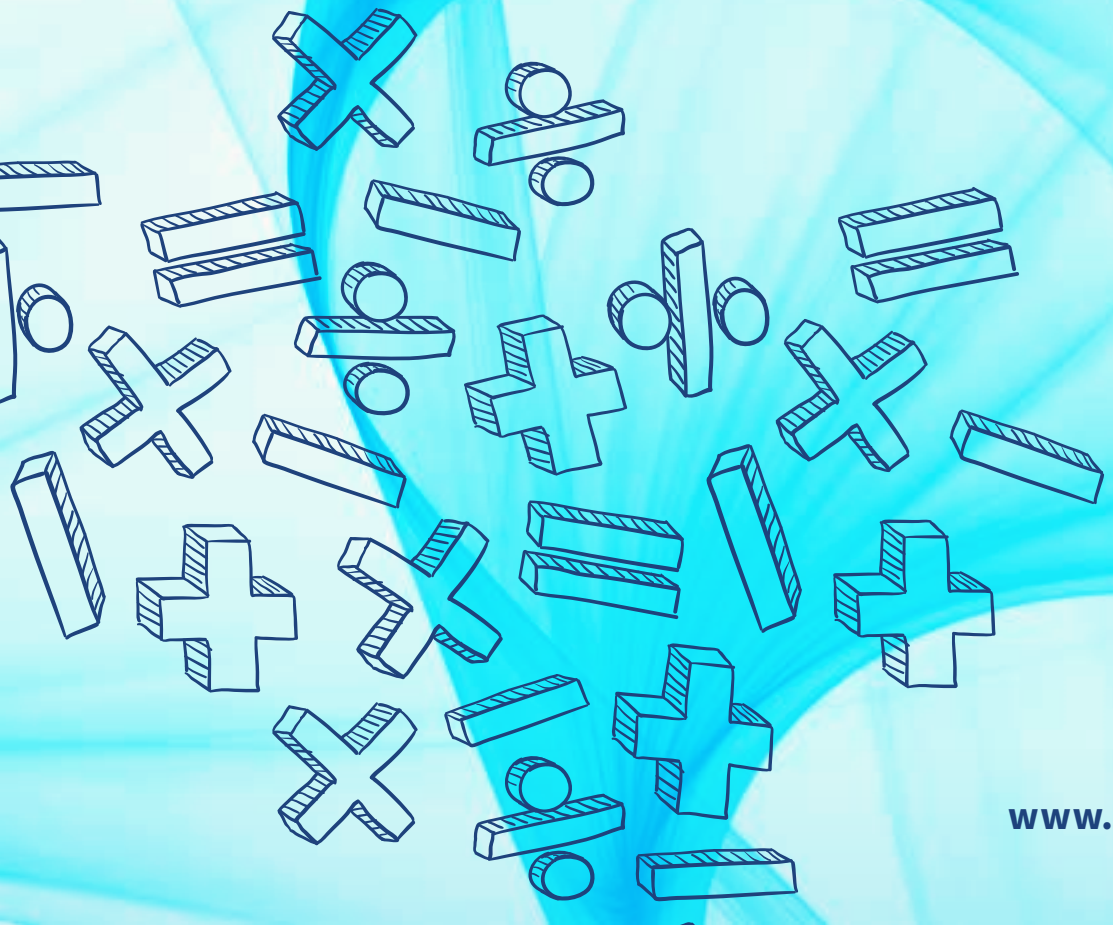
STEMscopes™ MATH

6TH GRADE
TEACHER LESSON SAMPLE

POSITIVE RATIONAL NUMBER OPERATIONS



Discover the wonder of mathematics in our everyday world with STEMscopes Math. Built from the ground up by practicing educators using the flexible 5E lesson model, STEMscopes Math provides you with everything you need to create a meaningful learning experience.

LEARNING WITHIN A REAL-WORLD, RELEVANT CONTEXT

Student learning is rooted in real-world scenarios. Real-world connection provides teachers a way to foster an understanding and appreciation for numbers by focusing on the relationship between mathematical concepts and students' experiences and interests. When real-world connection is incorporated into lessons, students can see how math fits into their daily lives.

STEMscopes Math uses the Hook, Explore Activities, and Problem-Based Tasks to engage students in real-world situations where math skill is needed. Life Connections, Career Connections, Math Today! News, and Math Story incorporate math into the everyday experiences and careers that students may encounter outside of the classroom.

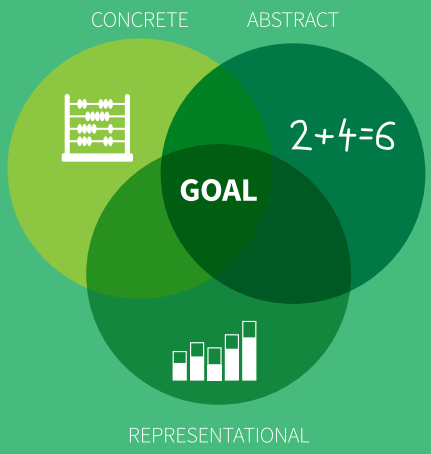
DESIGNED FOR NEW AND VETERAN TEACHERS

Every STEMscopes Math lesson is built to the standards, from the ground up. Chunking information into bite-size pieces, we make our units (called "scopes") digestible and engaging. Whether you're a new or veteran teacher, STEMscopes Math provides everything you need to create a meaningful learning experience.

CONCRETE-REPRESENTATIONAL-ABSTRACT (CRA) APPROACH

The CRA model is a powerful strategy for teaching new math concepts. It is a three-part constructivist process that transitions students from hands-on learning to the math we use as adults. As students progress through the Explore Activities (Lessons), they will transition from hands-on experiences with concrete objects to representational, pictorial models and ultimately arrive at symbolic representations, using only numbers, notations, and mathematical symbols.

Since state assessments often require students to solve problems at all three levels, the CRA model helps students succeed in high-stakes testing. Research-based studies show that students who use concrete materials to learn math develop more precise and comprehensive mental representations, show more motivation and on-task behavior, understand mathematical ideas, and better apply these ideas to life situations.



PROMOTING EQUITY

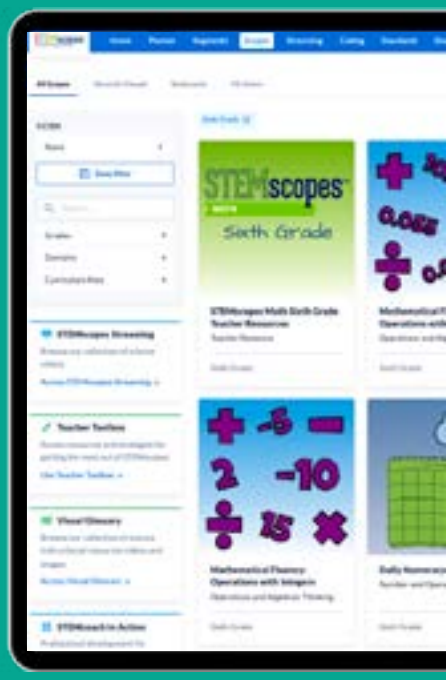
Implementing STEMscopes Math in the classroom provides every student access to high-quality, challenging learning opportunities. The activities within the program are scaffolded and differentiated so that all students find the content accessible, relatable, and challenging. The emphasis on collaborative learning and intentional discourse within the STEMscopes program promotes a sense of community in the classroom where students can learn from each other.

DIGITAL, PRINT, AND KITS

We are committed to delivering flexible, differentiated, student-centered instructional content through our digital platform, and we're all about making life easier for teachers.

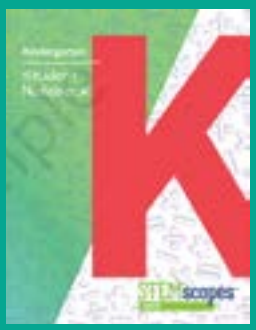
DIGITAL CURRICULUM

Our **digital platform** allows you to assign work directly to student accounts, push content to Google Classroom, print materials on demand, and use our lessons in a whole-group or blended learning setting. Find coherent, 5E-based lessons that align with standards and seamlessly flow from one activity to the next.



Print and hands-on kits bring digital learning and real-world instruction together. These supplemental resources establish a concrete connection between school and home, helping teachers make education more equitable.

STUDENT PRINT



HANDS-ON KITS

STANDARDS

Aligning our math program to standards is at the core of what we do. STEMscopes Math fully supports your state standards, no matter where you are.

HOME

This is where you will find your lesson planning materials so you can facilitate fun, purposeful experiences for your students. Build your content knowledge, review the scope's standards, and access parent materials in the Home section.

ENGAGE

The Engage section lays the foundation for learning. You begin by pre-assessing students and filling knowledge gaps. The Hook lays out a storyline narrative to establish a purpose for learning and capture students' attention with real-world connections.

EXPLORE*

This is where students dig into the content. The Explore section includes scaffolded hands-on activities that build toward mastery of the standards. Each Explore prompt encourages rich mathematical discourse and student reasoning, and concludes with an Exit Ticket.

EXPLAIN*

Paired with Explore, the Explain section offers a variety of resources that connect the experiences of the Explore activities to the academic content students need to know. These resources include illustrated vocabulary cards, independent practice, and journal prompts that support the Explore activities and solidify student learning.

ELABORATE*

Workstations are a go! The Elaborate section makes differentiation a cinch with ready-made activities—digital and paper-based games, spiraled review, career connections, literacy connections, and more—perfect for rotations! Students continue learning while you make time for small group interventions and independent projects to support your struggling and advanced learners.

**Instructional elements in STEMscopes Mathematics are intended to work together. The elements in the Explain and Elaborate sections can be used to support student learning and provide opportunities for practice while students explore the concept.*

EVALUATE

Get the data you need from the assessment tools provided in the Evaluate section. From multiple choice-based assessments to an open-ended reasoning prompt, there's an evaluation for every student's learning style. You can also create your own assessments using the assessment builder tool.

INTERVENTION

Useful during Elaborate or as an after-school support, Intervention is a small hands-on activity designed to target students' conceptual misunderstanding while building their math skills. This is also a great re-teach and test prep tool!

ACCELERATION

Are your students ready to go above and beyond with what they've learned? In the Acceleration section, students complete a design challenge and relate learning to current events around the world. The activities prompt them to think more deeply about the content and its applications.

DIGITAL CURRICULUM SAMPLE

To review the lesson resources in the digital Sixth Grade Scope, *Positive Rational Number Operations*, access our digital curriculum sample at **www.stemscopes.com/math/national/curriculum-sample** and choose the Sixth Grade level on the left *Grades* menu bar.

Sixth Grade
SAMPLE LESSON

SCOPE (UNIT) **Positive Rational Number Operations**
EXPLORE (LESSON) **Divide Multi-Digit Numbers**

The following pages introduce resources to help you get the most out of your STEMscopes Math Grade 6 lesson. You will also notice we've provided supportive unit resources that would allow you to plan lessons throughout the year using STEMscopes Math.

This sample lesson ***does not include*** all the elements and features of our digital and print math curriculum.

RESOURCE LIST

The following resources, as well as additional resources not listed, can be found in the digital curriculum *Grade 6 Scope, Positive Rational Number Operations.*

HOME
- Student Expectations
- Key Concepts
- Scope Overview
- Parent Letter

TEACHER TOOLBOX
- Scope List
- Scope and Sequence
- Lesson Planning Guide for 1-3 Explores
- Lesson Planning Guide for 3-5 Explores

EXPLORE
- Explore 1: Divide Multi-Digit Numbers*

EXPLAIN
- Vocabulary Cards*

ACCELERATION
- Choice Board
- Would You Rather

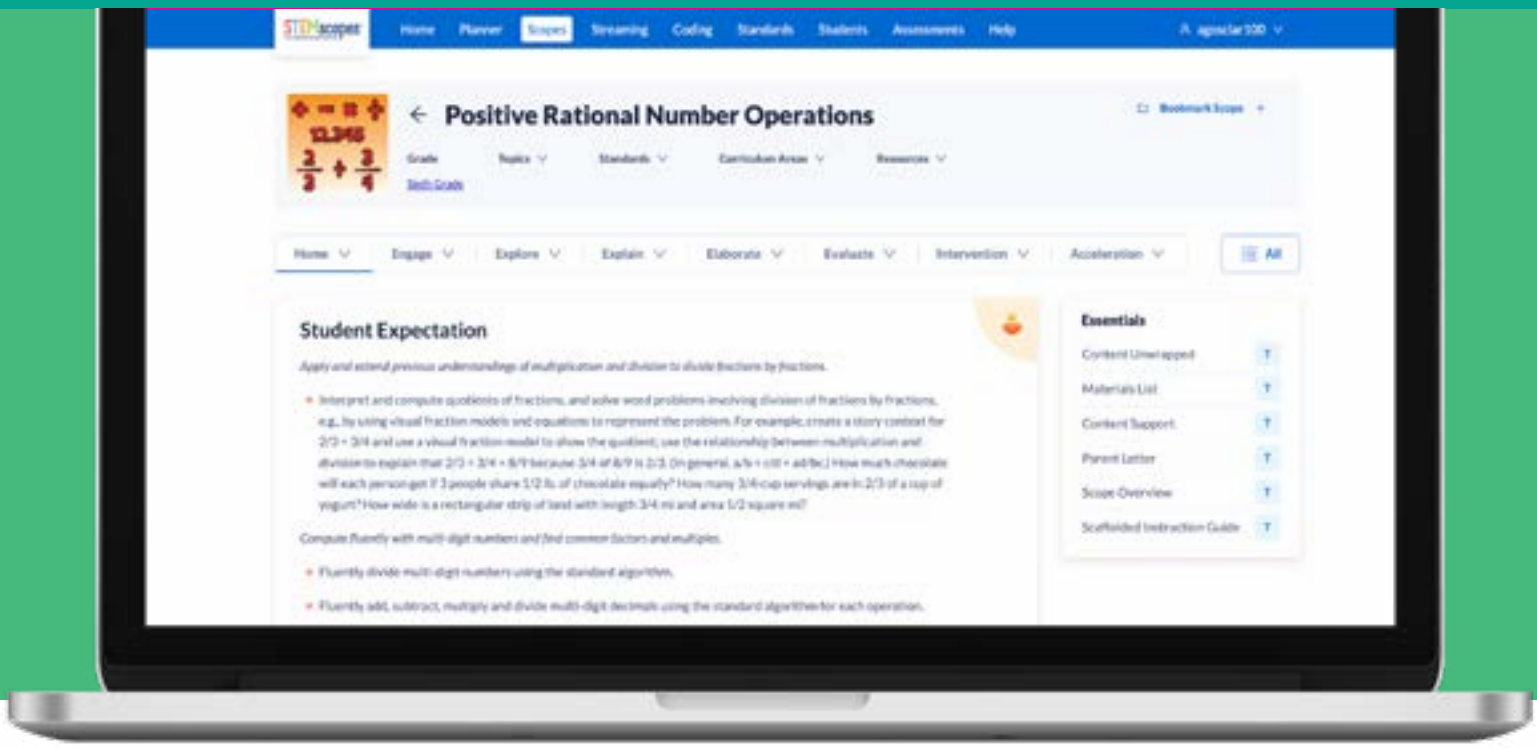
DAILY NUMERACY
- Week 2 Activities

MATHEMATICAL FLUENCY
- "Operations with Fractions/ Different Denominators" Activity*

**These activities are samples and do not represent all the activities and resources within our digital and print curriculum.*

Sixth Grade SAMPLE LESSON

SCOPE (UNIT) **Positive Rational Number Operations**



STUDENT EXPECTATIONS

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

- Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. (In general, a/b ÷ c/d = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb. of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?

Compute fluently with multi-digit numbers and find common factors and multiples.

- Fluently divide multi-digit numbers using the standard algorithm.
- Fluently add, subtract, multiply and divide multi-digit decimals using the standard algorithm for each operation.

KEY CONCEPTS

- I can interpret and compute quotients of fractions.
- I can solve word problems involving division of fractions by fractions.
- I can determine the appropriate reciprocal needed to divide fractions by fractions.
- I can divide multi-digit numbers using long division.
- I can develop a visual representation of division problems.
- I can add, subtract, multiply, and divide multi-digit decimals using the standard algorithm.

Scope Overview: Positive Rational Number Operations

Standards

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

- Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions using visual models and equations to represent the problem.

Compute fluently with multi-digit numbers and find common factors and multiples.

- Fluently divide multi-digit numbers using the standard algorithm.
- Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

If the APK reveals that students are not ready, move to the Foundation Builder!

Engage

- Accessing Prior Knowledge: Add, Subtract, Multiply, and Divide Decimals to the Hundredths
- Foundation Builder: Add, Subtract, Multiply, and Divide Decimals to the Hundredths
- Hook: That Takes the Cake!

Home

- Scope Overview
- Content Support
- Standards Unwrapped
- Parent Letter

Explore

- Explore 1: Divide Multi-Digit Numbers
  - Exit Ticket
  - Show What You Know: Part I
- Explore 2: Modeling Fraction Division
  - Exit Ticket
  - Show What You Know: Part II
- Explore 3: Division of Fractions
  - Exit Ticket
  - Show What You Know: Part III
- Explore 4: Add and Subtract Multi-Digit Decimal Numbers
  - Exit Ticket
  - Show What You Know: Part IV
- Explore 5: Multiply Multi-Digit Decimal Numbers
  - Exit Ticket
  - Show What You Know: Part V
- Explore 6: Divide Multi-Digit Decimal Numbers
  - Exit Ticket
  - Show What You Know: Part VI

Explain

- Picture Vocabulary
- Interactive Vocabulary
- Show What You Know
- Anchor Chart
- Interactive Notebook

Once all of the Explores have been taught, go back to the Hook for students to apply knowledge learned.

Elaborate

- Fluency Builder
  - Bam!
- Spiraled Review
- Data Science
- Interactive Practice
  - Dungeon Adventure
  - Realm of Dragons
- PhET
  - Area Model Decimals: Decimal Products

Evaluate

- Mathematical Modeling Task
- Standards-Based Assessment
- Skills Quiz

Intervention

- Skills Review and Practice
- Interactive Skill Review
- Supplemental Aids

Acceleration

- Choice Board
- Would You Rather

Instructional elements in STEMscopes Mathematics are intended to work together. The elements in the Explain and Elaborate sections can be used to support student learning and provide opportunities to practice while the students are exploring the concept.

Sixth Grade – Positive Rational Number Operations

Dear Parents,

In math class, your student is about to explore operations with positive rational numbers. To master this skill, students will build on their knowledge of whole number, decimal, and fraction operations from fifth grade. As your student extends their knowledge of this concept throughout sixth grade, they will learn the following concepts:

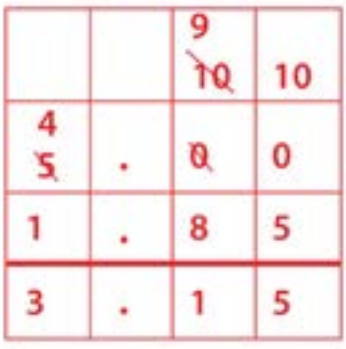
- Fluently add, subtract, multiply, and divide multi-digit numbers using the standard algorithm.

  Example: Jake had 5 kilograms of sand for a science experiment. He had to measure out exactly 1.85 kilograms for a sample. How many kilograms of sand will be left after he measures out the sample?

  a. 6.85
  b. 4.85
  c. 31.5
  d. 3.15

  Answer choice d is correct.

  Students should be using estimation to help eliminate answers that are not near or close to the whole number operation. 1.85 is close to 2, so we can estimate that the difference is about $5 - 2$, or 3. Students may choose option a if they add instead of subtract. Students may choose option b if they do not regroup. Answer choice c shows confusion with decimal point placement.



Example: A race car driver can drive one lap in 1.25 minutes. At this rate, how long will it take the driver to drive 4.5 laps?

a. 5.75 minutes
b. 56.25 minutes
c. 5.625 minutes
d. 11.25 minutes

Answer choice c is correct.

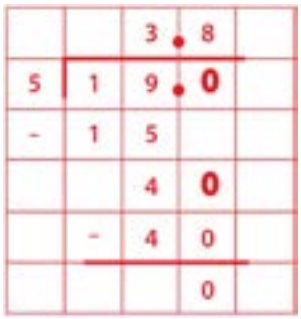
Since 1.25 is close to 1, and 4.5 is close to 5, we can estimate that the product is about 1×5, or 5. Students must attend to precision and know how to place the final decimal by relying on their knowledge of place value. Here is the computation:

Example: A cafeteria has a pitcher containing 19 quarts of juice. All of the juice is poured equally into 5 pitchers that will be used during the morning rush. How much juice will each pitcher contain?

a. 3.8 quarts
b. 3 quarts
c. 4 quarts
d. It is not possible to form 5 equal-sized pitchers.

Answer choice a is correct.

To solve the problem, divide the total amount of juice by the number of equal-sized pitchers.



Upon reaching the remainder of 4, a decimal point was added to the dividend, and a zero was placed after it and added to the quotient. From there, we are able to divide 5 into 40, and the quotient is 3.8.

- Fluently divide multi-digit decimal numbers using the standard algorithm.

Example: Francesca says that to find the quotient of 3.5 and 0.2, I can divide 35 by 2.

Part A. Do you agree with Francesca? Explain your reasoning.

Francesca is correct. Sample reasoning may include the following statements: You can multiply 3.5 by 10, which equals 35. As long as you multiply 0.2 by 10, it will form an equivalent expression, and $0.2 \times 10 = 2$.

Students should understand that the quotient will not change if the divisor and dividend are multiplied by the same power of ten.

Part B. What is the quotient of 3.5 and 0.2? Show how you calculated the answer.

The quotient is 17.5.

Using Francesca's method, we can divide 35 by 2. There is a remainder, but you can add a decimal point and a zero to complete the quotient in decimal form.

- Interpret and compute quotients of fractions, and solve problems involving division of fractions by fractions.

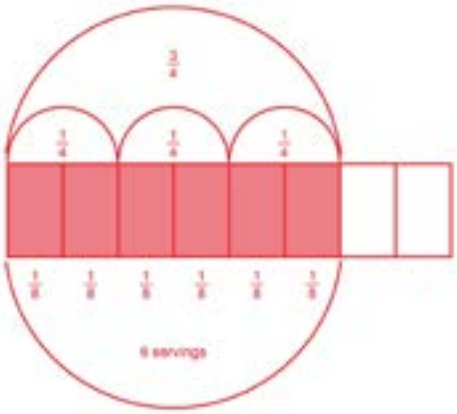
Example: Jo-Ann and Antoinette want to know how many $\frac{1}{8}$ of a gallon servings they can make from $\frac{3}{4}$ of a gallon of ice cream. Jo-Ann suggests that they divide $\frac{3}{4}$ by $\frac{1}{8}$. Antoinette suggests that they multiply $\frac{3}{4}$ by 8.

Part A. With whom do you agree? Explain your reasoning.

Both Jo-Ann and Antoinette are correct. Dividing by a fraction is the same as multiplying by its reciprocal. $\frac{3}{4} \div \frac{1}{8} = \frac{3}{4} \times \frac{8}{1}$.

Part B. How many servings can Jo-Ann and Antoinette make? Use a model to justify your answer.

The fraction model below shows that there are six $\frac{1}{8}$ of a gallon servings in $\frac{3}{4}$ of a gallon.



While working with your student at home, you may find the following vocabulary terms helpful in your communication about operations with positive rational numbers. These are terms your student will be encouraged to use throughout our explorations and during our math chats, which are short, whole-group discussions at the conclusion of each activity.

- **Terms to Know**
  - **addition:** the process of joining two or more numbers (or things) together to make a new total
  - **algorithm:** a step-by-step method for a solution
  - **decimal:** a number that uses a decimal point followed by digits that show a value smaller than one, in powers of ten that decrease; a number with one or more digits to the right of the decimal point
  - **dividend:** the number you divide into; a quantity that is to be divided by another quantity; a number that shows the amount of equal parts of a whole; the numerator (top number) that tells the number or quantity; a quantity to be divided
  - **division:** the splitting into equal parts or groups; the result of "fair sharing"
  - **divisor:** the quantity by which another quantity is to be divided
  - **fluency:** competency with the application of efficient and accurate strategies for computation
  - **multiplication:** a mathematical operation consisting of obtaining a product or result by joining equal groups, repeated addition, or forming arrays
  - **place value:** the numerical value that a digit has, based on its position within a number
  - **product:** the solution when multiplying two or more numbers; the answer to a multiplication problem
  - **quotient:** the solution when dividing two numbers; the answer to a division problem; the result of the division of one quantity by another
  - **subtraction:** the process of taking one number away from another number
  - **visual fraction model:** a visual model, such as a tape diagram, number line, or area model, used to represent part/whole relationships

We will do many explorations in class to help your student learn these concepts from firsthand experiences. Encourage your student to share these experiences with you and to teach you what they have learned. Ask your student to identify examples of what they are learning in everyday life, or use the examples on the attached page as a starting point.

Thank you for your support as your student begins this new learning adventure!

Sincerely,

Math outside the Classroom!

Positive rational number operations are used all around our everyday lives. Chat about where you use operations with positive rational numbers in your everyday life. Below are a few examples:

- ★ Pizza is a great way to talk about fractions! Serve pizza for dinner. Cut the pizza in half. Cut one half into 4 pieces. Serve one of the pieces to your student. Ask your student what fraction of the total pizza has been served. Ask, "what is one-half divided by four?" $\frac{1}{2} \div 4 = \frac{1}{8}$ of the original pizza. Help your student understand that because fractions refer to equal pieces, the other half of the pizza must also be cut into fourths to reason about this further.

- ★ Find the price of an item that your student is interested in, such as a video game. Talk about how estimation can be helpful when shopping. Have your student estimate the cost of 5 games. Then, have your student multiply the cost of the game by 5 and use the estimated answer to be sure the decimal is in the correct place.

Sixth Grade Scope List

Scope Name	Explores	Suggested Pacing
Integers	2 Explores	1 Week
Compare and Order Rational Numbers	2 Explores	1 Week
Coordinate Planes	2 Explores	1 Week
Coordinate Plane Problem Solving	2 Explores	1 Week
Positive Rational Number Operations	6 Explores	3 Weeks
Equivalent Numerical Expressions	5 Explore	2 Weeks
Algebraic Expressions	4 Explores	2 Weeks
Equations and Inequalities	3 Explores	2 Weeks
Ratios, Rates, and Unit Rates	3 Explores	2 Weeks
Percents	3 Explores	2 Weeks
Measurement Conversions	3 Explores	2 Weeks
Dependent and Independent Variables	3 Explores	2 Weeks
Area and Volume	5 Explores	2 Weeks
Surface Area	2 Explores	1 Week
Understand Variability	1 Explore	1 Week
Represent and Interpret Data	3 Explore	2 Weeks
Summarize Numerical Data	4 Explore	2 Weeks

STEMscopes Math Suggested Scope and Sequence

The STEMscopes Math program is flexible, and there are variations in implementation within the guidelines provided here. This Scope and Sequence is meant to serve as a tool for you to lean on as you find how STEMscopes Math best meets the needs of the students in your classroom.

SIXTH GRADE

Week	Scope
1	• Establish classroom procedures • **Pre-Assessment Benchmark**
2	• Integers
3	• Compare and Order Rational Numbers
4	• Coordinate Planes
5	• Coordinate Plane Problem Solving
6	• Positive Rational Number Operations
7	• Positive Rational Number Operations
8	• Positive Rational Number Operations
9	• Equivalent Numerical Expressions
10	• Equivalent Numerical Expressions
11	• Algebraic Expressions
12	• Algebraic Expressions
13	• Equations and I nequalities
14	• Equations and I nequalities
15	• Ratios, Rates, and Unit Rates
16	• Ratios, Rates, and Unit Rates
17	• **Mid-Assessment Benchmark**
18	• Percents
19	• Percents
20	• Measurement Conversions
21	• Measurement Conversions
22	• Dependent and I ndependent Variables
23	• Dependent and I ndependent Variables
24	• Area and Volume

Week	Scope
25	• Area and Volume
26	• Surface Area
27	• Understand Variability
28	• Represent and I nterpret Data
29	• Represent and I nterpret Data
30	• Summarize Numerical Data
31	• Summarize Numerical Data
32	• **Post-Assessment Benchmark**
33	• **Review Week**
34	• **STANDARDIZED TEST (Approximate)**
35	Review: • Integers • Compare and Order Rational Numbers • Coordinate Planes • Coordinate Plane Problem Solving • Positive Rational Number Operations • Equivalent Numerical Expressions
36	Review: • Algebraic Expressions • Equations and I nequalities • Ratios, Rates, and Unit Rates • Percents • Measurement Conversions • Dependent and I ndependent Variables

Week	Daily Numeracy
All	Additional or repeated standards are addressed in Daily Numeracy. These activities should be rotated through daily. To see the full list of what standards are addressed in these activities, please see the Daily Numeracy: Standards by Activity section in the Daily Numeracy Teacher Toolbox.

Whole-Group Plan

1–3 Explores

*Based on a 90-minute class period	Day 1	Day 2	Day 3	Day 4	Day 5
Whole Group	Mathematical Fluency/Daily Numeracy Accessing Prior Knowledge Foundation Builder[1] Hook Begin Explores if time allows. Anchor Chart	Mathematical Fluency/Daily Numeracy Explores[2] Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)	Mathematical Fluency/Daily Numeracy Explores (continued) Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)	Mathematical Fluency/Daily Numeracy Hook (Post-Explore) Teacher Choice[3] All students: • Picture Vocabulary • Interactive Vocabulary • Interactive Notebook Mastery level: • Would You Rather • Choice Board Meets level: • Data Science • Mathematical Modeling Task Approaching level: • Interactive Practice • Skills Quiz	Mathematical Fluency/Daily Numeracy Skill Review and Practice (for students who need it) Fluency Builder (Choose one.) (for students who don't need intervention)
Assessment and Closure	Accessing Prior Knowledge to determine readiness Formative assessment based on APK and student performance on Explore Allow students to share what they felt successful with and what they struggled with today.	Administer the Exit Ticket to assess student learning after the Explore. Allow students to work on Show What You Know – Part I as independent practice after first Explores.	Administer the Exit Ticket to assess student learning after the final Explores. Allow students to work on Show What You Know – Part 2 as independent practice after Explore 2.	Assess how students perform based on individual assignments chosen.	Standards-Based Assessment

The essential elements are highlighted. If time is limited, teach these elements to fully cover the standards.

[1]Use as intervention if APK shows foundational gaps.

[2]Set your pace according to the number of Explores included in this scope. Use Exit Tickets as well as Show What You Knows for each Explore completed.

[3]Teachers can choose from the following elements. We have suggested activities for students, including recommended tasks for students at each skill level.

Small Group Plan

1–3 Explores

*Based on 90-minute class period	Day1	Day 2	Day 3	Day 4	Day 5
Whole Group ***20 Minutes**	Daily Numeracy Accessing Prior Knowledge[1] Hook Introduce stations.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart Add Picture Vocabulary words to word wall based on terms introduced in the lessons.	Daily Numeracy Hook (Post-Explore) Review any Explore or Show What You Know problems that gave students trouble. Anchor Chart	Daily Numeracy Spiraled Review Standards-Based Assessment
Small Group Instruction	Pull small groups of students to do: 1. The Foundation Builder (if they need previous grade level content) 2. Explores 1[2]–2	Pull students to work with you to finish Explores 1–2.	Pull students to work with you on Explores 2–3.	Pull students to do the small group intervention based on needs.	None
*Small Group/ Stations 70 Minutes **Stations** ***Options are flexible.**	1. Fact Fluency 2. Interactive Practice 3. Fluency Builder 4. Career Connection 5. Spiraled Review 6. Show What You Know	1. Fact Fluency 2. Interactive Practice 3. Fluency Builder 4. My Math Thoughts 5. Spiraled Review 6. Show What You Know	1. Fact Fluency 2. Interactive Practice 3. Fluency Builder 4. Math Story 5. Spiraled Review 6. Show What You Know	Have students work in groups on the Problem-Based Task.	Have the following materials available for students who finish early: 1. Fact Fluency 2. Decide and Defend 3. Skills Quiz 4. Create Your Own 5. Math Today 6. Spiraled Review
Assessment and Closure	Accessing prior knowledge to determine readiness Formative assessment based on APK and student performance to determine who needs to be pulled to small group Allow students to share what they felt successful with and what they struggled with today.	Administer the exit tickets to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.	Administer the exit tickets to assess student learning.	Student success with intervention can be assessed by using the Checkup. Other students can be assessed by their performance on the Problem-Based Task.	Standards-Based Assessment

[1]Use as intervention if APK shows foundational gaps.
[2]Set your pace according to the number of Explores included in this scope. Use Exit Tickets as well as Show What You Knows for each Explore completed.

Whole-Group Plan

3–6 Explores

Week 1 *Based on 90-minute class period	Day 1	Day 2	Day 3	Day 4	Day 5
Whole Group	Mathematical Fluency/Daily Numeracy Accessing Prior Knowledge Foundation Builder[1] Hook (Pre-Explore)	Mathematical Fluency/Daily Numeracy Explores[2] Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)	Mathematical Fluency/Daily Numeracy Explores (continued) Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)	Mathematical Fluency/Daily Numeracy Explores (continued) Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)	Mathematical Fluency/Daily Numeracy Explores (continued) Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)
Assessment and Closure	Accessing prior knowledge to determine readiness Formative assessment based on APK and student performance on Explore Allow students to share what they felt successful with and what they struggled with today.	Administer the Exit Ticket to assess student learning after the Explore. Allow students to work on Show What You Know as independent practice after Explores.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Know as independent practice after Explores.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Know as independent practice after Explores.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Know as independent practice after Explores.

The essential elements are highlighted. If time is limited, teach these elements to fully cover the standards.
[1]Use as intervention if APK shows foundational gaps.
[2]Set your pace according to the number of Explores included in this scope. Use Exit Tickets as well as Show What You Knows for each Explore completed.

Whole-Group Plan

3–6 Explores

Week 2 *Based on 90-minute class period	Day 6	Day 7	Day 8	Day 9	Day 10
Whole Group	Mathematical Fluency/Daily Numeracy Explores (continued) Anchor Chart Exit Tickets Show What You Know (Assist and reteach as needed.)	Mathematical Fluency/Daily Numeracy Hook (Post-Explore) Picture Vocabulary Interactive Vocabulary Would You Rather Choice Board	Mathematical Fluency/Daily Numeracy Interactive Practice Mathematical Modeling Task	Mathematical Fluency/Daily Numeracy Teacher Choice[3] Meets Level: • Would You Rather • Choice Board Approaching Level: • Interactive Practice • Skills Quiz	Mathematical Fluency/Daily Numeracy Skill Review and Practice (for students who need it) Fluency Builder (choose one.) (for students who do not need intervention)
Assessment and Closure	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Know as independent practice after Explores.	Allow students to share what they felt successful with and what they struggled with today.	Assess how students perform on the Mathematical Modeling Task.	Assess how students perform based on individual assessment chosen.	Standards-Based Assessment

The essential elements are highlighted. If time is limited, teach these elements to fully cover the standards.
[3]Choose from the following elements. We have suggested activities for students, including recommended tasks for students at each skill level.

Small-Group Plan

3–6 Explores

Week 1 *Based on 90-minute class period	Day 1	Day 2	Day 3	Day 4	Day 5
Whole Group *20 Minutes	Daily Numeracy Accessing Prior Knowledge[1] Hook (Pre-Explore) Introduce stations.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart Add Picture Vocabulary words to word wall based on terms introduced in the lessons.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart Review any Explore or Show What You Know problems that gave students trouble.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart Review any Explore or Show What You Know problems that gave students trouble.
Small-Group Instruction *Small Group/ Stations 70 Minutes	Pull small groups of students to the Foundation Builder (if they need previous grade-level content). Begin Explores.[2]	Pull students to work with you on Explore 1.	Pull students to work with you on Explore 2.	Pull students to work with you on Explore 3.	None
Stations	1. Mathematical Fluency 2. Interactive Practice 3. Fluency Builder (from previous scope)	1. Mathematical Fluency 2. Interactive Practice 3. Fluency Builder (from previous scope)	1. Mathematical Fluency 2. Interactive Practice 3. Fluency Builder (from previous scope)	1. Mathematical Fluency 2. Interactive Practice 3. Fluency Builder (from previous scope)	1. Mathematical Fluency 2. Interactive Practice 3. Fluency Builder (from previous scope)
Assessment and Closure	Accessing prior knowledge to determine readiness Formative assessment based on APK and student performance to determine who needs to be pulled to small group Allow students to share what they felt successful with and what they struggled with today.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.

The essential elements are highlighted. If time is limited, teach these elements to fully cover the standards.

[1]Use as intervention if APK shows foundational gaps.

[2]Set your pace according to the number of Explores included in this scope. Use Exit Tickets as well as Show What You Knows for each Explore completed.

STEMscopes MATH

Small-Group Plan

3–6 Explores

Week 2 *Based on 90-minute class period	Day 6	Day 7	Day 8	Day 9	Day 10
Whole Group *20 Minutes	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart Review any Explore or Show What You Know problems that gave students trouble.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Anchor Chart Review any Explore or Show What You Know problems that gave students trouble.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Add Picture Vocabulary words to word wall based on terms introduced in the lessons.	Daily Numeracy Allow students to share what they learned yesterday, and discuss what students worked on. Review any Explore or Show What You Know problems that gave students trouble.	Daily Numeracy Spiraled Review Standards-Based Assessment
Small-Group Instruction *Small Group/ Stations 70 Minutes	Pull students to work with you on Explore 4.	Pull students to work with you on Explore 5.	Hook (Post-Explore)	Skill Review and Practice	None
Stations	1. Choice Board 2. Spiraled Review 3. Show What You Know	1. Interactive Vocabulary 2. Spiraled Review 3. Show What You Know	1. Interactive Notebook 2. Spiraled Review 3. Show What You Know	Have students work in groups on the Mathematical Modeling Task.	Have the following materials available for students who finish early: 1. Would You Rather 2. Choice Board 3. Spiraled Review
Assessment and Closure	Administer the Exit Ticket to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.	Administer the Exit Tickets to assess student learning after the Explores. Allow students to work on Show What You Knows as independent practice after Explores.	Administer the Exit Tickets to assess student learning. Skills Quiz	Student success with intervention can be assessed by using the Checkup. Other students can be assessed by their performance on the Mathematical Modeling Task.	Standards-Based Assessment

The essential elements are highlighted. If time is limited, teach these elements to fully cover the standards.

[1]Use as intervention if APK shows foundational gaps.

[2]Set your pace according to the number of Explores included in this scope. Use Exit Tickets as well as Show What You Knows for each Explore completed.

Positive Rational Number Operations

Explore 1 - Divide Multi-Digit Numbers

Description

Students will draw connections between partial products and the standard algorithm. Students will use these connections to fluently divide multi-digit numbers using the standard algorithm.

Standards of Mathematical Practice

- **MP.1 Make sense of problems and persevere in solving them:** Students seek the meaning of a problem and work to find efficient ways to solve it. Students check the reasonableness of their answers and find alternative strategies as needed.
- **MP.5 Use appropriate tools strategically:** Students use the partial quotients strategy to make connections to the standard algorithm.
- **MP.6 Attend to precision:** Students work carefully and precisely when solving problems. Students express numerical answers with an appropriate degree of precision and use precise mathematical language when explaining their thinking about their problem-solving process.
- **MP.7 Look for and make use of structure:** Students should be urged to seek patterns or structures to model and solve problems while working with operations involving whole numbers, fractions, and decimals.

Materials

Printed
1 Student Journal (per student)
1 Set of Scenario Cards (per group)
1 Exit Ticket (per student)

Reusable
1 Set of colored pencils (per student)
1 Resealable bag (per group)

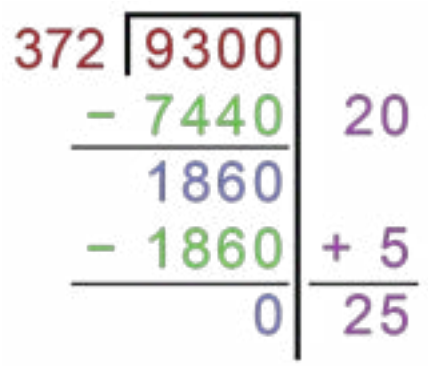
Preparation

- Plan to divide the class into groups of 2–4 students.
- Print a Student Journal and Exit Ticket for each student.
- Print a set of the Scenario Cards for each group. Cut out the cards, and place each set in a resealable bag. If desired, laminate them for future use.
- Gather a set of colored pencils for each student.

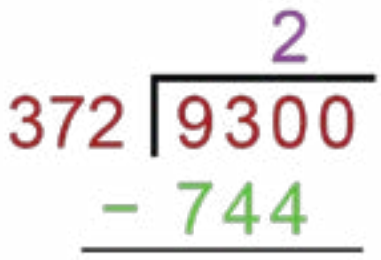
Procedure and Facilitation Points

1. Read the following scenario to students: *Sally's school is going to have a fundraiser to raise money for a trip that the sixth grade is taking this year. The fundraiser will be a school-wide carnival with various games, a silent auction, snacks, and more! Teachers from each grade level handed out tickets to students for them to sell to friends and family. Use your division skills to determine how many tickets each student was responsible for selling.*
2. Give a Student Journal to each student and the Scenario Cards to each group.
3. Have students read Scenario 1 and solve first by using partial quotients as a review from 5th grade.

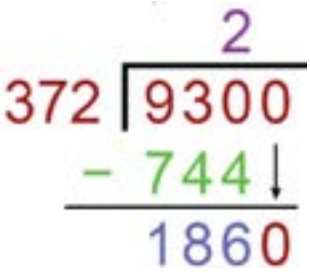
4. Have students use a different-colored pencil for each part of the problem, similar to the model below:



5. Have students work out the same scenario using the standard algorithm.
6. Students should relate the partial quotients model to the standard algorithm by using the same color that they used for the partial quotient in the standard algorithm.
7. As they did with the partial quotient model, students should use estimation to divide starting in the thousands place.
8. Monitor and assess students' understanding as they collaborate by asking the following guiding questions:
    a. **DOK- 1** What place value will we start with? Explain. We will start with the tens place. We cannot start in the thousands because we cannot distribute 9 into 372 groups. We cannot start in the hundreds because we cannot distribute 93 into 372 groups. We can distribute from the tens place because we can distribute 930 into 372 groups.
    b. **DOK-1** What is the next step? Next we would see how many times 372 will go into 930. We know that 2 times 372 is 744 and 3 times 372 is 1,116. 3 is too many, so we will have to use 2.
    c. **DOK-1** Where do we put the 2 to show it is part of the quotient? We would put the 2 above the last digit of the part of the dividend that we are solving. The 2 should go above the first 0, since we are solving from the tens place.
    d. Show the students where to put 2.

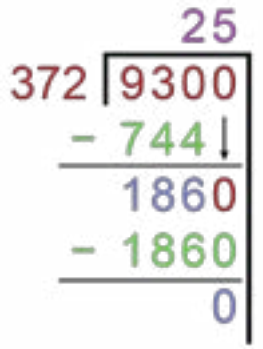


    e. **DOK-1** What do we do with 744? We need to subtract 744 from 930, the total amount of tens that we have. We will get 186 groups of ten remaining.
    f. **DOK-1** What should we do to distribute the remaining tens? We should trade them for ones. We will trade 186 tens for 1,860 ones.
    g. **DOK-1** Does the dividend have any ones in it? No. There is a 0 in the ones place, so we do not need to add any more ones.
    h. Show students how bringing down the 0 gives us 1,860 ones to distribute.



i. **DOK-1** Distribute 1,860 ones into 372 groups. What did you find? Each of the 372 groups will get 5 ones, because 372 times 5 is 1,860.

j. **DOK-1** What is the quotient? Is this the same as when you solved using partial quotients? The quotient is 25. Yes, this is the same as when I solved with partial quotients.



9. Monitor students as they collaborate through the remaining scenarios. Use guiding questions from step 8 as needed with students.
10. After the Explore, invite the class to a Math Chat to share their observations and learning.

Math Chat	
Questions	**Sample Student Responses**
DOK-2 How are partial quotients and the standard algorithm similar?	In both strategies you start in the thousands place to see how many groups of the divisor will fit in that place value.
DOK-2 How are they different?	They are different because partial quotients have the quotients for each place value listed on the right side and you add them all together at the end. The standard algorithm has the quotient at the top listed by the number of groups for that place value.

11. When students are done, have them complete the Exit Ticket to formatively assess their understanding of the concept.

Anchor Chart and Interactive Notebook

- Be sure to complete the Anchor Chart as a class. Once the class has completed the Anchor Chart, have each student complete their Interactive Notebook.

Instructional Supports

1. Struggling students may need to review place value. Provide such students with a Place Value Reference Sheet that they can use throughout the lesson. Such a sheet may include a Place Value Chart with columns labeled Thousands, Hundreds, Tens, and Ones. They can write numbers that appear in the Explore on the chart to help them identify each digit's place value.
2. Struggling students may find it difficult to determine a multiple of the divisor that is large enough to go into the dividend. Allow such students to use calculators, multiplying the divisor by different factors to determine the best multiple.

Language Acquisition Supports

The following Language Acquisition Strategy is supported in this Explore activity. See the strategies below for ways to support a student's language development.

As more English is acquired, students will provide specific and precise verbal descriptions.

Beginner: Before the lesson, project an image of a carnival scene. Encourage students to share their experiences with carnivals or ask questions they may have. Prompting questions and statements for discussion may include: (1) Raise your hand if you've been to a carnival (point to the image). (2) What do you do at a carnival (play games, eat food, etc.)?

Intermediate: As a pre-lesson activity, present pairs of students with a labeled picture of a carnival. Have students take turns asking their peers 3 questions about the carnival. For example, "Do you like to play games? What's your favorite game? What food do you buy when you go?"

Advanced: As a pre-lesson activity, provide students with a picture of a carnival scene. Have students play "I spy," taking turns describing an aspect of the scene. Their peer has to identify and name what is spied.

Explore

Positive Rational Number Operations
Explore 1

Name:_____ Date:_____

Dividing Multi-Digit Numbers

Scenario 1

Use partial quotients to solve. Use one color to label the divisor and dividend, a different color to label the partial quotients, a third color to label the product of the divisor and the partial quotients, and a final color to label the difference once you subtract.

Now record the standard algorithm in the space provided below. Use the same colors for the same parts that you used in your partial quotients.

Explore

Use the spaces provided to solve scenarios 2–5 using the standard algorithm.

Scenario 2	Scenario 3
	

Explore

Scenario 4	Scenario 5
	

Explore

Reflect

1. How are partial quotients and the standard algorithm similar?

2. How are they different?

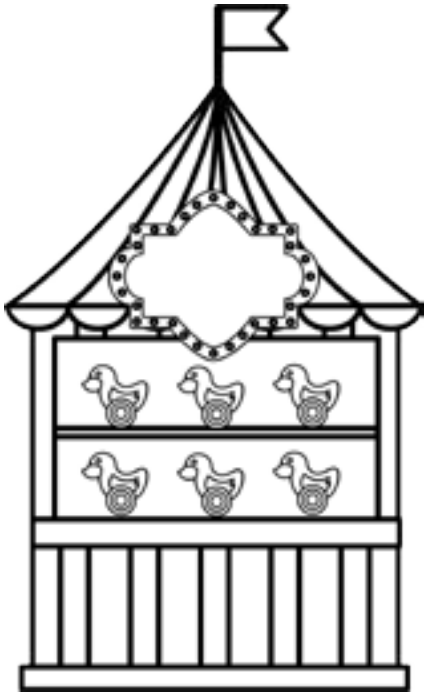
Explore

Scenario Cards

The sixth-grade teachers were responsible for handing out food tickets for their students to sell. The teachers gave out 9,300 food tickets to 372 students. If each student is responsible for selling the same number of food tickets, how many tickets does each sixth grader receive?

1

The eighth-grade teachers distributed 4,794 game tickets among 282 students. How many game tickets was each eighth grader responsible for selling to family and friends?



2

Explore

Seventh-grade students were responsible for selling tickets to the silent auction. There are 337 students in 7th grade. If the seventh-grade teachers divided 7,751 tickets equally among all the students, how many silent auction tickets was each seventh grader responsible for selling?

3

Some students sold their tickets really fast, so they were directed to go to the office to get more to sell. The office handed out 2,580 total tickets. The tickets were grouped into bundles of 15. How many bundles of tickets did the office hand out to students?

4

Explore

Some guests chose to buy more tickets once they arrived at the carnival. Tickets were sold in sets at the gate. Each set of tickets costs $18. If a total of $4,770 was collected, how many sets of tickets were sold at the gate?

5

Explore

Name:_____ Date:_____

Dividing Multi-Digit Numbers
Exit Ticket

The carnival fundraiser was such a hit that the administrators want to keep a copy of the layout for next year! Use the information provided to solve using the standard algorithm.

1. The section for each game station should be 225 square feet. There is a total of 3,825 square feet for games. How many game stations will be available for the carnival?

Positive Rational Number Operations
Explore 1

Explore

Name:_____ Date:_____

Dividing Multi-Digit Numbers
Exit Ticket

The carnival fundraiser was such a hit that the administrators want to keep a copy of the layout for next year! Use the information provided to solve using the standard algorithm.

1. The section for each game station should be 225 square feet. There is a total of 3,825 square feet for games. How many game stations will be available for the carnival?

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Positive Rational Number Operations

Picture Vocabulary

Algorithm

Step 1:
154
× 28
1,232

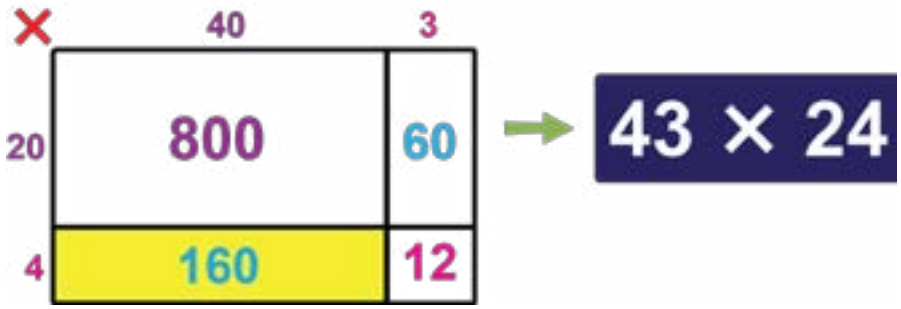
Step 2:
154
× 28
1,232
0

Step 3:
154
× 28
1,232
3,080

Step 4:
154
× 28
1,232
+ 3,080
4,312

A step-by-step method for a solution

Area Model



A model where the length and width represent the factors and are configured through the operation of multiplication

Benchmark Fraction

A familiar fraction used as a reference point in order to measure, compare, and assess the reasonableness of a fractional value

Decimal

23.76

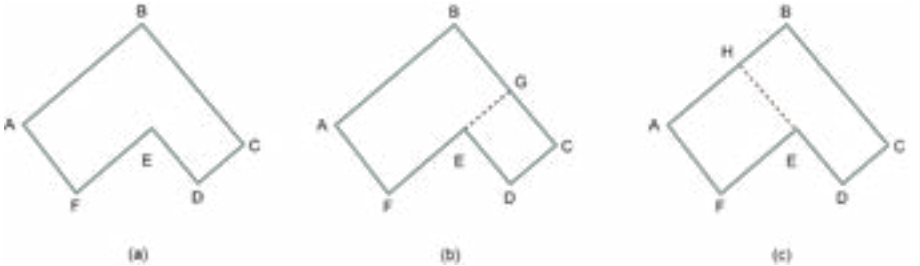
51.11

0.327

A number that uses a decimal point followed by digits that show a value smaller than one, in powers of ten that decrease; a number with one or more digits to the right of the decimal point

5

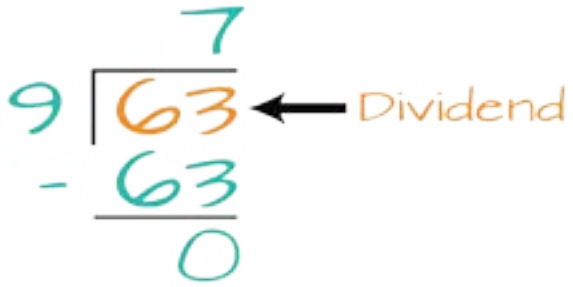
Decompose



To separate into parts or elements (e.g., geometric figures or numbers)

6

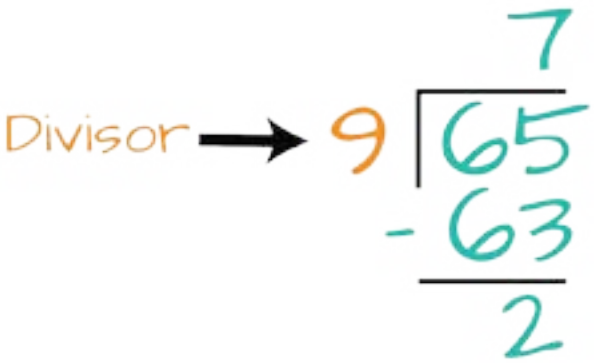
Dividend



The number you divide into; a quantity that is to be divided by another quantity; a number that shows the amount of equal parts of a whole; the numerator (top number) that tells the number or quantity; a quantity to be divided

7

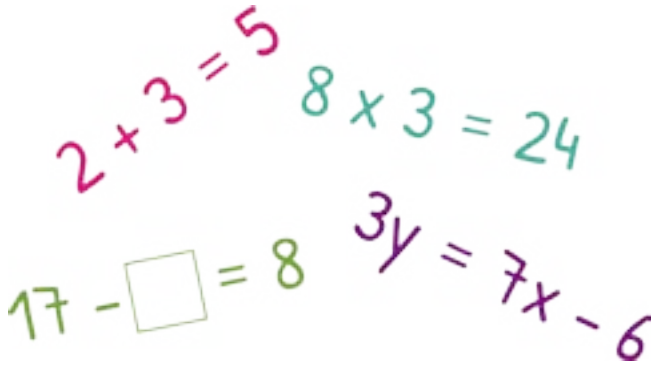
Divisor



The quantity by which another quantity is to be divided

8

Equation

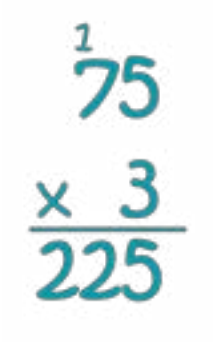


A mathematical statement that shows that two expressions are equal to each other

Multi-Digit

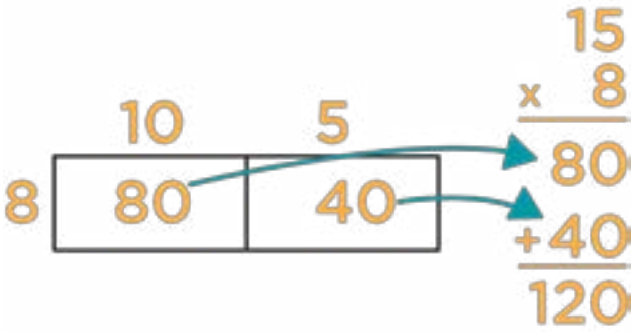
A number that has more than one digit

Multiplication



A mathematical operation consisting of obtaining a product or result by joining equal groups, repeated addition, or forming arrays

Partial Product



The product of the multiplicand and one digit of the multiplier

WHAT IS ACCELERATION?

Are your students ready to go above and beyond what they've just learned? In Acceleration, students can engage in a design challenge or relate what they're learning to current events around the world—activities that prompt them to think more deeply about the content and its applications.

Choice Board Activity

DESCRIPTION

Students will explore real-world connections and applications of math content through interactions with engaging activities.

MATERIALS

PRINTED

- 1 Choice Board (per student)
- 1 Set of Activity Handouts (per student)
- 1 Choice Board Self-Assessment (per student)

REUSABLE

- Technology (if applicable)

PREPARATION

- Print a Choice Board and a set of Activity Handouts for each student.
- Print a Choice Board Self-Assessment for each student.
- Plan ahead for technology use. Research may be required for some activities on the Choice Board.

PROCEDURE AND FACILITATION POINTS

1. Distribute a Choice Board to each student.
2. Allow students time to examine the Choice Board and select the activities they would like to explore.
3. Encourage students to attempt at least three activities.
4. Distribute the appropriate Activity Handouts according to students' choices.
5. Upon completion of each Choice Board activity, have students complete a Choice Board Self-Assessment to evaluate their own mathematical thinking and efforts on their project.

Choice Board

Name:_____ Date:_____

Positive Rational Number Operations

Choose one or more extension activities from the table below.

Career Connection Banker Research the career field of banking. Your research must answer the provided questions. Create a presentation to relay your research to the class.	**Arts Connection** Optical Art Create an abstract piece of optical art as a tribute to Ellsworth Kelly, and then provide the calculations.
Financial Connection Stocks Stock prices increase and decrease throughout each day. Use the information provided to answer questions about stocks.	**Kitchen Connection** Microwavable Mug Brownie Do a little math to determine the proper measurements for a recipe. With permission, make the recipe, and share it with your family.
Create Your Own Game Board Create equations for a game board and its answer key, and then challenge your classmates to play!	**Analogies** Use the analogies to find the solution for various positive rational number operations.

Choice Board

Name:_____ Date:_____

Career Connection

Research the career field listed on the Choice Board. Your research must answer the following questions:

1. List the career you are researching.
2. Describe the career listed above.
3. What materials does someone with this career work with?
4. Where would a person in this field do most of their work?
5. What training/education is required to enter this field?
6. What does the average day on the job look like for someone with this career?
7. How does this career connect to the math you are currently studying?
8. List several other career fields that someone doing this job interacts with on a daily basis.
9. Is this a career you are interested in? Find out more by interviewing someone with this career in your area and researching on the internet.
10. What 21st-century skills listed below could be used with this career? Identify at least one skill that people in this career field use, and explain why the skill is important, according to your research.

    - Collaboration
    - Creativity and innovation
    - Critical thinking and problem solving
    - Communication
    - Technology literacy
    - Flexibility
    - Leadership

Positive Rational Number Operations

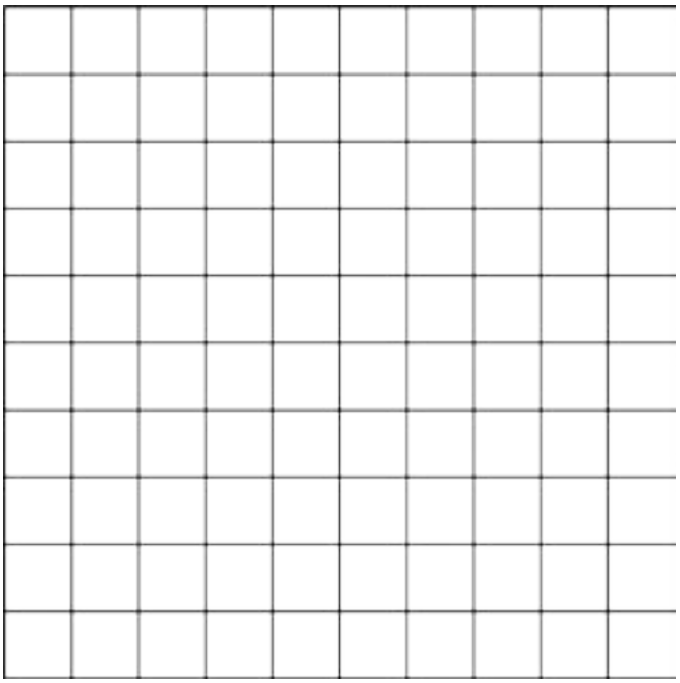
Choice Board

Name:_____ Date:_____

Arts Connection

Ellsworth Kelly created a famous piece of art from 64 solid-painted squares called *Colors for a Large Wall*. As a tribute to him, create an abstract piece of art in the grid. You must use at least three of the colors listed. If you leave a square blank, it is white. You do not need to use all of the colors. Once your design is complete, count the number of squares of each color.

Colors:
Red
Orange
Green
Blue
White
Black



List the fraction and decimal of the number of squares in the grid for each color you used.

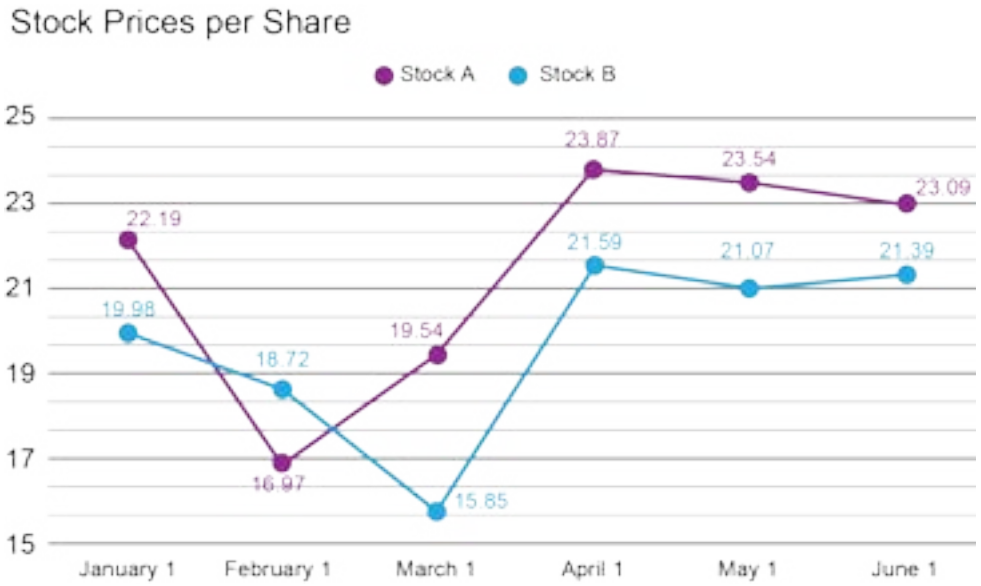
Add the decimals of the two colors most used. _____

Subtract the decimals of the color least used from the color most used.

Choice Board

Financial Connection

Purchasing stocks is one way of investing money. Stock prices can go up or down, meaning you may make or lose money on stock purchases. Use the stock information to answer the questions.



Question	Stock A	Stock B
In which month was the price the highest?		
Find the difference between the highest and lowest share price.		
Find the cost of 50 shares on March 1.		
If you bought 25 shares when the price was the lowest and sold on June 1, how much money would you have made?		

Now use the internet to explore stock prices of some companies that interest you. What did you notice?

Positive Rational Number Operations

Choice Board

Name:_____ Date:_____

Create Your Own

Create your own game board using the categories provided. Write equations using whole numbers, fractions, and decimals for each category. Then, create the answer key. Challenge your classmates to play!

Questions					
Point Value	**Adding**	**Subtracting**	**Multiplying**	**Dividing**	**Mystery**
100					
200					
300					
400					
500					

Answers					
Point Value	**Adding**	**Subtracting**	**Multiplying**	**Dividing**	**Mystery**
100					
200					
300					
400					
500					

Choice Board

Name:_____ Date:_____

Kitchen Connection

Microwavable Mug Brownie

Solve each equation to determine the amount needed of each ingredient.

Equation	Amount	Ingredient
$\frac{1}{2} \times \frac{1}{2} =$		cup sugar
$0.5 \times 0.5 =$		cup flour
$\frac{1}{5} \div 0.1 =$		tablespoons cocoa powder
$0.75 + 0.75 + 0.5 =$		tablespoons milk
$1.974 \div 0.987$		tablespoons vegetable oil
$237.25 - 236 + 0.75$		tablespoons chocolate chips

1. Mix together sugar, flour, cocoa powder, milk, oil, and a pinch of salt.
2. Add chocolate chips.
3. Put into a microwave-safe mug.
3. Cook on high in the microwave for 2 minutes. Let cool before enjoying!

Challenge!

Write a new equation for each ingredient by using positive rational number operations. Be sure the answers match the original amounts.

Sugar	Cocoa	Oil
Flour	Milk	Chips

Positive Rational Number Operations

Choice Board

Name:_____ Date:_____

Analogies

Complete the analogies to show the relationship between different positive rational numbers.

$\frac{1}{10} \times \frac{1}{10}$	:	0.01	::	$\frac{4}{10} \times \frac{3}{10}$	:	
17 quarts of punch are poured into 4 pitchers.	:	4.25	::	51 quarts of milk are poured into 4 pitchers.	:	
5.67 × 4.2	:	23.814	::	5.67 × 7.5	:	
$\frac{9}{10} \div \frac{2}{5}$	:	$2\frac{1}{4}$	::	$\frac{5}{8} \div \frac{1}{6}$	:	
0.5 of a yard of fabric is used for 4 projects.	:	0.125	::	0.75 of a yard of wood is used for 5 projects.	:	
23 quarters	:	$5.75	::	460 nickels	:	
$\frac{4}{9} \div \frac{3}{4}$	:	$1\frac{7}{9}$	::	$\frac{2}{7} \div \frac{2}{5}$	:	
If 1 lap takes 4.75 minutes, 3.5 laps take	:	16.625 minutes.	::	If 1 lap takes 6.75 minutes, 3.5 laps take	:	

Choice Board

Name:_____ Date:_____

Choice Board Self-Assessment

Rank yourself on the statements below.

1. I successfully completed the task(s).

2. The work taught me more about the content.

3. This work represents my best effort.

4. Identify at least one struggle you encountered during your extension activity.

5. What part of your project are you most proud of?

6. If given the opportunity to complete a similar task in the future, what would you do the same, and what would you do differently?

Teacher Feedback

Would You Rather Activity

DESCRIPTION

Would You Rather is an enriching activity in which students use mathematical reasoning and creativity to justify their answers.

MATERIALS

PRINTED

- 1 Student Handout (per student)
- 1 Rubric (for the teacher)

PROCEDURE AND FACILITATION POINTS

1. Distribute a Student Handout to each student.
2. Encourage students to look back at the Student Journals from the Explore activities if they need to review the skills they have learned.
3. Invite students to share their answers and justification with partners.

Would You Rather

Name:_____ Date:_____

Forest Scout Fundraiser

Use mathematical reasoning and creativity to justify your answer to the Would You Rather question.

Thomas and Ayaan are Forest Scouts and are raising money for the Scouts' annual camping trip. They are working in teams selling chocolate bars. You have the option to join Team Oak or Team Spruce to sell chocolate bars. **Would you rather** join Team Oak or Team Spruce? Justify your reasoning with mathematics.

Team Oak

Sold $\frac{4}{5}$ of 18 boxes of milk chocolate bars
Cost: $2.00 per box

Team Spruce

Sold $\frac{1}{3}$ of 12 boxes of milk chocolate bars with almonds
Cost: $3.00 per box

Would You Rather

	Understanding	Computation	Reasoning
1	The student does not understand what the problem is asking them to do. They do not address the problem, and the strategies are not appropriate for the problem.	The student does not solve the problem correctly. They do not support their answer with work.	The student does not support their reasoning. They do not use mathematical language.
2	The student understands what some of the problem is asking them to do. They address most parts of the problem. Strategies used to solve the problem are somewhat appropriate.	The student solves some parts of the problem but may make some mistakes. They support some of their answer with work.	The student somewhat supports their reasoning with some mistakes. They use some mathematical language, with a few mistakes.
3	The student fully understands what the problem is asking them to do. They address all parts of the problem and are able to employ strategies to resolve the problem.	The student solves all parts of the problem correctly and is able to support their answer with work.	The student clearly and accurately supports the reasoning behind their answer. They use accurate mathematical language consistently.

WHAT IS DAILY NUMERACY?

The goal of Daily Numeracy is to empower students to reason with numbers in an accurate, efficient, and flexible way. We have included a carefully crafted, purposeful activity sample designed to help students build their thinking and reasoning around relationships and connections. Each grade level has numerous Daily Numeracy activities.

Week 2 Mini-Lesson

DESCRIPTION

Students reason with numbers in an accurate, efficient, and flexible way through purposeful activities designed to help students build their thinking and reasoning around relationships and connections.

MATERIALS

PRINTED

- 1 Weekly Slideshow (per class)
- 1 Set of Number Cards (per class) *for Blank Number Line activity

REUSABLE

- 1 Projector or document camera (per class)
- 1 Marker (per class)* for Solve It!activity
- 1 Blank number line (per class) for Blank Number Line activity

CONSUMABLE

- 1 Piece of chart paper (per class)* for Solve It! activity

PREPARATION

- Prepare to project the slideshow prompt of the day to each class.

Solve It! Activity:

- Gather a piece of chart paper and a marker to document student responses.

Blank Number Line Activity:

- Prepare a blank number line to be reused throughout the year. Examples include painters tape on a board, string that is hung by using magnets, or duct tape on laminated poster board.
- Print and cut the Number Cards according to the slide being used in class.

PROCEDURE AND FACILITATION POINTS

1. Project the slideshow prompt of the day. Students should not have anything with them for this activity.
2. Give students a minute of silent time as they look at the prompt. Ask students relevant guiding questions. Sample questions are shown in the table below by activity.
3. Accept multiple student responses if their reasoning is accurate. *For the Solve It! activity, call on students to give out answers only. Record student answers on chart paper.
4. As students discuss their responses, ask the class if they agree or disagree, and provide sentence stems for responses.
    a. I agree because . . .
    b. I disagree because . . .
    c. Can you explain why you . . . ?

Solve It! Activity:

5. Students solve equations or word problems by using mental math and other number-sense strategies. Guiding Questions:
    a. Explain the strategy used to get your answer.
    b. Is there a different strategy we could use?
    c. How are these strategies similar? How are they different?

Blank Number Line Activity:

6. Students place rational numbers on an open number line, and they discuss the relationships between the placements. Guiding Questions:
    a. Why did you place your number on that spot?
    b. What is the distance between those two numbers?
    c. Is your number closer to _____ or _____?
    d. Do you need to move any other numbers to place your number?
    e. What do you know about those numbers?
    f. What if I placed these two benchmark numbers on the number line? How would the distance or order of the numbers change?

Not Like the Others Activity:

7. Students describe the characteristics of an object in a set of four or more, and they discuss how it is different from the others. Guiding Questions:
    a. What do you notice?
    b. Which one is not like the others?
    c. What characteristic makes it different?
    d. How are these objects similar?
    e. Do you see another object that is not like the others?

Math Mystery Activity:

8. Guiding Questions:
    a. What do you notice?
    b. How does each clue help you determine the mystery number?
    c. Which clue helped you narrow down your options?
    d. How does a number range help you determine the mystery number?

Same and Different Activity:

9. Students describe how two objects are the same but different, and they discuss the reasoning behind their responses. Guiding Questions:
    a. What do you notice?
    b. How are these two _____ the same, but different?
    c. What characteristics helped you decide that they were the same and different?
    d. Can you think of another way in which they are the same and different?

Daily Numeracy

Day 1
Solve It!

3,240 – 948

Daily Numeracy

15	15.5	12.75
13.25	14	13.5

Daily Numeracy

Day 3
Not Like the Others

3.2	3.02
32.2	30.2

Clue 1

Clue 2

Clue 3

Clue 4

Clue 1

The number is greater than 12 but less than 13.

Clue 2

Clue 3

Clue 4

Daily Numeracy

Clue 1
The number is greater than 12 but less than 13.

Clue 2
The number has one decimal digit.

Clue 3

Clue 4

Clue 1
The number is greater than 12 but less than 13.

Clue 2
The number has one decimal digit.

Clue 3
The number is closer to 12 than 13.

Clue 4

Daily Numeracy

Clue 1
The number is greater than 12 but less than 13.

Clue 2
The number has one decimal digit.

Clue 3
The number is closer to 12 than 13.

Clue 4
The digit in the tenths place is one more than the digit in the ones place.

The number is …

12.3

11	111

WHAT IS MATHEMATICAL FLUENCY?

In order for students to be successful as they progress into upper grades, they need to have a solid understanding of the concepts of addition and subtraction, and they also need to be fluent in the thinking strategies necessary for solving such facts. As you use the STEMscopes Math program, you will come to see how your students are starting to rely on their thinking skills and strategies as opposed to their fingers or skip-counting methods. Each grade level has numerous Mathematical Fluency activities.

Operations with Fractions/ Different Denominators Mini-Lesson

DESCRIPTION

In this maze activity, students use their understanding of fraction operations to successfully navigate a maze by solving fraction problems.

MATERIALS

PRINTED

- 1 Maze Instruction Sheet (per student)
- 1 Maze (per student)

CONSUMABLE

- Scrap paper

PREPARATION

Print a Maze Instruction Sheet and Maze for each student.

PROCEDURE AND FACILITATION POINTS

1. Explain to students that each problem has at least one possible solution. Correct solutions lead to the finish line. Incorrect solutions lead to dead ends.
2. Have students start in the upper left-hand corner of the maze.
3. Have students work out solutions, using scrap paper as needed.
4. Tell students that when they have found and chosen a solution, they should trace that path on their handout.
5. Explain that if a problem does not show an accurate solution, students must go back and rework the previous problem.
6. Have students continue solving problems until they reach the finish line.
7. If time allows, have each student compare their solution pathway with a classmate's and decide whether they found the most efficient solution pathway.
8. Monitor students as they work to ensure that they are following instructions, and assist with computation as needed.
9. Refer to the answer key, and prompt students in discovering pathways as needed.

Mathematical Fluency

Maze Instruction Sheet

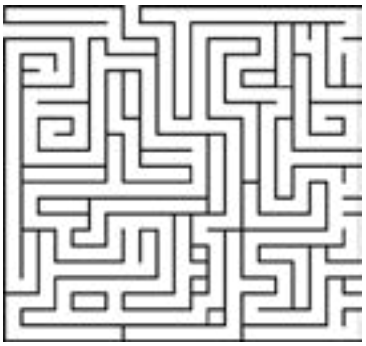
Complete the maze individually, and then compare your solution with a partner.

You Will Need

1 Maze

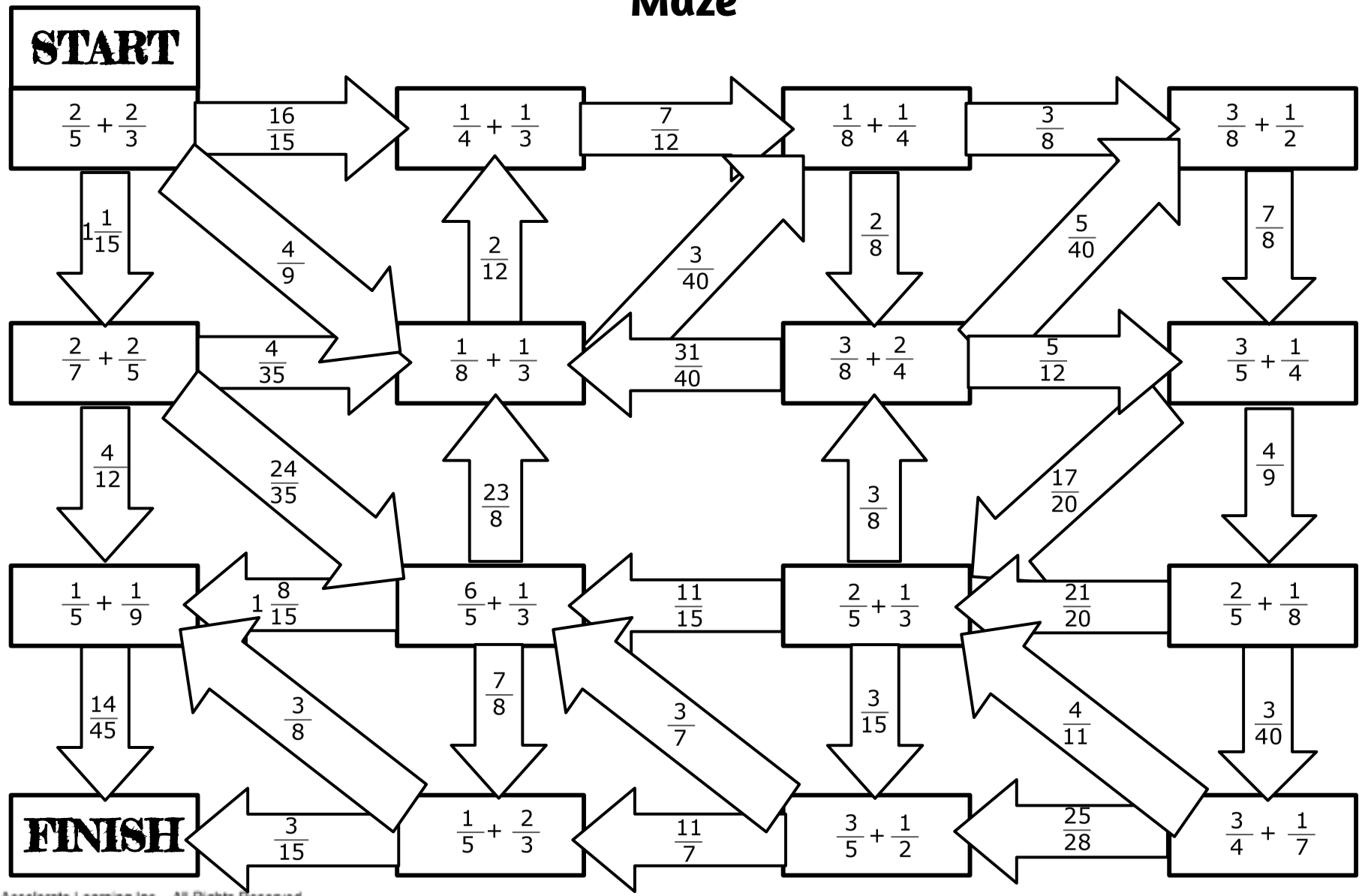
How to Play

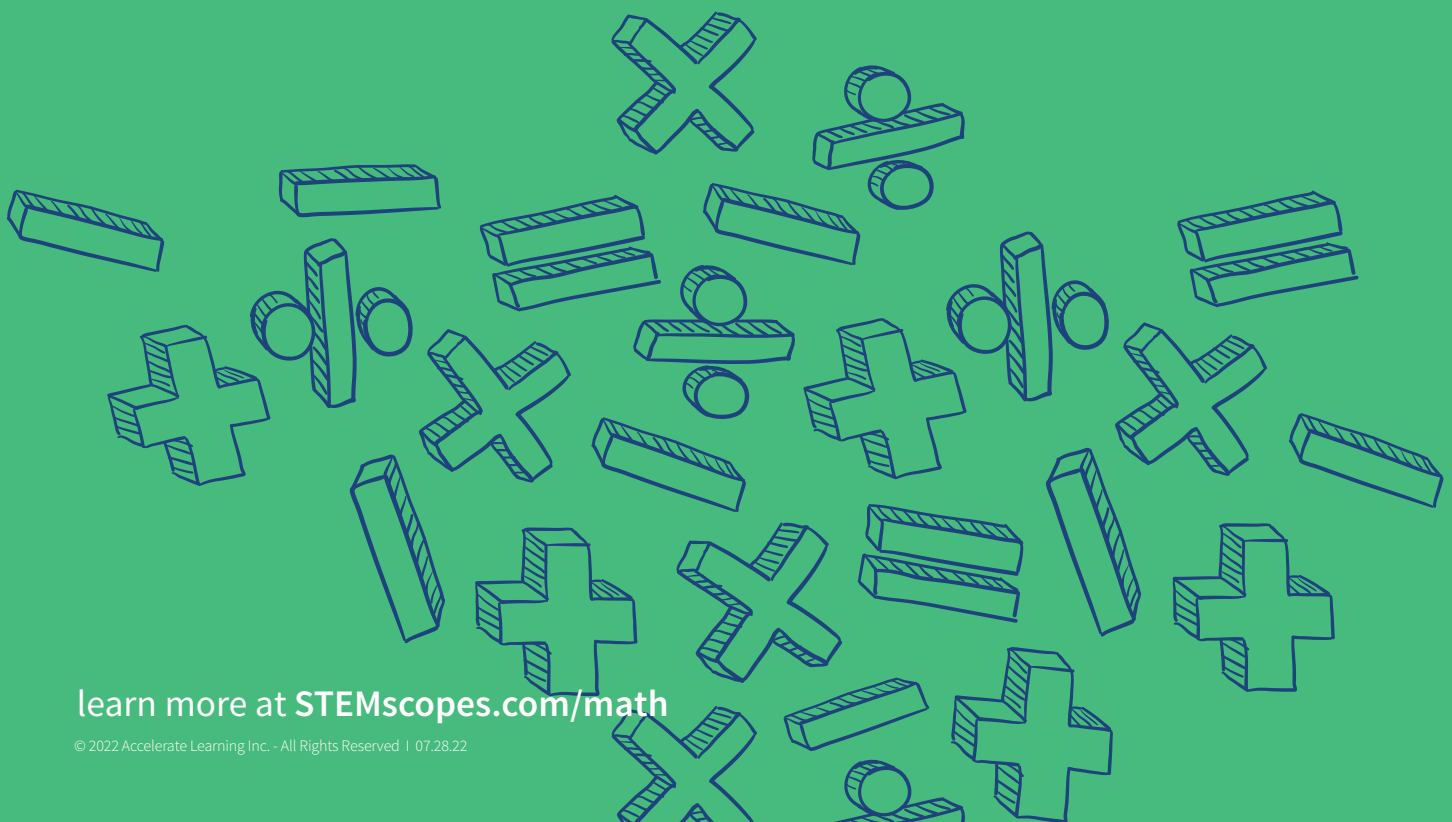
1. Each problem has at least one possible solution. Correct solutions lead to the finish line. Incorrect solutions lead to problems without correct solutions.
2. Start in the upper left-hand corner of the maze.
3. Work out problems, using paper as needed.
4. When you have found and chosen a solution, trace the path on your handout.
5. If a problem does not show an accurate solution, go back and rework the previous problem.
6. Continue solving problems until you reach the finish line.
7. Compare your solution pathway with a classmate's, and decide whether you have found the most efficient solution pathway.



Mathematical Fluency

Maze





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