Unit 3 - Numbers and Operations and Fraction Equivalence Comparison

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **Full Year**
Status: **Published**

Unit Overview

Enduring Understandings

Represent fractions with models (i.e. diagram, area model, number line)
Understand that fractions name a quantity just like whole numbers.
Develop understanding of fractions as numbers.
Use strategies to compare and order fractions before learning the familiar formal algorithm for finding common denominators.
Look for and make use of structure as it relates to comparing
Fractions and equivalent fractions.
Compare fractions and find equivalent fractions.
Division is represented by problem contexts where the total is known and either the number of groups or the number of objects in each group is unknown.
Identify when a problem requires division.
Reach fluency with finding products of single-digit numbers and their related quotients.
Connect division and multiplication to develop proficiency with division facts.
Use properties of multiplication and division to divide within 100.

Essential Questions

How can you represent and locate fractions on a number line?
When might you use a fraction greater than one or a whole number?
How can you solve fraction and comparison problems?
What strategies can you use to compare fractions with the same denominator or the same numerator?
How can you compare and order fractions?
How can models help you find and name equivalent fractions?
How can you use division to find how many in each group or how many in equal groups?
How can you model a division problem to find out how many in each group or how many equal groups?
What strategies can you use to solve division problems?

Learning Objectives

Use various strategies to divide.

Use patterns with multiples of 10.

Use the Associative Property to multiply three factors.

Solve two-step problems involving multiplication.

Explain the reasonableness of a solution.

Read, write, and model fractions that represent more than one part of a whole that is divided into equal parts.

Represent and locate fractions on a number line.

Relate fractions and whole numbers by expressing whole numbers as fractions and recognizing fractions that are equivalent to whole numbers.

Model, read, and write fractional parts of a group.

Find fractional parts of a group using unit fractions.

Solve fraction and comparison problems using various strategies.

Compare and order fractions by using models and reasoning strategies about size.

Solve division of whole numbers by representing the problem as an unknown factor problem.

Sivide within 40 using strategies such as the relationship between multiplication and division

Explain division as a set of objects partitioned equally into a number of shares (up to 100).

Determine the unknown in a division equation with an unknown relating whole numbers up to 100

Explain division as a set of objects partitioned equally into a number of shares (up to 100)

Fluently divide within 100, using the relationship between multiplication and division.

Use basic facts, place value understanding, and patterns to determine the product of a 1-digit factor and a multiple of 10.

Identify and explain patterns in the multiplication table.

Explain that three factors can be grouped in different ways without changing the product.

Standards: Content

3.OA.B	Understand properties of multiplication and the relationship between multiplication and division
3.OA.B.5	Apply properties of operations as strategies to multiply and divide.
3.OA.C	Multiply and divide within 100
3.OA.C.7	With accuracy and efficiency, 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.
3.OA.D	Solve problems involving the four operations, and identify and explain patterns in arithmetic
3.OA.D.8	Solve two-step word problems, including problems involving money, 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.
3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.
3.NBT.A	Use place value understanding and properties of operations to perform multi-digit arithmetic
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.
3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
3.NF.A.3.a	Understand two fractions as equivalent (equal) if they are the same size. Understand two fractions as equivalent if they are located at the same point on a number line.
3.NF.A.3.b	Recognize and generate simple equivalent fractions by reasoning about their size, (e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent with the support of a visual fraction model.
3.NF.A.3.c	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
3.NF.A.3.d	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions with the support of a visual fraction model.

Standards: Interdisciplinary

9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.2.5.CAP.6	Compare the characteristics of a successful entrepreneur with the traits of successful employees.
9.2.5.CAP.7	Identify factors to consider before starting a business.
9.1.2.PB.1	Determine various ways to save and places in the local community that help people save and accumulate money over time.
9.1.2.PB.2	Explain why an individual would choose to save money.
8.1.5.DA.1	Collect, organize, and display data in order to highlight relationships or support a claim.
8.1.5.DA.5	Propose cause and effect relationships, predict outcomes, or communicate ideas using data.
9.4.2.IML.2	Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10).
9.4.2.IML.3	Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2).

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.
8.2.5.ED.5	Describe how specifications and limitations impact the engineering design process.

Assessment Evidence

Formative	Collaborative Activities, Homework, Daily Classwork, Discussion, Independent Class Assignment, Informal Observations of Students, Games, Exit Slips, Questioning, Teacher Made Pages, Learning Centers, Problem of the Day, Reveal Workbooks, Fluency Checks, Curious, Activity Based Exploration, Guided Exploration, On My Own.
Summative	Tests, Mid-Chapter Checkpoint assessments, teacher generated assessments
Alternative & Benchmark	Alternative – Reteaching, One on One Conferencing, Learning Centers, student portfolio of assignments, Homework, Higher Order Thinking Problems, Additional leveled practice, orally administered assessments. Benchmark - LinkIt Benchmark Assessments, Totowa TPA
Assessment Evidence Resource	

Instructional Resources

Smartboard, Computers, websites and digital interactives/models, Multi-media presentations, video streaming, Brain Pop, Microsoft 365, Primary and Secondary Source Documents, Reveal, Resources, manipulatives, post-it notes, markers, number lines, chart & graph paper, construction paper, glue, scissors, paperclips, crayons, envelopes, dot ink & cards, geo blocks, number cubes/dice.

Instructional Resource List

Curricular Mandates

Below are the curricular requirements as defined in NJ Administrative Code and Statute

	Amistad		Diversity, Equity, and Inclusion
	Holocaust		LGBT and Disabilities (Grades 6-12)
	Climate Change		Asian American & Pacific Islander

Social Emotional Learning (SEL) Competencies

NJ Social and Emotional Learning Competencies & Sub-Competencies

X	Self-Awareness	X	Relationship Skills
X	Responsible Decision-Making	X	Social Awareness
X	Self-Management		

21st Century Skills & Themes

	Global and Cultural Awareness	X	Technology Literacy		Planning and Budgeting
X	Creativity and Innovation		Financial Institutions		Risk Management and Insurance
	Information and Media Literacy		Digital Citizenship		Economic and Government Influences
X	Critical Thinking and Problem Solving		Credit Profile		Career Awareness and Planning
	Civic Financial Responsibility		Financial Psychology		