Grade 4 Mathematics

Course Syllabus

Content   Prince George's County Public Schools

PGCPS

Prerequisites: None

Course Description: In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

1. Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

2. Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

3. Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

**The Standards for Mathematical Practice: The eight Standards for Mathematical Practice will be embedded in all mathematics instruction preK-12 and outline how students should think, reason, communicate and model mathematically. The eight practices are:

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.

** Details for each practice may be found at;

http://mdk12.msde.maryland.gov/instruction/academies/resources/Mathematics/MathD1/Standards_for_Mathematical%20_Practice.pdf

Fluency Definition: Skill in carrying out procedures flexibly, accurately, efficiently and appropriately.

Grade 4 Fluency Expectations: Students will fluently add and subtract multi-digit whole numbers using the standard algorithm up to 1,000,000

INSTRUCTOR INFORMATION:
    NAME:
    E-MAIL ADDRESS:
    PLANNING TIME:
    SCHOOL PHONE NUMBER:

CLASS INFORMATION:
    COURSE NUMBER:

    CLASS MEETS:
    ROOM:
    TEXT:

End of the Year Assessments:

GRADING:

Elementary Mathematics
(Grades 2 – 5)

Overview: The goal of grading and reporting is to provide the students with feedback that reflects their progress toward the mastery of the indicators and objectives found in the Mathematics Curriculum Framework Progress Guide.

Factors	Brief Description	Grade Percentage Per Quarter
Class Work	This includes work completed in the classroom setting. Class work can include, but is not limited to: ● Group Participation ● Notebooks/journals ● Written responses to Constructed Responses. (brief or extended), where applicable ● Active participation in whole/small group discussions, presentations and activities ● Active participation in math projects ● Completion of class assignments	**35%**
Independent Assignments	This includes all work completed outside the classroom to be graded on its completion and student's preparation for class (materials, supplies, etc.). Assignments can include, but are not limited to: ● Cumulative review problems ● Solving word problems ● Winter/Spring Break Packets	**25%**
Assessments	This category encompasses both the traditional (exams and quizzes) and alternative (presentations, projects, portfolios) methods of assessing student learning with the goal of mastery. ● Exams ● Tests ● Quizzes ● Portfolios ● Research/Unit Projects ● Oral presentations/Interview Suggested criteria for grading presentations, projects, portfolios: ● Concepts/objectives have been met. ● Completion of project.	**40%**

Grade 4 Mathematics Draft Curriculum Sequence

Quarter 1		
Unit 0 - The First 5 Days and Week of School		
Unit	**Big Idea**	**Standard**
Unit 1 **Structure of Whole Numbers** (13 days)	The base-10 place value number system is an efficient way to represent numbers in writing and allows for use of efficient algorithms when adding or subtracting large numbers.	4.NBT.A.1 4.MD.A.2 4.NBT.A.2 4.NBT.A.3 4.NBT.B.4
Unit 2 **Whole Number Multiplication** (21 days)	Multiplicative comparison describes how many times as much or as many one number is when compared to another.	4.OA.A.1 4.MD.A.2 4.OA.A.2 4.MD.A.3 4.OA.A.3 4.NBT.B.5
Unit 3 **Whole Number Division** (19 days)	Multiplication and division are inverse operations that can be represented with a variety of models that depend on how the context is being interpreted.	4.OA.A.2 4.OA.A.3 4.NBT.B.6
Quarter 2		
Unit 4 **Decimal Numbers** (12 days)	One whole can be partitioned into tenths and hundredths and expressed in decimal or fraction form. These decimals and fractions can be compared to each other as well as used to solve real-world problems.	4.NF.C.5 4.MD.A.2 4.NF.C.6 4.NF.C.7
Unit 5 **Fractions** (20 days)	Fractions are composed of smaller units that can be added, subtracted, and multiplied by joining or separating them.	4.NF.A.1 4.MD.A.2 4.NF.A.2 4.MD.B.4 4.NF.B.3 4.NF.B.4
Quarter 3		
Unit	**Big Idea**	**Standard**
Unit 6 **Factors and Multiples** (11 days)	Numbers can be classified as prime or composite and can be expressed as a product of their factors or as a factor of their multiples.	4.OA.B.4 4.MD.A.3

Unit 7 **Measurement** (19 days)	Measurement is a comparison of an attribute of something to a predetermined unit that has the same attribute, such as length to length or weight to weight. Measurement units can be decomposed into smaller units of equal size and used interchangeably.	4.MD.A.1 4.G.A.1 4.MD.A.2 4.G.A.2 4.MD.A.3 4.MD.C.5 4.MD.C.6 4.MD.C.7
Quarter 4		
Unit 8 **Polygons** (15 days)	Polygons can be classified by attributes such as the presence or absence of parallel and perpendicular lines, angle measures, and lines of symmetry.	4.G.A.1 4.G.A.2 4.G.A.3
Unit 9 **Number and Shape Patterns** (13 days)	Patterns grow in predictable ways that can be described and generalized to formulate rules in order extend their sequence.	4.OA.C.5 4.MD.A.3

Grade 4 Fluency Expectations:
- **4.NBT.B.4 -** *Fluently add and subtract within 1.000,000 .*