Grade 3 Unit 9 Multi-Digit Operations

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

Course Pacing Guide

Unit 9 - Multidigit Operations

8 Lessons

9.1 - Playing Product Pile-Up - 1 Day

9.2 - Multiply and Divide with Multiples of 10 - 2 Days

9.3 - Using Mental Math to Multiply - 1 Day

9.4 - Explorations - Exploring Elapsed Time, Squares, and Bridges - 1 Day

9.5 - Multidigit Multiplication - 2 Days

9.6 - Open Response - Packing Apples - 2 Days

9.7 - Length of a Day Project - Revisited - 1 Day

Review Day for Test - 1 Day

9-8 Unit 9 Progress Check - 1 Day

Correct and Reflect - 1 Day

Unit Overview

In this unit, students will be able to:

- further develop their understanding of multiplication and division as they apply basic fact knowledge to mentally solve number stories and multiply larger factors.
- interpret length-of-day data and work to calculate elapsed time more efficently.

Enduring Understandings

By the End of Unit 9, expect children to:

- use multiplication and division within 100 to solve word problems in situations involing equal groups, arrays, and measurement quantities, e.g. by using drawings and equations with a symbol for the unknown number to represent the problem.
- determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- apply properties of operations as strategies to multiply and divide.
- fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division.
- by the end of 3rd grade, know from memory all products of two one-digit numbers.
- multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations.
- tell and write time to the nearest minute and measure time intervals in minutes.
- solve word problems involving addition and subtraction of time intervals in minutes.

Essential Questions

9.1 - How can playing Product Pile-Up help you memorize your facts?

9.2 - What strategies can you use to multiply and divide multiples of 10?

9.3 - How can you improve your mental math power?

9.4 - What strategies do you use to solve elapsed time? How are polygons similar and different? What is mass? How can we find the mass of an object?

9.5 - What are the steps in partitioning rectangles to solve multidigit multiplication problems?

9.6 - What strategies can you use to solve division problems?

9.7 - What did you notice in the length-of-the-day project?

New Jersey Student Learning Standards (No CCS)

MA.3.OA.A.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
MA.3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
MA.3.OA.B.5	Apply properties of operations as strategies to multiply and divide.
MA.3.OA.C.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two

	one-digit numbers.
MA.3.NBT.A.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.
MA.3.MD.A.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

Amistad Integration

Amistad Integration Document

The Girl With a Mind for Math: The Story of Raye Montague by Julia Finley Mosca

Holocaust/Genocide Education

- Teach district mandated diversity lessons
- Incorporate Responsive Classroom Program into classroom community

Interdisciplinary Connections

LA.RL.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
LA.RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
LA.RI.3.7	Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

Technology Standards

TECH.8.1.5.A.4	Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.
TECH.8.1.5.A.CS1	Understand and use technology systems
TECH.8.1.5.C.CS3	Develop cultural understanding and global awareness by engaging with learners of other cultures.
TECH.8.1.5.C.CS4	Contribute to project teams to produce original works or solve problems

21st Century Themes/Careers

CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Financial Literacy Integration

3rd Grade Math Financial Integration Lessons

9.1.4.B.1 Differentiate between financial wants and needs.

9.1.4.B.2 Identify age-appropriate financial goals.

9.1.4.B.3 Explain what a budget is and why it is important.

9.1.4.B.4 Identify common household expense categories and sources of income.

9.1.4.B.5 Identify ways to earn and save.

9.1.4.C.1 Explain why people borrow money and the relationship between credit and debt.

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).

9.1.4.C.3 Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.

9.1.4.C.4 Determine the relationships among income, expenses, and interest.

9.1.4.C.5 Determine personal responsibility related to borrowing and lending.

9.1.4.C.6 Summarize ways to avoid credit problems.

9.1.4.D.1 Determine various ways to save.

9.1.4.D.2 Explain what it means to “invest.”

9.1.4.D.3 Distinguish between saving and investing.

9.1.4.E.1 Determine factors that influence consumer decisions related to money.

9.1.4.E.2 Apply comparison shopping skills to purchasing decisions.

9.1.4.F.1 Demonstrate an understanding of individual financial obligations and community financial obligations.

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.

9.1.4.G.1 Describe how valuable items might be damaged or lost and ways to protect them.

Instructional Strategies & Learning Activities

Instructional Strategies

- number cards
- base 10 blocks
- pan balance with standard masses
- straws and twist ties

Learning Activities

- 9.1,9.4 - Product Pile Up
- 9.2 - Beat the Calculator
- 9.3, 9.5 - Multiplication Top It with Extended Facts
- 9.4 - Factor Bingo
- 9.4 - Finding Factors
- 9.5 - Fraction Memory
- 9.5 - Fraction Top It
- 9.5 - Fraction Number-Line Squeeze
- 9.7 - Name That Number

Differentiated Instruction

- See Teacher's Manual p. 807, 813, 819, 825, 833, 849,
- Use Data from Tech-Exit Tickets, Exit Slips, and Progress Monitoring to group students for each skill
- Student "May Do" Activities
- Sentence and Discussion Stems - Especially for Open Response
- Visual Anchor Charts for current, previous, and next lessons
- Interactive Notebook
- Hands On Learning/Activities

Formative Assessments

Exit Tickets in Haddonfield 3rd Grade Drive

Summative Assessment

Unit 9 Progress Check - See Everyday Math Online Resources or Assessment Handbook

Benchmark Assessments

Teachers may use:

~EDM4 EOY Assessment (for SGO---to show year long growth at EOY)

~Spring Link It Form C (To reflect on specific skills and standards)

Alternate Assessments

Progress Monitoring by Standard on Link-It

Resources & Technology

Haddonfield Third Grade Shared Drive

IXL Skills:

Third Grade H1 - Multiples of 10

Third Grade H - Multiplication

Third Grade G - Multiplication Fluency

Third Grade F- Multiplication Skill Builders

Third Grade T6-T8 - Elapsed Time

BOE Approved Texts

McGraw Hill Education - Everyday Math Manual - Volumes 1 and 2

Closure

See Exit Tickets Above

- Gallery Walk - On chart paper, small groups of students write and draw what they learned. After the completed works are attached to the classroom walls, others students affix post-its to the posters to extend on the ideas, add questions.
- Low-Stakes Quizzes - Give a short quiz using technologies like Kahoot or a Google form.
- Have students write down three quiz questions (to ask at the beginning of the next class).
- 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.
- 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.
- Kids write notes to peers describing what they learned from them during class discussions.
- 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!"
- After writing down the learning outcome, ask students to take a card, circle one of the following options, and return the card to you before they leave: "Stop (I'm totally confused. Go (I'm ready to move on.)" or "Proceed with caution (I could use some clarification on . . .)"

ELL

- Alternate Responses
- Advance Notes
- Extended Time
- Teacher Modeling
- Simplified Written and Verbal Instructions
- Frequent Breaks
- E-Dictionaires
- Google Translate

Special Education

- Shorten assignments to focus on mastery of key concepts.
- Evaluate the classroom structure against the student’s needs (flexible structure, firm limits, etc.).
- Keep workspaces clear of unrelated materials.

- Keep the classroom quiet during intense learning times.
- Provide a computer for written work.
- Seat the student close to the teacher or a positive role model.
- Provide an unobstructed view of the chalkboard, teacher, movie screen, etc.
- Give directions in small steps and in as few words as possible.
- Number and sequence the steps in a task.
- Have student repeat the directions for a task.
- Provide visual aids.
- Go over directions orally.
- 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.

504

- 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
- adjusted class schedules or grading
- verbal testing
- excused lateness, absence, or missed classwork
- pre-approved nurse's office visits and accompaniment to visits
- occupational or physical therapy

At Risk

- Use of mnemonics
- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Assistance in maintaining uncluttered space
- Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
- Lab and math sheets with highlighted instructions

- Graph paper to assist in organizing or lining up math problems
- Use of manipulatives
- No penalty for spelling errors or sloppy handwriting
- 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
- Pace long-term projects
- Preview test procedures
- Film or video supplements in place of reading text
- Pass/no pass option
- 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

- Offer the Most Difficult First
- Pretest for Volunteers
- Offer choice
- Speak to Student Interests
- Allow G/T students to work together
- Tiered learning
- Focus on effort and practice
- Encourage risk taking