# 3 Math Unit 09: Use Multiplication to Divide

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 3**
Length: **15 Days**
Status: **Published**

## Unit Overview

**Patterns**

Starting in Grade 3, students begin to delve into a variety of multiplication and division problems. Previously, students were introduced to multiplication and division representations. In this unit, students use patterns and the relationship between multiplication and division to help determine whether a quotient is reasonable or accurate. Students will discover patterns when dividing by 1. When multiplying by 1, the product is the same as the other factor. So when dividing a number by itself, the quotient is 1. When dividing by 1, the quotient is the same as the dividend.

Students will also discover patterns when dividing using 0. When a number is multiplied by 0, the product is always 0. When 0 is divided by a non-zero number, the quotient is always 0. A non-zero number can never be divided by 0 because there is no number that can be multiplied by 0 to equal that number.

Equal groups are helpful to students both when multiplying and dividing. Arrays can be used to help students visualize these equal groups. Pennies can be placed into arrays to help with dividing by 5 and 10. Students should also be aware that multiplication and division are related operations. For example, the multiplication equation 2 x 10 = 20 can be thought of as 2 groups of 10 equals 20. Students can use this equation to find 20 ÷ 2. Students can also use multiplication facts to remember relat6ed division facts. The related multiplication and division equations can be represented by the same array.

**What Students Are Learning**

- Students understand division as an unknown-factor problem.
- Students fluently divide within 100, using strategies such as the relationship between multiplication and division.

## Number Routines

- What's Another Way to Write it?
- Let's Count
- Greater Than or Less Than
- Would You Rather?
- Notice & Wonder
- Numberless Word Problem
- Which Doesn't Belong?
- Is It Always True?

## Standards

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| 3.OA.B.6 | Understand division as an unknown-factor problem. |
| 3.OA.C.7 | With accuracy and efficiency, multiply and divide within 100, using strategies such as the |

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| | 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. |

## Materials

**Core Materials:**

**Reveal Math**

9.1 Use Multiplication to Solve Division Equations

9.2 Divide by 2

9.3 Divide by 5 and 10

9.4 Understand Division with 1 and 0

9.5 Divide by 3 and 6

9.6 Divide by 4 and 8

9.7 Divide by 9

9.8 Divide by 7

9.9 Multiply and Divide Fluently within 100

**Supplemental Materials:**

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

## Technology

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| 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 |

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

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

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| 3-5-ETS1-2 | Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. |
| RL.CR.3.1 | Ask and answer questions and make relevant connections to demonstrate understanding of a literary text, referring explicitly to textual evidence as the basis for the answers. |
| RL.TS.3.4 | Utilize and reference features of a text when writing or speaking about a text, referring to parts of stories, dramas, and poems, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections. |
| W.IW.3.2 | Write informative/explanatory texts to examine a topic and convey ideas and information clearly. |
| 3-ESS2-1 | Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. |

## Career Readiness, Life Literacies & Key Skills

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| 9.2.5.CAP.3 | Identify qualifications needed to pursue traditional and non-traditional careers and occupations. |
| 9.4.5.CT | Critical Thinking and Problem-solving |

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| | 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.3 | Describe how digital tools and technology may be used to solve problems. |
| 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). |
| 9.1.5.FI | Financial Institutions |
| | 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. |
| | There are specific steps associated with creating a budget. |
| 9.1.5.PB.1 | Develop a personal budget and explain how it reflects spending, saving, and charitable contributions. |

## Career Ready Practices

**STEM in Action**

**STEM Career: Photonics Engineer:** Malik talks about the work of a photonics engineer.

**Malik Designs a Laser Show:** Malik uses division to divide 50 lasers into equal works.

- 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.