

Supporting STAAR™ Achievement: Targeting the TEKS and Readiness

Standards

Grade 3 Mathematics

Teacher Edition

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SAMPLE

What is *Supporting STAARTM Achievement: Targeting the TEKS and Readiness Standards?*

1

A resource that focuses on the TEKS identified as readiness standards while integrating appropriate supporting standards and mathematical processes and skills

2

A resource that provides opportunities for rigorous mathematical conversations while providing supports for students at varying levels of readiness

3

A resource that provides supports for English language learners and students struggling to learn mathematics through Tier I differentiated activities, pre-teaching experiences, scaffolds for activities such as hint cards and graphic organizers, and facilitation questions

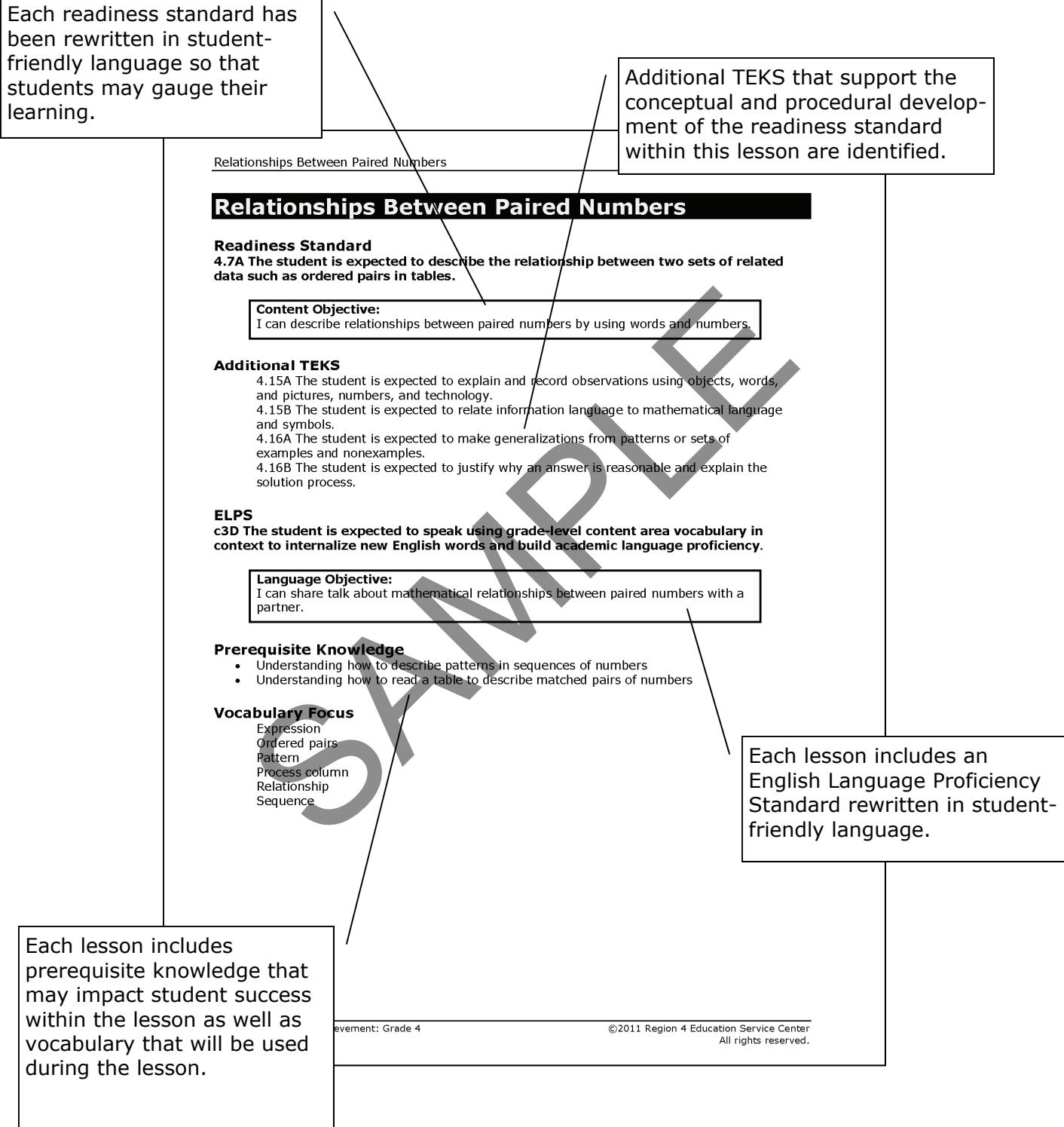
4

A resource that supports beginning as well as experienced teachers through clear instructions and facilitation questions that focus on potential stumbling blocks for students in the effort to bridge to formal understandings of mathematics

5

A resource of classroom-ready 5E lessons. The Engage phase of each lesson consists of a student-centered activity that either bridges from students' prior knowledge or encourages interest in deeper exploration of the concepts in the lesson. The Explore phase of each lesson provides students with an opportunity to "do mathematics" and begin to formulate ideas and conjectures. In the Explain phase of each lesson, students formalize the mathematical ideas from the Explore phase with a focus on academic vocabulary, as well as procedures related to the concepts. The Elaborate phase of each lesson allows students to apply or extend their understanding of the concepts in the lesson. The Evaluate phase consists of four selected-response or griddable items that can be used to assess student understanding.

What is in a lesson found in *Supporting STAAR™ Achievement: Targeting the TEKS and Readiness Standards?*



What is in a lesson found in *Supporting STAAR™ Achievement: Targeting the TEKS and Readiness Standards?*

Materials for each phase are summarized on one page for ease in preparation.

Grouping strategies for each phase are summarized to assist in the arrangement of the classroom.

Relationships Between Paired Numbers

Notes:

- Read and select Facilitation Questions as appropriate to meet your students' needs.

Pre-Teach	Materials	Instructional Grouping
	◆ Pattern Cards (1 set per student, cut) ◆ Table Patterns	Small group with teacher facilitation

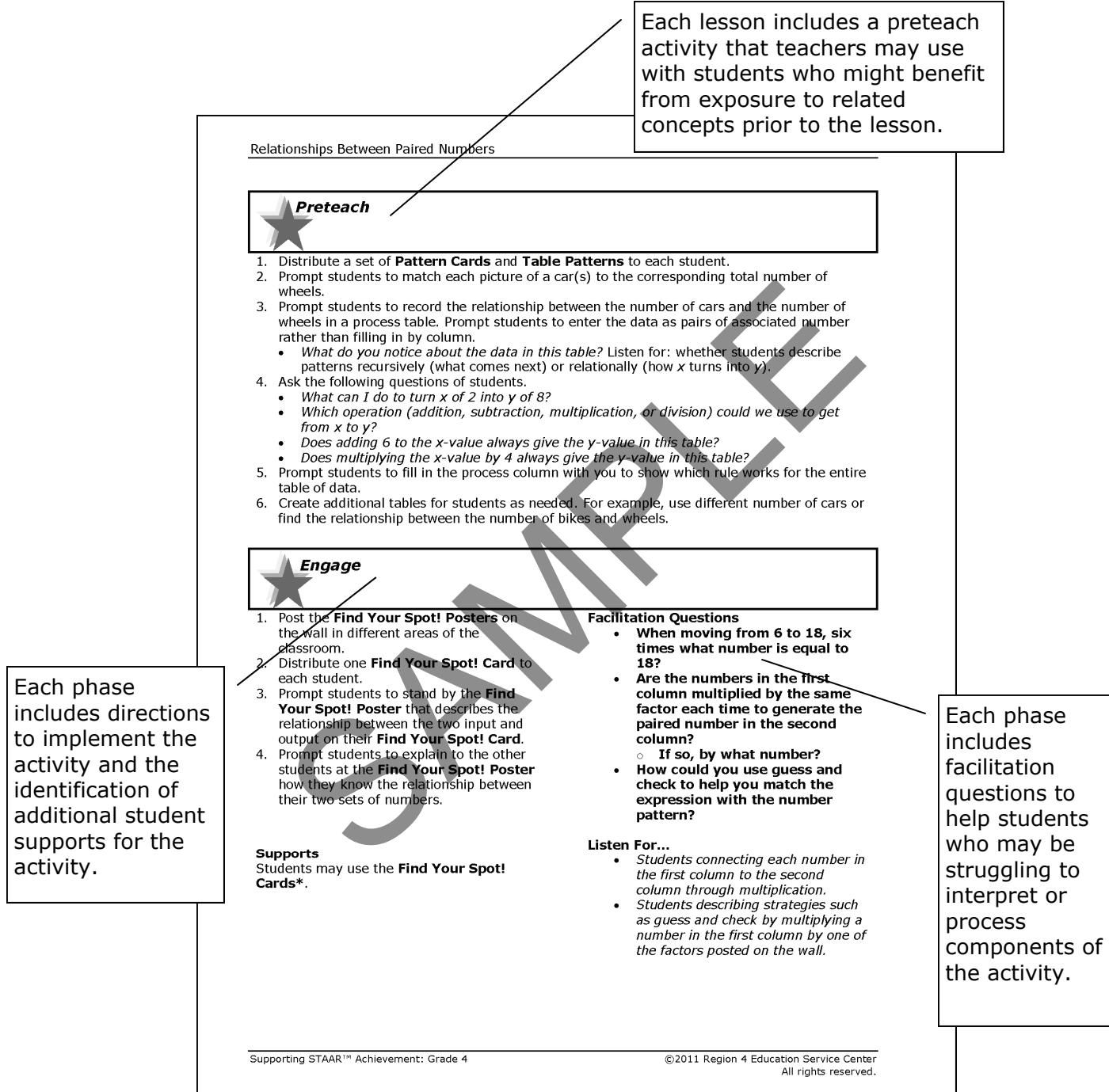
Phase	Materials <i>one per student unless otherwise noted</i>	Instructional Grouping
Engage	◆ Find Your Spot! Posters for display ◆ Find Your Spot! Cards (1 card per student, cut) ◆ Find Your Spot! Cards*(1 card per student, cut)	Whole-group discussion
Explore	◆ Party Patterns ◆ Description Cards ◆ Description Cards* ◆ Party Line Directions for display ◆ Scissors ◆ Glue or tape	Pairs of students
Explain	◆ Relationships Between Paired Numbers Notes	Whole-group discussion
Elaborate	◆ Round Robin: Patterns in Tables ◆ Hint Cards* (1 set per student, cut) ◆ Clocks with Gears Intervention ◆ Round Robin: Patterns in Tables ◆ Clocks with Gears	Groups of 4 students Small group with teacher facilitation
Evaluate	◆ Evaluate: Relationships Between Paired Numbers	Individual

The Elaborate phase has two concurrent components: a student-facilitated activity and a teacher-facilitated activity that focuses on the needs of students struggling with the content.

* for targeted students only

Materials that are provided as supports for students in need of additional help are labeled with an asterisk.

What is in a lesson found in *Supporting STAAR™ Achievement: Targeting the TEKS and Readiness Standards?*



What is in a lesson found in *Supporting STAAR™ Achievement: Targeting the TEKS and Readiness Standards?*

Titles of activity masters and student pages are printed in bold for ease of reference.

Relationships Between Paired Numbers

10. Prompt students to choose their own input and output values and record the process used to determine their answers in the table for the example of a multiplicative relationship.
11. Prompt students to compare their examples of multiplicative relationships.
12. Repeat the process for the example of an additive relationship.

Elaborate

1. Distribute a different problem from the **Round Robin: Patterns in Tables** to each member of the group.
2. Provide students a clock with gears to solve Problem C.
3. Prompt students to read the directions on the student page in order to complete the activity.
4. If a student appears to be struggling with **Round Robin: Patterns in Tables**, the student may use **Hint Cards*** to complete the activity independently or join the teacher-led intervention group.

Intervention

1. Distribute Problem A from **Round Robin: Patterns in Tables** to each student.
2. Read Problem A aloud to the students.
3. Ask, "What do you know about the problem?"
4. Ask, "What do you not know?"
5. Ask, "What is being compared in the problem?"
6. Prompt students to create a table in step one of **Round Robin: Patterns in Tables**.
 - a. If needed, display the tables from the **Party Patterns** recording sheets used during the Explore Phase to assist students in creating the table.
 - b. If needed, allow students to use a calculator to help generate the table.
7. As students work to create their tables, pose the following questions:
 - What headings or labels should you put in the table?
 - What information is given in the problem that needs to be included in the table?
8. Prompt students to pass their **Round Robin: Patterns in Tables** recording sheets to the right.
9. Explain that an expression uses numbers and symbols to represent the problem.
10. Ask, How could you write ("Ms. Sanchez placed 105 flowers into equal groups of 7") using numbers and symbols?
11. Prompt students to complete step two of **Round Robin: Patterns in Tables**.
12. Prompt students to pass their **Round Robin: Patterns in Tables** recording sheets to the right.
13. Ask, how could you use words to describe how to find (the number of rows Ms. Sanchez planted for 84 flowers)?
14. Prompt students to complete step three of **Round Robin: Patterns in Tables**.

The Tier I intervention provides instructions on how to make the mathematics content more explicit for students struggling with the concepts within the lesson. The activity is at the same rigor as the activity being completed by the students in a self-directed environment.

What is in a lesson found in *Supporting STAAR™ Achievement: Targeting the TEKS and Readiness Standards?*

Relationships Between Paired Numbers

15. Prompt students to pass their **Round Robin: Patterns in Tables** recording sheets to the right.
16. Prompt students to complete step four of **Round Robin: Patterns in Tables**.
17. Pose the following question:
 - How might a calculator help you determine if you agree or disagree with your group members?
18. Prompt the students to return the **Round Robin: Patterns in Tables** recording sheets to the owner.
19. Ask, "What relationships do you notice in the problem?"
20. If students demonstrate continued need for support, repeat this process for another problem on **Round Robin: Patterns in Tables**. If students appear ready to work with a partner or independently, allow the students to do so.
21. Provide students a clock with gears to solve Problem C.

Evaluate

Question Number	Correct Answer	Reporting Category	TEKS	TEKS	Conceptual Error	Procedural Error	Guess
1	C	2	4.7A	4.15A	A B D		
2	D	2	4.7A	4.16A	A C	B	
3	A	2	4.7A	4.16A	C D	B	
4	D	2	4.7A	4.15A	B	A C	

Each selected-response item is labeled with the STAAR™ reporting category, a content student expectation, and an underlying processes and tools student expectation as appropriate. Incorrect answer choices are classified according to type.

Fractions

Readiness Standard

3.2C The student is expected to use fraction names and symbols to describe fraction parts of whole objects or sets of objects.

Content Objective

I can describe fractional parts using fraction names and symbols.

Additional TEKS

3.2A The student is expected to construct concrete models of fractions.

3.2B The student is expected to compare fractional parts of whole objects or sets of objects in a problem situation using concrete models

3.14A The student is expected to identify the mathematics in everyday situations.

3.15B The student is expected to relate informal language to mathematical language and symbols.

3.16A The student is expected to make generalizations from patterns or sets of examples and nonexamples.

ELPS

c5B The student is expected to write using newly acquired basic vocabulary and content-based grade-level vocabulary.

Content Objective

I can draw models of fractions and explain the models using formal vocabulary.

Prerequisite Knowledge

- Understanding of parts of whole objects and how to represent part-to-whole relationships with a fraction
- Understanding of benchmarking fractions to zero, one half, and one whole

Vocabulary Focus

Denominator

Equal

Fraction

Numerator

Part

Whole

Notes

- Read and select facilitation questions as appropriate to meet your students' needs.

Preteach	Materials	Instructional Grouping
	<ul style="list-style-type: none"> ◆ Benchmark Cards ◆ Fraction circles 	Small group with teacher facilitation

Phase	Materials <i>one per student unless otherwise noted</i>	Instructional Grouping
Engage	<ul style="list-style-type: none"> ◆ Tic Tac Toe Activity Master ◆ Tic Tac Toe ◆ Tic Tac Toe Cards* 	Groups of 2–3 students
Explore	<ul style="list-style-type: none"> ◆ Create six workstations <ul style="list-style-type: none"> ◆ Fraction Workstation A: Workstation A Card, Workstation A Activity Master, crayons, scissors, and glue or tape ◆ Fraction Workstation B: Workstation B Card and crayons ◆ Fraction Workstation C: Workstation C Card, Workstation C Activity Master, crayons, scissors, and glue or tape ◆ Fraction Workstation D: Workstation D Card, Workstation D Activity Master, crayons, scissors, and glue or tape ◆ Fraction Workstation E: Workstation E Card and crayons ◆ Fraction Workstation F: Workstation F Card and crayons ◆ Fraction Workstations ◆ Fraction Workstations* ◆ Fraction Workstation C Activity Master* 	Individual or pairs of students
Explain	<ul style="list-style-type: none"> ◆ Fractions Notes 	Whole-group discussion
Elaborate	<ul style="list-style-type: none"> ◆ Desktop Travels Directions ◆ Desktop Travels Cards ◆ Desktop Travels <p>Intervention</p> <ul style="list-style-type: none"> ◆ Desktop Travels* 	Independent Small group with teacher facilitation
Evaluate	<ul style="list-style-type: none"> ◆ Evaluate: Fractions 	Individual

* for targeted students only



Preteach

1. Guide the students through the following activity.
2. Prompt students to use fraction circles to model the relationship described on each **Benchmark Card**. Listen for students describing the number of pieces needed to make a whole and the number of those pieces needed to represent the numerator.
 - *How could you use the fraction circles to represent the "out of two equal parts" in "one out of two equal parts"?*
 - *How could you use fraction circles to represent the "one" in "one out of two equal parts"?*
3. Prompt the students to write a fraction to represent the model. Listen for students connecting the numbers in the numerator and denominator to the model.
 - *What numbers will you need to represent this fraction?*
 - *Which number belongs in the denominator of the fraction?*
 - *Which number belongs in the numerator of the fraction?*
4. Prompt the students to say if the fraction is closer to zero or closer to one. Listen for students comparing the fraction models.
 - *What would the fraction look like if it represented zero?*
 - *What would the fraction look like if it represented one-half?*
 - *What would the fraction look like if it represented the whole?*



Engage

1. Provide one **Tic Tac Toe Activity Master** to each pair of students.
2. Prompt each pair of students to choose and complete three activities from the **Tic Tac Toe Activity Master**. The three activities must be from the same horizontal row, vertical row, or diagonal row.

Supports

Provide students with the **Tic Tac Toe Cards*** that correspond with the three problems chosen.

Facilitation Questions

- **Look at the denominators of the two fractions. What is the same about the two fractions that you wrote?**
- **Look at the numerators of the two fractions. What is different about the two fractions that you wrote?**
- **Into how many parts is the figure divided?**
 - **How many parts are shaded? Not shaded?**
 - **How could you use the number of total parts, parts shaded, and parts not shaded to help you write a fraction?**
- **Which number, five or seven, represents the whole set?**
 - **Which number, five or seven, represents part of the set?**
- **Where could you place a point on the number line that represents half of the segment?**
- **How could you use the one-half mark to help you represent a fraction that is closer to zero than it is to one?**

- How could a number line help you to determine which fraction is closest to $\frac{1}{2}$?

Listen for . . .

- Students connecting the numbers in the numerator to the number of described pieces and the denominator to the number of equal-sized portions of the whole or set.
- Students comparing fraction models to zero, half, and whole.

Explore

1. Set up workstations using the **Fraction Workstation Cards**.
2. Prompt the students to complete the activity at each station and to rotate between the stations.
3. Upon completion, debrief with the following questions:
 - How could you define the whole in each situation?
 - What part of the fraction represents the whole?
4. How could you determine from the problem situation which number belongs as the numerator of your fraction?

Supports

Provide students with **Fraction Workstations*** and **Fraction Workstation C Activity Master**.

Facilitation Questions*Fraction Workstation A*

- How many apples did Mrs. Jordan have in her basket?
- How many of the apples were green?
- How could you determine the number of apples that were red?

Fraction Workstation B

- How could the denominator of the fraction help you decide how to divide the segment into equal parts?
- What does the numerator describe? How could you represent that on a number line?

Fraction Workstation C

- How many parts are shown on the paper strip?
- How many parts does the denominator of the fraction tell you the strip needs to be divided into?
- What is 20 divided by 10?
- How could you use that relationship to help you divide the strip into ten equal parts?

Fraction Workstation D

- What is the total number of color tiles that Junessa pulled from her drawer?
- How many color tiles make a pair of color tiles?

Fraction Workstation E

- How could you use the model to represent the four out of eight parts of the bulletin board that are green?

- How could you determine the number of parts that are yellow?

Fraction Workstation F

- How could you use a model to represent the denominator? Numerator?
- What part of the model represents the section without cheese? How could you write that as a fraction?

Listen for . . .

- Students connecting the model to the problem.
- Students describing the denominator as the total number of equal parts.
- Students connecting the model to the numbers in the numerator and denominator.

**Explain**

1. During this phase of the lesson, students should complete **Fractions Notes**.
2. Prompt students to look at **Fraction Workstations**. Prompt students to identify the whole set or whole object.
3. Prompt students to identify the various parts of the sets or whole objects. Listen for students describing the whole set or object as all of the color tiles, all of the apples, all of the race, etc.; and students describing the parts of the sets or objects as the part of the set of apples that are green, the part of the race completed, the part of the casserole that had cheese, etc.
 - How many color tiles represent the part of the set that is blue?
 - How many equal parts of the casserole represent the part of the casserole that does not have cheese?
 - How many equal parts of the paper strip represent the part of the paper strip that is green?
4. Prompt students to make generalizations about the numbers used for each of the models. Listen for students connecting the numerators and denominators to the models.
 - What part of the model represents the numerator?
 - What part of the model represents the denominator?
5. Prompt students to record their definition of denominator and illustrate an example of denominator on **Fractions Notes**.
6. Prompt students to record their definition of numerator and illustrate an example of numerator on **Fractions Notes**.
7. Prompt students to record a picture or description of a personal association for numerator and denominator on **Fractions Notes**.



Elaborate

1. Display **Desktop Travels** Directions.
2. Place the **Desktop Travels** Cards around the classroom.
3. Provide students with **Desktop Travels**.
4. Prompt pairs of students to complete **Desktop Travels**.
5. If a student appears to be struggling with **Desktop Travels**, the student may use **Desktop Travels*** to complete the activity.

Intervention

1. Allow students to use **Desktop Travels*** to help record their statements.
2. Rotate among the groups and pose the following questions to students in need of assistance.
 - How could you name the whole set of objects?
 - Into how many parts is the segment divided?
 - How many parts are shaded? Not shaded?
 - How could you use words to describe the shaded region and the not-shaded region?



Evaluate

Question Number	Correct Answer	Reporting Category	TEKS	TEKS	Conceptual Error			Procedural Error			Guess
1	B	1	3.2C	3.16A	A	C	D				
2	C	1	3.2C	3.14A	A	B					D
3	D	1	3.2C	3.15B	A	B	C				
4	A	1	3.2C	3.16A	B	C	D				

Fraction Workstations (Answer Key)

Workstation A

Picture (apples)



Words

Three out of seven apples are red.
Four out of seven apples are green.

Fraction

Green:

$$\frac{4}{7}$$

Fraction

Red:

$$\frac{3}{7}$$

Workstation B

Picture



Fractions

Part of the race completed at the water station:

$$\frac{2}{3}$$

Part of the race left to complete after the water station:

$$\frac{1}{3}$$

Fraction Workstations (Answer Key)

Workstation C

Picture (paper strip)



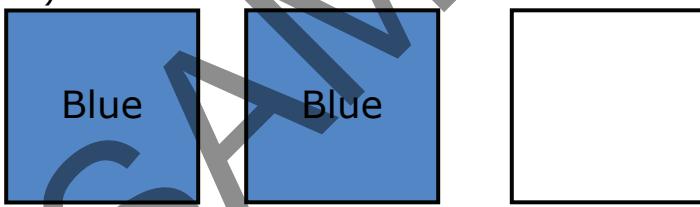
Fractions

Boys: $\frac{6}{10}$

Girls: $\frac{4}{10}$

Workstation D

Picture (color tiles)



Words

**Two out of three color tiles are blue.
One out of three color tiles are not blue.**

Fraction

Blue: $\frac{2}{3}$

Fraction

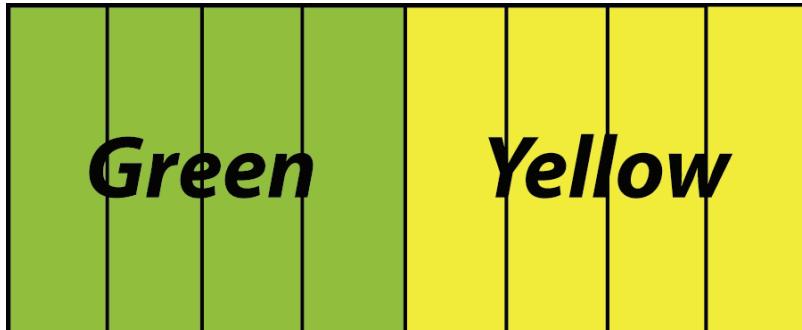
Not blue: $\frac{1}{3}$

Fraction Workstations (Answer Key)

Workstation E

Picture

Mr. Terrell's Bulletin Board



Fraction

Part of the bulletin board that is green:

$$\frac{4}{8}$$

Fraction

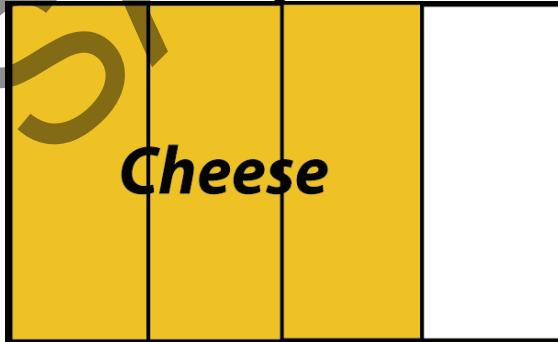
Part of the bulletin board that is yellow:

$$\frac{4}{8}$$

Workstation F

Picture

Mrs. Jennings' Casserole



Fraction

Cheese: $\frac{3}{4}$

Fraction

No cheese: $\frac{1}{4}$

Fraction Workstations*

Work Station A

Picture (apples)

Words

_____ out of _____ apples are green.
_____ out of _____ apples are red.

Fraction

Green:

$$\frac{\square}{7}$$

Fraction

Red:

$$\frac{\square}{7}$$

Work Station B

Picture



Fractions

Part of the race completed at the water station:

$$\frac{\square}{3}$$

Part of the race left to complete after the water station:

$$\frac{\square}{3}$$

Name: _____

Fractions

Fraction Workstations*

Work Station C

Picture (paper strip)

Fractions

Boys: $\frac{\square}{7}$

Girls: $\frac{\square}{7}$

Work Station D

Picture (color tiles)

Words

_____ out of _____ color tiles are blue.

_____ out of _____ color tiles are **NOT** blue.

Fraction

Blue: $\frac{\square}{3}$

Fraction

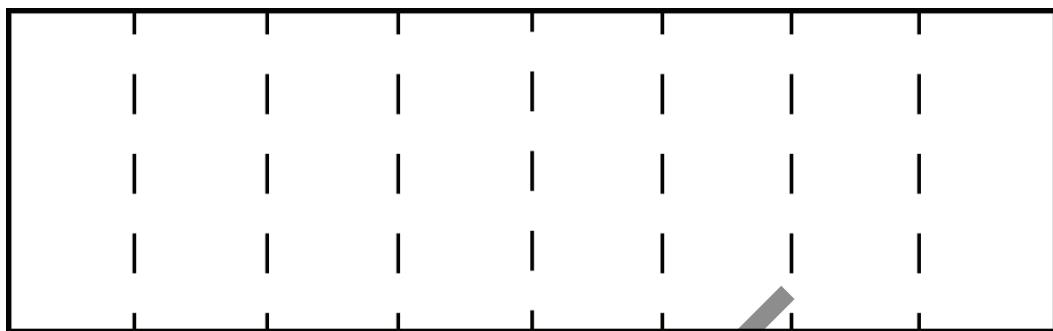
NOT blue: $\frac{\square}{3}$

Fraction Workstations*

Work Station E

Picture

Mr. Terrell's Bulletin Board



Fraction

Part of the bulletin board that is green:



Fraction

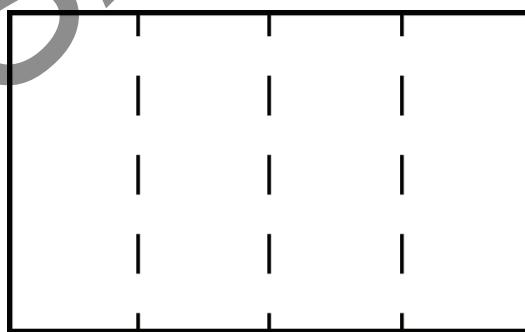
Part of the bulletin board that is yellow:



Work Station F

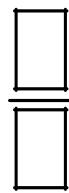
Picture

Mrs. Jennings' Casserole



Fraction

Cheese:



Fraction

No cheese:



Desktop Travels (Answer Key)**Card 1**

Statement 1: $\frac{4}{6}$ of the parts are shaded.

Statement 2: $\underline{\frac{2}{6}}$ parts are **NOT** shaded.

Card 2

Statement 1: $\frac{3}{5}$ of the pets are fish.

Statement 2: $\underline{\frac{2}{5}}$ of the pets are birds.

Card 3

Statement 1: $\frac{12}{24}$ of the parts are shaded or $\frac{1}{2}$ of the parts is shaded.

Statement 2: $\underline{\frac{12}{24}}$ of the parts are **NOT** shaded or $\frac{1}{2}$ parts is **NOT** shaded.

Card 4

Statement 1: $\frac{1}{5}$ of the parts is shaded.

Statement 2: $\underline{\frac{4}{5}}$ of the parts are **NOT** shaded.

Card 5

Statement 1: $\frac{5}{7}$ of the animals are frogs.

Statement 2: $\underline{\frac{2}{7}}$ of the animals are turtles.

Card 6

Statement 1: $\frac{1}{3}$ of the line segment is shaded.

Statement 2: $\underline{\frac{2}{3}}$ of the line segment is **NOT** shaded.

Desktop Travels***Card 1**

Statement 1: $\frac{\text{ }}{\text{ }}$ of the parts are shaded.



Statement 2: $\frac{\text{ }}{\text{ }}$ of the parts are **NOT** shaded.

Card 2

Statement 1: $\frac{\text{ }}{\text{ }}$ of the pets are fish.



Statement 2: $\frac{\text{ }}{\text{ }}$ of the pets are birds.

Card 3

Statement 1: $\frac{\text{ }}{\text{ }}$ of the rectangle is shaded.



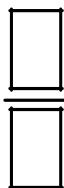
Statement 2: $\frac{\text{ }}{\text{ }}$ of the rectangle is **NOT** shaded.

Desktop Travels***Card 4**

Statement 1: $\frac{\square}{\square}$ of the parts is shaded.



Statement 2: $\frac{\square}{\square}$ of the parts are **NOT** shaded.

Card 5

Statement 1: $\frac{\square}{\square}$ of the animals are frogs.



Statement 2: $\frac{\square}{\square}$ of the animals are turtles.

Card 6

Statement 1: $\frac{\square}{\square}$ of the line segment is shaded.



Statement 2: $\frac{\square}{\square}$ of the line segment is **NOT** shaded.