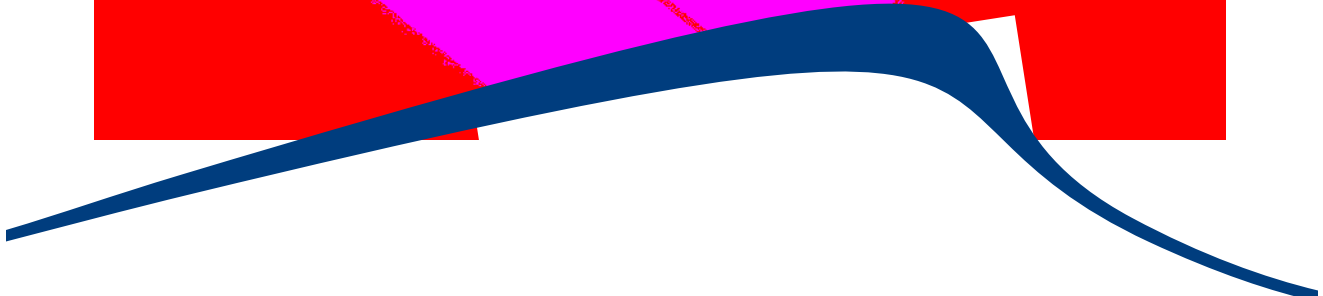
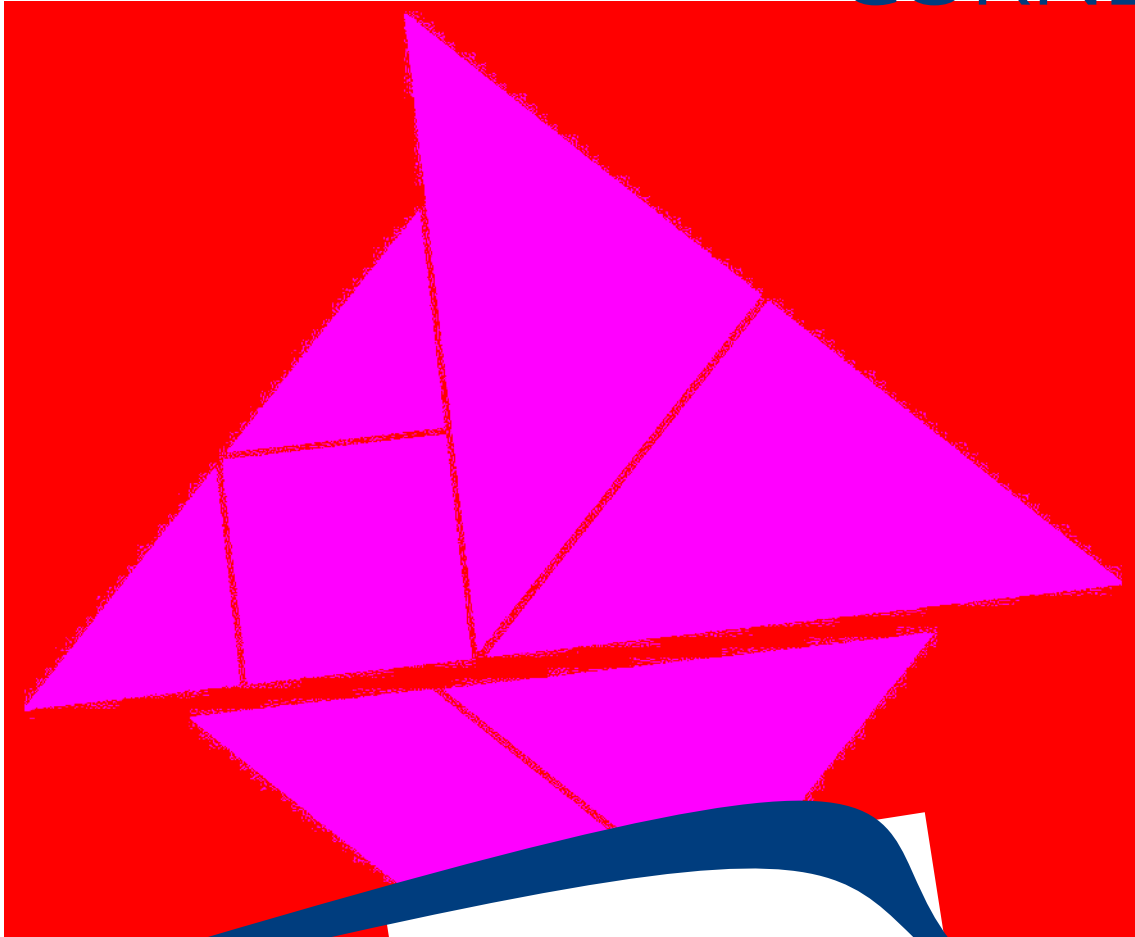


**NUMBER**<sup>®</sup>  
**CORNER**



SECOND EDITION

# TEACHERS GUIDE

APRIL

GRADE

**3**

*Published by*



The MATH LEARNING CENTER *Salem, Oregon*

# Number Corner April

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# April Sample Display

Of the items shown below, some are ready-made and included in your kit; you'll prepare others from classroom materials and the included teacher masters. Refer to the Preparation section in each workout for details about preparing the items shown. The display layout shown fits on a 10' x 4' bulletin board or on two 6' x 4' bulletin boards. Other configurations can be used according to classroom needs. If you have extra space to work with, a Number Corner header may be made from bulletin board letters, student-drawn letters, or other materials.

**Calendar Grid Observations**

| Date | Description of Part and Whole                                     | Fraction          | Observations  |
|------|---|-------------------|---|
| 1    | 2 out of 12 tiles are red.  | $\frac{2}{12}$    | less than half are red.                                       |
| 2    | There's 1 pizza on the pan. There were 5 pizzas in the whole pan. | $\frac{1}{5}$     | There were 5 pizzas. 5 are gone.                              |
| 3    | 1.0 months are filled in. There are 6.0 months in all.            | $\frac{1.0}{6.0}$ | There are 12 months around the clock and it's filled in to 2. |

**Fractions of an Hour Record Sheet**

| Date | What was spun? | Number of Minutes | Fraction of an hour | Total Minutes Collected | Hours and Minutes Collected or Mixed Number |
|------|----------------|-------------------|---------------------|-------------------------|---|
| 1    | 3              | 90                | $\frac{30}{60}$     | 140                     | $2\frac{20}{60}$                            |
| 2    | 1              | 30                | $\frac{10}{60}$     | 120                     | 2 hours, 00                                 |
| 3    | 2              | 60                | $\frac{20}{60}$     | 180                     | 3 hours, 00                                 |

**Calendar Collector Collection & Record Sheet**

| Date | What was spun? | Number of Minutes | Fraction of an hour | Total Minutes Collected | Hours and Minutes Collected or Mixed Number |
|------|----------------|-------------------|---------------------|-------------------------|---|
| 1    | 3              | 90                | $\frac{30}{60}$     | 140                     | $2\frac{20}{60}$                            |
| 2    | 1              | 30                | $\frac{10}{60}$     | 120                     | 2 hours, 00                                 |
| 3    | 2              | 60                | $\frac{20}{60}$     | 180                     | 3 hours, 00                                 |

## Calendar Grid Pocket Chart

Remember to consult a calendar for the starting day of this month and year.

## Calendar Grid Observations Chart

You might use 24" x 36" chart paper. If you laminated a sheet in previous months, you can erase and reuse it now.

## Calendar Collector Collection & Record Sheet

Students will spin for and collect fractions of an hour in this month's Calendar Collector. See the Preparation section of the workout for details.

# April Daily Planner

| Day | Date | Calendar Grid  | Calendar Collector   | Computational Fluency   | Number Line   | Solving Problems  |
|-----|------|--|--|---|---|---|
| 1   |      | <b>Activity 1</b> Introducing the Calendar Grid Markers (p. 7)   |  |   |   |   |
| 2   |      | Update   | <b>Activity 1</b> Collecting Half-Hours (p. 14)                  |   |   |   |
| 3   |      | Update   | Update   | <b>Activity 1</b> Introducing Quick Facts (p. 21)                 |   |   |
| 4   |      | Update   | Update   |   | <b>Activity 1</b> Introducing Put It on the Line (p. 30)            |   |
| 5   |      | Update   | Update   |   |   | <b>Activity 1</b> Solving & Discussing Problems (p. 37) |
| 6   |      | <b>Activity 2</b> Representing Fractions on a Number Line (p. 9) | Update   |   |   |   |
| 7   |      | Update   | Update   | <b>Activity 2</b> Multiplication & Division Fact Families (p. 23) |   |   |
| 8   |      | Update   | <b>Activity 2</b> Collecting Quarter-Hours (p. 16)               |   |   |   |
| 9   |      | Update   | Update   |   |   | <b>Activity 1</b> Solving & Discussing Problems (p. 37) |
| 10  |      | Update   | Update   |   | <b>Activity 2</b> Playing Put It on the Line as a Class (p. 33)     |   |
| 11  |      | <b>Activity 3</b> Making Observations & Predictions (p. 11)      | Update   |   |   |   |
| 12  |      | Update   | Update   | <b>Activity 3</b> Rows & Columns Multiplication Game (p. 25)      |   |   |
| 13  |      | Update   | Update   |   | <b>Activity 3</b> Playing Put It on the Line with a Partner (p. 35) |   |
| 14  |      | Update   | Update   |   |   | <b>Activity 1</b> Solving & Discussing Problems (p. 37) |
| 15  |      | Update   | <b>Activity 3</b> Collecting Thirds of an Hour (p. 17)           |   |   |   |
| 16  |      | Update   | Update   | <b>Activity 4</b> The Associative Property (p. 27)                |   |   |
| 17  |      | <b>Activity 4</b> Looking at Thirds (p. 12)                      | Update   |   |   |   |
| 18  |      | Update   | Update   | <b>Activity 3</b> Rows & Columns Multiplication Game (p. 25)      |   |   |
| 19  |      | Update   | Update   |   |   | <b>Activity 1</b> Solving & Discussing Problems (p. 37) |
| 20  |      | Update   | <b>Activity 4</b> Solving Fractional Time Story Problems (p. 18) |   |   |   |

**Note** The Calendar Grid and Calendar Collector are updated by student helpers, except when the workout is the subject of an activity. Computational Fluency, Number Line, and Solving Problems do not have updates. Update routines are explained in detail in the workout text. Summaries of the update routines appear below.

**Calendar Grid** – The student helper posts one or more calendar markers so that the Calendar Grid is complete up to the current date. After the Observations Chart is posted, the student will update the chart as well.

**Calendar Collector** – The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

# Number Corner

## April

### Overview

Three workouts this month address key skill and concepts for fractions, while the other two workouts address multiplication and division. The workouts help students develop strategies and understanding through the use of models, discussion, hands-on activities, games, and reflection, and problem solving. Students extend and deepen the work they have been doing with fractions, multiplication, and division all year.

### Activities

| Workouts   | Day          | Activities                                  | D | G | SB |
|--|--------------|---|---|---|----|
| <b>Calendar Grid</b> More Equivalent Fractions<br>The pattern features twelfths and sixths shown as parts of a rectangular array, pizza, clock face, egg carton, and ruler. Students explore equivalent fractions.   | 1            | 1 Introducing the Calendar Grid Markers     | ● |   |    |
|  | 6            | 2 Representing Fractions on a Number Line   | ● |   |    |
|  | 11           | 3 Making Observations & Predictions         | ● |   |    |
|  | 17           | 4 Looking at Thirds                         | ● |   | ●  |
| <b>Calendar Collector</b> Collecting Fractions of an Hour<br>Students collect fractions of an hour and determine the amount collected in both minutes and hours and minutes.   | 2            | 1 Collecting Half-Hours                     | ● |   |    |
|  | 8            | 2 Collecting Quarter-Hours                  | ● |   |    |
|  | 15           | 3 Collecting Thirds of an Hour              | ● |   |    |
|  | 20           | 4 Solving Fractional Time Story Problems    | ● |   | ●  |
| <b>Computational Fluency</b> Quick Facts & Games<br>This month, students learn the Quick Facts routine, which helps them track their progress with multiplication facts to $10 \times 10$ . After the first activity, they do the routine at the beginning of each subsequent activity before playing a multiplication game. Students also work with fact families and the associative property this month.                            | 3            | 1 Introducing Quick Facts                   | ● |   |    |
|  | 7            | 2 Multiplication & Division Fact Families   | ● |   | ●  |
|  | 12, 18       | 3 Rows & Columns Multiplication Game        | ● | ● | ●  |
|  | 16           | 4 The Associative Property                  | ● |   | ●  |
| <b>Number Line</b> Put It on the Line<br>Students play a version of the game Put It on the Line that focuses on fractions. They solve problems and put the answers on a 0 to 1 number line. Their answers become their score. They play the game three times, each time with a different game board that focuses on different sets of equivalent fractions.  | 4            | 1 Introducing Put It on the Line            | ● | ● |    |
|  | 10           | 2 Playing Put It on the Line as a Class     | ● | ● |    |
|  | 13           | 3 Playing Put It on the Line with a Partner | ● | ● | ●  |
| <b>Solving Problems</b> Multiplication & Division Practice<br>The Solving Problems workout this month gives students an opportunity to think about the properties of multiplication, the relationship between multiplication and division, and strategies for solving some of the more challenging multiplication combinations. This work supports and extends the Quick Facts routine featured in the Computational Fluency workouts. | 5, 9, 14, 19 | 1 Solving & Discussing Problems             | ● |   | ●  |

D – Discussion, G – Game, SB – Number Corner Student Book

## Teaching Tips

This month, students play many games which help reinforce skills and extend understanding. You can use games flexibly to meet the needs of your students. For example, the games in Computational Fluency may be great for some students but too easy for others. Provide students who need it with more challenge by using other games or investigations. They can play games they learned earlier in the year or adapt the games to make them more challenging.

When teaching games, take the opportunity to support students in developing good sportsmanship. Knowing how to win and lose is an important, lifelong skill. Note that there will be more games in May, so the time you take now may save time later.

If completing Number Corner Student Book pages in the time allowed is not feasible, you can have students complete only the problems that would benefit them the most or assign them for homework.

## Target Skills

The table below shows the major skills and concepts addressed this month. It is meant to provide a quick snapshot of the expectations for students' learning during this month of Number Corner.

| Major Skills/Concepts Addressed  | CG | CC | CF | NL | SP |
|--|----|----|----|----|----|
| <b>3.OA.4</b> Solve for the unknown in a multiplication or division equation involving 3 whole numbers   |    |    | ●  |    | ●  |
| <b>3.OA.5</b> Multiply using the commutative and associative property  |    |    | ●  |    | ●  |
| <b>3.OA.6</b> Solve division problems by finding an unknown factor   |    |    | ●  |    | ●  |
| <b>3.OA.7</b> Fluently multiply with products to 100 using strategies  |    |    | ●  |    | ●  |
| <b>3.OA.7</b> Fluently divide with dividends to 100 using strategies   |    |    | ●  |    |    |
| <b>3.OA.7</b> Recall from memory all products of two 1-digit numbers   |    |    | ●  |    |    |
| <b>3.OA.9</b> Identify patterns among basic multiplication facts   |    |    | ●  |    |    |
| <b>3.NBT.3</b> Multiply whole numbers from 1–9 by multiples of 10 from 10–90 using strategies based on place value and properties of operations  |    |    | ●  |    |    |
| <b>3.NF.1</b> Demonstrate an understanding of a unit fraction $1/b$ as 1 of $b$ equal parts into which a whole has been partitioned (e.g., $1/4$ is 1 of 4 equal parts of a whole)   | ●  | ●  |    |    |    |
| <b>3.NF.1</b> Demonstrate an understanding of a fraction $a/b$ as a equal parts, each of which is $1/b$ of a whole (e.g., $3/4$ is 3 of 4 equal parts of a whole or 3 parts that are each $1/4$ of a whole)  | ●  | ●  |    |    |    |
| <b>3.NF.2</b> Locate fractions on a number line  |    |    |    | ●  |    |
| <b>3.NF.2</b> Place fractions in their correct positions on a number line  |    |    |    | ●  |    |
| <b>3.NF.2a</b> Locate $1/b$ on the number line after partitioning the interval from 0 to 1 into $b$ equal parts  |    |    |    | ●  |    |
| <b>3.NF.2a</b> Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into $b$ equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. | ●  |    |    |    |    |
| <b>3.NF.3a</b> Identify equivalent fractions by comparing their sizes  |    |    |    | ●  |    |
| <b>3.NF.3a</b> Identify equivalent fractions by comparing their locations on a number line   | ●  |    |    | ●  |    |
| <b>3.NF.3b</b> Recognize and generate simple equivalent fractions; explain why two fractions must be equivalent  | ●  | ●  |    | ●  |    |
| <b>3.NF.3c</b> Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.   | ●  | ●  |    | ●  |    |
| <b>3.MD.1</b> Solve story problems involving addition of time intervals in minutes   |    | ●  |    |    |    |
| <b>3.MP.1</b> Make sense of problems and persevere in solving them   |    | ●  |    |    |    |
| <b>3.MP.2</b> Reason abstractly and quantitatively   | ●  |    |    |    |    |
| <b>3.MP.3</b> Construct viable arguments and critique the reasoning of others  |    |    |    | ●  |    |
| <b>3.MP.4</b> Model with mathematics   |    |    |    |    | ●  |
| <b>3.MP.5</b> Use appropriate tools strategically  |    | ●  |    | ●  |    |

| Major Skills/Concepts Addressed                                     | CG | CC | CF | NL | SP |
|---|----|----|----|----|----|
| <b>3.MP.6</b> Attend to precision                                   |    |    | ●  | ●  |    |
| <b>3.MP.7</b> Look for and make use of structure                    | ●  |    | ●  |    |    |
| <b>3.MP.8</b> Look for and express regularity in repeated reasoning | ●  |    |    |    |    |

**CG** – Calendar Grid, **CC** – Calendar Collector, **CF** – Computational Fluency,  
**NL** – Number Line, **SP** – Solving Problems

## Materials for Month

Each workout includes a list of required materials by activity. You can use the table below to prepare materials ahead of time for the entire month.

| Materials            |  | Done |
|----------------------|--|------|
| <b>Copies</b>        | Run copies of Teacher Masters T1–T14 according to the instructions at the top of each master.  |      |
|                      | If students do not have their own Number Corner Student Books, run a class set of pages 54–68.   |      |
|                      | Run a single display copy of Number Corner Student Book pages 61–68.   |      |
| <b>Charts</b>        | Prepare this month’s Observations Chart according to Preparation instructions in the Calendar Grid workout.  |      |
|                      | Prepare this month’s Record Sheet according to Preparation instructions in the Calendar Collector workout.   |      |
| <b>Special Items</b> | Before Number Line Activities 1 and 2, prepare the Put It on the Line, Game 1 and Game 2 Teacher Masters by covering each problem with a sticky note. If you are using an overhead projector, you may need to use a stack of sticky notes or card stock to ensure the problems are hidden. |      |
|                      | Before Number Line Activity 3, get enough sticky notes for pairs of students to cover the problems on the Put It on the Line, Game 3 Teacher Master.   |      |

# April Calendar Grid

## More Equivalent Fractions

### Overview

The April Calendar Grid pattern features twelfths and sixths shown as parts of a rectangular array, pizza, clock face, egg carton, and ruler. Students explore equivalent fractions.

### Skills & Concepts

- Demonstrate an understanding of a unit fraction  $1/b$  as 1 of  $b$  equal parts into which a whole has been partitioned (e.g.,  $1/4$  is 1 of 4 equal parts of a whole) (3.NF.1)
- Demonstrate an understanding of a fraction  $a/b$  as  $a$  equal parts, each of which is  $1/b$  of a whole (e.g.,  $3/4$  is 3 of 4 equal parts of a whole or 3 parts that are each  $1/4$  of a whole) (3.NF.1)
- Represent a fraction  $1/b$  on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into  $b$  equal parts. Recognize that each part has size  $1/b$  and that the endpoint of the part based at 0 locates the number  $1/b$  on the number line. (3.NF.2a)
- Identify equivalent fractions by comparing their locations on a number line (3.NF.3a)
- Recognize and generate simple equivalent fractions; explain why two fractions must be equivalent (3.NF.3b)
- Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers (3.NF.3c)
- Reason abstractly and quantitatively (3.MP.2)
- Look for and make use of structure (3.MP.7)

### Materials

| Activities   | Day | Copies                                 | Kit Materials  | Classroom Materials  |
|--|-----|--|--|--|
| <b>Activity 1</b><br>Introducing the Calendar Grid Markers   | 1   |  | <ul style="list-style-type: none"> <li>• Calendar Grid pocket chart</li> <li>• Day, Month, and Year markers</li> <li>• Equivalent Fraction Representations calendar markers</li> </ul> | <ul style="list-style-type: none"> <li>• Calendar Grid Observations Chart (see Preparation)</li> <li>• water-based markers</li> <li>• whiteboards, markers, and erasers (class set)</li> </ul> |
| <b>Activity 2</b><br>Representing Fractions on a Number Line | 6   |  |  |  |
| <b>Activity 3</b><br>Making Observations & Predictions       | 11  |  |  |  |
| <b>Activity 4</b><br>Looking at Thirds                       | 17  | <b>NCSB 54</b><br>More About Fractions |  |  |

TM – Teacher Master, NCSB – Number Corner Student Book  
Copy instructions are located at the top of each teacher master.

### Vocabulary

An asterisk [\*] identifies those terms for which Word Resource Cards are available.

- analog clock
- area model of multiplication\*
- array\*
- denominator\*
- equivalent fraction\*
- fourths
- half\*
- hour (hr.)
- minute (min.)
- number line\*
- numerator\*
- sixths
- thirds
- twelfths
- whole

### Preparation

#### Calendar Grid Observations Chart

Erase the Calendar Grid Observations Chart from March. Create four columns and label the top of the first sheet as shown for use with this month's markers. You'll extend the chart midway through the month using the second sheet of laminated chart paper. Use an erasable marker to record students' observations so that you can reuse the chart each month.

| Calendar Grid Observations |                               |          |              |
|----------------------------|-------------------------------|----------|--------------|
| Date                       | Description of Part and Whole | Fraction | Observations |
|                            |                               |          |              |



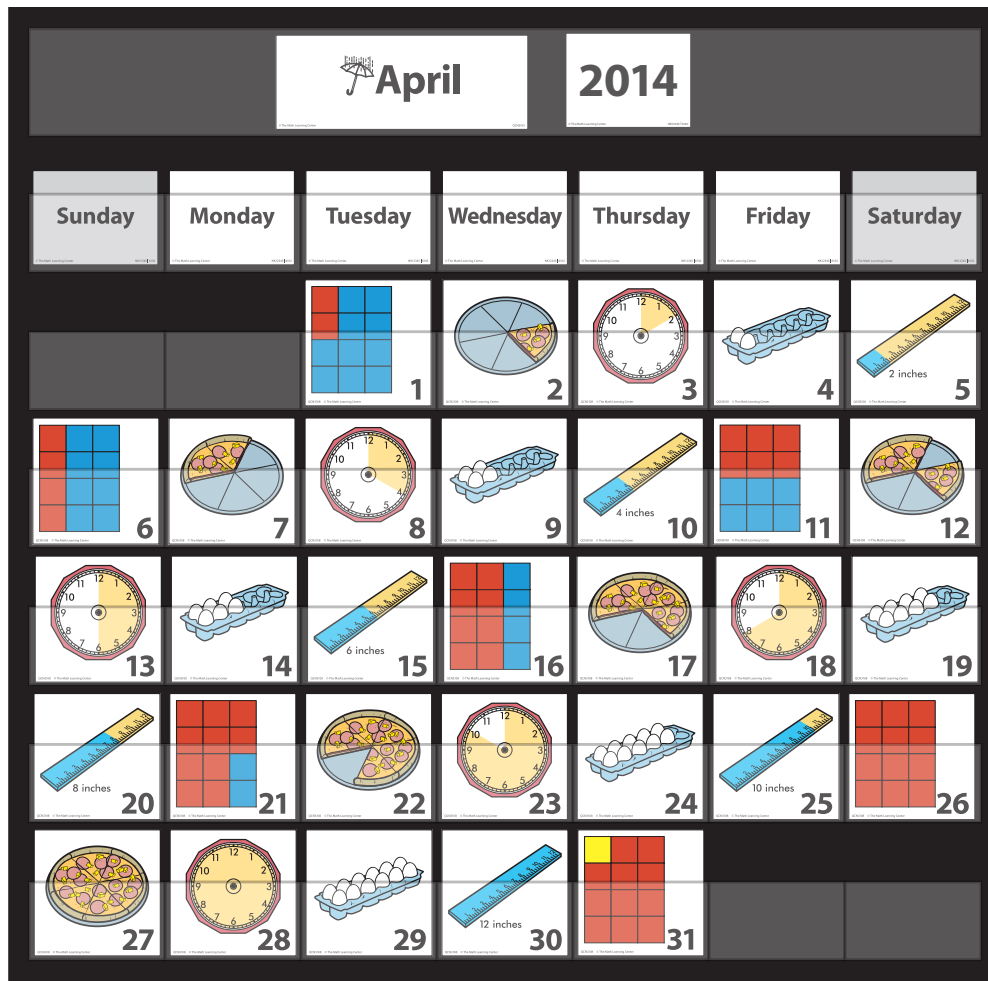
## Mathematical Background

This month's Calendar Grid helps students develop deeper understandings of equivalent fractions and intuitive ideas about common denominators. Students will use a variety of visual and numeric representations for fractions this month to explore the following key fraction concepts:

- Recognizing fractions as some number of equal parts of a whole
- Comparing fractions and recognizing equivalent fractions
- Locating and representing fractions on a number line

As students have more and more experiences about fractions, they come to understand them as a system of numbers. In particular, they realize that fractions have a size and can be compared, ordered, and represented. Rulers and number lines are very useful models for developing these concepts.

## About the Pattern



The April calendar pattern features twelfths and sixths shown as parts of a rectangular array, pizza, clock face, egg carton, and ruler. For five days, one-sixth is shown on each model. For the next five days, two-sixths is shown on each model, and so on. Every five days, the fraction shown on the markers increases by one-sixth, and students are asked to figure out what is similar about each set of five markers. For example, they consider what a rectangular array with 2 red tiles out of 12 has in common with a sixth of a pizza. In considering questions like these, students develop deeper understandings of equivalent fractions and intuitive ideas about common denominators.

## Key Questions

Use the following questions to guide students' discussion this month:

- What do you notice about the markers? What do you notice about the pattern?
- What do you notice is the same and different about markers \_\_\_ and \_\_\_?
- Where do you see twelfths in the markers? (Sixths? Thirds? Halves?)
- What does a rectangular array with 2 red tiles out of 12 have in common with a sixth of a pizza, 10 minutes on a clock, 2 eggs in a carton that holds 12, and 2 inches on a ruler?
- What fraction will be on the marker tomorrow?
- Can you show the fractional amount on this marker on a number line?

---

 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy



# April

| Date | Description of Part and Whole   | Fraction                         | Observations                    |
|------|---------------------------------|----------------------------------|---------------------------------|
| 1    | 2 of the 12 blocks are red      | $\frac{2}{12}$ or $\frac{1}{6}$  | Add observations from students. |
| 2    | 1 slice of a 6-piece pizza      | $\frac{1}{6}$                    |                                 |
| 3    | 10 minutes or 2 of 12 sections  | $\frac{2}{12}$ or $\frac{1}{6}$  |                                 |
| 4    | 2 of 12 eggs                    | $\frac{1}{6}$                    |                                 |
| 5    | 2 of 12 inches are blue         | $\frac{2}{12}$ or $\frac{1}{6}$  |                                 |
| 6    | 4 of the 12 blocks are red      | $\frac{4}{12}$ or $\frac{1}{3}$  |                                 |
| 7    | 2 slices of a 6-piece pizza     | $\frac{2}{6}$ or $\frac{1}{3}$   |                                 |
| 8    | 20 minutes or 4 of 12 sections  | $\frac{4}{12}$ or $\frac{1}{3}$  |                                 |
| 9    | 4 of 12 eggs                    | $\frac{4}{12}$ or $\frac{1}{3}$  |                                 |
| 10   | 4 of 12 inches are blue         | $\frac{4}{12}$ or $\frac{1}{3}$  |                                 |
| 11   | 6 of the 12 blocks are red      | $\frac{6}{12}$ or $\frac{1}{2}$  |                                 |
| 12   | 3 slices of a 6-piece pizza     | $\frac{3}{6}$ or $\frac{1}{2}$   |                                 |
| 13   | 30 minutes or 6 of 12 sections  | $\frac{6}{12}$ or $\frac{1}{2}$  |                                 |
| 14   | 6 of 12 eggs                    | $\frac{6}{12}$ or $\frac{1}{2}$  |                                 |
| 15   | 6 of 12 inches are blue         | $\frac{6}{12}$ or $\frac{1}{2}$  |                                 |
| 16   | 8 of the 12 blocks are red      | $\frac{8}{12}$ or $\frac{2}{3}$  |                                 |
| 17   | 4 slices of a 6-piece pizza     | $\frac{4}{6}$ or $\frac{2}{3}$   |                                 |
| 18   | 40 minutes or 8 of 12 sections  | $\frac{8}{12}$ or $\frac{2}{3}$  |                                 |
| 19   | 8 of 12 eggs                    | $\frac{8}{12}$ or $\frac{2}{3}$  |                                 |
| 20   | 8 of 12 inches are blue         | $\frac{8}{12}$ or $\frac{2}{3}$  |                                 |
| 21   | 10 of the 12 blocks are red     | $\frac{10}{12}$ or $\frac{5}{6}$ |                                 |
| 22   | 5 slices of a 6-piece pizza     | $\frac{5}{6}$                    |                                 |
| 23   | 50 minutes or 10 of 12 sections | $\frac{10}{12}$ or $\frac{5}{6}$ |                                 |
| 24   | 10 of 12 eggs                   | $\frac{10}{12}$ or $\frac{5}{6}$ |                                 |
| 25   | 10 of 12 inches are blue        | $\frac{10}{12}$ or $\frac{5}{6}$ |                                 |
| 26   | 12 of the 12 blocks are red     | $\frac{12}{12}$ or 1             |                                 |
| 27   | 6 slices of a 6-piece pizza     | $\frac{6}{6}$ or 1               |                                 |
| 28   | 60 minutes or 12 of 12 sections | $\frac{12}{12}$ or 1             |                                 |
| 29   | 12 of 12 eggs                   | $\frac{12}{12}$ or 1             |                                 |
| 30   | 12 of 12 inches are blue        | $\frac{12}{12}$ or 1             |                                 |

## About the Pattern

The April calendar pattern features twelfths and sixths shown as parts of a rectangular array, pizza, clock face, egg carton, and ruler. For five days, one-sixth is shown on each model. For the next five days, two-sixths is shown on each model, and so on. Every five days, the fraction shown on the markers increases by one-sixth, and students are asked to figure out what is similar about each set of five markers. For example, they consider what a rectangular array with 2 red tiles out of 12 has in common with a sixth of a pizza. In considering questions like these, students develop deeper understandings of equivalent fractions and intuitive ideas about common denominators.

## Notes:

# CALENDAR GRID OBSERVATIONS

| DATE | DESCRIPTION OF PART<br>AND WHOLE | FRACTION | OBSERVATIONS |
|------|----------------------------------|----------|--------------|
|      |                                  |          |              |
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# April Calendar Collector

## Collecting Fractions of an Hour

### Overview

In this month's Calendar Collector, students collect fractions of an hour and determine the amount collected in both minutes and hours and minutes.

### Skills & Concepts

- Demonstrate an understanding of a unit fraction  $1/b$  as 1 of  $b$  equal parts into which a whole has been partitioned (e.g.,  $1/4$  is 1 of 4 equal parts of a whole) (3.NF.1)
- Demonstrate an understanding of a fraction  $a/b$  as  $a$  equal parts, each of which is  $1/b$  of a whole (e.g.,  $3/4$  is 3 of 4 equal parts of a whole or 3 parts that are each  $1/4$  of a whole) (3.NF.1)
- Recognize simple equivalent fractions (3.NF.3b)
- Generate simple equivalent fractions (3.NF.3b)
- Explain why two fractions must be equivalent (3.NF.3b)
- Write a whole number as a fraction (3.NF.3c)
- Recognize fractions that are equivalent to whole numbers (3.NF.3c)
- Solve story problems involving addition of time intervals in minutes (3.MD.1)
- Make sense of problems and persevere in solving them (3.MP.1)
- Use appropriate tools strategically (3.MP.5)

### Materials

| Activities  | Day | Copies  | Kit Materials     | Classroom Materials  |
|---|-----|---|-------------------|--|
| <b>Activity 1</b><br>Collecting Half-Hours                  | 2   | <b>TM T1</b><br>How Many Parts? Spinner<br><b>TM T2</b><br>Coloring Parts of an Hour<br><b>TM T3</b><br>Halves of an Hour | • spinner overlay | • large display clock, such as a Judy clock<br>• calculators (optional)<br>• black felt-tip marker |
| <b>Activity 2</b><br>Collecting Quarter-Hours               | 8   | <b>TM T4</b><br>Fourths of an Hour  |                   |  |
| <b>Activity 3</b><br>Collecting Thirds of an Hour           | 15  | <b>TM T5</b><br>Thirds of an Hour   |                   |  |
| <b>Activity 4</b><br>Solving Fractional Time Story Problems | 20  | <b>NCSB 55</b><br>Time Fractions Story Problems   |                   |  |

TM – Teacher Master, NCSB – Number Corner Student Book  
Copy instructions are located at the top of each teacher master.

### Vocabulary

An asterisk [\*] identifies those terms for which Word Resource Cards are available.

a.m.  
analog  
digital  
half-hour  
hour (hr.)  
minute (min.)  
p.m.  
quarter-hour  
second (sec.)  
third of an hour

## Preparation

Post the How Many Parts? Spinner and the Coloring Parts of an Hour Teacher Masters next to the Calendar Collector Record Sheet. Attach a spinner overlay to the How Many Parts? Spinner. Make sure students can reach both of these easily.

Erase the Calendar Collector Record Sheet from March. Redraw the lines to create six columns. Label the columns at the top of the first sheet as below for use with this month's markers. You'll extend the chart midway through the month using the second sheet of laminated chart paper. Use an erasable marker to record students' observations so that you can reuse the chart each month.

| Date | What was spun? | Number of Minutes | Fraction of an hour | Total Minutes Collected | Hours and Minutes Collected as a Fraction or Mixed Number |
|------|----------------|-------------------|---------------------|-------------------------|---|
|      |                |                   |                     |                         |   |
|      |                |                   |                     |                         |   |
|      |                |                   |                     |                         |   |
|      |                |                   |                     |                         |   |

## Mathematical Background

Students work with fractions of an hour in this month's Calendar Collector. They think of each fraction of an hour in terms of some number of minutes out of 60 minutes in 1 whole hour. This provides them with many opportunities to generate equivalent fractions and to add fractions with like and unlike denominators.

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

## Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher



# FRACTIONS OF AN HOUR

## RECORD SHEET

| DATE | WHAT WAS SPUN? | NUMBER OF MINUTES | FRACTIONS OF AN HOUR | TOTAL MINUTES COLLECTED | HOURS & MINUTES COLLECTED AS A FRACTION OR MIXED NUMBER |
|------|----------------|-------------------|----------------------|-------------------------|---|
|      |                |                   |                      |                         |   |
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# April Computational Fluency

## Quick Facts & Games

### Overview

This month, students learn the quick facts routine, which helps them monitor and track progress with multiplication facts. After the first activity, they do the routine at the beginning of each subsequent activity before playing a multiplication game. Students also work with fact families and the associative property this month.

### Skills & Concepts

- Solve for the unknown in a multiplication or division equation involving 3 whole numbers (3.OA.4)
- Multiply using the commutative and associative properties (3.OA.5)
- Solve division problems by finding an unknown factor (3.OA.6)
- Fluently multiply with products to 100 using strategies (3.OA.7)
- Fluently divide with dividends to 100 using strategies (3.OA.7)
- Recall from memory all products of two 1-digit numbers (3.OA.7)
- Identify patterns among basic multiplication facts (3.OA.9)
- Multiply whole numbers from 1–9 by multiples of 10 from 10–90 using strategies based on place value and properties of operations (3.NBT.3)
- Attend to precision (3.MP.6)
- Look for and make use of structure (3.MP.7)

### Materials

| Activities   | Day    | Copies   | Kit Materials   | Classroom Materials  |
|--|--------|--|---|--|
| <b>Activity 1</b><br>Introducing Quick Facts                 | 3      | <b>TM T6</b><br>Multiplication Facts Class Checklist<br><b>TM T7</b><br>Quick Facts Worksheet<br><b>NCSB 56–58</b><br>Quick Facts Worksheets   |   |  |
| <b>Activity 2</b><br>Multiplication & Division Fact Families | 7      | <b>TM T7</b><br>Quick Facts Worksheet<br><b>TM T8</b><br>Fact Families<br><b>NCSB 58</b><br>Quick Facts Worksheet (with student work for multiplier 2, from previous activity)<br><b>NCSB 59</b><br>Quick Facts Tracking Sheet |   | <ul style="list-style-type: none"> <li>• whiteboards, markers, and erasers (class set)</li> <li>• fine-tipped colored markers</li> </ul> |
| <b>Activity 3</b><br>Rows & Columns Multiplication Game      | 12, 18 | <b>TM T7</b><br>Quick Facts Worksheet<br><b>TM T9</b><br>Rows & Columns Multiplication Game<br><b>NCSB 59</b><br>Quick Facts Tracking Sheet<br><b>NCSB 60</b><br>Rows & Columns Multiplication Game                            | <ul style="list-style-type: none"> <li>• spinner overlay (1 for day 12, half-class set for day 18)</li> </ul> |  |
| <b>Activity 4</b><br>The Associative Property                | 16     | <b>TM T7</b><br>Quick Facts Worksheet<br><b>NCSB 59</b><br>Quick Facts Tracking Sheet  |   | <ul style="list-style-type: none"> <li>• whiteboards, markers, and erasers (class set)</li> </ul>  |

TM – Teacher Master, NCSB – Number Corner Student Book  
Copy instructions are located at the top of each teacher master.

### Vocabulary

An asterisk [\*] identifies those terms for which Word Resource Cards are available.

dividend\*  
divisor\*  
equation\*  
factor\*  
product\*  
quotient\*

## Preparation

When you introduce the Quick Facts routine for the first time, students will work in their Number Corner Student Books. For the rest of the school year, they will use copies of the Quick Facts Worksheet Teacher Master. Consider giving each student a folder to store their Quick Facts Worksheets, or plan to store them in an organized way yourself to chart students' progress. Keep in mind that you will also need to correct their worksheets before each new Quick Facts routine so that each student knows how to proceed (students move on to a new multiplier once they have mastered a set of facts, so they will be working at their own paces). If you don't have time to mark students' papers, plan to spend a few minutes going over answers for different multipliers at the start of each activity so that students can mark their own work.

## Mathematical Background

This month, students are introduced to the Quick Facts routine, which they will do for the rest of the school year to demonstrate fluency with multiplication facts. In the Quick Facts routine, students are given 4 minutes to multiply 40 different numbers by a single multiplier. Students who recall the correct products in 2 minutes or less (3 seconds per fact) are considered to be fluent and move on to a new multiplier the next time the Quick Facts routine is repeated. Students keep track of their own progress toward fluency with all multipliers from 0 to 10 and have the freedom to select their new multiplier each time.

Limiting the time students have to complete a set of multiplication facts allows teachers and students to see which facts come quickly and which don't. It is only through such timed checkups that teachers can see whether students have the speed that is an essential component of computational fluency. Timed checkups should be used for *information purposes only*, and we recommend that you don't grade students on this work. We also *do not* advocate using timed drills for instructional purposes. Daily timed drills with random collections of problems is *not* productive to the development of computational fluency. Such practice tends to place unproductive pressure on students and promotes negativity toward math among students who feel they cannot compete with their peers or work fast enough. Systematic practice of fact strategies, on the other hand, coupled with the Quick Facts procedure, promotes feelings of competence and mastery.

In addition to the Quick Facts routine, students practice writing fact families for multiplication and division. This work focuses students' attention on the inverse relationship between multiplication and division, which builds their fluency with division facts. They also explore the associative property of multiplication by solving sets of multiplication problems that all have the same product. In considering why they have the same answer, students develop a sense of the associative property, which will be explored further in later grades.



## Key Questions

Use the following questions to guide students' discussion this month:

- How are multiplication and division related?
- What is a fact family?
- Which fact families are easiest for you?
- What is a good visual model (or strategy) to use to solve this problem?
- What is your favorite strategy we've learned so far? Which one do you feel most comfortable using?
- Explain why  $4 \times 10 = 40 \times 1$ .  
Explain why  $2 \times 5 \times 8 = 10 \times 8$ .

# April Number Line

## Put It on the Line

### Overview

Students play a version of the game Put It on the Line that focuses on fractions. They solve problems and put the answers on a 0 to 1 number line. Their answers become their score. Students play the game three times, each time with a different game board that focuses on different sets of equivalent fractions.

### Skills & Concepts

- Demonstrate an understanding of a unit fraction  $1/b$  as 1 of  $b$  equal parts into which a whole has been partitioned (e.g.,  $1/4$  is 1 of 4 equal parts of a whole) (3.NF.1)
- Demonstrate an understanding of a fraction  $a/b$  as  $a$  equal parts, each of which is  $1/b$  of a whole (e.g.,  $3/4$  is 3 of 4 equal parts of a whole or 3 parts that are each  $1/4$  of a whole) (3.NF.1)
- Locate fractions on a number line (3.NF.2)
- Place fractions in their correct positions on a number line (3.NF.2)
- Locate  $1/b$  on the number line after partitioning the interval from 0 to 1 into  $b$  equal parts (3.NF.2a)
- Identify equivalent fractions by comparing their sizes or by comparing their locations on a number line (3.NF.3a)
- Recognize and generate simple equivalent fractions (3.NF.3b)
- Explain why two fractions must be equivalent (3.NF.3b)
- Write a whole number as a fraction (3.NF.3c)
- Recognize fractions that are equivalent to whole numbers (3.NF.3c)
- Construct viable arguments and critique the reasoning of others (3.MP.3)
- Use appropriate tools strategically (3.MP.5)

### Materials

| Activities   | Day | Copies   | Kit Materials   | Classroom Materials  |
|--|-----|--|-----------------|--|
| <b>Activity 1</b><br>Introducing Put It on the Line            | 4   | <b>TM T10</b><br>Put It on the Line, Game 1<br><b>TM T13</b><br>Put It on the Line, Answer Key | • more/less die | • 2 fine-tipped markers, each in a different color<br>• scratch paper<br>• 1 1/2" by 2" sticky notes (see Preparation) |
| <b>Activity 2</b><br>Playing Put It on the Line as a Class     | 10  | <b>TM T11</b><br>Put It on the Line, Game 2<br><b>TM T13</b><br>Put It on the Line, Answer Key |                 |  |
| <b>Activity 3</b><br>Playing Put It on the Line with a Partner | 13  | <b>TM T12</b><br>Put It on the Line, Game 3<br><b>TM T13</b><br>Put It on the Line, Answer Key |                 |  |

TM – Teacher Master, NCSB – Number Corner Student Book  
Copy instructions are located at the top of each teacher master.

### Vocabulary

An asterisk [\*] identifies those terms for which Word Resource Cards are available.

denominator\*  
equivalent fraction\*  
fraction\*  
number line\*  
numerator\*

## Preparation

Before Activities 1 and 2, prepare the game teacher master by covering each problem with a sticky note. If you are using an overhead projector, you may need to use a stack of sticky notes or card stock to ensure the problems are hidden.

In Activity 3, students play with partners. You might want to assign partners ahead of time. Students will need to cover the problems on the game board with sticky notes before playing the game, or you can cover them yourself before handing out the copies.

## Mathematical Background

Playing games helps students develop and solidify their understanding of key concepts, while they also practice related skills. This month's game, Put It on the Line, can be used for a variety of different skills and concepts. This month the game focuses on fractions on the number line. Students answer story problems and place the answers on a 0 to 1 number line. They play the game three times; each time, the number line is partitioned into a different number of equal parts. Each activity begins with a discussion about the number line. Students see the 0, the 1, and the space in between, which has been partitioned but not labeled. It is up to them to figure out the value of each interval.

Students need to place their answers appropriately on the number line. The questions prompt students to think about equivalent fractions, adding and subtracting fractions, using different models such as money or time, and expressing whole numbers as fractions. Students must justify their thinking for each answer.

Students will play this game again in May using mixed numbers and improper fractions. Students also play this game in fourth and fifth grades with different skills and concepts.



## Key Questions

Use the following questions to guide students' discussion this month:

- What fractions could go on this number line?
- Name some fractions that are equivalent to  $\frac{1}{2}$  ( $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{2}{3}$ ,  $\frac{4}{10}$  etc.). How do you know they are equivalent?
- Sara has \$0.20. What fraction of a dollar does Sara have?
- Simon spent 20 minutes at the park. What fraction of an hour did Simon spend at the park?
- How can you write 1 as a fraction?

# April Solving Problems

## Multiplication & Division Practice

### Overview

The Solving Problems workout this month gives students an opportunity to think about the properties of multiplication, the relationship between multiplication and division, and strategies for solving some of the more challenging multiplication combinations. This work supports and extends the Quick Facts routine, which will be the focus of Computational Fluency workouts for the rest of the school year.

### Skills & Concepts

- Solve for the unknown in a multiplication or division equation involving 3 whole numbers (3.OA.4)
- Multiply using the commutative, distributive, and associative properties (3.OA.5)
- Solve division problems by finding an unknown factor (3.OA.6)
- Fluently multiply and divide with products and dividends to 100 using strategies (3.OA.7)
- Make sense of problems and persevere in solving them (3.MP.1)
- Construct viable arguments and critique the reasoning of others (3.MP.3)

### Materials

| Activities   | Day          | Copies   | Classroom Materials   |
|--|--------------|--|---|
| <b>Activity 1</b><br>Solving & Discussing Problems | 5, 9, 14, 19 | <b>TM T14</b><br>Multiplication & Division Flashcards (optional)<br><b>NCSB 61–68*</b><br>Multiplication & Division Problems | <ul style="list-style-type: none"> <li>• students' completed and scored Quick Facts Worksheets from each week's Computational Fluency workout</li> <li>• colored pencils</li> </ul> |

TM – Teacher Master, NCSB – Number Corner Student Book  
Copy instructions are located at the top of each teacher master.

\* Run 1 copy of these pages for display

### Vocabulary

An asterisk [\*] identifies those terms for which Word Resource Cards are available.

commutative property of multiplication\*  
divide\*  
dividend\*  
division  
divisor\*  
factor\*  
inverse relationship  
multiple\*  
multiplication  
multiply\*  
partial products  
product\*  
quotient\*

### Mathematical Background

The activities this month are meant to support students' development of fluency with multiplication facts and related division facts. Each week, students complete a new page in the Number Corner Student Book that features multiplication with the array model, fact families, straight multiplication and division practice in the form of number puzzles and story problems. Students also use the results of the Quick Facts they are doing in this month's Computational Fluency workouts to select multiplication combinations they want to focus on to build fluency with their facts to  $10 \times 10$ . The emphasis is on using the relationship between multiplication and division to solve problems, writing equations to represent multiplication and division problems, and developing computational strategies to build fluency.



## Activity 1

### Solving & Discussing Problems

Days 5, 9, 14, 19

Each time you repeat this activity, you'll use a different Number Corner Student Book page. Every page invites students to select some of their own problems based on the results of their most recent Quick Facts. Be sure to mark students' Quick Facts papers in time for this activity.

- 1 Introduce this week's Number Corner Student Book page using your display copy of the page.
  - Read over each problem with students, and do items 1a and 2a together as a class if needed.
  - You may find it helpful to review the Student Book page ahead of time to determine ways to divide the first array or to complete the first maze. See examples on the next page.

2 Return students' most recent Quick Facts papers, and explain how they will use them for today's activity.

- Students will review the multiplication facts they completed.
- They should identify which ones were most challenging; these might be the problems they got incorrect or those they had to think about longer before solving.
- They will select three of those challenging facts and focus on them in item 3 by:
  - » drawing an array to represent the combination
  - » using the array to illustrate a strategy for calculating the product that works well for them

**CHALLENGE** If students felt very comfortable with these facts, invite them to select some facts for the multiplier they will be working on next. For example, if they demonstrated mastery of multiplying by 2, they might be moving on to multiplying by 3. In that case, they might want to think about strategies for calculating  $3 \times 6$ ,  $3 \times 7$ , and  $3 \times 8$ . Another alternative is for students to think about combinations that are often most challenging. These combinations include:  $3 \times 7$ ,  $3 \times 8$ ,  $3 \times 9$ ,  $6 \times 7$ ,  $7 \times 7$ ,  $8 \times 7$ ,  $7 \times 9$ .

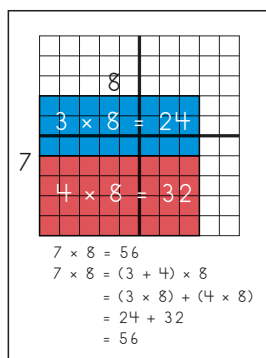
3 Answer students' questions, and then give them all but the last five minutes or so to complete the page.

While students work, circulate to make observations, answer questions, and differentiate instruction as needed. Pay attention to the facts students select for item 3, and make note of any common points of confusion so that you can focus on them when you reconvene the class.

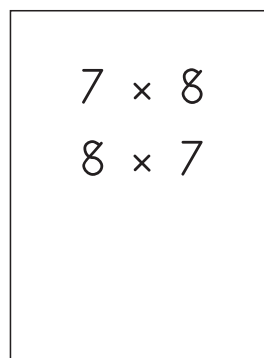
4 Reconvene the class and wrap up by discussing the equations students wrote for the story problems or by addressing any common points of confusion.

*Keep in mind that students might write a multiplication or division equation for some of the problems. For example, students might write  $24 \div 4 = 6$  or  $4 \times \underline{\quad} = 24$  for the problem on the first page about Mr. Garza giving his four sisters flowers. If students share these two equations, discuss how it is possible for two such different equations to represent the same problem. Invite students to discuss which one best represents the problem and which one best represents a potential strategy for solving the problem. The division equation most closely models the situation and the actions taken by Mr. Garza, but the multiplication equation might more closely represent a strategy students would use to solve the problem (e.g., thinking about what number times 4 makes a total of 24).*

**EXTENSION** Consider having students create their own flashcards for the combinations that are challenging for them. You might have them do this instead of completing the Number Corner Student Book page any given week. You might also simply have them make flashcards instead of completing item 3 on any given page. Students can use these flashcards at home or at school to practice with specific combinations. It is important that students select their own strategies for each fact they select.



front of card



back of card

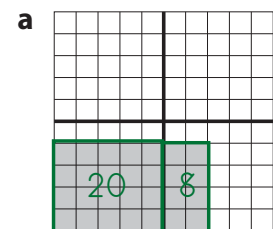
**Key Questions**

Use the following questions to guide students' discussion this month:

- What smaller arrays do you see in the larger array?
- Which of those smaller arrays can you use to make it easier to calculate the product?
- How does knowing your multiplication facts help with division?
- What equation can you write to represent this story problem? Where in the equation do you see the numbers you know? Where in the equation is there space for the number you are trying to find?

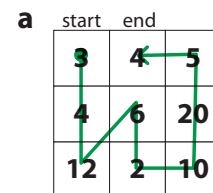
**Number Corner Student Book Page Examples**

Array 1a



|                   |
|-------------------|
| $4 \times 7 = 28$ |
| $7 \times 4 = 28$ |
| $28 \div 4 = 7$   |
| $28 \div 7 = 4$   |

Math Maze 2a



|                    |
|--------------------|
| $3 \times 4 = 12$  |
| $12 \div 6 = 2$    |
| $2 \times 10 = 20$ |
| $20 \div 5 = 4$    |



# Day 1

Date:

| Calendar Grid  | Calendar Collector | Computational Fluency |
|--|--------------------|-----------------------|
| Activity 1 – Introducing the Calendar Grid Markers (pg. 7) |                    |                       |
| Number Line  | Solving Problems   | Assessment            |
|  |                    |                       |



# Activity 1

## Introducing the Calendar Grid Markers

## Day 1

- 1 Open today's activity by gathering students in front of the Calendar Grid. Explain that they are starting a new month today and that you are about to post the first marker. When you post the marker, ask students to study it quietly for a minute or so and then ask them to share observations as a class.

*Students* I see a 4-by-3 array. There are 12 squares.

*Are they square units? Are we doing more with area?*

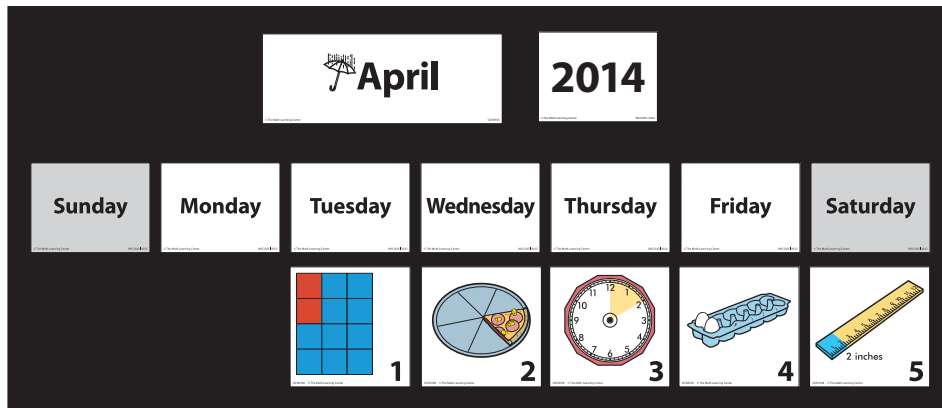
*Two of them are red and 10 of them are blue.*

*Maybe it will be about fractions.*

*Oh yeah, 2 out of 12 of them are red. Is that  $\frac{2}{12}$ ?*

- 2 Post any other markers to bring the calendar up to today's date, one at a time, allowing time for students to make observations and predictions about the next marker.

If it is the first or second of the month, you might post markers up to the third or fourth of the month so that there is more for students to discuss.



- 3 Deepen conversation with one or more of the following questions.
  - What do you notice about these markers?
  - What is different about the first two markers and what is the same?

**Note:** Although the observation that 10 out of 12 tiles are blue is equally important, ask students to focus on the red tiles this month.

4 Introduce this month’s Calendar Grid Observations Chart.

- Invite a student to read the headings of each column.
- With participation from the class, fill in the chart for the markers that have been posted.
- As more information is filled in on the chart, encourage students to make more observations and connections between the markers shown.
- Encourage students to think about different fraction ideas related to the calendar markers presented in this month’s workout so far.

*Students’ observations for early markers might not be very rich. As the month continues and students have more to work with, push them to make observations that are relevant and significant to the pattern*

| Calendar Grid Observations |  |                 |   |
|----------------------------|--|-----------------|---|
| Date                       | Description of Part and Whole  | Fraction        | Observations  |
| 1                          | 2 out of 12 tiles are red  | $\frac{2}{12}$  | less than half are red.   |
| 2                          | There’s 1 piece on the pan.<br>There were 6 pieces in the whole pizza. | $\frac{1}{6}$   | There were 6 pieces. 5 are gone.  |
| 3                          | 10 minutes are filled in.<br>There are 60 minutes in all.              | $\frac{10}{60}$ | There are 12 numbers around the clock and it’s filled in to 2, so you can also write $\frac{2}{12}$ . |

*Students* If you split the piece of pizza in half and all the other pieces that are not there, you would have twelfths. I think  $\frac{1}{6}$  is equal to  $\frac{2}{12}$ .

*I think I know what you mean. If you think about those 2 red tiles as 1 piece, it would take 6 of them to fill in that whole array, so the 2 red tiles are also kind of like  $\frac{1}{6}$ .*

*I get confused by the clock.*

*Me too. The fractional parts don’t look as clear, but hey, that is kind of showing  $\frac{2}{12}$  and  $\frac{1}{6}$  too! If it was shaded to the 1 instead of the 2 that would be  $\frac{1}{12}$ . It’s shaded to the 2 instead so that is  $\frac{2}{12}$ .*

*I just see 10 minutes as shaded.*

*Ten minutes is  $\frac{1}{60}$  of an hour.*

*So many fractions for the clock!*

5 Review important vocabulary using the Word Resource Cards.

- Review the terms *numerator* and *denominator* and ask students to use examples from the calendar markers to illustrate the meaning of each term.
- Review the term *equivalent* and ask for examples that illustrate the concept of equivalence from the markers presented so far.

6 Ask students to make predictions about the next marker and future markers.

7 Conclude the activity by reviewing the update procedure and answering any questions students have.

# Day 2

Date:

|                      |  |                              |
|----------------------|--|------------------------------|
| <b>Calendar Grid</b> | <b>Calendar Collector</b>                          | <b>Computational Fluency</b> |
| <i>Update</i>        | <b>Activity 1 – Collecting Half-Hours (pg. 14)</b> |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>                            | <b>Assessment</b>            |
|                      |  |                              |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy



# Activity 1



## Key Questions

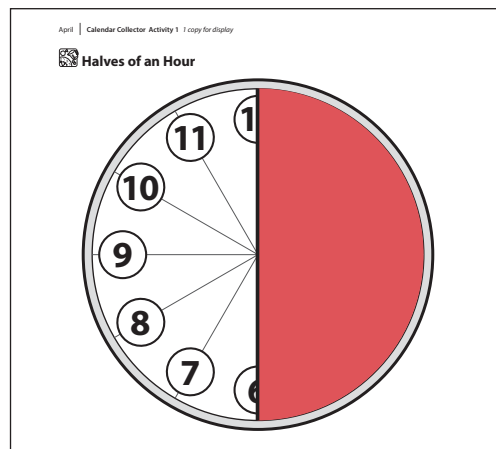
### Collecting Half-Hours

### Day 2

- Open today's activity by introducing this month's collection.
  - Explain that students will collect fractions of an hour this month.
  - For the first 7 days, they will collect some number of half-hours each day.

**ELL:** As always, take time to emphasize important vocabulary through labels, sketches, and examples. Help ELL students connect terms in English to terms in their native language. Try to figure out what students already know in their native language and how that can help them understand the material in this workout.

- Take some time to talk about halves of an hour, using the Halves of an Hour Teacher Master.



Ask students to talk, first in pairs and then as a whole group, about the following questions.

- How many minutes are in a whole hour?
- How many minutes are in a half-hour?
- How many minutes are in two halves of an hour?
- How many minutes are in three halves of an hour?

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

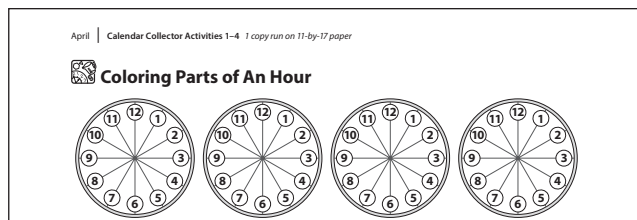
Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

- 3 Work together as a class to update the Calendar Collector for all of the school days that have passed so far this month.
- Using a spinner overlay, spin the How Many Parts? Spinner to see how many halves to add.
  - Color in that number of half-hours on the Coloring Parts of an Hour Teacher Master.
  - Fill in the information on the Calendar Collector Record Sheet.
    - » Encourage students to share more than one way to represent the fraction of minutes collected so far.
    - » When finding the total hours and minutes collected, students can look at the clocks shaded in the Coloring Parts of an Hour sheet or they can try to add the fractions or minutes. Encourage students to discuss how they found this total.
  - Repeat for each school day that has passed this month. Alternate colors when coloring in the half-hours so that students can see each number of halves they added to the collection.



| Date | What was spun? | Number of Minutes | Fraction of an hour                                      | Total Minutes Collected | Hours and Minutes Collected as a Fraction or Mixed Number   |
|------|----------------|-------------------|--|-------------------------|---|
| 1    | 3              | 90                | $\frac{90}{60}, \frac{1}{2}, \frac{3}{2}, \frac{30}{60}$ | 90                      | $\frac{90}{60}, 1\frac{1}{2}$   |
| 2    | 1              | 30                | $\frac{30}{60}, \frac{1}{2}, \frac{3}{6}$                | 120<br>(90 + 30 = 120)  | 2 hours, $\frac{120}{60}$ ,<br>$1\frac{1}{2} + \frac{1}{2} = 2$ ,<br>$\frac{90}{60} + \frac{30}{60} = \frac{120}{60}$ |
| 3    | 2              | 60                | $\frac{60}{60}, 1$                                       | 180<br>(120 + 60 = 180) | 3 hours, $\frac{180}{60}$ ,<br>1 hour + 2 hours = 3 hours,<br>$\frac{120}{60} + \frac{60}{60} = \frac{180}{60}$       |

**Note** Although some students may discover for themselves ways to add and subtract fractions by the end of this workout, the purpose of the fraction equation column is not to instruct students in how to calculate addition and subtraction equations by converting fractions to equivalent forms. Rather, this part of the workout is intended as an introduction to the vocabulary and concepts of fraction operations for those students who are ready. It will also give students a lot of practice using the terms such as *quarter-hour*, *half past*, and *quarter to*. When you record the fraction equations, invite students to discuss how the equation matches what they see on the clocks in the collection.

- 4 Wrap up the activity by explaining that when it is time to update, students will do just what they did today: spin the spinner to find out what to add to the collection, shade in the amount spun, and fill in the Record Sheet. Finally, answer any questions students have.

# Day 3

Date:

| Calendar Grid | Calendar Collector | Computational Fluency                                |
|---------------|--------------------|--|
| <i>Update</i> | <i>Update</i>      | <b>Activity 1</b> – Introducing Quick Facts (pg. 21) |
| Number Line   | Solving Problems   | Assessment   |
|               |                    |  |



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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.



### Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

# Activity 1

## Introducing Quick Facts

## Day 3


Students will use the three Quick Facts Worksheets in their Number Corner Student Books to complete today's activity. The pages are lettered A–C for ease of identification, but each page is otherwise identical to the others.

- 1 Display your copy of the Quick Facts Worksheet Teacher Master, and have students open their Number Corner Student Books to Quick Facts Worksheet A.
  - Explain that this month, students will start a new routine that will help them get faster and more confident with their multiplication and division facts.
  - Give students a minute or two to examine the sheet and talk in pairs about their observations and questions. Then guide them in whole-group sharing.
  - Ask students to describe what they notice and whether they have any questions so far.
  
- 2 Have students record a 0 in the multiplier box.
  - Call on a student volunteer to remind the class what they've learned about the *zero property of multiplication*.
  - Tell students that everyone will start with the multiplier 0 to get used to the routine.
  - Explain that a multiplier is a number by which you multiply other numbers.
  - Let them know that they only have a short time to do this first sheet because all the products will be the same (0).
  - Let students record the answers in each box and put down their pencil as soon as they are done. This should only take a minute or so.
  
- 3 Using the second of the three Quick Facts Worksheets in the Number Corner Student Book, repeat step 3 with 1 in the multiplier box.
 

Review the *identity property of multiplication* before students fill out the page. According to the identity property of multiplication, the product of 1 and any number is that number.
  
- 4 Finally, ask students to turn to the last of the three blank Quick Facts Worksheets for the month.
  - Tell them to record a 2 in the multiplier box.
  - Model the recording process by writing your name on the sheet, filling in 2 as the multiplier, and then multiplying the top row of numbers by 2 with students' help.
  - If necessary, remind students that when they multiply any number by 2, they are doubling it.

April | Computational Fluency Activity 1

NAME \_\_\_\_\_ | DATE \_\_\_\_\_


 **Quick Facts Worksheet C**

| What's your multiplier? | How many minutes? | Number correct |
|-------------------------|-------------------|----------------|
| 2                       | 1-2               | 35             |

**1** Multiply each number in the grid by your multiplier. Write each product in the box.

|    |    |   |    |   |   |   |    |    |
|----|----|---|----|---|---|---|----|----|
|    | 5  | 7 | 3  | 6 | 1 | 0 | 2  | 10 |
| 10 | 14 | 6 | 12 | 2 | 0 | 4 | 20 |    |

- 5 Tell students that they will have 4 minutes to complete as many of the problems on this page as they can, and explain how you'll keep track of their time.
  - First, you'll write 0–1 on the whiteboard.
  - Then, after they have been working for a minute, you'll write 1–2 on the board.
  - After 2 minutes have passed, you'll record 2–3. After 3 minutes have passed, you'll write 3–4, and after 4 minutes have passed, you'll call time.
  - As soon as they have finished the 40 multiplication facts, they should turn their paper over, look up at the board, and record the last range of minutes you recorded. If, for instance, they turn their paper over, look up, and see 1–2, they should write 1–2 on the back of their paper to indicate that they completed the work in 1–2 minutes.
  - Let them know that everyone will remain silent for the entire 4 minutes, even if many of them finish before the time is up, so that they can concentrate without distraction.
  - Invite students who are waiting quietly to draw a picture on the back of their Quick Facts sheet that shows what the class is looking like and thinking while they are doing Quick Facts.
  - Then show them where to record the amount of time it took them to complete the facts.
  
- 6 Give the signal to start, and keep track of the time that has passed as students work.
  - After 4 minutes have passed, ask them to stop, even if they're not finished.
  - Remind students to transfer the number of minutes it took them to complete the 40 facts from the back of the sheet to the line at the top of the sheet.
  - If students did not finish all the problems, they should write "4 +" minutes in the How Many Minutes? box.
  
- 7 Then, demonstrate how to complete the division section at the bottom of the page, using your display copy of the page.
  - Read the instructions together.
  - Write 10 different products of your choice from the grid in the dividend boxes.
  - Then record a 2 as the divisor on each line.
  - After you have set up 10 division facts, work with students' help to enter the quotients along the top row, and then have students fill in their own sheets, entering the dividends in any order they choose.
  
- 8 As students finish, collect their Number Corner Student Books open to this page and explain that you'll record the number correct in the "Number correct" box and return their books as soon as you are done correcting everyone's work.
  - Try to return students' worksheets within a day or two so they can identify their learning targets and have plenty of time to practice before the next Quick Facts session.
  - You can also use the Multiplication Facts Class Checklist Teacher Master to keep track of which students have mastered each group of facts.

|  <b>Multiplication Facts Class Checklist</b> |   |   |   |   |   |   |   |   |    |     |     |      |
|---|---|---|---|---|---|---|---|---|----|-----|-----|------|
| Student Names   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 2-6 | 4-9 | 6-10 |
| Vincent   | x | x | x | x | x | x | x | x | x  | x   | x   | x    |
| Mally   | x | x | x | x |   | x | x |   | x  |     |     |      |
| Mateo   | x | x |   | x | x |   | x | x | x  |     |     |      |
| Akiko   | x |   | x | x | x |   | x |   | x  |     |     |      |
| Wyatt   | x | x |   | x |   | x |   | x | x  |     |     |      |
| Talia   | x | x | x | x | x | x | x | x | x  | x   | x   | x    |

- 9 Wrap up today's activity by letting students know they will do the Quick Facts routine for one multiplier at the beginning of each Computational Fluency activity for the rest of the year.

# Day 4

Date:

|   |                           |                              |
|---|---------------------------|------------------------------|
| <b>Calendar Grid</b>  | <b>Calendar Collector</b> | <b>Computational Fluency</b> |
| <i>Update</i>   | <i>Update</i>             |                              |
| <b>Number Line</b>  | <b>Solving Problems</b>   | <b>Assessment</b>            |
| <b>Activity 1</b> – Introducing Put It on the Line (pg. 30) |                           |                              |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

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by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

**Activity 1**

**Key Questions**

**Introducing Put It on the Line**

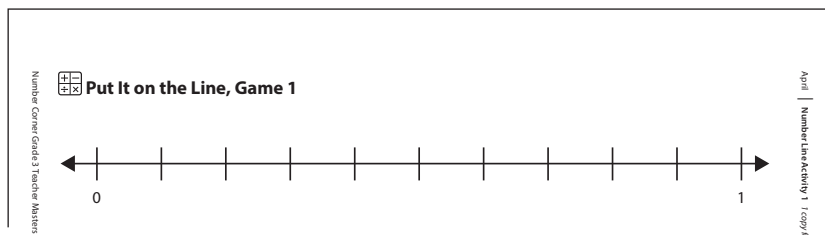
**Day 4**

The Put It on the Line Answer Key Teacher Master has answers for all three games.

Use the following questions to guide students' discussion this month:

- 1 Open today's activity by describing Put It on the Line and making sure each student has a whiteboard with marker and eraser or scratch paper with a pencil.
  - Let students know that they will learn a new game called Put It on the Line.
  - Tell them they will play this game again next month and in fourth and fifth grades. This month and next, the focus is on fractions. In the future, they will use the game to practice skills with other kinds of numbers.
- 2 Use the Put It on the Line, Game 1 Teacher Master (with sticky notes covering the 10 problems) to introduce the game.
  - Explain that the sticky notes cover problems that will be revealed as students play the game.
  - Focus students' attention on the number line above the problems.
  - Ask students what numbers would go on the dashes between the 0 and the 1. Encourage them to use mathematical reasoning to determine the missing numbers.
  - Invite students to share their thinking as a class. Do not label the number line right away; it will get filled in during the game.

- What fractions could go on this number line?
- Name some fractions that are equivalent to  $\frac{1}{2}$  ( $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{2}{3}$ ,  $\frac{4}{10}$  etc.). How do you know they are equivalent?
- Sara has \$0.20. What fraction of a dollar does Sara have?
- Simon spent 20 minutes at the park. What fraction of an hour did Simon spend at the park?
- How can you write 1 as a fraction?



**Students** Anything between 0 and 1.  
 There are so many fractions between 0 and 1. Halves, thirds, fourths, fifths, tenths.

**Teacher** Do you have any clues that would help you be more precise?

**Students** How many dashes are there? That might help.  
 Nine. And they are all pretty evenly spread out.  
 Nine dashes but 10 spaces. They could be tenths!  
 It could be  $\frac{1}{10}$  on the first one,  $\frac{2}{10}$  on the second and so on.  
 Right— $\frac{5}{10}$  is the same as  $\frac{1}{2}$ .

- 3 Explain that students will learn how to play the game by playing a round against you. Provide a brief summary of the game (see below), and answer any questions they have.
 

In Put It on the Line, students or student teams take turns revealing any of the 10 problems on the game board, solving the problem, and recording the answer where it belongs on the number line. Students or teams use a different color to write their numbers on the line. Whatever numbers they write become points for them. After each student or team has solved 5 problems, they estimate each team's total to predict a winner and then compute the exact totals to determine the winner.



- 4 Invite a student volunteer to reveal one of the problems and read it aloud. Then, have students solve the problem.
  - Encourage students to use their whiteboards or scratch paper to show their thinking. They can also use mental math strategies as long as they know they are still responsible for explaining their thinking.
  - Give students a few minutes to solve the problem quietly. If some students finish before others, they can put up their thumbs to show they are done and wait patiently to share their answers and strategies.

Number Corner Grade 3 Teachers Guides

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**Put It on the Line, Game 1**

April | Number Line Activity 1 | copy for student

|  |  |   |  |
|--|--|---|--|
|  |  | Conrad found a 50-cent piece on the sidewalk. What fraction of a dollar is a 50-cent piece? |  |
|  |  | Two quarters and a dime are what fraction of a dollar?                                      |  |

- 5 When there are plenty of thumbs up around the room, have students turn to a partner and share their answer and strategy. Then, invite a couple of students to share their answer and strategy.
- 6 Have the student volunteer record the answer in the students' color.
- 7 Ask students to think of some equivalent fractions for the fraction just filled in on the number line. Remind students of the connection between tenths and hundredths. [ $\frac{2}{10} = \frac{20}{100}$ ]
 

As you fill in the answers on the game board, invite students to continue offering equivalent fractions. Any equivalent fraction is fine, but make sure to include tenths for each answer.
- 8 Then, explain that although it is your turn, you would still like the students to solve the problem to ensure that you get the right answer. Repeat steps 4–7, only this time recording the answer in the color for you.

- 9 Explain that the game continues in this way until all 10 problems have been solved. Ask students if they have any questions or comments before continuing the game.

**ELL/SUPPORT** Make sure students understand the questions. Emphasize or review key vocabulary. You may want to have students work in pairs to discuss and solve the problems.

**CHALLENGE** For students who can solve problems efficiently and easily, you may want to have a few challenge questions posted for them to work on as they finish the problems for the game.

- 10 After all of the questions have been answered, have students estimate their total and your total to predict who will win. Invite a few students to share and explain their estimates and predictions.

- If you run out of time before answering all 10 problems, stop a few minutes before Number Corner is over to finish steps 11 and 12. Just make sure that each team has answered the same number of problems.
- Also note that you can change the outcome of the game by rolling the more/less die to determine whether the team with more or less wins.

- 11 Then, have students confirm their predictions by adding each team's numbers.

*Students* Hmm, well, it's pretty easy to add tenths but it will definitely be an improper fraction.

*We got  $\frac{3}{10}$ ,  $\frac{4}{10}$ ,  $\frac{6}{10}$ ,  $\frac{7}{10}$ , and  $\frac{10}{10}$ . Look,  $\frac{3}{10}$  and  $\frac{7}{10}$  makes 1. So do  $\frac{4}{10}$  and  $\frac{6}{10}$ . And  $\frac{10}{10}$  is 1. We have 3.*

*The teacher got  $\frac{1}{10}$ ,  $\frac{2}{10}$ ,  $\frac{5}{10}$ ,  $\frac{8}{10}$ , and  $\frac{9}{10}$ . That's  $\frac{25}{10}$ . I don't know how much that is but I don't think it is as much as we have!*

**CHALLENGE** Challenge students to consider what the total sum must be for all of the answers (the sum of their score and your score).

- 12 Wrap up today's activity by recognizing students' efforts learning a new game. Let them know they will play the game again in a few days, using a different game board.

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# Day 5

Date:

|                      |  |                              |
|----------------------|--|------------------------------|
| <b>Calendar Grid</b> | <b>Calendar Collector</b>                                      | <b>Computational Fluency</b> |
| <i>Update</i>        | <i>Update</i>  |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>  | <b>Assessment</b>            |
|                      | <b>Activity 1 – Solving &amp; Discussing Problems (pg. 37)</b> |                              |

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## Update

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### Procedure

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

### Literature Connections

Use the following books as read-alouds this month.

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by Carol A. Losi

*Jump, Kangaroo, Jump*

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## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

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by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

# Activity 1

## Solving & Discussing Problems

Days 5, 9, 14, 19

Each time you repeat this activity, you'll use a different Number Corner Student Book page. Every page invites students to select some of their own problems based on the results of their most recent Quick Facts. Be sure to mark students' Quick Facts papers in time for this activity.

- 1 Introduce this week's Number Corner Student Book page using your display copy of the page.
  - Read over each problem with students, and do items 1a and 2a together as a class if needed.
  - You may find it helpful to review the Student Book page ahead of time to determine ways to divide the first array or to complete the first maze. See examples on the next page.
- 2 Return students' most recent Quick Facts papers, and explain how they will use them for today's activity.
  - Students will review the multiplication facts they completed.
  - They should identify which ones were most challenging; these might be the problems they got incorrect or those they had to think about longer before solving.
  - They will select three of those challenging facts and focus on them in item 3 by:
    - » drawing an array to represent the combination
    - » using the array to illustrate a strategy for calculating the product that works well for them

**CHALLENGE** If students felt very comfortable with these facts, invite them to select some facts for the multiplier they will be working on next. For example, if they demonstrated mastery of multiplying by 2, they might be moving on to multiplying by 3. In that case, they might want to think about strategies for calculating  $3 \times 6$ ,  $3 \times 7$ , and  $3 \times 8$ . Another alternative is for students to think about combinations that are often most challenging. These combinations include:  $3 \times 7$ ,  $3 \times 8$ ,  $3 \times 9$ ,  $6 \times 7$ ,  $7 \times 7$ ,  $8 \times 7$ ,  $7 \times 9$ .

- 3 Answer students' questions, and then give them all but the last five minutes or so to complete the page.

While students work, circulate to make observations, answer questions, and differentiate instruction as needed. Pay attention to the facts students select for item 3, and make note of any common points of confusion so that you can focus on them when you reconvene the class.

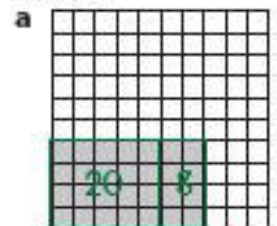
### Key Questions

Use the following questions to guide students' discussion this month:

- What smaller arrays do you see in the larger array?
- Which of those smaller arrays can you use to make it easier to calculate the product?
- How does knowing your multiplication facts help with division?
- What equation can you write to represent this story problem? Where in the equation do you see the numbers you know? Where in the equation is there space for the number you are trying to find?

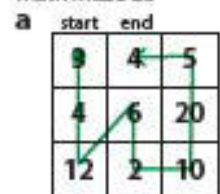
### Number Corner Student Book Page Examples

Array 1a



|                   |
|-------------------|
| $4 \times 7 = 28$ |
| $7 \times 4 = 28$ |
| $28 \div 4 = 7$   |
| $28 \div 7 = 4$   |

Math Maze 2a

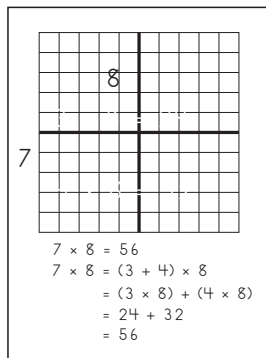


|                    |
|--------------------|
| $3 \times 4 = 12$  |
| $12 \div 6 = 2$    |
| $2 \times 10 = 20$ |
| $20 \div 5 = 4$    |

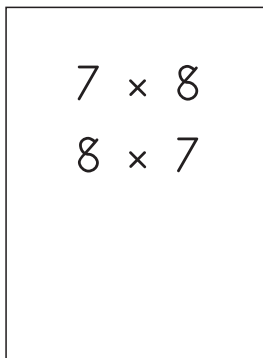
- 4 Reconvene the class and wrap up by discussing the equations students wrote for the story problems or by addressing any common points of confusion.

*Keep in mind that students might write a multiplication or division equation for some of the problems. For example, students might write  $24 \div 4 = 6$  or  $4 \times \underline{\quad} = 24$  for the problem on the first page about Mr. Garza giving his four sisters flowers. If students share these two equations, discuss how it is possible for two such different equations to represent the same problem. Invite students to discuss which one best represents the problem and which one best represents a potential strategy for solving the problem. The division equation most closely models the situation and the actions taken by Mr. Garza, but the multiplication equation might more closely represent a strategy students would use to solve the problem (e.g., thinking about what number times 4 makes a total of 24).*

**EXTENSION** Consider having students create their own flashcards for the combinations that are challenging for them. You might have them do this instead of completing the Number Corner Student Book page any given week. You might also simply have them make flashcards instead of completing item 3 on any given page. Students can use these flashcards at home or at school to practice with specific combinations. It is important that students select their own strategies for each fact they select.



front of card



back of card

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# Day 6

Date:

| Calendar Grid   | Calendar Collector | Computational Fluency |
|---|--------------------|-----------------------|
| <b>Activity 2</b> – Representing Fractions on a Number Line (pg. 9) | <i>Update</i>      |                       |
| Number Line   | Solving Problems   | Assessment            |
|   |                    |                       |



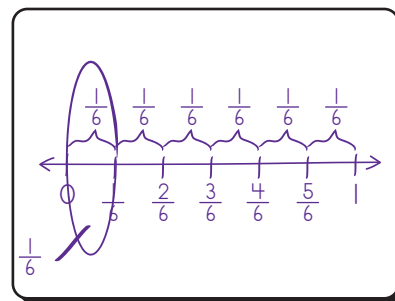
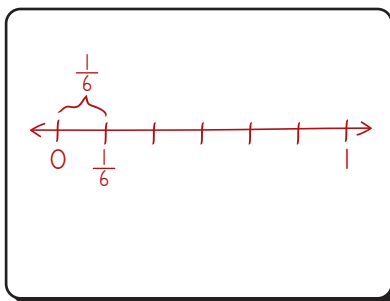
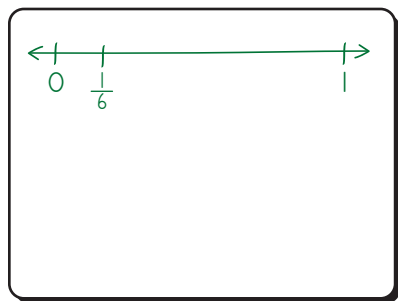


## Activity 2

### Representing Fractions on a Number Line

### Day 6

- Begin by gathering students in front of the Calendar Grid and working together to update the calendar and the Observations Chart.
  - Have students bring their whiteboards (with markers and erasers).
  - Give students a minute to study the Observations Chart.
  - Then have students share observations, ask questions, and suggest modifications or additions to the chart.
- Draw students' attention to the second marker ( $\frac{1}{6}$  of a pizza) and review what fraction it shows.
  - Ask students how they know that the slice represents  $\frac{1}{6}$  of the pizza.
  - Be sure students discuss the fact that there were 6 slices and that each slice was exactly the same size.
- Ask students to take a minute to draw a number line on their whiteboard and then show the fraction  $\frac{1}{6}$  on the number line. Ask students to use about half the space on their whiteboards, because they will be making more number lines in a moment.
- Invite students to hold up their whiteboards to share and compare their number lines.

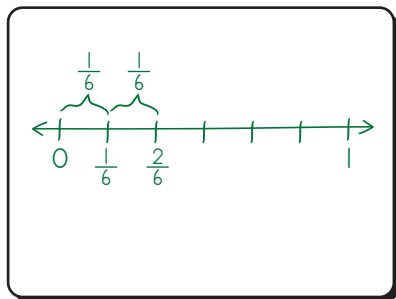


- Invite students to share observations about each other's number lines.

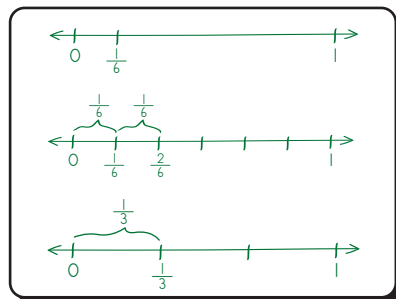
*Students* If you don't label all the sixths, it's hard to tell if you put  $\frac{1}{6}$  in the right place.

*I thought it helped to label all the sixths. That way you can see that this is just one of them.*

- Repeat steps 3–5 with marker 7, which shows 2 slices of pizza ( $\frac{2}{6}$ ).



- 7 Now have students focus on marker 6, which shows 4 red tiles out of 12, and ask them to write a fraction on their whiteboards to show what fraction of the tiles are red. Then have students hold up their whiteboards to quickly share and compare.
- 8 Once students see that the red tiles can be thought of as  $\frac{4}{12}$ ,  $\frac{1}{3}$ , or  $\frac{2}{6}$  of the 12 tiles, ask them to draw a number line to show  $\frac{1}{3}$ . Tell them to make the new number line the same length as the other two number lines on their board and to draw it directly under the number line showing  $\frac{2}{6}$ .
- 9 Have students hold up their whiteboards for a quick share and comparison and so that you can make sure students are showing the correct representation for  $\frac{1}{3}$ .



- 10 Ask students what they notice about the number lines for  $\frac{2}{6}$  and  $\frac{1}{3}$ .

*Students* They look like they show the same amount.

*Yeah,  $\frac{2}{6}$  is equal to  $\frac{1}{3}$ . You can see that there are 2 sixths in every 1 third.*

- 11 Ask students if 2 slices of pizza are the same quantity as 4 red tiles. Emphasize the idea that we can only compare fractions when the whole is the same, as it is with their number lines. (Because the whole is different, it does not make sense to directly compare  $\frac{2}{6}$  of a pizza with 4 out of 12 tiles.)

*Students* What? Tiles and pizza are not the same.

*Those 4 little tiles are way smaller than 2 pieces of pizza.*

*Teacher* But, your number lines showed that they are the same amount.

*Students* I know. Well, they are both  $\frac{1}{3}$ . But, they are not  $\frac{1}{3}$  of the same thing.

*You have to have the same whole to say that they are equal. The array and the pizza are different wholes.*

*They look the same on the number line because they both show  $\frac{1}{3}$  and they both are  $\frac{1}{3}$ , just  $\frac{1}{3}$  of different things.*

- 8 Wrap up today's activity by having students summarize the big ideas they discussed today and put away their materials.

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

# Day 7

Date:

| Calendar Grid | Calendar Collector | Computational Fluency  |
|---------------|--------------------|--|
| <i>Update</i> | <i>Update</i>      | <b>Activity 2</b> – Multiplication & Division Fact Families (pg. 23) |
| Number Line   | Solving Problems   | Assessment   |
|               |                    |  |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

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# Activity 2

## Multiplication & Division Fact Families


## Day 7

You need to have the Quick Facts Worksheet for the multiplier 2 corrected by this activity. If you can't get it done by today, spend a minute going over the answers in class so students can determine how many facts they answered correctly.

- 1 Open today's activity by having students find the Quick Facts Worksheet for the multiplier 2, which they worked on in the last activity, in their Number Corner Student Books. Have them find the amount of time and the number of facts they answered correctly.
- 2 Display the Quick Facts Tracking Sheet. Explain that students will keep track of their progress with the facts on the tracking sheet.
- 3 Model how to fill in the data for the first row. Explain that for the last column, they can say yes if they were able to answer 38 or more facts correctly in 2 minutes or less.

April | Computational Fluency Activities 1-4

NAME \_\_\_\_\_ | DATE \_\_\_\_\_

 **Quick Facts Tracking Sheet**

When you get back your Quick Facts Worksheet from last time:

- Record the date you completed the sheet, the time it took you, and the number of facts you got correct.
- If it took you more than 2 minutes or you got fewer than 38 facts correct, write "no" in the last box in the row and use that same multiplier or set of multipliers again.
- If you completed 38 or more facts correctly in 2 minutes or less, write "yes" the last box in the row and choose another multiplier or set of multipliers.
- Cross out each number as you master the facts for that multiplier or range of multipliers. Then circle your next target.

2   3   4   5   6   7   8   9   10   2-6   4-9   0-10

| Multiplier or Range of Multipliers | Date    | Time Taken | Correct Facts | Mastered?<br>(at least 38 correct in 2 min. or less) |
|------------------------------------|---------|------------|---------------|--|
| 2                                  | April 3 | 2 min.     | 35            | No   |

- 4 Then, explain that if they said yes in the last column, they will move on to the next multiplier, 3. If they needed more time or if they got fewer than 38 facts correct, they will work with the multiplier 2 again.

Be sure to take time to remind students that they are all moving at their own pace and that it is not a race or a competition. Encourage students to compete only against themselves, working to get more facts answered correctly than they did the last time.

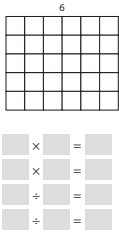
- 5 Then, tell students everyone will do another Quick Facts Worksheet. Some people might use the multiplier 2 again, while others might use the multiplier 3. Pass out copies of the Quick Facts Worksheet Teacher Master to students and have them write their name, the date and their multiplier.
- 6 Quickly review the Quick Facts process.  
See Activity 1, step 6.
- 7 Give students 4 minutes to complete the worksheet for their multiplier. Then, have them solve the division problems.  
See Activity 1, step 8.

- 8 When students have completed the division problems, display the Fact Families Teacher Master and work with students' input to complete the page together. Make students have access to their whiteboards, dry erase markers, and erasers.

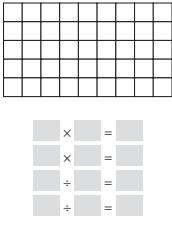
April | Computational Fluency Activity 2 1 copy for display

**Fact Families**

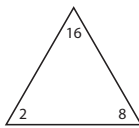
**a**



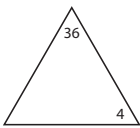
**b**



**c**



**d**



- Write the four equations that go with the  $5 \times 6$  array in Part A.
  - Uncover the second array in Part B.
    - » Have students record the array on their whiteboard and label the rectangle's dimensions.
    - » Call on someone to share what they've recorded.
    - » Next, ask students to write on their board the four multiplication and division equations (*fact family*) that are represented by the array.
    - » Have students turn to someone who sits close by and share what they wrote on their board. Then, call on several to project their boards for the class.
  - Display the triangle in Part C.
    - » Give students silent think time to examine the triangle and think about how the numbers are related.
    - » Ask students to explain to an elbow partner what they thought about.
    - » Call on students to record the four fact family equations that go with this triangle at the display.
  - Display the final fact family triangle in part D.
    - » Ask students to copy the triangle onto their whiteboards.
    - » Explain that their job will be to solve for the missing factor. They can draw an array or use any other strategy they think will help them solve for the missing factor and prove how they know they are right.
    - » Ask them to also record the four fact family equations that go with the triangle.
    - » Circulate and allow students to work silently until most students have recorded something on their board.
    - » Call on several to display their boards and explain what they did.
- 9 Wrap up today's activity by letting students know they will get their papers next time so that they can choose a multiplier for the next Quick Facts, after which they will play a multiplication game.

*Mark the number of correct products each student got on their papers so that you can return them on day 12.*



# Day 8

Date:

| Calendar Grid | Calendar Collector                                    | Computational Fluency |
|---------------|---|-----------------------|
| <i>Update</i> | <b>Activity 2</b> – Collecting Quarter-Hours (pg. 16) |                       |
| Number Line   | Solving Problems                                      | Assessment            |
|               |   |                       |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

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by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy



## Activity 2

### Collecting Quarter-Hours

### Day 8

- 1 Begin by reviewing the collection and the Record Sheet.
  - Give students some time to study the Record Sheet and collection quietly. (Gather them closer to the display so they can see it if needed.)
  - Invite students to share any comments or questions they have.
  - Invite them to add equivalent fractions to the fractions column.
  - Ask them to explain how they found the total amount of minutes and hours.
  
- 2 Then, explain what they will do for the next seven days.
  - Tell them that for the next seven days, they will collect quarters of an hour. Explain that quarters are the same as fourths.
  - Display the Quarters of an Hour Teacher Master.
  - Ask students to talk about the following questions, first in pairs and then as a class.
    - » How many minutes are in one-quarter of an hour?
    - » How many minutes are in two-quarters of an hour?
    - » How many minutes are in three-quarters of an hour?
    - » If one-quarter of an hour has passed, how many minutes are left in the hour?
  - Ask students to explain to their partners what the difference is between the phrases *quarter to* and *quarter past*.
  
- 3 Work together as a class to complete today's update procedure.
  - Invite a student helper to spin for today.
  - With input from the class, color in that number of quarters.
  - With input from the class, record the information on the Record Sheet.
 

*Marcella* Well, let's see, when we left off, we had  $6\frac{1}{2}$  hours. I just spun  $\frac{3}{4}$  of an hour. So, I can shade in half on this clock. Then, I need to shade in another quarter of an hour on the next clock.

*Teacher* Did everyone see how she did that? She had to split up what she spun to continue shading in the clocks. Does anyone have a question about that?
  
- 4 Ask students to think about how the collecting process will change, now that they are collecting fourths instead of halves. The following questions may help build discussion:
  - Can you collect a whole hour in one day? Why or why not?
  - Can you collect half an hour in one day? Why or why not?
  - How can you add  $\frac{1}{2}$  an hour and  $\frac{1}{4}$  of an hour?
  - How many hours do you think we will collect in these seven days?
  
- 5 Wrap up today's activity by asking students if they have any questions about collecting fourths of an hour.

# Day 9

Date:

|                      |  |                              |
|----------------------|--|------------------------------|
| <b>Calendar Grid</b> | <b>Calendar Collector</b>                                      | <b>Computational Fluency</b> |
| <i>Update</i>        | <i>Update</i>  |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>  | <b>Assessment</b>            |
|                      | <b>Activity 1 – Solving &amp; Discussing Problems (pg. 37)</b> |                              |

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**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

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# Activity 1

## Solving & Discussing Problems

Days 5, 9, 14, 19

Each time you repeat this activity, you'll use a different Number Corner Student Book page. Every page invites students to select some of their own problems based on the results of their most recent Quick Facts. Be sure to mark students' Quick Facts papers in time for this activity.

- 1 Introduce this week's Number Corner Student Book page using your display copy of the page.
  - Read over each problem with students, and do items 1a and 2a together as a class if needed.
  - You may find it helpful to review the Student Book page ahead of time to determine ways to divide the first array or to complete the first maze. See examples on the next page.
- 2 Return students' most recent Quick Facts papers, and explain how they will use them for today's activity.
  - Students will review the multiplication facts they completed.
  - They should identify which ones were most challenging; these might be the problems they got incorrect or those they had to think about longer before solving.
  - They will select three of those challenging facts and focus on them in item 3 by:
    - » drawing an array to represent the combination
    - » using the array to illustrate a strategy for calculating the product that works well for them

**CHALLENGE** If students felt very comfortable with these facts, invite them to select some facts for the multiplier they will be working on next. For example, if they demonstrated mastery of multiplying by 2, they might be moving on to multiplying by 3. In that case, they might want to think about strategies for calculating  $3 \times 6$ ,  $3 \times 7$ , and  $3 \times 8$ . Another alternative is for students to think about combinations that are often most challenging. These combinations include:  $3 \times 7$ ,  $3 \times 8$ ,  $3 \times 9$ ,  $6 \times 7$ ,  $7 \times 7$ ,  $8 \times 7$ ,  $7 \times 9$ .

- 3 Answer students' questions, and then give them all but the last five minutes or so to complete the page.

While students work, circulate to make observations, answer questions, and differentiate instruction as needed. Pay attention to the facts students select for item 3, and make note of any common points of confusion so that you can focus on them when you reconvene the class.

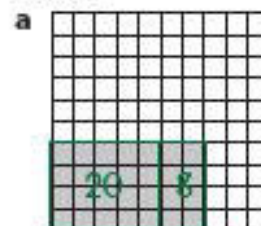
### Key Questions

Use the following questions to guide students' discussion this month:

- What smaller arrays do you see in the larger array?
- Which of those smaller arrays can you use to make it easier to calculate the product?
- How does knowing your multiplication facts help with division?
- What equation can you write to represent this story problem? Where in the equation do you see the numbers you know? Where in the equation is there space for the number you are trying to find?

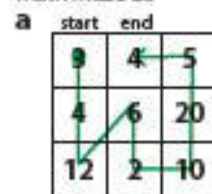
### Number Corner Student Book Page Examples

Array 1a



|                   |
|-------------------|
| $4 \times 7 = 28$ |
| $7 \times 4 = 28$ |
| $28 \div 4 = 7$   |
| $28 \div 7 = 4$   |

Math Maze 2a

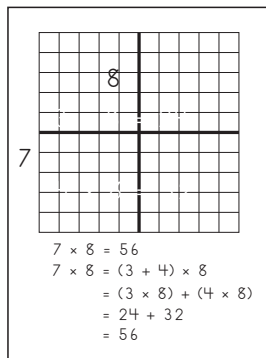


|                    |
|--------------------|
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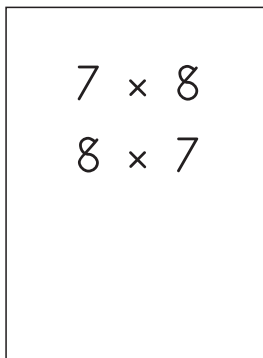
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*Keep in mind that students might write a multiplication or division equation for some of the problems. For example, students might write  $24 \div 4 = 6$  or  $4 \times \underline{\quad} = 24$  for the problem on the first page about Mr. Garza giving his four sisters flowers. If students share these two equations, discuss how it is possible for two such different equations to represent the same problem. Invite students to discuss which one best represents the problem and which one best represents a potential strategy for solving the problem. The division equation most closely models the situation and the actions taken by Mr. Garza, but the multiplication equation might more closely represent a strategy students would use to solve the problem (e.g., thinking about what number times 4 makes a total of 24).*

**EXTENSION** Consider having students create their own flashcards for the combinations that are challenging for them. You might have them do this instead of completing the Number Corner Student Book page any given week. You might also simply have them make flashcards instead of completing item 3 on any given page. Students can use these flashcards at home or at school to practice with specific combinations. It is important that students select their own strategies for each fact they select.



front of card



back of card

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# Day 10

Date:

|  |                           |                              |
|--|---------------------------|------------------------------|
| <b>Calendar Grid</b>   | <b>Calendar Collector</b> | <b>Computational Fluency</b> |
| <i>Update</i>  | <i>Update</i>             |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>   | <b>Assessment</b>            |
| <b>Activity 2</b> – Playing Put It on a Line as a Class (pg. 33) |                           |                              |

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**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

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## Update

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### Literature Connections

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*At School: Telling Time by the Half-Hour*  
by Alice Proctor

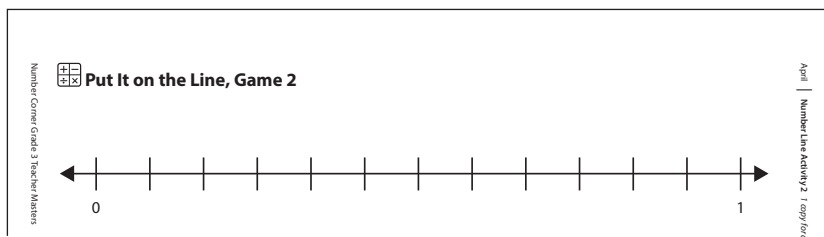
*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher


**Activity 2**
**Playing Put It on the Line as a Class****Day 10**

Decide how you want to split your class in half. If your class has a hard time with competitive games, plan to discuss some strategies for playing competitive games successfully.

- 1 Open today's activity by explaining that students will play Put It on the Line in teams. The class will be split in half to play against each other.
- 2 Briefly review the directions for Put It on the Line.  
See Activity 1, step 3.
- 3 Then, divide the class in half. If necessary, review a few tips for good sportsmanship and camaraderie.
  - Remind students that they will play this game several times before the end of the school year. Sometimes they will win, and sometimes they will not. The point is to have fun while practicing important math skills.
  - Encourage them to support their own teammates. Ask them for examples of what that looks like and sounds like.
  - Elicit suggestions for how to respond when their team does and does not win. How can they make sure no feelings are hurt? How can they recognize the efforts of both teams?
- 4 Display the Put It on the Line, Game 2 Teacher Master. Focus students' attention on the number line above the problems. Ask them what numbers would go on the dashes on the number line. Encourage them to use mathematical reasoning to determine the missing numbers.



*Students* It looks like tenths, just like last time.

*I think there might be more than 10 dashes on the line. Yeah, there are! There are 12 spaces between the dashes this time.*


*So that means we're supposed to think about twelfths today and all the fractions that equal twelfths.*

*Oh, right. Like  $\frac{6}{12}$  equals  $\frac{1}{2}$  and  $\frac{4}{12}$  equals  $\frac{1}{3}$ .*

- 5 After discussing what numbers will be filled in on the number line, ask students to think of some equivalent fractions. For example, point to where  $\frac{6}{12}$  would go and ask students to name some equivalent fractions for this location on the number line.

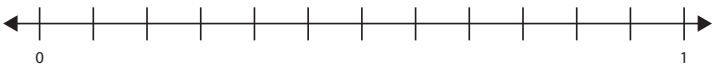
- 6 Ask students if they have any questions, and then begin playing the game.
  - Invite student volunteers from each team to reveal problems for the teams to solve.
  - Be sure to allow wait time for all students to solve the problems.
  - Encourage students to share and explain their strategies as well as answers. If they use estimation strategies, be sure to emphasize these. Try to elicit participation from as many students as possible.
  - Use the differentiated instruction tips from Activity 1, if applicable.

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### Put It on the Line, Game 2

April | Number Line Activity 2 | copy for display



|  |   |   |   |  |  |
|--|---|---|---|--|--|
| Name a fraction equivalent to $\frac{5}{10}$ .               | Three eggs is what fraction of a dozen?   | Five inches is what fraction of a foot?   | Maria swam for 20 minutes. What fraction of an hour did Maria spend swimming? | Francis had $\frac{5}{8}$ of a chocolate bar. She ate $\frac{2}{8}$ . How much does she have left? | Lea has 12 tiles. All of them are blue. What fraction of the tiles are blue? |
| Niko has 75 cents. What fraction of a dollar does Niko have? | Mark ran for $\frac{6}{12}$ of a mile. Cole ran for $\frac{3}{12}$ of a mile. How much more did Mark run than Cole? | Cynthia ran for $\frac{4}{12}$ of a mile. Marla ran for $\frac{5}{12}$ of a mile. How much did they run together? | Two inches is what fraction of a foot?  | Seven eggs is what fraction of a dozen?  | Name a fraction equivalent to $\frac{3}{5}$ .                                |

- 7 After playing Put It on the Line, have students reflect on how the game works. Ask them if there is a strategy for getting more points or if it is all up to chance.

It is up to chance. The number of points depends on what problems each team chooses as the answer is the score. Students should, however, make sure their answer is correct, because they will not get any points for an incorrect answer. Look for students who notice that because the numbers on the number line are the answers, they can use those numbers to check their answers. For example, if a student gets  $\frac{3}{10}$  for an answer in this game, it is not correct because that number is not on this number line.

**CHALLENGE** Challenge students to consider what the total sum must be for all of the answers (the sum of their score and your score). Is the total of all these twelfths greater or less than the total of all the tenths? Why is this so? What if they divided the line into halves? Into twentieths?

- 8 Wrap up today’s activity by recognizing students for their participation. Close the activity by asking them to summarize some of the key math skills and concepts involved in the problems they solved today.

*Students We solved problems with fractions.*

*We thought about equivalent fractions.*

*When we found our score, we were adding with mixed numbers and  
 .....improper fractions.*

# Day 11

Date:

| Calendar Grid   | Calendar Collector | Computational Fluency |
|---|--------------------|-----------------------|
| Activity 3 – Making Observations & Predictions (pg. 11) | <i>Update</i>      |                       |
| Number Line   | Solving Problems   | Assessment            |
|   |                    |                       |



## Activity 3

### Making Observations & Predictions

### Day 11

- 1 Ask students to bring their whiteboards, markers, and erasers and gather in front of the Calendar Grid.
- 2 Ask students to talk in pairs to make and discuss at least four different observations about the markers. These can be new observations or ones that have been recorded on the Observations Chart.
  - You might help students focus by encouraging them to look for similarities and differences between the markers.
  - You might also encourage them to describe as many markers as they can in terms of fractions.
- 3 Go around the room and have each pair share one observation they discussed.
  - Challenge the class to try to make it all the way around the room without repeating any observation.
  - As they share their ideas, you may find that some students have focused on what is empty or not colored in on each marker. This is a perfectly valid way to interpret this month's calendar pattern.
  - Select several of the observations that were shared to add to the Observations Chart where appropriate. Focus on those observations that address equivalent fractions.

- 4 After students have shared their observations, take a few minutes to clarify any misconceptions or confusion students have expressed about the fractions, models, or anything else having to do with the pattern.

This is a good opportunity to make sure students understand fractions represented on a clock face. Students can think about some number of minutes out of 60, some number out of 12 numbers around the circumference, or other equal parts of the whole clock face or equal groups of minutes (denominators of 2, 3, 4, 6, and 12).

- 5 Now invite students to draw on their whiteboards a prediction about what today's marker will look like. Circulate while students are drawing and look for several that might provoke an interesting discussion.
  - Ask students questions while you circulate as a means of informal assessment.
  - Even if a student cannot name the correct fraction, he or she might be able to draw it.
  - If the student labels her sketch with a fraction, make note of whether the picture and symbolic notation match.
  - You may also find it interesting to see how students explain their predictions at this point in the year.

**CHALLENGE:** If you find that some students could benefit from an additional challenge, pose the following questions for them.

- What decimal number is equal to the fraction shown on marker 14? How do you know?
- If you add the fractions shown on markers 7 and 12, what fraction would you get? (When asking students to add fractions, be sure to select fractions based on the same model to ensure that the whole is consistent.) Write an equation to show these fractions and their sum.

- 6 Have select students share their predictions, and invite the class to discuss each one. Then reveal today's marker and invite students to talk about how the predictions were similar to and different from the actual marker.
- 7 Wrap up today's activity by asking students to make and share, first in pairs and then as a group, predictions about the markers for the rest of the month.

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## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

# Day 12

Date:

| Calendar Grid | Calendar Collector | Computational Fluency   |
|---------------|--------------------|---|
| <i>Update</i> | <i>Update</i>      | <b>Activity 3</b> – Rows & Columns Multiplication Game (pg. 25) |
| Number Line   | Solving Problems   | Assessment  |
|               |                    |   |

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## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

### Procedure

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

### Literature Connections

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
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- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

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by Doris Fisher

 **Activity 3****Rows & Columns Multiplication Game****Days 12, 18**

*On day 12, you will teach the game and play against the class. On day 18, you will review the directions and have students play with partners. Before each activity, be sure to mark students' Quick Facts papers from last time.*

- 1 Open today's activity with the Quick Facts routine.
  - First have students record the results from the last Quick Facts on their tracking sheet. This will let them know what their next multiplier is.
  - Have students use copies of the Quick Facts Worksheet Teacher Master to do the Quick Facts routine for their next multiplier.
  - See Activity 1 if you need to review how to do Quick Facts.
  
- 2 Then, introduce today's game, using the Rows & Columns Multiplication Game Teacher Master.
  - Let students know that they are going to learn a new game today called the Rows & Columns Multiplication Game.
  - Explain that the game will help them review multiplication and division fact families.
  - Have students remind someone who sits close to them what an example of a multiplication and division fact family is, and then call on one or two students to share what they discussed with their partner.
  
- 3 Take the first turn yourself to model how the game is played.
  - Spin both spinners.
  - The rows spinner shows the vertical dimension and the columns spinner shows the horizontal dimension of an array.
  - Outline a rectangular array with these dimensions anywhere on the Teacher grid.
  - Tell students that in order to "claim" this rectangular array, you must be able to record the equations in this fact family.
  - Record the equations on a separate sheet of paper or on the whiteboard. Students can challenge you if they think you haven't done the multiplication correctly. If they are correct and you didn't record the fact family correctly, you do not get to claim the rectangular array.
  - If you prove that you have done it correctly, claim the array by writing your initials inside.

April | Computational Fluency Activity 3 | 1 copy for display

### Rows & Columns Multiplication Game

| Class                        | Teacher                        |
|------------------------------|--------------------------------|
|                              |                                |
| Rows                         | Columns                        |
|                              |                                |
| Class: Total Squares Claimed | Teacher: Total Squares Claimed |

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$$7 \times 4 = 28$$

$$4 \times 7 = 28$$

$$28 \div 4 = 7$$

$$28 \div 7 = 4$$

- 4 Then have the class take a turn.
  - Invite different students to spin each spinner.
  - Ask another to do the recording of the outline of the array.
  - Call on one more student to list the fact family sentences represented by the array.
  - If everything is done correctly, the class can claim their rectangular array.
- 5 Continue to take turns until you or the class cannot use the dimensions spun to make an array that will fit in the grid without overlapping another array. Then find the sum of each team's products. The team with the greater sum wins.
- 6 Wrap up the activity by asking students to reflect on the game. Did it help them think about fact families? Did any of the arrays connect to each other? Then, have students clean up and put their materials away.

# Day 13

Date:

|  |                           |                              |
|--|---------------------------|------------------------------|
| <b>Calendar Grid</b>   | <b>Calendar Collector</b> | <b>Computational Fluency</b> |
| <i>Update</i>  | <i>Update</i>             |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>   | <b>Assessment</b>            |
| <b>Activity 3</b> – Playing Put It on the Line with a Partner (pg. 35) |                           |                              |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy



## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

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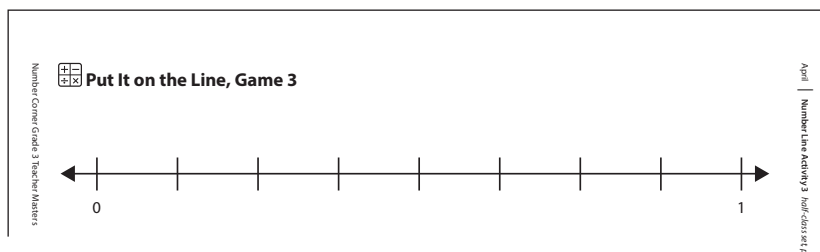
## Activity 3

### Playing Put It on the Line with a Partner

Day 13

Make sure to put sticky notes over the questions on your copy of the Put It on the Line, Game 3 Teacher Master before you display it. Optionally, you can cover the problems on the half-class set of copies before you pass them out as well.

- 1 Open today's activity by explaining that students will play Put It on the Line with a partner.
- 2 Distribute copies of the Put It on the Line, Game 3 Teacher Master to student pairs along with sticky notes. Have them cover the questions with sticky notes to get ready to play the game.  
Tell students to try not to read the problems as they attach the sticky notes.
- 3 Display your copy of the Put It on the Line, Game 3 page. Focus students' attention on the number line above the problems. Ask them what numbers would go on the dashes on the number line.



*Students* How many is it this time? Not tenths or twelfths?

*I think we will think about eighths this time.*

*That means we're thinking about fourths too;  $\frac{2}{8}$  is the same as  $\frac{1}{4}$ .*

- 4 After discussing what numbers will be filled in on the number line, ask students to think of some equivalent fractions.
- 5 Ask students if they have any questions. If necessary, review the directions for playing the game.
- 6 Have students get two different colored pens or pencils and then begin playing the game with their partners. Encourage them to share and explain their strategies as well as answers.

**Put It on the Line, Game 3**

|  |   |   |   |
|--|---|---|---|
| Eloise did gymnastics for 45 minutes. What fraction of an hour did Eloise spend doing gymnastics?                | Franco had $\frac{1}{4}$ of a pizza. He gave half of his pizza to his brother. How much pizza did Franco give to his brother? | Three inches is what fraction of a foot?      | Name a fraction equivalent to $\frac{1}{4}$ .   |
| Emir is running one mile. He has $\frac{1}{8}$ of a mile left to complete the mile. How far has Emir run so far? | Sophia read $\frac{7}{8}$ of her book. Conner read $\frac{4}{8}$ of the same book. How much more did Sophia read than Conner? | Name a fraction equivalent to $\frac{1}{4}$ . | Leo bought a pizza with 8 slices. He ate 3 slices. What fraction of the pizza does Leo have left? |

7 As students play, circulate around the room to make observations, answer questions, and offer differentiated instruction.

**ELL/SUPPORT** Make sure students understand the questions. Emphasize or review key vocabulary. You may want to have students work in pairs to discuss and solve the problems. Help them find and use resources around the room that may help them with the questions. The markers on this month’s Calendar Grid, for example, are a good model for fractions.

**CHALLENGE** Have students make up some of their own questions that could go on a Put It on the Line game board. Have them compare all three number lines they have used this month. Do they see equivalent fractions across the boards? Could they use the questions from Game 2 with Game 3? Why or why not?

8 Toward the end of your time today, have students stop playing and add up their scores. Remember to offer the more/less die as an option for deciding who wins.

9 Wrap up this month’s Number Line workout by asking students to reflect on the game. What did they think of the game? What skills and concepts did they work on by playing the game?

# Day 14

Date:

|                      |  |                              |
|----------------------|--|------------------------------|
| <b>Calendar Grid</b> | <b>Calendar Collector</b>                                      | <b>Computational Fluency</b> |
| <i>Update</i>        | <i>Update</i>  |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>  | <b>Assessment</b>            |
|                      | <b>Activity 1 – Solving &amp; Discussing Problems (pg. 37)</b> |                              |

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 **Update**

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**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

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by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

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by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
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*My Half Day*  
by Doris Fisher



# Activity 1

## Solving & Discussing Problems

Days 5, 9, 14, 19

Each time you repeat this activity, you'll use a different Number Corner Student Book page. Every page invites students to select some of their own problems based on the results of their most recent Quick Facts. Be sure to mark students' Quick Facts papers in time for this activity.

- 1 Introduce this week's Number Corner Student Book page using your display copy of the page.
  - Read over each problem with students, and do items 1a and 2a together as a class if needed.
  - You may find it helpful to review the Student Book page ahead of time to determine ways to divide the first array or to complete the first maze. See examples on the next page.
  
- 2 Return students' most recent Quick Facts papers, and explain how they will use them for today's activity.
  - Students will review the multiplication facts they completed.
  - They should identify which ones were most challenging; these might be the problems they got incorrect or those they had to think about longer before solving.
  - They will select three of those challenging facts and focus on them in item 3 by:
    - » drawing an array to represent the combination
    - » using the array to illustrate a strategy for calculating the product that works well for them

**CHALLENGE** If students felt very comfortable with these facts, invite them to select some facts for the multiplier they will be working on next. For example, if they demonstrated mastery of multiplying by 2, they might be moving on to multiplying by 3. In that case, they might want to think about strategies for calculating  $3 \times 6$ ,  $3 \times 7$ , and  $3 \times 8$ . Another alternative is for students to think about combinations that are often most challenging. These combinations include:  $3 \times 7$ ,  $3 \times 8$ ,  $3 \times 9$ ,  $6 \times 7$ ,  $7 \times 7$ ,  $8 \times 7$ ,  $7 \times 9$ .

- 3 Answer students' questions, and then give them all but the last five minutes or so to complete the page.

While students work, circulate to make observations, answer questions, and differentiate instruction as needed. Pay attention to the facts students select for item 3, and make note of any common points of confusion so that you can focus on them when you reconvene the class.

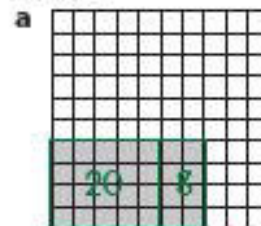
### Key Questions

Use the following questions to guide students' discussion this month:

- What smaller arrays do you see in the larger array?
- Which of those smaller arrays can you use to make it easier to calculate the product?
- How does knowing your multiplication facts help with division?
- What equation can you write to represent this story problem? Where in the equation do you see the numbers you know? Where in the equation is there space for the number you are trying to find?

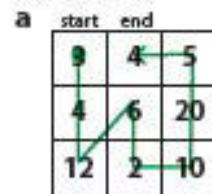
### Number Corner Student Book Page Examples

Array 1a



|                   |
|-------------------|
| $4 \times 7 = 28$ |
| $7 \times 4 = 28$ |
| $28 \div 4 = 7$   |
| $28 \div 7 = 4$   |

Math Maze 2a

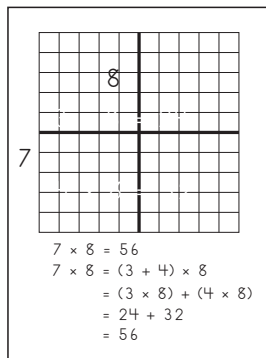


|                    |
|--------------------|
| $3 \times 4 = 12$  |
| $12 \div 6 = 2$    |
| $2 \times 10 = 20$ |
| $20 \div 5 = 4$    |

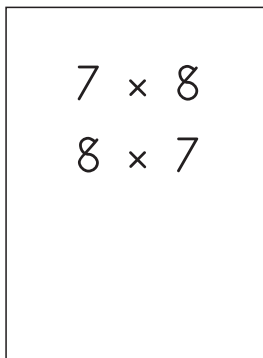
- 4 Reconvene the class and wrap up by discussing the equations students wrote for the story problems or by addressing any common points of confusion.

*Keep in mind that students might write a multiplication or division equation for some of the problems. For example, students might write  $24 \div 4 = 6$  or  $4 \times \underline{\quad} = 24$  for the problem on the first page about Mr. Garza giving his four sisters flowers. If students share these two equations, discuss how it is possible for two such different equations to represent the same problem. Invite students to discuss which one best represents the problem and which one best represents a potential strategy for solving the problem. The division equation most closely models the situation and the actions taken by Mr. Garza, but the multiplication equation might more closely represent a strategy students would use to solve the problem (e.g., thinking about what number times 4 makes a total of 24).*

**EXTENSION** Consider having students create their own flashcards for the combinations that are challenging for them. You might have them do this instead of completing the Number Corner Student Book page any given week. You might also simply have them make flashcards instead of completing item 3 on any given page. Students can use these flashcards at home or at school to practice with specific combinations. It is important that students select their own strategies for each fact they select.



front of card



back of card

.....



# Day 15

Date:

| Calendar Grid | Calendar Collector  | Computational Fluency |
|---------------|---|-----------------------|
| <i>Update</i> | <b>Activity 3</b> – Collecting Thirds of an Hour (pg. 17) |                       |
| Number Line   | Solving Problems  | Assessment            |
|               |   |                       |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy



## Activity 3

### Collecting Thirds of an Hour

### Day 15

- 1 Begin by reviewing the collection and the Record Sheet.
  - Give students some time to study the Record Sheet and collection quietly. (Gather them closer to the display so they can see it if needed.)
  - Invite students to share any comments or questions they have.
  - Invite them to add equivalent fractions to the fractions column.
  - Ask them to explain how they found the total amount of minutes and hours.
- 2 Then, explain what they will do for the next six days.
  - Tell them that for the next six days, they will collect thirds of an hour.
  - Display the Thirds of an Hour Teacher Master.
  - Ask students to talk about the following questions, first in pairs and then as a class.
    - » How many minutes are in one-third of an hour?
    - » How many minutes are in two-thirds of an hour?
    - » How many minutes are in three-thirds of an hour?
- 3 Work together as a class to complete today's update procedure.
  - Invite a student helper to spin for today.
  - With input from the class, color in that number of thirds.
  - With input from the class, record the information on the Record Sheet.
- 4 Ask students to think about how the collecting process will change, now that they are collecting thirds. The following questions may help build discussion:
  - Can you collect a whole hour in one day? Why or why not?
  - Can you collect half an hour in one day? Why or why not?
  - How can you add fourths and thirds?
  - How many hours do you think we will collect in these 6 days?
- 5 Wrap up today's activity by asking students if they have any questions about collecting thirds of an hour.

# Day 16

Date:

| Calendar Grid | Calendar Collector | Computational Fluency                                 |
|---------------|--------------------|---|
| <i>Update</i> | <i>Update</i>      | <b>Activity 4</b> – The Associative Property (pg. 27) |
| Number Line   | Solving Problems   | Assessment  |
|               |                    |   |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher



## Activity 4

Mark the number of products each student got correct on their last Quick Facts paper so that they can select a multiplier for today's Quick Facts routine.

### The Associative Property

### Day 16

- Open today's activity with the Quick Facts routine.
  - First have students record the results from the last Quick Facts on their tracking sheet. This will let them know what their next multiplier is.
  - Have students do the Quick Facts routine for their next multiplier.
  - See Activity 1 if you need to review how to do Quick Facts.

- Then, invite students to come to the Number Corner discussion area with their whiteboards, dry erase markers, and erasers.

- When everyone is ready, write the following problems one at a time where everyone can see them, and have students solve them and share their answers.

$$4 \times 50 = \underline{\quad}$$

$$4 \times 5 = \underline{\quad}$$

$$20 \times 10 = \underline{\quad}$$

- After they have solved and discussed each problem, ask students to talk in pairs about any connections they see among these three problems. Then have them share ideas as a class.

*Students* Four times 5 is connected to 4 times 50 because 5 is 10 times as much as 5, so 4 times 50 is 10 times as much as 4 times 5.

Four times 50 and 20 times 10 have the same answer, but I am not sure why.

Well, 4 times 5 is 20 and 20 times 10 is 200. I think it connects to 4 times 50 somehow.

- Write the equation  $4 \times 50 = 4 \times 5 \times 10$ , and ask students if they think the equation is true or not. As students share, rewrite the equations with parentheses to show their thinking.

*Students* I'm not sure. They look different.

Yeah, but we just saw that 4 times 50 is 200, and then we did 4 times 5 is 20, and then 20 times 10 is 200, so we know they are both 200.

$$4 \times 50 = (4 \times 5) \times 10$$

$$4 \times 50 = 20 \times 10$$

I see it another way. If you do the 5 times 10 first, then you get 50, then they are the same—4 times 50 equals 4 times 50.

$$4 \times 50 = 4 \times (5 \times 10)$$

$$4 \times 50 = 4 \times 50$$

- Repeat steps 3–5 with these problems:

$$3 \times 60 = \underline{\quad}$$

$$3 \times 6 = \underline{\quad}$$

$$18 \times 10 = \underline{\quad}$$

- 7 Write the expression  $3 \times 5 \times 2$ , and ask students if it matters what order they multiply the numbers. Do they have to multiply from left to right, or can they do it a different way? Invite students to share their thinking as a class. As students share, write equations or expressions to show their thinking.

*Students* I think you should just do it like they say: 3 times 5 and then that times 2.

$$(3 \times 5) \times 2$$

You can, but I notice that 5 times 2 is 10 and that is easy to multiply.

$$3 \times (5 \times 2)$$

Or even 3 times 2 first. That equals 6, which you can multiply by 5. It's easy to multiply by 5s too.

$$(3 \times 2) \times 5$$

- 8 Wrap up today's activity by explaining that students have been talking about something called the associative property, which states that the product is the same no matter how you group the numbers being multiplied.



# Day 17

Date:

| Calendar Grid                           | Calendar Collector | Computational Fluency |
|---|--------------------|-----------------------|
| Activity 4 – Looking at Thirds (pg. 12) | <i>Update</i>      |                       |
| Number Line                             | Solving Problems   | Assessment            |
|   |                    |                       |



## Activity 4

### Looking at Thirds

### Day 17

- 1 Open today's activity by inviting a student helper to complete the update procedure with input from the class.
- 2 Then introduce the More About Fractions page.
  - Display your copy of the page and ask students to turn to the same page in their own Number Corner Student Books.
  - Ask a volunteer to read the first question, which asks them to make connections between 5 markers that all show  $\frac{1}{3}$  on a different model.
  - Have students work together as a class to generate two fraction names for the first marker.
- 3 Give students time to complete the rest of the page independently or in pairs if they prefer to work with someone.
- 4 When students have completed the page, you may want to collect their work and look it over later. Their responses to the items on the page will provide a good deal of information regarding their current understandings of fractions.
- 5 Bring students' attention back to the Calendar Grid, and have them share prediction for the remaining markers.

**CHALLENGE:** If students need an additional challenge, pose problems similar to those below.

  - » What decimal number is equal to the fraction shown on marker 28? How do you know?
  - » What is the sum of the fractions shown on markers 12 and 22? Show the fractions and their sum as an equation.
  - » What is the difference between the fractions shown on markers 7 and 22? Show the fractions and their difference as an equation.
- 6 Wrap up today's workout by asking students to summarize the big ideas represented in this month's calendar pattern. Also ask students to share any aspect of fractions that they feel they better understand after having worked with the pattern.

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

*At School: Telling Time by the Half-Hour*  
by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

# Day 18

Date:

|                      |                           |   |
|----------------------|---------------------------|---|
| <b>Calendar Grid</b> | <b>Calendar Collector</b> | <b>Computational Fluency</b>                                    |
| <i>Update</i>        | <i>Update</i>             | <b>Activity 3</b> – Rows & Columns Multiplication Game (pg. 25) |
| <b>Number Line</b>   | <b>Solving Problems</b>   | <b>Assessment</b>   |
|                      |                           |   |

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## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

### Procedure

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

### Literature Connections

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy

## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.

## Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
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- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

Use the following books as read-alouds this month.

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*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher

 **Activity 3****Rows & Columns Multiplication Game****Days 12, 18**

*On day 12, you will teach the game and play against the class. On day 18, you will review the directions and have students play with partners. Before each activity, be sure to mark students' Quick Facts papers from last time.*

- 1 Open today's activity with the Quick Facts routine.
  - First have students record the results from the last Quick Facts on their tracking sheet. This will let them know what their next multiplier is.
  - Have students use copies of the Quick Facts Worksheet Teacher Master to do the Quick Facts routine for their next multiplier.
  - See Activity 1 if you need to review how to do Quick Facts.
- 2 Then, introduce today's game, using the Rows & Columns Multiplication Game Teacher Master.
  - Let students know that they are going to learn a new game today called the Rows & Columns Multiplication Game.
  - Explain that the game will help them review multiplication and division fact families.
  - Have students remind someone who sits close to them what an example of a multiplication and division fact family is, and then call on one or two students to share what they discussed with their partner.
- 3 Take the first turn yourself to model how the game is played.
  - Spin both spinners.
  - The rows spinner shows the vertical dimension and the columns spinner shows the horizontal dimension of an array.
  - Outline a rectangular array with these dimensions anywhere on the Teacher grid.
  - Tell students that in order to "claim" this rectangular array, you must be able to record the equations in this fact family.
  - Record the equations on a separate sheet of paper or on the whiteboard. Students can challenge you if they think you haven't done the multiplication correctly. If they are correct and you didn't record the fact family correctly, you do not get to claim the rectangular array.
  - If you prove that you have done it correctly, claim the array by writing your initials inside.

April | Computational Fluency Activity 3 | 1 copy for display

### Rows & Columns Multiplication Game

| Class                        | Teacher                        |
|------------------------------|--------------------------------|
|                              |                                |
| Rows                         | Columns                        |
|                              |                                |
| Class: Total Squares Claimed | Teacher: Total Squares Claimed |

Number Corner Grade 3 Teacher Masters 19 © The Math Learning Center | mathlearningcenter.org

$$7 \times 4 = 28$$

$$4 \times 7 = 28$$

$$28 \div 4 = 7$$

$$28 \div 7 = 4$$

- 4 Then have the class take a turn.
  - Invite different students to spin each spinner.
  - Ask another to do the recording of the outline of the array.
  - Call on one more student to list the fact family sentences represented by the array.
  - If everything is done correctly, the class can claim their rectangular array.
  
- 5 Continue to take turns until you or the class cannot use the dimensions spun to make an array that will fit in the grid without overlapping another array. Then find the sum of each team's products. The team with the greater sum wins.
  
- 6 Wrap up the activity by asking students to reflect on the game. Did it help them think about fact families? Did any of the arrays connect to each other? Then, have students clean up and put their materials away.



# Day 19

Date:

|                      |  |                              |
|----------------------|--|------------------------------|
| <b>Calendar Grid</b> | <b>Calendar Collector</b>                                      | <b>Computational Fluency</b> |
| <i>Update</i>        | <i>Update</i>  |                              |
| <b>Number Line</b>   | <b>Solving Problems</b>  | <b>Assessment</b>            |
|                      | <b>Activity 1 – Solving &amp; Discussing Problems (pg. 37)</b> |                              |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

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## Update

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Collector is not a featured activity. You'll update the Calendar Collector as part of Activities 2, 3, and 4 as well.

### Procedure

The student helper spins to find out how many fractions of an hour to add to the collection. The helper shades in the amount and then updates the Record Sheet based on what was spun and shaded in.



### Key Questions

Use the following questions to guide students' discussion this month:

- How many minutes are in a quarter (half or third) of an hour? Two quarters? Three quarters?
- If a quarter (half, third) of an hour has passed, how much time will pass before we get to the next full hour?
- What other equivalent names might there be for the fraction you are focusing on today?
- How is an hour written as a fraction?
- How can you use a clock to help you add fractions together?

### Literature Connections

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by Alice Proctor

*At the Zoo: Telling Time by the Quarter-Hour*  
by Alice Proctor

*My Half Day*  
by Doris Fisher



# Activity 1

## Solving & Discussing Problems

Days 5, 9, 14, 19

Each time you repeat this activity, you'll use a different Number Corner Student Book page. Every page invites students to select some of their own problems based on the results of their most recent Quick Facts. Be sure to mark students' Quick Facts papers in time for this activity.

- 1 Introduce this week's Number Corner Student Book page using your display copy of the page.
  - Read over each problem with students, and do items 1a and 2a together as a class if needed.
  - You may find it helpful to review the Student Book page ahead of time to determine ways to divide the first array or to complete the first maze. See examples on the next page.
  
- 2 Return students' most recent Quick Facts papers, and explain how they will use them for today's activity.
  - Students will review the multiplication facts they completed.
  - They should identify which ones were most challenging; these might be the problems they got incorrect or those they had to think about longer before solving.
  - They will select three of those challenging facts and focus on them in item 3 by:
    - » drawing an array to represent the combination
    - » using the array to illustrate a strategy for calculating the product that works well for them

**CHALLENGE** If students felt very comfortable with these facts, invite them to select some facts for the multiplier they will be working on next. For example, if they demonstrated mastery of multiplying by 2, they might be moving on to multiplying by 3. In that case, they might want to think about strategies for calculating  $3 \times 6$ ,  $3 \times 7$ , and  $3 \times 8$ . Another alternative is for students to think about combinations that are often most challenging. These combinations include:  $3 \times 7$ ,  $3 \times 8$ ,  $3 \times 9$ ,  $6 \times 7$ ,  $7 \times 7$ ,  $8 \times 7$ ,  $7 \times 9$ .

- 3 Answer students' questions, and then give them all but the last five minutes or so to complete the page.

While students work, circulate to make observations, answer questions, and differentiate instruction as needed. Pay attention to the facts students select for item 3, and make note of any common points of confusion so that you can focus on them when you reconvene the class.

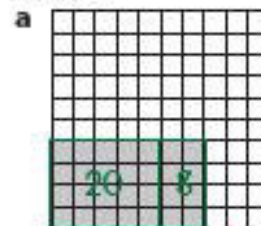
### Key Questions

Use the following questions to guide students' discussion this month:

- What smaller arrays do you see in the larger array?
- Which of those smaller arrays can you use to make it easier to calculate the product?
- How does knowing your multiplication facts help with division?
- What equation can you write to represent this story problem? Where in the equation do you see the numbers you know? Where in the equation is there space for the number you are trying to find?

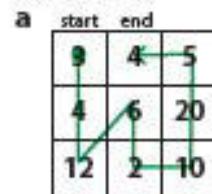
### Number Corner Student Book Page Examples

Array 1a



|                   |
|-------------------|
| $4 \times 7 = 28$ |
| $7 \times 4 = 28$ |
| $28 \div 4 = 7$   |
| $28 \div 7 = 4$   |

Math Maze 2a

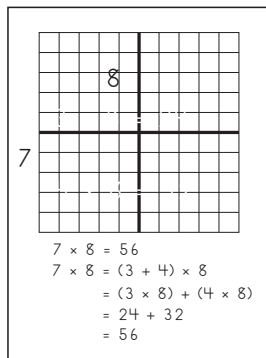


|                    |
|--------------------|
| $3 \times 4 = 12$  |
| $12 \div 6 = 2$    |
| $2 \times 10 = 20$ |
| $20 \div 5 = 4$    |

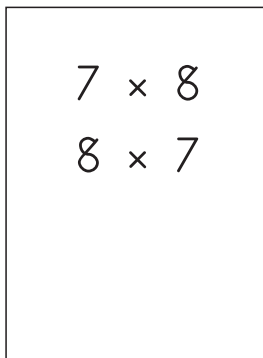
- 4 Reconvene the class and wrap up by discussing the equations students wrote for the story problems or by addressing any common points of confusion.

*Keep in mind that students might write a multiplication or division equation for some of the problems. For example, students might write  $24 \div 4 = 6$  or  $4 \times \underline{\quad} = 24$  for the problem on the first page about Mr. Garza giving his four sisters flowers. If students share these two equations, discuss how it is possible for two such different equations to represent the same problem. Invite students to discuss which one best represents the problem and which one best represents a potential strategy for solving the problem. The division equation most closely models the situation and the actions taken by Mr. Garza, but the multiplication equation might more closely represent a strategy students would use to solve the problem (e.g., thinking about what number times 4 makes a total of 24).*

**EXTENSION** Consider having students create their own flashcards for the combinations that are challenging for them. You might have them do this instead of completing the Number Corner Student Book page any given week. You might also simply have them make flashcards instead of completing item 3 on any given page. Students can use these flashcards at home or at school to practice with specific combinations. It is important that students select their own strategies for each fact they select.



front of card



back of card

.....

# Day 20

Date:

| Calendar Grid | Calendar Collector  | Computational Fluency |
|---------------|---|-----------------------|
| <i>Update</i> | <b>Activity 3</b> – Solving Fractional Time Story Problems (pg. 18) |                       |
| Number Line   | Solving Problems  | Assessment            |
|               |   |                       |

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 **Update**

Starting after Activity 1, have the student helper(s) complete this update procedure every day that the Calendar Grid is not a featured activity. You'll update the Calendar Grid as part of Activities 2, 3, and 4 as well.

**Procedure**

- Have student helpers turn over the day's marker and record information and observations on the Observations Chart.

**Literature Connections**

Use the following books as read-alouds this month.

*Pizza Pizzazz*

by Carol A. Losi

*Jump, Kangaroo, Jump*

by Stuart J. Murphy



## Activity 4

### Solving Fractional Time Story Problems

Day 20

- 1 Begin by reviewing the collection and the Record Sheet.
  - Give students some time to study the Record Sheet and collection quietly. (Gather them closer to the display so they can see it if needed.)
  - Invite students to share any comments or questions they have.
  - Invite them to add equivalent fractions to the fractions column.
  - Ask them to explain how they found the total amount of minutes and hours.
- 2 Invite a student helper to complete the update procedure with input from the class.
- 3 Then, place on display a copy of the Time Fractions Story Problems page, which students will spend the rest of the period completing.
  - Invite a student to read the first question. Call on several students to share possible strategies to find the solution.
  - Call on another student to read the second problem. Accept several reasonable responses for how to go about working this one out.
  - Ask for volunteers to read the other problems on the page and check to make sure students can read all the vocabulary. Check to see if there are any questions.
- 4 Have students turn to the page in their own books and ask them to select just one or two problems from the rest of the problems on the page to work independently to solve.

**SUPPORT** You might want to consider assigning certain students to a particular problem to further differentiate. Also make student clocks available to help students with these problems.
- 5 Toward the end of the session, have students share their work with a partner. If students solved the same problem and have different answers, encourage them to justify their thinking or rework the problem until they reach agreement.
- 6 At the end of your time today, ask students to turn in their Number Corner Student Books so you can look at their work at another time as an informal assessment.