

Pequannock Township School District Curriculum Syllabus

Mathematics Grade 2

Course Description:

In this second grade mathematics course, students will gain a deep understanding and strong foundation in mathematics. They will develop number sense while also gaining fluency in addition and subtraction. Students' understanding of place value will deepen as they explore methods of adding and subtracting numbers up to 1,000. Topics such as time, money, length measurement, and data interpretation will also be understood at a higher level than previous years. Students will also explore two- and three-dimensional shapes as they begin their study of geometry. Problem solving and 21st century skills will be used throughout the course to keep mathematics relevant to students' real world experiences.

Course Proficiencies:

The following is a list of proficiencies that describe what students are expected to know and be able to do as a result of successfully completing this course. The following proficiencies are the basis of the assessment of student achievement. The learner will demonstrate mastery of:

Operations & Algebraic Thinking

1. Represent and solve problems involving addition and subtraction
2.OA.A.1
2. Add and subtract within 20. 2.
OA.B.2
3. Work with equal groups of objects to gain foundations for multiplication 2.
OA.C.3, 2.OA.C.4

Number & Operations in Base Ten

4. Understand place value.
2.NBT.A.1, 2.NBT.A.1A, 2.NBT.A.1B, 2.NBT.A.2, 2.NBT.A.3, 2.NBT.A.4
5. Use place value understanding and properties of operations to add and subtract. 2.
NBT.B.5, 2.NBT.B.6, 2.NBT.B.7, 2.NBT.B.8, 2.NBT.B.9

Measurement & Data

6. Measure and estimate lengths in standard units.
2.MD.A.1, 2.MD.A.2, 2.MD.A.3, 2.MD.A.4

7. Relate addition and subtraction to length. 2.
MD.B.5, 2.MD.B.6
8. Work with time and money. 2.
MD.C.7, 2.MD.C.8
9. Represent and interpret data 2.
MD.D.9, 2.MD.D.10

Geometry

10. Reason with shapes and their attributes. 2.
G.A.1, 2.G.A.2, 2.G.A.3

Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them. *SMP1*
2. Reason abstractly and quantitatively. *SMP2*
3. Construct viable arguments and critique the reasoning of others. *SMP3*
4. Model with mathematics. *SMP4*
5. Use appropriate tools strategically. *SMP5*
6. Attend to precision. *SMP6*
7. Look for and make use of structure. *SMP7*
8. Look for and express regularity in repeated reasoning. *SMP8*

Scope and Sequence

Unit 1: Basic Fact Fluency and Place Value (Trimester 1)

Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students expand their understanding of multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g. 853 is 8 hundreds + 5 tens + 3 ones). Students will also review their basic addition and subtraction fact strategies to prepare for multi-digit addition and subtraction.

Unit 2: Multi-digit Addition and Subtraction (Trimesters 1 and 2)

Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

Unit 3: Money and Time (Trimester 2)

Students will apply skip-counting by 5's and 10's to counting money. Students will use their understanding of addition and subtraction within 100 to solve problems involving dollars **or** cents, but not problems with dollars and cents. Students will use the coin values to count groups of coins, compare two sets of coins, make and recognize equivalent collections of coins (same amount but different arrangements), select coins for a given amount, and make change (under \$1.00.) The understanding of money concepts builds from place value skills and concepts so students will need a strong grasp of 1s, 5s, and 10s. This unit is a real-world application of comparison and addition and subtraction with two-digit numbers. Students will tell and write time from analog and digital clocks to the nearest five minutes, using am and pm.

Unit 4: Linear Measurement (Trimester 2)

Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves and iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

Unit 5: Graphing, Geometry, and Foundations for Multiplication (Trimester 3)

Students will use the number line (with whole numbers) to create line plots, create picture graphs and bar graphs with up to four categories of given information and demonstrate an understanding of displayed data by accurately identifying the information presented by the graph. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two-and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades. Students will identify the fractional parts of a shape divided into thirds, fourths and halves and describe the fractional parts.

Assessments

Evaluation of student achievement in this course will be based on the following:

- a. Observational data collected by teachers as students are learning
- b. Formative assessments given by teachers to gauge progress toward each standard
- c. Math standards-based report card rubrics
- d. Districtwide Trimester math assessments

Curriculum Resources

Instructional Resources:

Math in Focus: Grades One and Two

Number Talks: Whole Number Computation, Grades K-5

Math in Practice: Teaching Second-Grade Math

Math in Practice: A Guide for Teachers

Additional Technology Resources:

NC Lessons for Learning: <http://tools4ncteachers.com/second-grade/>

Georgia Lessons for Grade 2: <https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx>

Illustrative Mathematics: www.illustrativemathematics.org

Home and School Connection

The following are suggestions and/or resources that will help parents support their children:

- Educational games:
 - <https://www.abcya.com/grades/2/numbers>
 - <http://www.sheppardsoftware.com/math.htm>
- Tutorials:
 - Learnzillion (how-to videos, search by topic): <https://learnzillion.com/resources/99913-math-instructional-videos/>
- Other parent resources:
 - YouCubed parent resources: <https://www.youcubed.org/resource/parent-resources/>
 - Table Talk Math parent resources: <https://www.tabletalkmath.com/resources.html>