Unit 2 Modeling Multiplication and Division

Content Area: **Mathematics**
Course(s):
Time Period: **Generic Time Period**
Length: **6 weeks**
Status: **Published**

Standards

CRP.K-12.CRP2	Apply appropriate academic and technical skills.
TECH.8.1.5.A.CS1	Understand and use technology systems
LA.3.SL.3.1.B	Follow agreed-upon norms for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).
MA.3.3.OA.D.8	Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
MA.3.3.OA	Operations and Algebraic Thinking
MA.3.3.OA.A	Represent and solve problems involving multiplication and division.
MA.3.3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
MA.3.3.OA.A.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
MA.3.3.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.3.3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
MA.3.3.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.3.3.OA.B.5	Apply properties of operations as strategies to multiply and divide.
MA.3.3.OA.B.6	Understand division as an unknown-factor problem.
MA.3.3.OA.C	Multiply and divide within 100.
LA.3.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
LA.3.SL.3.1.A	Explicitly draw on previously read text or material and other information known about the topic to explore ideas under discussion.
MA.3.3.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.
TECH.8.1.5.A.1	Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems

Essential Questions

How can you use multiplication facts, place value, and properties to solve multiplication problems?

How are patterns and multiplcation related related?

How can multiplication properties help you find products?

What types of problems can be solved using multiplication?

How can you use division to find how many in each group or how many equal groups/

How are multiplication and division related?

What models can help you divide?

How can subtraction help you divide?

What strategies can you use to divide?

How can you use a related multiplication fact to divide?

How can you use factors to divide?

What types of problems can be solved using division?

Student Learning Objectives

Critical Area : Develop Understanding of multiplication and division and strategies for multiplication and division within 100

Chapter 5

- Identify a pattern in a multiplication table
- Use an array or a multiplication table to find an unknown factor
- Solve multiplication problems by using Draw a Diagram Strategy
- Use base ten blocks, a number line, or place value to multiply within multiples of 10
- Model and record multiplication with multiples of 10

Chapter 6

- Model division by using equal groups and bar models.
- Use repeated subtraction and a numberline to relate subtraction to division.
- Model division by using arrays.
- Use bar models and arrays to relate multiplication and division as inverse operations.
- Write related multiplication and division facts.
- Divide using the rules for 1 and 0.

Chapter 7

- Use models to represent division by 2.
- Use repeated subtraction, a number line, or a multiplication table to divide by 10.
- Count up by 5s, count back on a number line, or use 10s facts and doubles to divide by 5.
- Use equal groups, a number line, or a related multiplication fact to divide by 3.
- Use an array, equal groups, factors, or related multiplication fact to divide by 4.
- Use equal groups, a related multiplication fact, or factors to divide by 6.
- Use an array, a related multiplication fact, or equal groups to divide by 7.
- Use repeated subtraction, a related multiplication fact, or a multiplication table to divide by 8.
- Use equal groups, factors, or a related multiplication fact to divide by 9.
- Solve two-step problems by using the strategy act it out.
- Perform operations in order when there are no parentheses.

Materials

Go Math Print Resources:

Student Edition 1, 3,4,5

Practice and Homework (in the Student Edition)

Reteach (in the Chapter Resources)

Enrich (in the Chapter Resources)

Grab-and-Go Centers Kit

Chapter 5 Activity Cards 15, 17

Chapter 6 Activity Cards 9,19

Chapter 7 Activity Card 9, 19

Readers

Chapter 5 - The Homework; Party Plans by Numbers

Chapter 6 - Corey's Cookie Caper; The Garden Fence; The Homewoek Table; Sports Camp

Chapter 7 - Corey's Cookie Caper; The Garden Fence; On the Menu

Games

Chapter 5 - Guess my Numbers; Multiplication Bingo; Number Cube Products

Chapter 6 - All in the Family

Chapter 7 - Division Cover Up

Place Value Manipulative

Math Whiteboards

Go Math Digital Resources:

iStudent Edition

eTeacher Edition

Personal Math Trainer

Math on the Spot Video

Real World Video

Animated Math Models

iTools

HMH Mega Math

iPad

Computer

Achieve the Core:

http://achievethecore.org/page/2853/go-math-k-5-guidance-documents

Activities

Chapter 5

Vocabulary - Pick It Activity

5.1 Describe Patterns

5.2 Find Unknown Numbers

5.3 Use the Distributive Property

5.4 Multiplication Strategies with Multiples of 10

5.5 Multiply 1 Digit Numbers by Multiples of 10

Chapter 6

Vocabulary; Bingo

6.1 Problem Solving Model Division

6.2 Size of Equal Groups

6.3 Number of Equal Groups

6.4 Model with Bar Models

6.5 Relate Subtraction and Division

6.6 Model with Arrays

6.7 Relate Multiplication ad Division

6.8 Write Related Facts

6.9 Division Rules for 1 and 0.

Chapter 7

Vocabulary - Match Up

7.1. Divide by 2

7.2 Divide by 10

7.3 Divide by 5

7.4 Divide by 3

7.5 Divide by 4

7.6 Divide by 6

7.7 Divide by 7

7.8 Divide by 8

7.9 Divide by 9

7.10 Two Step Problems

7.11 Order of Operations

Review Project: Horses in the Movies

Other Educational Resources

3.OA.A.3 Two Interpretations of Division

3.OA.B.5 Valid Equalities? (Part 2)

3.MD.C.7c Introducing the Distributive Property

3.OA.C.7 Kiri's Multiplication Matching Game

3.OA.D.8 The Class Trip

3.OA.D.9 Addition Patterns

3.NF.A.1 Naming the Whole for a Fraction

3.G.A.2 Representing Half of a Circle

Assessment

MAP Assessment

Diagnostic:

Show What You Know

Digital Personal Math Trainer

Formative:

Lesson Quick Check

Mid-Chapter Checkpoint

Digital Personal Math Trainer

- Assessment Animation
- Assessment Video

Summative:

Chapter Review/Test

Chapter Test

Performance Assessment Task

Digital Personal Math Trainer

Fact Fluency

- Fluency Standard Lessons (Student Edition)

- Fluency Builder(Teacher Edition)
- Strategies and Practice for Skills and Facts Fluency
- Teacher Resource Book
- HMH Mega Math
- Personal Math Trainer: Standards Quizzes
- Animated Math Models

Mad Minutes

Fast Math

Flashcards

Multiplication Websites

MA.3.3.NBT.A.2	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
MA.3.3.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.

Standards for Mathmatical Processes

MP.1 Make sense of problems and persevere in solving them.

MP.2 Reason abstractly and quantitatively.

MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics

MP.5 Use appropriate tools strategically.

MP.6 Attend to precision.

MP.7 Look for and make use of structure.

MP.8 Look for and express regularity in repeated reasoning.

Accomodations and Modifications

Personal Math Trainer

-Leveled quizzes and tests

-Leveled performance tasks

-Grab & Go Differentiated Centers

-Intensive Intervention Resource

-Strategic Intervention Resource

-Reteach activities

-RTI tiered resources and activities

-Math on the Spot videos