PGCPS

Content

Grade 3 Mathematics

Course Syllabus

Prince George's County Public Schools

Prerequisites: None

Course Description: In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

1. Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.
2. Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.
3. Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.
4. Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

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 related 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?

** 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 3 Fluency Expectations:

- **Students will fluently multiply and divide within 100. By the end of grade 3, they will know all products of two one-digit numbers from memory.**
- **Students will fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.**

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%**
Homework	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: • Problem of the Week • Friday Night Homework • Winter/Spring Break Packets	**15%**
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.	**50%**

Grade 3: Curriculum Cluster Map

■ **Major Cluster** ☐ **Supporting Cluster** ○ **Additional Cluster**

Quarter 1 (45 days)	Quarter 2 (45 days)	Quarter 3 (41 days)	Quarter 4 (47 days)
Unit 1 (Suggested Days: 22)	**Unit 3 (Suggested Days: 22)**	**Unit 5 (Suggested Days: 21)**	**Unit 7 (Suggested Days: 24)**
■ Represent and solve problems involving multiplication and division. (3.OA.A.1-4) ■ Understand properties of multiplication and the relationship between multiplication and division. (3.OA.B.5-6) ■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition. (3.MD.C.5-7)	■ Represent and solve problems involving multiplication and division. (3.OA.A.1-4) ■ Understand properties of multiplication and the relationship between multiplication and division. (3.OA.B.5-6) ■ Multiply and divide within 100. (3.OA.C.7) ■ Solve problems involving the four operations, and identify and explain patterns in arithmetic. (3.OA.D.8-9) ■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition. (3.MD.C.5-7)	■ Development understanding of fractions as numbers. (3.NF.A.1-3) ☐ Reason with shapes and their attributes. (3.G.A.2) ☐ Represent and interpret data. (3.MD.B.4)	■ Development understanding of fractions as numbers. (3.NF.A.1-3) ☐ Reason with shapes and their attributes. (3.G.A.1-2) ☐ Represent and interpret data. (3.MD.B.4)
Unit 2 (Suggested Days: 23)	**Unit 4 (Suggested Days: 23)**	**Unit 6 (Suggested Days: 20)**	**Unit 8 (Suggested Days: 23)**
■ Solve problems involving the four operations, and identify and explain patterns in arithmetic. (3.OA.D.8-9) ■ Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (3.MD.A.1-2) ☐ Represent and interpret data. (3.MD.B.3) ○ Use place value understanding and properties of operations to perform multi-digit arithmetic. (3.NBT.A.1-3) ○ Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. (3.MD.D.8)	■ Development understanding of fractions as numbers. (3.NF.A.1-3) ☐ Reason with shapes and their attributes. (3.G.A.2)	■ Represent and solve problems involving multiplication and division. (3.OA.A.1-4) ■ Understand properties of multiplication and the relationship between multiplication and division. (3.OA.B.5-6) ■ Multiply and divide within 100. (3.OA.C.7) ■ Solve problems involving the four operations, and identify and explain patterns in arithmetic. (3.OA.D.8-9) ■ Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (3.MD.A.1-2) ■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition. (3.MD.C.7)	■ Multiply and divide within 100. (3.OA.C.7) ■ Solve problems involving the four operations, and identify and explain patterns in arithmetic. (3.OA.D.8-9) ■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition. (3.MD.C.7) ■ Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. (3.MD.A.1-2)

Fluency Expectations: -Students fluently multiply and divide within 100. By the end of grade 3, they know all products of two one-digit numbers from memory.
-Students fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

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