Grade 2 Mathematics

Course Syllabus

Prince George's County Public Schools

PGCPS
Content

Prerequisites: None

Course Description: In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

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 understand 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).
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.
3. 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 an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.
4. 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.

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?
- Would it help you to draw a picture? Create a diagram? Make a chart or table?
- How did you tackle similar problems? What strategies are you going to use?

2. Reason abstractly and quantitatively.
- How does your answer connect to the question? Does it make sense?
- Can you tell why that is true? Can you make a model to show that?
- How did you reach your conclusion?

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. Can you explain why the strategy works?
- 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 objects, pictures, diagrams, table, equation or words?
- Can you use color, pictures, words, or diagrams to show the connections between these ideas?
- How do the different models connect or related to each other (pictures to equations)?

5. Use appropriate tools strategically.
- What tools will you need (counters, rulers, hundreds charts, base-ten models, shapes)?
- What strategies will you use? (Act-it-Out, Use objects, Draw a picture, Work backwards, Write an equation
- Will using a number line, table, diagram or picture help? Will paper and pencil help? Will a calculator help?

6. Attend to precision.
- Can you use appropriate vocabulary to describe your solution?
- Can you represent the definition or rule appropriately for your grade-level?
- 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 the patterns or relationships exists between the 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 2 Fluency Expectations:
- Students will fluently add and subtract within 20 using mental strategies. By the end of grade 2, know from memory all sums of two one-digit numbers.
- Students will fluently add and subtract within 100 using strategies 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:

Grade 2 Mathematics

Overview: The goal of grading and reporting is to provide the students with feedback that reflects their progress towards the mastery of the Maryland College and Career-Ready Standards.

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 2: Curriculum Cluster Map

■ **Major Cluster**	☐ **Supporting Cluster**	⭘ **Additional Cluster**

Quarter 1 (45 days)	Quarter 2 (45 days)	Quarter 3 (43 days)	Quarter 4 (47 days)
Unit 1: (23 suggested days)	**Unit 3: (22 suggested days)**	**Unit 5: (22 suggested days)**	**Unit 7: (22 suggested days)**
■ **Represent** and solve problems involving addition and subtraction • 2.OA.A.1 ■ **Add and subtract within 20** • 2.OA.B.2 ■ **Understand place value** • 2.NBT.A (1-3) ☐ **Work with time and money** • 2.MD.C (7-8)	■ **Represent and solve problems involving addition and subtraction** • 2.OA.A.1 ■ **Add and subtract within 20** • 2.OA.B.2 ☐ **Work with equal groups to gain foundations for multiplication** • 2.OA.C (3-4) ■ **Understand place value** • 2.NBT.A (1-4) ■ **Use place value understanding and properties of operations to add and subtract** • 2.NBT.B (5,6,8,9) ☐ **Work with time and money** • 2.MD.C (7-8)	■ **Represent and solve problems involving addition and subtraction** • 2.OA.A.1 ■ **Add and subtract within 20** • 2.OA.B.2 ☐ **Work with equal groups to gain foundations for multiplication** • 2.OA.C (3-4) ■ **Understand place value** • 2.NBT.A (1-4) ■ **Use place value understanding and properties of operations to add and subtract** • 2.NBT.B (5-9) ☐ **Work with time and money** • 2.MD.C (7-8) ⭘ **Reason with shapes and their attributes** • 2.G.A (2-3)	■ **Represent and solve problems involving addition and subtraction** • 2.OA.A.1 ■ **Add and subtract within 20** • 2.OA.B.2 ☐ **Work with equal groups to gain foundations for multiplication** • 2.OA.C (3-4) ■ **Understand place value** • 2.NBT.A (1-4) ■ **Use place value understanding and properties of operations to add and subtract** • 2.NBT.B (5-9) ☐ **Work with time and money** • 2.MD.C (7-8) ⭘ **Reason with shapes and their attributes** • 2.G.A (1-3)
Unit 2: (22 suggested days)	**Unit 4: (23 suggested days)**	**Unit 6: (21 suggested days)**	**Unit 8: (25 suggested days)**
■ **Measure and estimate lengths in standard units** • 2.MD.A. (1,3,4) ■ **Relate addition and subtraction to length** • 2.MD.B (5) ☐ **Represent and interpret data** • 2.MD.D (10)	■ **Use place value understanding and properties of operations to add and subtract** • 2.NBT.B (5-9) ■ **Measure and estimate lengths in standard units** • 2.MD.A. (1-4) ■ **Relate addition and subtraction to length** • 2.MD.B (5-6) ☐ **Represent and interpret data** • 2.MD.D (9-10)	■ **Use place value understanding and properties of operations to add and subtract** • 2.NBT.B (5-9) ■ **Measure and estimate lengths in standard units** • 2.MD.A (1-4) ■ **Relate addition and subtraction to length** • 2.MD.B (5-6) ☐ **Represent and interpret data** • 2.MD.D (9-10) ⭘ **Reason with shapes and their attributes.** • 2.G.A (2-3)	■ **Use place value understanding and properties of operations to add and subtract** • 2.NBT.B (5-9) ■ **Measure and estimate lengths in standard units** • 2.MD.A (1-4) ■ **Relate addition and subtraction to length** • 2.MD.B (5-6) ☐ **Represent and interpret data** • 2.MD.D (9-10) ⭘ **Reason with shapes and their attributes** • 2.G.A (1-3)

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