

	Grade 5 Mathematics Course Syllabus
Content	Prince George's County Public Schools

Prerequisites: None

Course Description: In *Grade 5*, instructional time should focus on four critical areas: (1) Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions), (2) Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing an understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations, and (3) Developing understanding of volume.

1. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also see the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)
2. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems

Standards for Mathematical Practice

Parents' Guide

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. As your son or daughter works through homework exercises, you can help him or her develop skills with these Standards for Mathematical Practice by asking some of these questions:

1. Make sense of problems and persevere in solving them.

- How would you describe the problem in your own words?
- How did you tackle similar problems?
- Would it help you to create a diagram? Make a table? Draw a picture?

2. Reason abstractly and quantitatively.

- Can you tell why that is true?
- How did you reach your conclusion?
- How does your answer connect to the question? Does it make sense?

3. Construct viable arguments and critique the reasoning of others.

- Can you convince me that your answer makes sense?
- Tell me what your answer means.
- If I told you I think the answer should be (offer a wrong answer), how would you explain to me why I'm wrong?

4. Model with mathematics.

- How would you model the situation with a diagram, picture, table, graph, equation or words?
- Can you use color, words, or diagrams to show the connections between these ideas?
- How do the different models connect or relate to each other (i.e. table to graph, graph to equation)?

5. Use appropriate tools strategically.

- What tools will you need?
- What strategies will you use?
- Will a calculator help? Will paper and pencil help? Will using a number line, table, diagram or picture help?

6. Attend to precision.

- Can you guess and check?
- Can you represent the definition or rule?
- What units of measure are you using? (for measurement problems)

7. Look for and make use of structure.

- What relevant information in the problem shows you what relationship (i.e. change, group, compare, ratio, or proportion) exists between the elements or parts of the problem?
- How do you know that your rule or equation always works?
- Are you actively comparing, reflecting on, and discussing multiple solution methods?

8. Look for and express regularity in repeated reasoning.

- What pattern(s) do you notice? How would you describe the pattern(s)?
- What calculations, patterns, or principles are repeated?
- What mathematical principles will help you in solving the problem?

Fluency Definition:

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

Grade 5 Fluency Expectation:

Students will fluently multiply multi-digit whole numbers using the standard algorithm.

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 POLICY:

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 5 Mathematics Draft Curriculum Sequence



Quarter 1		
Unit 0 - The First 5 Days and Week of School		
Unit	Big Idea	Standard
Unit 1 Whole Number Multiplication and Division (20 days)	The inverse properties of multiplication and division can be associated with different situations. Understanding of these operations, together with place value, can be used to solve real-world problems.	5.OA.A.2 5.NBT.A.1 5.NBT.A.2 5.NBT.B.5 5.NBT.B.6
Unit 2 Decimal Number System (10 days)	Decimal place value is an extension of whole number place value, where each place value to the left of another is ten times greater than the one to the right, and each value to the right is 1/10 of the place to its left.	5.NBT.A.1 5.NBT.A.3 a, b 5.NBT.A.4
Unit 3 Addition and Subtraction of Decimals and Fractions (16 days)	The effects of the operations of addition and subtraction with decimals and fractions are the same as those with whole numbers.	5.OA.A.2 5.NBT.B.7 5.NF.A.1 5.NF.A.2
Quarter 2		
Unit 4 Multiplying and Dividing Decimals by Whole Numbers (16 days)	Multiplication and division of two numbers will produce the same digits, regardless of the position of the decimal point. The patterns for the placement of the decimal point and the number of zeros when multiplying or dividing decimals by whole numbers, including powers of 10, can be understood through reasoning about place value.	5.NBT.A.2 5.NBT.B.7
Unit 5 Multiplying and Dividing Decimals by Decimals (16 days)	Multiplication or division of two numbers will produce the same digits, regardless of the position of the decimal points. When you multiply a number by a factor less than 1, the product will be smaller than the original number. When you divide a number by a divisor less than 1, the quotient will be larger than the original number.	5.NBT.7 5.NF.B.5 a, b
Quarter 3		
Unit	Big Idea	Standard
Unit 6 Multiplying Fractions (16 days)	The same ideas that apply to multiplying whole numbers and decimals also apply to multiplying fractions. When you multiply a number by a factor greater than 1, the product will be larger than the original number. Whenever you multiply a number by a factor less than 1, the product will be smaller than the original number.	5.NF.B.4 a, b 5.NF.B.5 a, b 5.NF.B.6

Unit 7 Dividing Fractions (11 days)	Understanding of division of whole numbers can be extended to understand division of unit fractions by whole numbers. and whole numbers by unit fractions. A fraction describes division.	5.NF.B.3 5.NF.B.7 a, b, c
Quarter 4		
Unit 8 Units and Volume (13 days)	Some attributes of objects are measurable and can be quantified using unit amounts. Volume refers to the space taken up by an object itself and can be quantified using three-dimensional units. Measurement units can be decomposed into smaller units and composed into larger units and used interchangeably.	5.MD.A.1 5.MD.C.3 a, b 5.MD.C.4 5.MD.C.5 a, b, c
Unit 9 Number Patterns and the Coordinate Plane (12 days)	There are relationships among numerical patterns, the rules that generate them, and their graphical representations.	5.OA.A.1 5.MD.B.2 5.OA.A.2 5. G.A.1 5.OA.B.3 5. G.A.2
Unit 10 Classifying 2-D Figures (14 days)	Two-dimensional objects with or without curved surfaces can be classified in a hierarchy based on their attributes. Attributes belonging to one category also belong to all subcategories of that category.	5.G.B.3 5.G.B.4

Grade 5 Fluency Expectations:

- **5.NBT.B.5** - *Fluently Multiply Multi-Digit Whole Numbers using the standard algorithm*