Louisiana Department of Education
Mentor Teacher Training

Module 2:
Understanding Instructional Shifts in Mathematics

Elementary Cohort
June, 2019

Facilitated by Learning Forward

Mentor Teacher Training

Mentor Training Course Goals

Mentors will:

- Build strong relationships with mentees.
- Diagnose and prioritize mentee's strengths and areas for growth.
- Design and implement a coaching support plan to develop mentee knowledge and skills.
- Assess and deepen mentor content knowledge and content-specific pedagogy.

Module 2 Outcomes:

- Describe key shifts in mathematics standards and instruction (rigor, focus, and coherence).
- Identify how to support mentees in using the key shifts to guide decisions about teaching and learning mathematics.
- Conduct classroom observations to collect data on student and teacher actions.
- Analyze data to identify needs for improving student learning and mentee instructional practice.

Module 2 Agenda:

- Welcome/Norms/Overview
- Key Shifts in Mathematics
  - Rigor
  - Focus
  - Coherence
- Lunch
- Conduct Observations
- Analyze Observation Data
- Connection to Assessments

Mutual Commitments:

Make the learning meaningful
Engage mentally and physically
Notice opportunities to support the learning of others
Take responsibility of own learning
Own the outcomes
Respect the learning environment including use of technology

National School Reform Faculty
Harmony Education Center
www.nsrfharmony.org

Text Rendering Experience

Developed in the field by educators affiliated with NSRF.

Purpose

To collaboratively construct meaning, clarify, and expand our thinking about a text or document.

Roles

A facilitator to guide the process.
A scribe to track the phrases and words that are shared.

Set Up

Take a few moments to review the document and mark the sentence, the phrase, and the word that you think is particularly important for our work.

Steps

1. First Round: Each person shares a *sentence* from the document that he/she thinks/feels is particularly significant.

2. Second Round: Each person shares a *phrase* that he/she thinks/feels is particularly significant. The scribe records each phrase.

3. Third Round: Each person shares the *word* that he/she thinks/feels is particularly significant. The scribe records each word.

4. The group discusses what they heard and what it says about the document.

5. The group shares the words that emerged and any new insights about the document.

6. The group debriefs the text rendering process.

Protocols are most powerful and effective when used within an ongoing professional learning community such as a Critical Friends Group® and facilitated by a skilled coach. To learn more about professional learning communities and seminars for new or experienced coaches, please visit the National School Reform Faculty website at www.nsrfharmony.org.

Key Shifts in Mathematics

Introduction

The Common Core State Standards for Mathematics build on the best of existing standards and reflect the skills and knowledge students will need to succeed in college, career, and life. Understanding how the standards differ from previous standards—and the necessary shifts they call for—is essential to implementing them.

The following are the key shifts called for by the Common Core:

1. Greater focus on fewer topics

   The Common Core calls for greater focus in mathematics. Rather than racing to cover many topics in a mile-wide, inch-deep curriculum, the standards ask math teachers to significantly narrow and deepen the way time and energy are spent in the classroom. This means focusing deeply on the major work of each grade as follows:

   - In grades K–2: Concepts, skills, and problem solving related to addition and subtraction
   - In grades 3–5: Concepts, skills, and problem solving related to multiplication and division of whole numbers and fractions
   - In grade 6: Ratios and proportional relationships, and early algebraic expressions and equations
   - In grade 7: Ratios and proportional relationships, and arithmetic of rational numbers
   - In grade 8: Linear algebra and linear functions

   This focus will help students gain strong foundations, including a solid understanding of concepts, a high degree of procedural skill and fluency, and the ability to apply the math they know to solve problems inside and outside the classroom.

2. Coherence: Linking topics and thinking across grades

   Mathematics is not a list of disconnected topics, tricks, or mnemonics; it is a coherent body of knowledge made up of interconnected concepts. Therefore, the standards are designed around coherent progressions from grade to grade. Learning is carefully connected across grades so that students can build new understanding onto foundations built in previous years. For example, in 4th grade, students must "apply and extend previous understandings of multiplication to multiply a fraction by a whole number" (Standard 4.NF.4). This extends to 5th grade, when students are expected to build on that skill to "apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction" (Standard 5.NF.4). Each standard is not a new event, but an extension of previous learning.

   Coherence is also built into the standards in how they reinforce a major topic in a grade by utilizing supporting, complementary topics. For example, instead of presenting the topic of data displays as an end in itself, the topic is used to support grade-level word problems in which students apply mathematical skills to solve problems.

3. Rigor: Pursue conceptual understanding, procedural skills and fluency, and application with equal intensity.

   Rigor refers to deep, authentic command of mathematical concepts, not making math harder or introducing topics at earlier grades. To help students meet the standards, educators will need to pursue, with equal intensity, three aspects of rigor in the major work of each grade: conceptual understanding, procedural skills and fluency, and application.

   Conceptual understanding: The standards call for conceptual understanding of key concepts, such as place value and ratios. Students must be able to access concepts from a number of perspectives in order to see math as more than a set of mnemonics or discrete procedures.

   Procedural skills and fluency: The standards call for speed and accuracy in calculation. Students must practice core functions, such as single-digit multiplication, in order to have access to more complex concepts and procedures. Fluency must be addressed in the classroom or through supporting materials, as some students might require more practice than others.

   Application: The standards call for students to use math in situations that require mathematical knowledge. Correctly applying mathematical knowledge depends on students having a solid conceptual understanding and procedural fluency.

Common Core State Standards for Mathematics (CCSSM). (2010, June). Retrieved from Common Core State Standards: http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

Looking for Evidence of Student Engagement in the Key Shifts

Focus	Evidence
☐ The learning goal(s) of the lesson supports grade level standard(s).	
Coherence	
☐ The lesson intentionally relates new concepts to students' prior skills and knowledge. ☐ Students set the foundation for future learning. ☐ Students access prior learning from major work in the grade in order to support new learning.	
Rigor	
Conceptual Understanding ☐ Students access concepts and ideas from a variety of perspectives. ☐ Students explain mathematical ideas behind a particular concept in a variety of ways. ☐ Students use examples and counterexamples to make and support conjectures applied to one problem to multiple situations. ☐ Students create and use a variety of models to analyze relationships. ☐ Students make use of patterns and structure to compose and decompose numbers, shapes, expressions, and equations. **Procedural Skills and Fluency** ☐ Students select tools (e.g. physical objects, manipulatives, drawings, diagrams, algorithms, or strategies) that are relevant and useful for the task or problem. ☐ Students communicate thinking using appropriate vocabulary, symbols and/or units in precise and accurate ways. ☐ Students look for patterns, generalizations, and shortcuts. ☐ Students are flexible in their use of procedures and skills to solve problems. **Application** ☐ Students decontextualize and contextualize quantities in problem situations. ☐ Students plan and choose a solution pathway when applying their mathematical knowledge to different situations.	

Note: To help educators look for evidence of grade-level-appropriate student engagement in mathematical tasks, these narrative descriptors are adapted from Illustrative Mathematics. (2014, February 12). *Standards for Mathematical Practice: Commentary and Elaborations for K–5 and 6-8*. Tucson, AZ. Available at http://commoncoretools.me/2014/02/12/k-5-elaborations-of-the-practice-standards

Let's Reflect:

1. Identify one connection between the sample EngageNY problems and the components of rigor.

2. What does it look like when we ask students to work on procedural skill and fluency versus conceptual understanding or application?

3. How will this new learning impact your role as a mentor?

4. How could knowing the related standard(s) affect teaching and learning in your classroom?

5. How might you approach teaching the standards differently knowing that they are supporting the major work of the grades?

6. How will you use this learning in your mentor role?

One-Minute Paper:

How will you apply the math content knowledge you built this morning to your work as a mentor?

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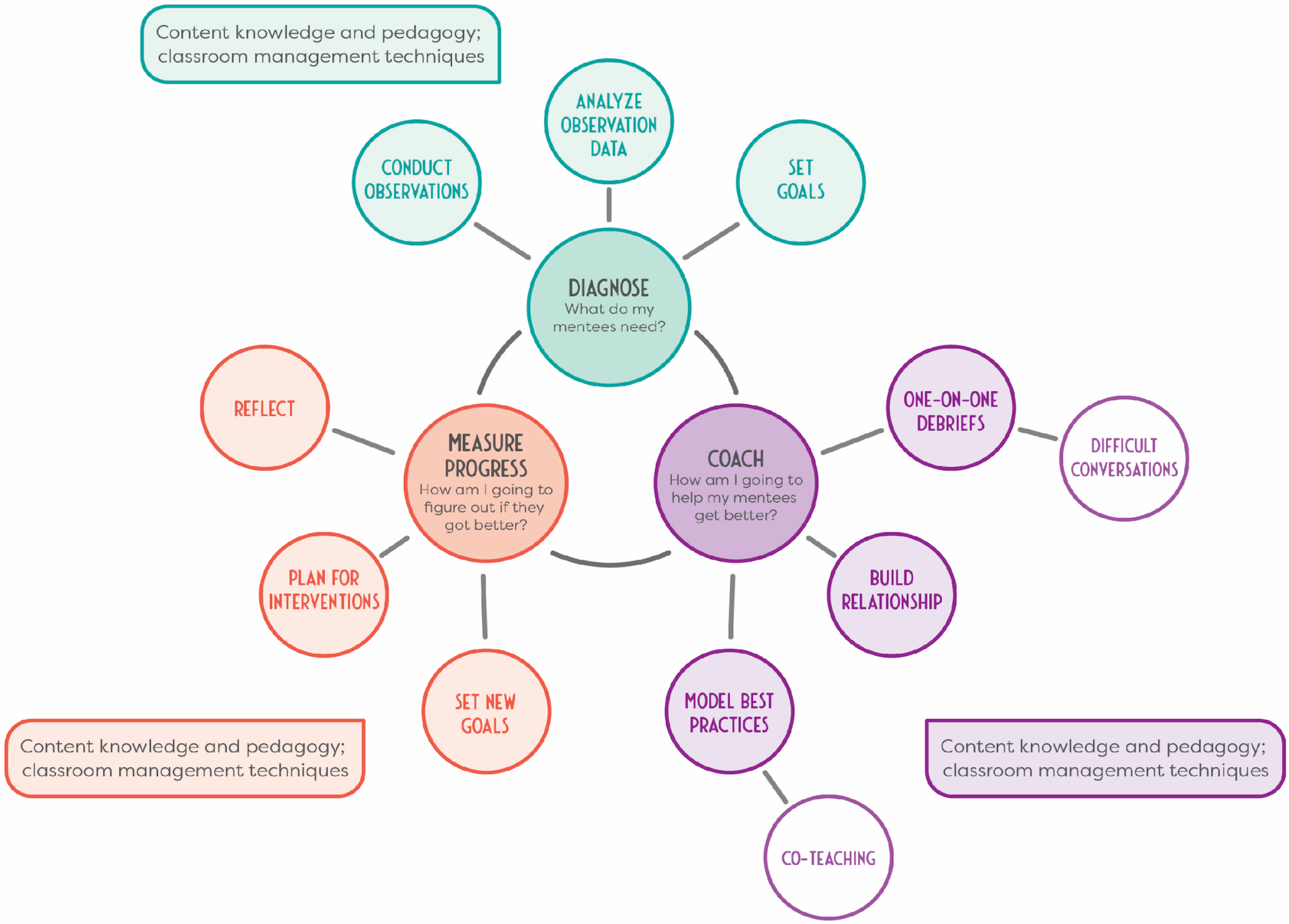
Module 2 Afternoon Outcomes

- Conduct classroom observations to collect data on student and teacher actions.
- Analyze data to identify needs for improving student learning and mentee instructional practice.

The Mentoring Cycle



Conduct Observations: 3 Key Components

- Confirm observation details
- Observe students and teacher in action
- Record notes using “look-fors”

Confirm Observation Details

Key Components to Discuss	Guiding Question(s)	Notes
Observation day and time	• Where and when will the observation take place?	
Observation/ classroom logistics	• How long will the observation last? • Where is the best place for the mentor to sit? • What kinds of interaction between mentor and students are okay? • Is there anything the mentor needs to know about the classroom and/or students?	
Instructional goal of lesson	• What is the instructional goal of the lesson? • What standard(s) does it align to? • Why does the mentee want students to meet this goal?	
Focus of observation	• What is the focus of the observation? (E.g., classroom management, questioning, student discourse) • What does the mentee hope to gain as a result of being observed?	
Student work and data to collect	• What will students be working on during the lesson? • What work can be collected and discussed during the debrief? • What, if any, data will be generated in the lesson?	
Confidentiality	• What needs to be kept confidential between the mentor and mentee to enable authentic growth?	
Debrief conversation day and time	• Where and when will the debrief conversation take place?	

Observe Students and Teacher in Action

Do	Don't
Stay close to the action	Hang back and miss what's happening
Watch carefully and ask questions of students while they're working	Jump in to "fix" this one lesson
Look specifically for evidence of the focus of your observation and when it occurred during the lesson (e.g. rigor)	Take unfocused notes on a range of topics
Script exactly what you hear from teacher and students	Only write down things that fit a preconceived idea or jump to judgements

Classroom Observation Tool

Focus of Observation:		
"Look-Fors" What does strong teaching for the focus area look like? (observer completes prior to observation)	**Teacher Behaviors**	**Student Behaviors**

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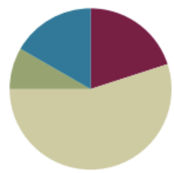
Lesson 7

Objective: Multiply any whole number by a fraction using tape diagrams.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(33 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (12 minutes)

- Read Tape Diagrams **5.NF.4** (4 minutes)
- Half of Whole Numbers **5.NF.4** (4 minutes)
- Fractions as Whole Numbers **5.NF.3** (4 minutes)

Read Tape Diagrams (4 minutes)

Materials: (S) Personal white board

Note: This fluency activity prepares students to multiply fractions by whole numbers during the Concept Development.

T: (Project a tape diagram with 10 partitioned into 2 equal units.) Say the whole.
S: 10.
T: On your personal white board, write the division sentence.
S: (Write 10 ÷ 2 = 5.)

Continue with the following possible sequence: 6 ÷ 2, 9 ÷ 3, 12 ÷ 3, 8 ÷ 4, 12 ÷ 4, 25 ÷ 5, 40 ÷ 5, 42 ÷ 6, 63 ÷ 7, 64 ÷ 8, and 54 ÷ 9.

Half of Whole Numbers (4 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews content from Lesson 6 and prepares students for multiplying fractions by whole numbers during the Concept Development using tape diagrams.

T: Draw 4 counters. What's half of 4?
S: 2.

T: (Write $\frac{1}{2}$ of 4 = 2.) Say a division sentence that helps you find the answer.

S: 4 ÷ 2 = 2.

Continue with the following possible sequence: 1 half of 10, 1 half of 8, 1 half of 30, 1 half of 54, 1 fourth of 20, 1 fourth of 16, 1 third of 9, and 1 third of 18.

Fractions as Whole Numbers (4 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews Lesson 5, as well as denominators that are equivalent to hundredths. Instruct students to use their personal white boards for calculations that they cannot do mentally.

T: I'll say a fraction. You say it as a division problem. 4 halves.

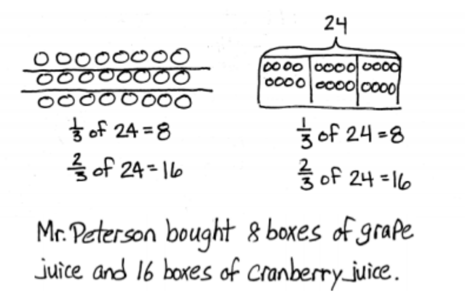
S: 4 ÷ 2 = 2.

Continue with the following possible suggestions:
$\frac{6}{2}, \frac{14}{2}, \frac{54}{2}, \frac{40}{20}, \frac{80}{20}, \frac{180}{20}, \frac{960}{20}, \frac{10}{5}, \frac{15}{5}, \frac{35}{5}, \frac{85}{5}, \frac{100}{50}, \frac{150}{50}, \frac{300}{50}, \frac{900}{50}, \frac{8}{4}, \frac{12}{4}, \frac{24}{4}, \frac{96}{4}, \frac{50}{25}, \frac{75}{25}$, and $\frac{800}{25}$.

Application Problem (5 minutes)

Mr. Peterson bought a case (24 boxes) of fruit juice. One-third of the drinks were grape, and two-thirds were cranberry. How many boxes of each flavor did Mr. Peterson buy? Show your work using a tape diagram or an array.

Note: This Application Problem requires students to use skills explored in Lesson 6. Students are finding fractions of a set and showing their thinking with models.



Concept Development (33 minutes)

Materials: (S) Personal white board

Problem 1

What is $\frac{3}{5}$ of 35?

T: (Write $\frac{3}{5}$ of 35 = ___ on the board.) We used two different models (counters and arrays) yesterday to find fractions of sets. We will use tape diagrams to help us today.

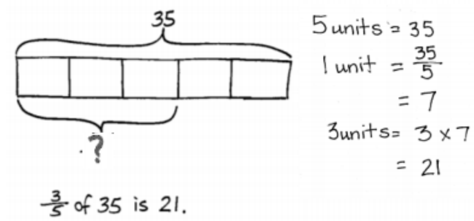
T: We must find 3 fifths of 35. Draw a bar to represent our whole. What's our whole?

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Please note that, throughout the lesson, division sentences are written as fractions to reinforce the interpretation of a fraction as division. When reading the fraction notation, the language of division should be used. For example, in Problem 1, 1 unit = $\frac{35}{5}$ should be read as 1 unit equals 35 divided by 5.

S: (Draw.) 35.

T: (Draw a bar, and label it as 35.) How many units should we cut the whole into?



S: 5.

T: How do you know?

S: The denominator tells us we want fifths. → That is the unit being named by the fraction. → We are asked about fifths, so we know we need 5 equal parts.

T: Divide your bar into fifths.

S: (Work.)

T: (Cut the bar into 5 equal units.) We know 5 units are equal to 35. How do we find the value of 1 unit? Say the division sentence.

S: 35 ÷ 5 = 7.

T: (Write 5 units = 35, 1 unit = 35 ÷ 5 = 7.) Have we answered our question?

S: No. We found 1 unit is equal to 7, but the question is to find 3 units. → We need 3 fifths. When we divide by 5, that's just 1 fifth of 35.

T: How will we find 3 units?

S: Multiply 3 and 7 to get 21. → We could add 7 + 7 + 7. → We could put 3 of the 1 fifths together. That would be 21.

T: What is $\frac{3}{5}$ of 35?

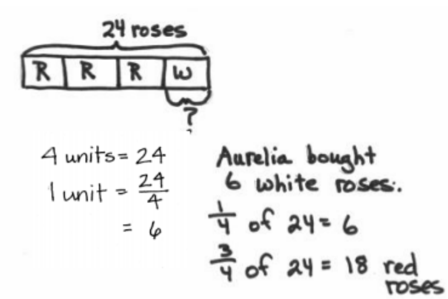
S: 21.

> **NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:**
>
> Students with fine motor deficits may find drawing tape diagrams difficult. Graph paper may provide some support. Online sources, such as the Thinking Blocks website, may also be helpful.

Problem 2

Aurelia buys 2 dozen roses. Of these roses, $\frac{3}{4}$ are red, and the rest are white. How many white roses did she buy?

T: What do you know about this problem? Turn and share with your partner.



S: I know the whole is 2 dozen, which is 24. → $\frac{3}{4}$ are red roses, and $\frac{1}{4}$ are white roses. The total is 24 roses. → The information in the problem is about red roses, but the question is about the other part—the white roses.

T: Discuss with your partner how you'll solve this problem.

S: We can first find the total red roses and then subtract from 24 to get the white roses. → Since I know $\frac{1}{4}$ of the whole is white roses, I can find $\frac{1}{4}$ of 24 to find the white roses. That's faster.

T: Work with a partner to draw a tape diagram and solve.

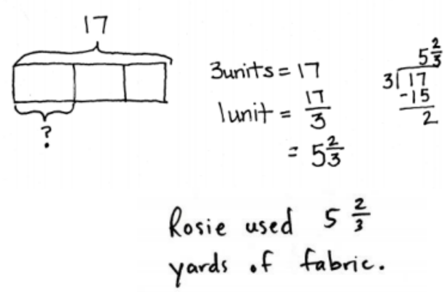
S: (Work.)

T: Answer the question for this problem.

S: She bought 6 white roses.

Problem 3

Rosie had 17 yards of fabric. She used one-third of it to make a quilt. How many yards of fabric did Rosie use for the quilt?



T: What can you draw? Turn and share with your partner.

T: Compare this problem to the others we've done today.

S: The answer is not a whole number. → The quotient is not a whole number. → We were still looking for fractional parts, but the answer isn't a whole number.

T: We can draw a bar that shows 17 and divide it into thirds. How do we find the value of one unit?

S: Divide 17 by 3.

T: How much fabric is one-third of 17 yards?

S: $\frac{17}{3}$ yards. → $5\frac{2}{3}$ yards.

T How would you find 2 thirds of 17?

S: Double $5\frac{2}{3}$. → Multiply $5\frac{2}{3}$ times 2. → Subtract $5\frac{2}{3}$ from 17.

Repeat this sequence with $\frac{2}{5}$ of 11, if necessary.

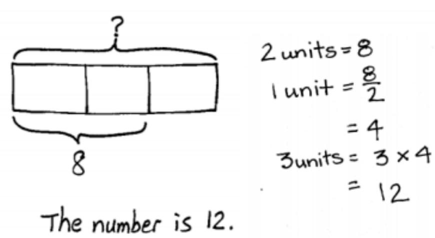
> **NOTES ON MULTIPLE MEANS OF REPRESENTATION:**
>
> The added complexity of finding a fraction of a quantity that is not a multiple of the denominator may require a return to concrete materials for some students. Allow them access to materials that can be folded and cut to model Problem 3 physically. Five whole squares can be distributed into each unit of 1 third. Then, the remaining whole squares can be cut into thirds and distributed among the units of thirds. Be sure to make the connection to the fraction form of the division sentence and the written recording of the division algorithm.

Problem 4

$\frac{2}{3}$ of a number is 8. What is the number?

T: How is this problem different from the ones we just solved?

S: In the first problem, we knew the total and wanted to find a part of it. In this one, we know how much 2 thirds is but not the whole. → Last time, they told us the whole and asked us about a part. This time, they told us about a part and asked us to find the whole.



T: Draw a bar to represent the whole. What kind of units will we need to divide the whole into?

S: (Draw.) Thirds.

T: (Draw the bar divided into thirds.) What else do we know? Turn and tell your partner.

S: We know that 2 thirds is the same as 8, so it means we can label 2 of the units with a bracket and 8. → The units are thirds. We know about 2 of them. They are equal to 8 together. We don't know what the whole bar is worth, so we have to put a question mark there.

T: (Draw to show the labeling.) Label your bars.

S: (Label the bars.)

T: How can knowing what 2 units are worth help us find the whole?

S: Since we know that 2 units = 8, we can divide to find that 1 unit is equal to 4.

T: (Write 1 unit = 8 ÷ 2 = 4.) Let's record 4 inside each unit. (Show the recording.)

S: (Record the 4 inside each unit.)

T: Can we find the whole now?

S: Yes. We can add 4 + 4 + 4 = 12. → We can multiply 3 times 4, which is equal to 12.

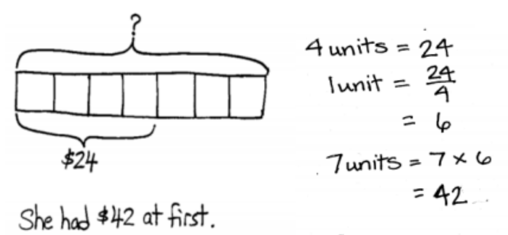
T: (Write 3 units = 3 × 4 = 12.) Answer the question for this problem.

S: The number is 12.

T: Let's think about it and check to see if it makes sense. (Write $\frac{2}{3}$ of 12 = 8.) Work independently on your personal white board, and solve to find what 2 thirds of 12 is.

Problem 5

Tiffany spent $\frac{4}{7}$ of her money on a teddy bear. If the teddy bear cost $24, how much money did she have at first?



T: Which problem that we've worked on today is most similar to this one?

S: This one is just like Problem 4. We have information about a part, and we have to find the whole.

T: What can you draw? Turn and share with your partner.

S: We can draw a bar for all of the money. We can show what the teddy bear costs. It costs $24, and it's $\frac{4}{7}$ of her total money. We can put a question mark over the whole bar.

T: Do we have enough information to find the value of 1 unit?

S: Yes.

T: How much is one unit?

S: 4 units = $24, so 1 unit = $6.

T: How will we find the amount of money she had at first?

S: Multiply $6 by 7.

T: Say the multiplication sentence, starting with 7.

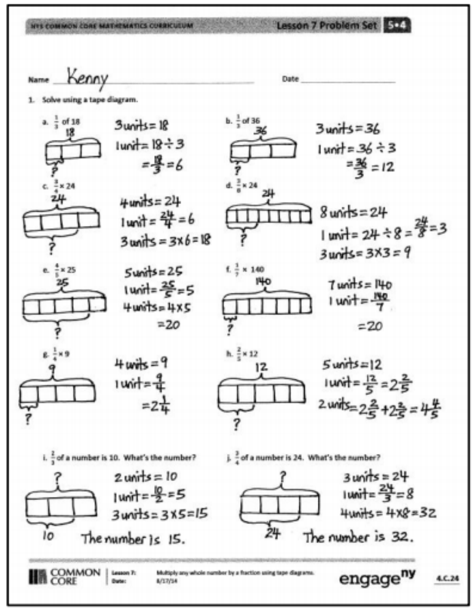
S: 7 × \$6 = \$42.

T: Answer the question in this problem.

S: Tiffany had \$42 at first.

Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 7 Problem Set 5•4

Name Kenny Date

1. Solve using a tape diagram.

a. $\frac{1}{3}$ of 18 — 3 units = 18, 1 unit = 18 ÷ 3 = $\frac{18}{3}$ = 6

b. $\frac{1}{3}$ of 36 — 3 units = 36, 1 unit = 36 ÷ 3 = $\frac{36}{3}$ = 12

c. $\frac{3}{4}$ × 24 — 4 units = 24, 1 unit = $\frac{24}{4}$ = 6, 3 units = 3 × 6 = 18

d. $\frac{3}{8}$ × 24 — 8 units = 24, 1 unit = 24 ÷ 8 = $\frac{24}{8}$ = 3, 3 units = 3 × 3 = 9

e. $\frac{4}{5}$ × 25 — 5 units = 25, 1 unit = $\frac{25}{5}$ = 5, 4 units = 4 × 5 = 20

f. $\frac{1}{7}$ × 140 — 7 units = 140, 1 unit = $\frac{140}{7}$ = 20

g. $\frac{1}{4}$ × 9 — 4 units = 9, 1 unit = $\frac{9}{4}$ = $2\frac{1}{4}$

h. $\frac{2}{5}$ × 12 — 5 units = 12, 1 unit = $\frac{12}{5}$ = $2\frac{2}{5}$, 2 units = $2\frac{2}{5}$ + $2\frac{2}{5}$ = $4\frac{4}{5}$

i. $\frac{2}{3}$ of a number is 10. What's the number? — 2 units = 10, 1 unit = $\frac{10}{2}$ = 5, 3 units = 3 × 5 = 15. The number is 15.

j. $\frac{3}{4}$ of a number is 24. What's the number? — 3 units = 24, 1 unit = $\frac{24}{3}$ = 8, 4 units = 4 × 8 = 32. The number is 32.

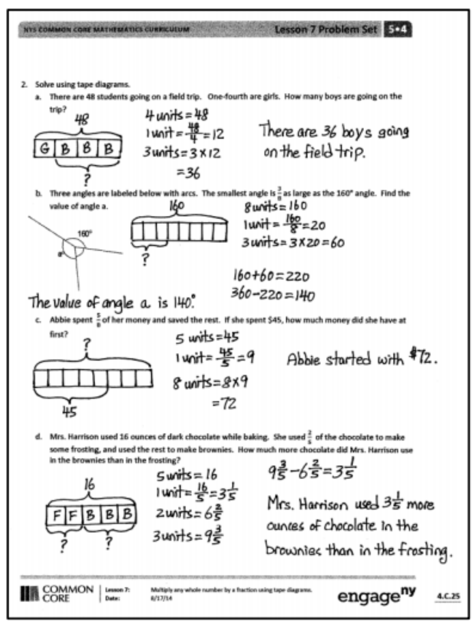
COMMON CORE Lesson 7: Multiply any whole number by a fraction using tape diagrams. engage^ny 4.C.24

Student Debrief (10 minutes)

Lesson Objective: Multiply any whole number by a fraction using tape diagrams.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 7 Problem Set 5•4

2. Solve using tape diagrams.

a. There are 48 students going on a field trip. One-fourth are girls. How many boys are going on the trip?
4 units = 48, 1 unit = $\frac{48}{4}$ = 12, 3 units = 3 × 12 = 36. There are 36 boys going on the field trip.

b. Three angles are labeled below with arcs. The smallest angle is $\frac{3}{8}$ as large as the 160° angle. Find the value of angle a.
8 units = 160, 1 unit = $\frac{160}{8}$ = 20, 3 units = 3 × 20 = 60. 160 + 60 = 220, 360 − 220 = 140. The value of angle a is 140°.

c. Abbie spent $\frac{5}{8}$ of her money and saved the rest. If she spent \$45, how much money did she have at first?
5 units = 45, 1 unit = $\frac{45}{5}$ = 9, 8 units = 8 × 9 = 72. Abbie started with \$72.

d. Mrs. Harrison used 16 ounces of dark chocolate while baking. She used $\frac{2}{5}$ of the chocolate to make some frosting, and used the rest to make brownies. How much more chocolate did Mrs. Harrison use in the brownies than in the frosting?
5 units = 16, 1 unit = $\frac{16}{5}$ = $3\frac{1}{5}$, 2 units = $6\frac{2}{5}$, 3 units = $9\frac{3}{5}$. $9\frac{3}{5}$ − $6\frac{2}{5}$ = $3\frac{1}{5}$. Mrs. Harrison used $3\frac{1}{5}$ more ounces of chocolate in the brownies than in the frosting.

COMMON CORE Lesson 7: Multiply any whole number by a fraction using tape diagrams. engage^ny 4.C.25

Any combination of the questions below may be used to lead the discussion.

- What pattern relationships did you notice between Problems 1(a) and 1(b)? (The whole of 36 is twice as much as the whole of 18. 1 third of 36 is twice as much as 1 third of 18. 12 is twice as much as 6.)
- What pattern did you notice between Problems 1(c) and 1(d)? (The wholes are the same. The fraction of 3 eighths is half of 3 fourths. That is why the answer of 9 is also half of 18.)
- Look at Problems 1(e) and 1(f). We know that 4 fifths and 1 seventh aren't equal, so how did we get the same answer?

- Compare Problems 1(c) and 1(j). How are they similar, and how are they different? (The questions involve the same numbers, but in Problem 1(c), 3 fourths is the unknown quantity, and in Problem 1(j), it is the known quantity. In Problem 1(c), the whole is known, but in Problem 1(j), the whole is unknown.)
- How did you solve for Problem 2(b)? Explain your strategy or solution to a partner.
- There are a couple of different methods to solve Problem 2(c). Find someone who used a different approach from yours, and explain your thinking.

Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

Name ________________________________ Date ______________

1. Solve using a tape diagram.

a. $\frac{1}{3}$ of 18

b. $\frac{1}{3}$ of 36

c. $\frac{3}{4} \times 24$

d. $\frac{3}{8} \times 24$

e. $\frac{4}{5} \times 25$

f. $\frac{1}{7} \times 140$

g. $\frac{1}{4} \times 9$

h. $\frac{2}{5} \times 12$

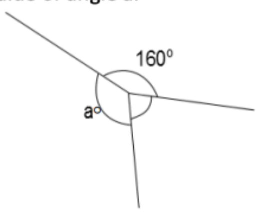
i. $\frac{2}{3}$ of a number is 10. What's the number?

j. $\frac{3}{4}$ of a number is 24. What's the number?

2. Solve using tape diagrams.

   a. There are 48 students going on a field trip. One-fourth are girls. How many boys are going on the trip?

   b. Three angles are labeled below with arcs. The smallest angle is $\frac{3}{8}$ as large as the 160° angle. Find the value of angle a.



   c. Abbie spent $\frac{5}{8}$ of her money and saved the rest. If she spent $45, how much money did she have at first?

   d. Mrs. Harrison used 16 ounces of dark chocolate while baking. She used $\frac{2}{5}$ of the chocolate to make some frosting and used the rest to make brownies. How much more chocolate did Mrs. Harrison use in the brownies than in the frosting?

Name ______________________________ Date ____________

Solve using a tape diagram.

a. $\frac{3}{5}$ of 30

b. $\frac{3}{5}$ of a number is 30. What's the number?

c. Mrs. Johnson baked 2 dozen cookies. Two-thirds of the cookies were oatmeal. How many oatmeal cookies did Mrs. Johnson bake?

Name ______________________________ Date ______________

1. Solve using a tape diagram.

a. $\frac{1}{4}$ of 24

b. $\frac{1}{4}$ of 48

c. $\frac{2}{3} \times 18$

d. $\frac{2}{6} \times 18$

e. $\frac{3}{7} \times 49$

f. $\frac{3}{10} \times 120$

g. $\frac{1}{3} \times 31$

h. $\frac{2}{5} \times 20$

i. $\frac{1}{4} \times 25$

j. $\frac{3}{4} \times 25$

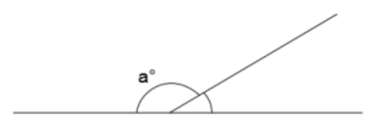
k. $\frac{3}{4}$ of a number is 27. What's the number?

l. $\frac{2}{5}$ of a number is 14. What's the number?

2. Solve using tape diagrams.

   a. A skating rink sold 66 tickets. Of these, $\frac{2}{3}$ were children's tickets, and the rest were adult tickets. What total number of adult tickets were sold?

   b. A straight angle is split into two smaller angles as shown. The smaller angle's measure is $\frac{1}{6}$ that of a straight angle. What is the value of angle a?



   c. Annabel and Eric made 17 ounces of pizza dough. They used $\frac{5}{8}$ of the dough to make a pizza and used the rest to make calzones. What is the difference between the amount of dough they used to make pizza and the amount of dough they used to make calzones?

   d. The New York Rangers hockey team won $\frac{3}{4}$ of their games last season. If they lost 21 games, how many games did they play in the entire season?

Key Takeaway:
Conducting observations in classrooms allows the mentor to collect non-judgemental data on student and teacher actions.

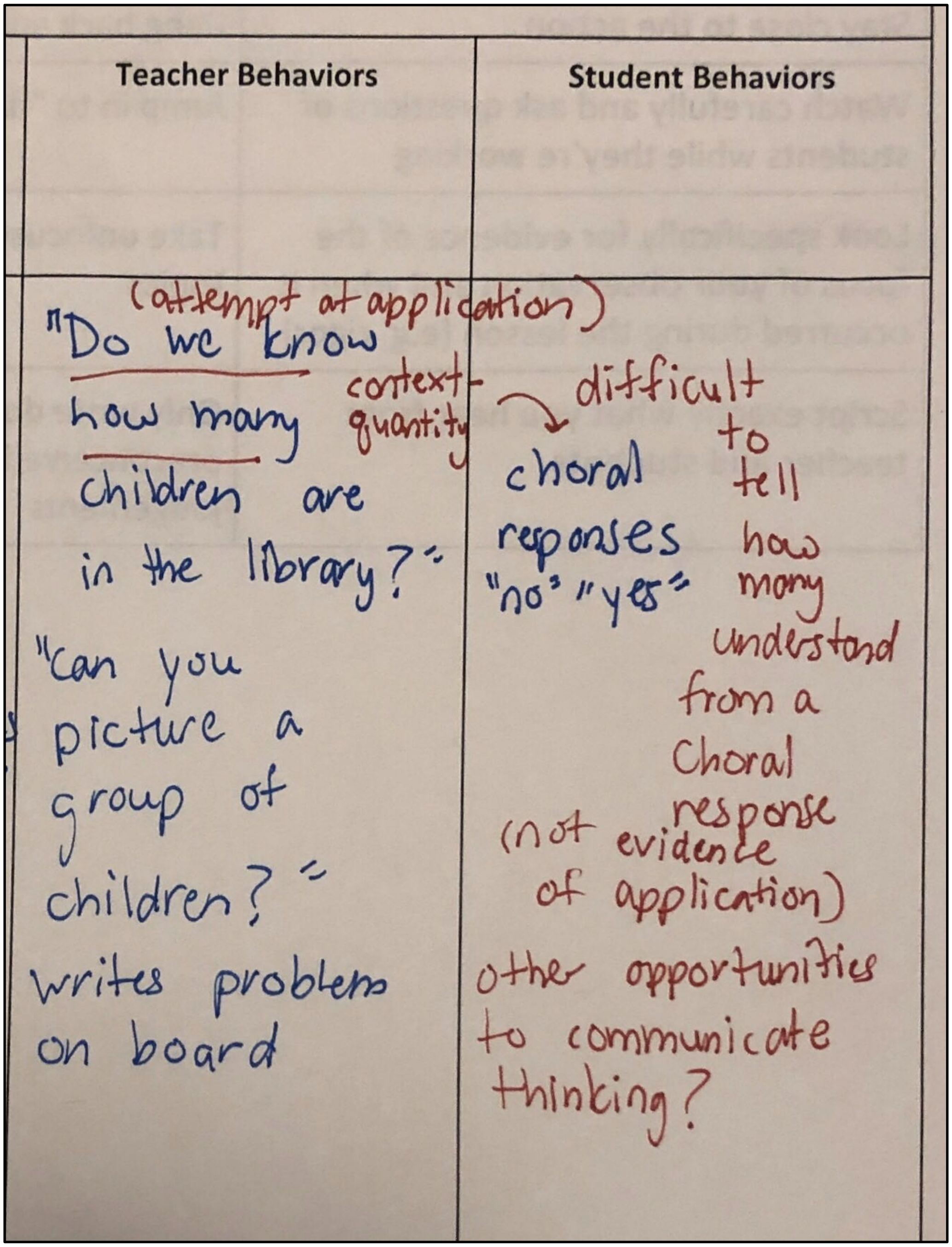
Analyze Observation Data: 3 Key Components

- Analyze observation notes
- Recognize strengths and areas for growth
- Prioritize

Analyze Observation Notes

- Keep the focus of the observation in mind
- Look for evidence or lack of evidence of the focus
- Highlight and make notes in another color with that lens

Sample Analyzed Notes



Teacher Behaviors	Student Behaviors
"Do we know how many children are in the library?" (attempt at application) context-quantity →	choral responses "no" "yes" — difficult to tell how many understand from a choral response (not evidence of application)
"Can you picture a group of children?"	other opportunities to communicate thinking?
writes problems on board	

What did this mentor notice when they analyzed their notes?

How might this help them prepare to support their mentee?

Analyze Observation Data

Strengths: What was effective about the lesson in regards to the focus area? In which "look fors" did the observee excel? What specific actions did the observee take that enabled them to be successful in the focus area? What specifically were the students able to do as a result of those actions?	**Areas for Growth:** What was ineffective about the lesson in regards to the focus area? Which "look fors" is the observee trying and on the verge of doing? Which "look fors" is the observee ready to try next? Where are there areas of missed opportunity?	**Prioritize One Area for Growth:** In your opinion, which area for growth could have the biggest impact on the observee and their students? What might you recommend the observee change or modify in their focus area based on your observation? What big takeaway do you hope the observee gains as a result of the debrief conversation?
1.	1.	
2.	2.	
3.	3.	

Key Takeaway:
Analyzing observation data helps the mentor identify areas of strength and the greatest area for growth so they can prepare to support their mentee in growing their practice.

Exit Card:
1. Before I thought… and now I think….
2. The most useful thing from today for my own teaching is…
3. The most important from today for me to remember about working with my mentee is…

Please complete the Module 1-2 Survey at the following link:

https://bit.ly/2wnqdiC