Grade 2 Math Unit 8

Content Area: **Math**
Course(s):
Time Period: **Trimester 3**
Length: **3 Weeks**
Status: **Published**

Course Pacing Guide

This pacing guide should include the vision and mission of the course. It will be the same for all units in your course.

The simpler, the better. Pacing guide flaws come when they are too constricting, so big ideas is best (Cobb, McClain, de Silva Lamberg, & Dean, 2003; Wiggins, Wiggins, & McTighe, 2005)

Model

Unit	MP/Trimester	Weeks
Unit 1 Establishing Routines	1	3
Unit 2 Fact Strategies	1	4
Unit 3 More Fact Strategies	1	3
Unit 4 Place Value and Measurement	2	4
Unit 5 Addition and Subtraction	2	3
Unit 6 Whole Number Operations and Number Stories	2	3
Unit 7 Whole Number Operations and Measurement and Data	3	3
Unit 8 Geometry and Arrays	3	3
Unit 9 Equal Shares and Whole Number Operations	3	4

Unit Overview

Enduring Understandings

- Analyzing the attributes and the relationships of geometric shapes helps to develop reasoning.
- Understanding the importance of numbers in groups will assist in many areas of computation.

Essential Questions

- What is an attribute?
- Why do we make groups?

New Jersey Student Learning Standards (No CCS)

MA.2.OA.A	Represent and solve problems involving addition and subtraction.
MA.2.OA.A.1	Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
MA.2.OA.B	Add and subtract within 20.
MA.2.OA.B.2	Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
MA.2.OA.C	Work with equal groups of objects to gain foundations for multiplication.
MA.2.OA.C.3	Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
MA.2.OA.C.4	Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.
MA.2.NBT.A.1	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
MA.2.NBT.A.1a	100 can be thought of as a bundle of ten tens — called a “hundred.”
MA.2.NBT.A.1b	The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
MA.2.NBT.A.2	Count within 1000; skip-count by 5s, 10s, and 100s.
MA.2.NBT.A.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
MA.2.NBT.B.5	Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
MA.2.NBT.B.7	Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
MA.2.NBT.B.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.
MA.2.MD.D.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

MA.2.G.A.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Amistad Integration

Holocaust/Genocide Education

Interdisciplinary Connections

LA.RI.2.7	Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
LA.W.2.8	Recall information from experiences or gather information from provided sources to answer a question.
LA.SL.2.1	Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
LA.SL.2.1.B	Build on others' talk in conversations by linking their explicit comments to the remarks of others.
LA.SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

Technology Standards

TECH.8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e., games, museums).
TECH.8.1.2.A.CS2	Select and use applications effectively and productively.
TECH.8.1.2.C	Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
TECH.8.1.2.C.1	Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.
TECH.8.1.2.C.CS1	Interact, collaborate, and publish with peers, experts, or others by employing a variety of digital environments and media.
TECH.8.1.2.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.2.2.E	Computational Thinking: Programming: Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.
TECH.8.2.2.E.1	List and demonstrate the steps to an everyday task.

21st Century Themes/Careers

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP11.1	Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.
CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal.

	They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.

Financial Literacy Integration

Money in Our Community Part 2 (Exchange of money for goods)

PFL.9.1.4.B.1	Differentiate between financial wants and needs.
PFL.9.1.4.B.2	Identify age-appropriate financial goals.
PFL.9.1.4.B.3	Explain what a budget is and why it is important.
PFL.9.1.4.B.4	Identify common household expense categories and sources of income.
PFL.9.1.4.B.5	Identify ways to earn and save.
PFL.9.1.4.C.1	Explain why people borrow money and the relationship between credit and debt.
PFL.9.1.4.C.2	Identify common sources of credit (e.g., banks, credit card companies) and types of credit (e.g., loans, credit cards, mortgages).
PFL.9.1.4.C.3	Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.
PFL.9.1.4.C.4	Determine the relationships among income, expenses, and interest.
PFL.9.1.4.C.5	Determine personal responsibility related to borrowing and lending.
PFL.9.1.4.C.6	Summarize ways to avoid credit problems.
PFL.9.1.4.D.1	Determine various ways to save.
PFL.9.1.4.D.2	Explain what it means to “invest.”
PFL.9.1.4.D.3	Distinguish between saving and investing.
PFL.9.1.4.E.1	Determine factors that influence consumer decisions related to money.
PFL.9.1.4.E.2	Apply comparison shopping skills to purchasing decisions.
PFL.9.1.4.F.1	Demonstrate an understanding of individual financial obligations and community financial obligations.
PFL.9.1.4.F.2	Explain the roles of philanthropy, volunteer service, and charitable contributions, and analyze their impact on community development and quality of living.
PFL.9.1.4.G.1	Describe how valuable items might be damaged or lost and ways to protect them.

Instructional Strategies & Learning Activities

Planning Lesson Parts and Features:

- Lesson Opener (Before You Begin...)
- Differentiation Options

Instruction:

- Mental Math
- Daily Calendar/Weather/ School Day Count Routines
- Math Message
- Math Message Follow-up

- Focus Activities
- Assessment Check-In
- Practice Activity ~ Practice Page or Game
- Math Boxes ~ Spiral Review
- Home Link ~ At-Home Practice

Lessons:

Lesson 8-1 ~ Attributes of 2-Dimensional Shapes

Lesson 8-2 ~ Playing *Shape Capture*

Lesson 8-3 ~ Comparing Triangels, Pentagons, and Hexagons

Lesson 8-4 ~ Open Response- Drawing and Reasoning About Quadrilaterals (2-Day Lesson)

Lesson 8-5 ~ Attribures of 3-Dimensional Shapes

Lesson 8-6 ~ Partitioning Rectangles, Part 1

Lesson 8-7 ~ Partitioning Rectangles, Part 2

Lesson 8-8 ~ Equal-Groups and Array Number Stories

Lesson 8-9 ~ More Equal Groups and Arrays

Lesson 8-10 ~ Playing *Array Concentration*

Lesson 8-11 ~ Explorations - Exploring Mystery Shapes, Polygons, and Equal Parts

Lesson 8-12 ~ Assessment - Unit 8 Progress Check (2-Day Assessment)

Differentiated Instruction

- Use of Base-10 BLocks and other manipulatives
- Access to Number Line/ Number Grid
- Inquiry/Problem-Based Learning
- Learning preferences integration (visual, auditory, kinesthetic)
- Sentence & Discussion Stems
- Tiered Learning Targets
- Learning Through Play
- Meaningful Student Voice & Choice
- Relationship-Building & Team-Building
- Self-Directed Learning
- Choice Boards
- Student Data Inventories
- Mastery Learning (feedback toward goal)
- Goal-Setting & Learning Contracts
- Game-Based Learning

- Grouping
- Rubrics
- Learning Menus
- Jigsaws
- Learning Through Workstations
- Concept Attainment
- Mentoring
- Assessment Design & Backwards Planning

Formative Assessments

Mental Math Responses

Lesson Practice Book Pages

Math Boxes

Exit Slips

Responses to Questions

Completed Homework

Summative Assessment

EM4 Unit 8 Progress Check

Benchmark Assessments

End-of- the-Year Cummulative Second Grade Math Assessment

Alternate Assessments

Resources & Technology

Suggested Trade Books

The Greedy Triangle by Marilyn Burns

Shape Up by David Adler

Each Orange Had Eight Slices :A Counting Book by Paul Giganti

One Hundred Hungry Ants by Elinor Pinazes

YouTube:

Arrays

Geometry

BrainPopJr ~ Arrays

BrainPopJr ~ Solid Shapes

Websites:

Patterns and Shapes

vlc.cemseprojects.org (virtual learning community)

connectED.mheducation.com

www.khanacademy.com

BOE Approved Texts

McGraw-Hill Education: Everyday Mathematics

4th Edition

www.everydaymath,com

Closure

Such as:

- Kids write write a sample math problem or drawing to show what they learned

- Students complete and Post-It Note denoting "What stuck with me today...?"
- Parent Hotline - Give students an interesting question about the lesson without further discussion. Email their guardians the answer so that the topic can be discussed over dinner.
- DJ Summary - Learners write what they learned in the form of a favorite song. Offer to let one or two sing thier summary.
- Students complete and "Exit Slip" that contains a math problem to be solved using the math strategy learned in the lesson
- Low-Stakes Quizzes - Give a short quiz using technologies like Kahoot or a Google form.
- Have students write down three quiz/math problems questions (to ask at the beginning of the next class).
- Kids answer the following prompts: "What takeaways from the lesson will be important to know three years from now? Why?
- Have students dramatize a real-life application of a skill.
- Have kids orally describe a concept, procedure, or skill in terms so simple that a child in first grade would get it.
- Direct kids to raise their hands if they can answer your questions. Classmates agree (thumbs up) or disagree (thumbs down) with the response.
- Have kids create a cheat sheet of information that would be useful for a quiz on the day's topic. .
- Have students complete the following sentence: "The [concept, skill, word] is like _____ because _____."
- Ask students to write what they learned, and any lingering questions on an "exit ticket". Before they leave class, have them put their exit tickets in a folder or bin labeled either "Got It," "More Practice, Please," or "I Need Some Help!"
- Question Stems - Have students write questions about the lesson on cards, using question stems framed around Bloom's Taxonomy. Have students exchange cards and answer the question they have acquired.

ELL

Such as:

- Alternate Responses
- Number Grids; Number Lines
- Extended Time
- Teacher Modeling
- Simplified Written and Verbal Instructions
- Frequent Breaks
- E-Dictionaires
- Google Translate
- Use of Manipulatives

Special Education

List is not inclusive but may include examples such as:

- Use of manipulatives such as Base-10 Blocks to model Math Problems
- Shorten assignments to focus on mastery of key concepts.
- Specify and list exactly what the student will need to do to complete the task.
- Give directions in small steps and in as few words as possible.
- Have student repeat the directions for a task.
- Provide visual aids.
- Go over directions orally.
- Number and sequence the steps in a task.
- Evaluate the classroom structure against the student's needs (flexible structure, firm limits, etc.).
- Keep workspaces clear of unrelated materials.
- Offer and provide Privacy Shields for students who need quiet or are easily distracted
- Reduce visual distractions in the classroom (mobiles, etc.).
- Provide a computer for written work.
- Seat the student close to the teacher or a positive role model.
- Provide an unobstructed view of the teacher, whiteboard, math charts etc.
- Keep extra supplies of classroom materials (pencils, books) on hand.
- Maintain adequate space between desks.
- Provide a vocabulary list with definitions.
- Permit as much time as needed to finish tests.
- Allow tests to be taken in a room with few distractions (e.g., the library).
- Have test materials read to the student, and allow oral responses.
- Divide tests into small sections of similar questions or problems.
- Allow the student to complete an independent project as an alternative test.
- Show a model of the end product of directions (e.g., a completed math problem or finished quiz).
- Stand near the student when giving directions or presenting a lesson.
- Mark the correct answers rather than the incorrect ones.
- Permit a student to rework missed problems for a better grade.
- Average grades out when assignments are reworked, or grade on corrected work.
- Use a pass-fail or an alternative grading system when the student is assessed on his or her own growth.

504

Examples of accommodations in 504 plans include but are not limited to:

- preferential seating
- extended time on tests and assignments
- reduced homework or classwork
- verbal, visual, or technology aids
- modified textbooks or audio-video materials
- behavior management support
- verbal testing

At Risk

Examples may include:

- Use of manipulatives
- Math sheets with highlighted instructions
- Graph paper to assist in organizing or lining up math problems
- Use of mnemonics
- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Use of a study carrel
- Assistance in maintaining uncluttered space
- Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
- Follow a routine/schedule
- Teach time management skills
- Verbal and visual cues regarding directions and staying on task
- Adjusted assignment timelines
- Visual daily schedule
- Immediate feedback
- Work-in-progress check
- Preview test procedures
- Cue/model expected behavior
- Use de-escalating strategies
- Use peer supports and mentoring
- Have parent sign homework/behavior chart
- Chart progress and maintain data

Gifted and Talented

Examples may include:

- Offer challenge choices
- Encourage risk taking
- Provide challenge independent practice alternate work
- Allow G/T students to work together
- Tiered learning
- Focus on effort and practice