE AND SEQUENCE**

Since the Mathematics curriculum aligns with the New Jersey Core Curriculum Content Standards, the Mathematics committee has concluded that the learning outcomes at each grade level will help students to develop a thorough understanding of essential Mathematic ideas.

OBJECTIVES AND SKILLS PROBLEM SOLVING & MATHEMATICAL PROCESSES Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:	NJCCCS 4.1 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
<ul style="list-style-type: none"> Use the 4 step plan – Explore, Plan, Solve & Examine, selecting appropriate methods of problem-solving 				
Guess & Check			X	
Use a graph			X	
Solve a simpler problem			X	
Make an organized list			X	
Eliminate possibilities			X	
Look for a pattern			X	
Draw a diagram			X	
Work it backward			X	
Act it out			X	
Make a model			X	
Reasonable answers			X	
Use logical reasoning			X	
Use a Venn diagram		X		
Use the Pythagorean theorem		X		
OBJECTIVES AND SKILLS DATA ANALYSIS, PROBABILITY AND DISCRETE MATHEMATICS	NJCCCS 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.12, 4.14	<i>I</i>	<i>D</i>	<i>M</i>
Frequency tables			X	

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Bar graphs			X	
Histograms			X	
Line graphs			X	
Line plots			X	
Stem & Leaf plots			X	
Box & Whisker plots			X	
Interpreting graphs and making predictions			X	
Misleading statistics			X	
Mean, Median, Mode, & Range				X
Experimental probability			X	
Theoretical probability			X	
Probability of simple events			X	
Probability of compound events		X		
Tree Diagrams – listing outcomes			X	
The Fundamental Counting Principle—counting outcomes			X	
Permutations		X		
Combinations		X		
Factorials		X		
OBJECTIVES AND SKILLS NUMBER SENSE & OPERATIONS	NJCCCS 4.3, 4.4, 4.5, 4.6, 4.8, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Sets of numbers—Natural, Whole, Integers, Rational, Irrational, & Real				
Compare & order of all			X	
Rounding & estimation of all			X	
• Whole numbers				
Addition				X
Subtraction				X
Multiplication				X

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Division				X
• Order of operations – PEMDAS			X	
• Decimals -				
Addition, Subtraction, Multiplication, Division			X	
Comparing and ordering			X	
Rounding			X	
Estimation			X	
• The metric system			X	
• The Distributive Property		X		
• The Commutative Property of addition & multiplication		X		
• The Associative Property of addition & multiplication		X		
• The Identity Property of addition (0) and multiplication (1)		X		
• Additive Inverse Property		X		
• Properties of equality				
Addition		X		
Subtraction		X		
Multiplication		X		
Division		X		
• Multiplicative Inverse Property			X	
• Transitive Property		X		
• Divisibility patterns			X	
• Prime factorization			X	
• Greatest Common Factor			X	
• Least Common Multiple			X	
• Fractions and ratios				

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Unit rates			X	
Rates of change			X	
Mixed numbers and improper fractions			X	
Simplifying			X	
Fractions to decimals			X	
Decimals to fractions			X	
Repeating decimals to fractions			X	
Estimating sums and differences			X	
Adding and subtracting with like and unlike denominators			X	
Adding and subtracting mixed numbers			X	
Adding and subtracting with renaming			X	
Adding and subtracting negative fractions		X		
Estimating products			X	
Multiplying – fractions, whole numbers and mixed numbers (including negative numbers)			X	
Dividing – fractions, whole numbers and mixed numbers (including negative numbers)			X	
Converting to percents and decimals and then back to fractions		X		
• Scientific Notation				
Write numbers in standard form		X		
Write numbers in scientific notation		X		
• Integers				
Understand the concept of absolute value and use proper notation for			X	
Compare and order			X	
Add, subtract, multiply and divide			X	
• Percent				
Changing fractions to decimals to percents and back			X	
Memorize frequently used percents			X	
Find percents mentally		X		

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Large and small percents (greater than 100% and less than 1%)		X		
Finding percent of a number		X		
Using the percent proportion		X		
Estimating		X		
The percent equation		X		
Percent of change – increase or decrease		X		
Sales tax		X		
Discounts		X		
Simple interest – using the interest formula		X		
• Square Roots				
Recognize the radical sign		X		
Find square roots of perfect squares		X		
Negative square roots		X		
Estimate square roots		X		
OBJECTIVES AND SKILLS ALGEBRA	NJCCCS 4.2, 4.3, 4.4, 4.6, 4.8, 4.11, 4.12, 4.13	<i>I</i>	<i>D</i>	<i>M</i>
• Patterns			X	
• Sequences			X	
• Variables & expressions				
Writing expressions and evaluating			X	
Writing sentences as equations		X		
• Powers & exponents				
Understand powers of 1 and 0		X		
• Equations				
Solving equations mentally			X	
Solving one-step equations by balancing (may include rational numbers)		X		

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Solving two-step equations by balancing (for the accelerated students only)		X		
Solve equations using square roots		X		
Graphing solutions to equations on the number line		X		
Solving one-step inequalities		X		
Graphing solutions to one-step inequalities on the number line		X		
Solving and graphing two-step inequalities (for the accelerated students only)		X		
Linear equations				
As a function		X		
Graph of		X		
Finding slope		X		
• Proportions				
Writing, solving and identifying		X		
Setting up to solve a problem		X		
OBJECTIVES AND SKILLS GEOMETRY & MEASUREMENT	NJCCCS 4.7, 4.9	<i>I</i>	<i>D</i>	<i>M</i>
• Graphing			X	
Graphing ordered pairs using all 4 quadrants on the coordinate plane			X	
Distance between 2 points on a coordinate plane		X		
Graph Real numbers on a number line		X		
• The Metric system				
Using			X	
Mass and capacity			X	
Converting units within			X	
• Measurement				
Perimeter (units)			X	

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Area (square units)			X	
Volume (cubic units)			X	
Use proper labeling when finding perimeter, area, and volume			X	
Apply formulas for area and perimeter of a square, rectangle, parallelogram, triangle and trapezoid		X		
Apply formulas for volume of prisms, cylinders, pyramids, and cones		X		
Find the area of complex figures		X		
Find the volume of complex solids		X		
Surface area of prisms, cylinders, pyramids, and cones		X		
Three-dimensional figures--Polyhedrons		X		
Length in the customary system			X	
Converting units within the customary system			X	
• Circles and circumference				
Identify the parts of a circle			X	
Learn the meaning of “pi”			X	
Understand the meaning		X		
• Scale drawings		X		
• Angles				
Drawing and measuring		X		
Types of angles – acute, right, obtuse, straight, adjacent, complementary, supplementary, vertical		X		
Lines—parallel cut by a transversal				
Constructions – bisectors, perpendicular lines, congruent, parallel lines		X		
• Draw a circle graph		X		
• Triangles		X		
Classifying by its angles and its sides				
Special right triangles				
• Quadrilaterals-- classifying by its angles and its sides		X		

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• Similar figures				
Setting up proportions to find the missing length		X		
Indirect measurement		X		
Finding scale factors		X		
Dilations		X		
• Polygons				
Classifying by number of sides				X
Congruent			X	
Tessellations			X	
• Transformations				
Translations—slides			X	
Reflections—flips			X	
Rotations—Turns		X		
• Symmetry—line and rotation			X	
• The Pythagorean Theorem				
Find the missing side of a right triangle		X		
• Precision and significant digits		X		
OBJECTIVES AND SKILLS TECHNOLOGY	NJCCCS 4.5 and all other standards	<i>I</i>	<i>D</i>	<i>M</i>
• Use a calculator as a mathematical tool				X
• Read spreadsheets			X	
• Study Island program				X
• On-line study tools				X
• Mind jogger video quizzes			X	
OBJECTIVES AND SKILLS FOR ACCELERATED STUDENTS	NJCCCS	<i>I</i>	<i>D</i>	<i>M</i>
• Dimensional analysis		X		

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• Pascal's Triangle		X		
• Creating spreadsheets		X		
• Using a graphing calculator		X		
• Matrices		X		
• Algebra tiles		X		
• Equations with variables on both sides of the equal sign		X		
• Solving inequalities by multiplying or dividing by a negative number		X		
• The Fibonacci sequence		X		
• Linear functions – slope formula		X		
• Slope-intercept form of an equation		X		
• Systems of equations		X		
• Graphing linear inequalities		X		
• Nonlinear functions		X		
• Quadratic equations and their graphs		X		
• Polynomials		X		

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