5 Math Unit 07: Divide Whole Numbers

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 2**
Length: **7 Days**
Status: **Published**

Unit Overview

Dividing Multi-Digit Whole Numbers

In this unit, students build on their understanding of multiplication and division from Grade 4. Students have previously worked with division of up to four-digit dividends and one-digit divisors, including situations involving remainders. They continue to use equations, rectangular arrays, and area models to extend their knowledge of division to include up to four-digit dividends and two-digit divisors. They use estimation techniques to determine the reasonableness of solutions.

Students apply their understanding of dividing multi-digit whole numbers to solve problems in real-world contexts. When possible, students use area models to represent and solve a problem. By reasoning with the blocks for multiple cases, they develop a general process for approaching problems, which they know as the *partial quotients algorithm*.

Students discover that place value and division strategies work the same way with multi-digit whole number divisors as they do with division by one-digit divisors.

- **Use place-value patterns:** Students can identify and use place-value patterns to divide multi-digit whole numbers.
- **Use models:** Students use models to represent division problems and relate the problem to multiplication. They use their understanding of place-value and multiplication to decompose and area model by factors and use partial quotients to identify the quotient.
- **Solve word problems:** Students use their understanding of equations and models to solve word problems involving division.

What Students Are Learning

- Students use strategies based on place value to divide multi-digit whole numbers.
- Students estimate quotients of multi-digit whole numbers.
- Students use partial quotients and the standard algorithm to divide multi-digit whole numbers.
- Students solve real-world division problems with multi-digit whole numbers.

Number Routines

- Where Does It Go?
- Which Benchmark Is It Closest To?
- Find the Pattern, Make the Pattern
- Decompose It
- Notice & Wonder
- Numberless Word Problem

Standards

5.NBT.B.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Materials

Core Materials:

Reveal Math

7.1 Division Patterns with Multi-Digit Numbers

7.2 Estimate Quotients

7.3 Relate Division of 2-Digit Divisors

7.4 Use Partial Quotients to Divide

7.5 Use Partial Quotients to Divide

7.6 Divide Multi-Digit Whole Numbers

7.7 Solve Problems Involving Division

Supplemental Materials:

- ST Math
- Happy Numbers
- 3 Act Lessons
- Building Fact Fluency Kit
- Brainingcamp Manipulatives
- Nearpod Lessons
- Brainpop Resources
- Online Resources

Technology

DA	Data & Analysis
	Data can be organized, displayed, and presented to highlight relationships.
8.1.5.DA.1	Collect, organize, and display data in order to highlight relationships or support a claim.
	Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.
8.1.5.DA.3	Organize and present collected data visually to communicate insights gained from different views of the data.

8.1.5.DA.4	Organize and present climate change data visually to highlight relationships or support a claim.
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Assessment

Formative Assessment

- Unit Readiness Diagnostics
- Lesson Checks
- Exit Tickets
- Teacher Observation

Summative Assessment

- Unit Assessment Performance Task
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

Differentiated Instruction			
Accommodate Based on Students Individual Needs: Strategies			
Time/General • Extra time for assigned tasks • Adjust length of assignment • Timeline with due dates for reports and projects • Communication system between home and school • Provide lecture notes/outline	**Processing** • Extra response time • Have students verbalize steps • Repeat, clarify, or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Reading partners	**Comprehension** • Precise step-by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback	**Recall** • Teacher-made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal

		• Small group instruction • Emphasize multi-sensory learning	reminders • Graphic organizers
Assistive Technology • Computer/whiteboard • Tape recorder • Spell-checker • Audio-taped books	**Tests/Quizzes/Grading** • Extended time • Study guides • Focused/chunked tests • Read directions aloud	**Behavior/Attention** • Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback	**Organization** • Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

Climate Change:

- Climate Change Example: To examine the impact climate change has on agriculture, students may solve word problems about the reduced yields of staple crops and their distribution that involve division of whole numbers and lead to answers in the form of fractions.
- Climate Change Example: To examine the impact climate change has on agriculture, students may solve real-world problems about the reduced yields of staple crops and their distribution that involve division of unit fractions by non-zero whole numbers and/or division of whole numbers by unit fractions.

3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
RI.MF.5.6	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on web pages) and explain how the information contributes to an understanding of the text in which it appears.
SL.PE.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and

	teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Career Readiness, Life Literacies & Key Skills

9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
9.2.5.CAP.4	Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
9.4.5.CT	Critical Thinking and Problem-solving
	The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
9.4.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
	People can choose to save money in many places such as home in a piggy bank, bank, or credit union.
9.1.5.FI.1	Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.
9.1.5.PB.1	Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.

Career Ready Practices

STEM CAREER: Computer Programmer Students talk about her aspirations to be come a computer programmer. Student designs a game. Student uses division to determine the length of a sports field in her computer game.

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.