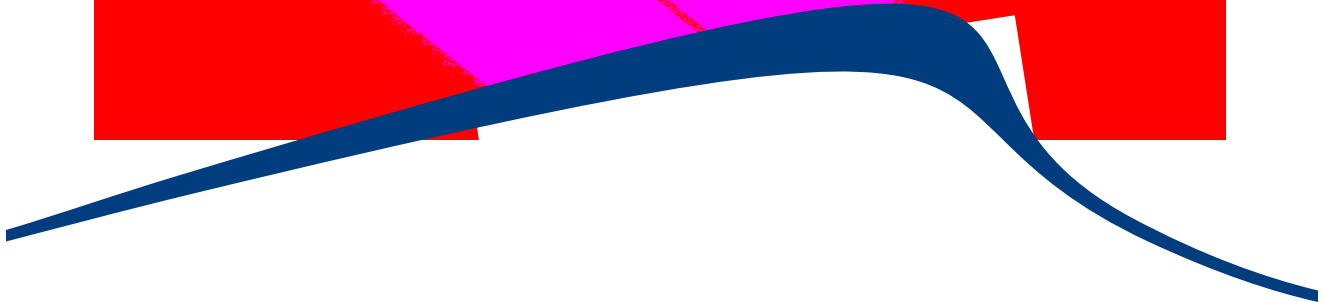
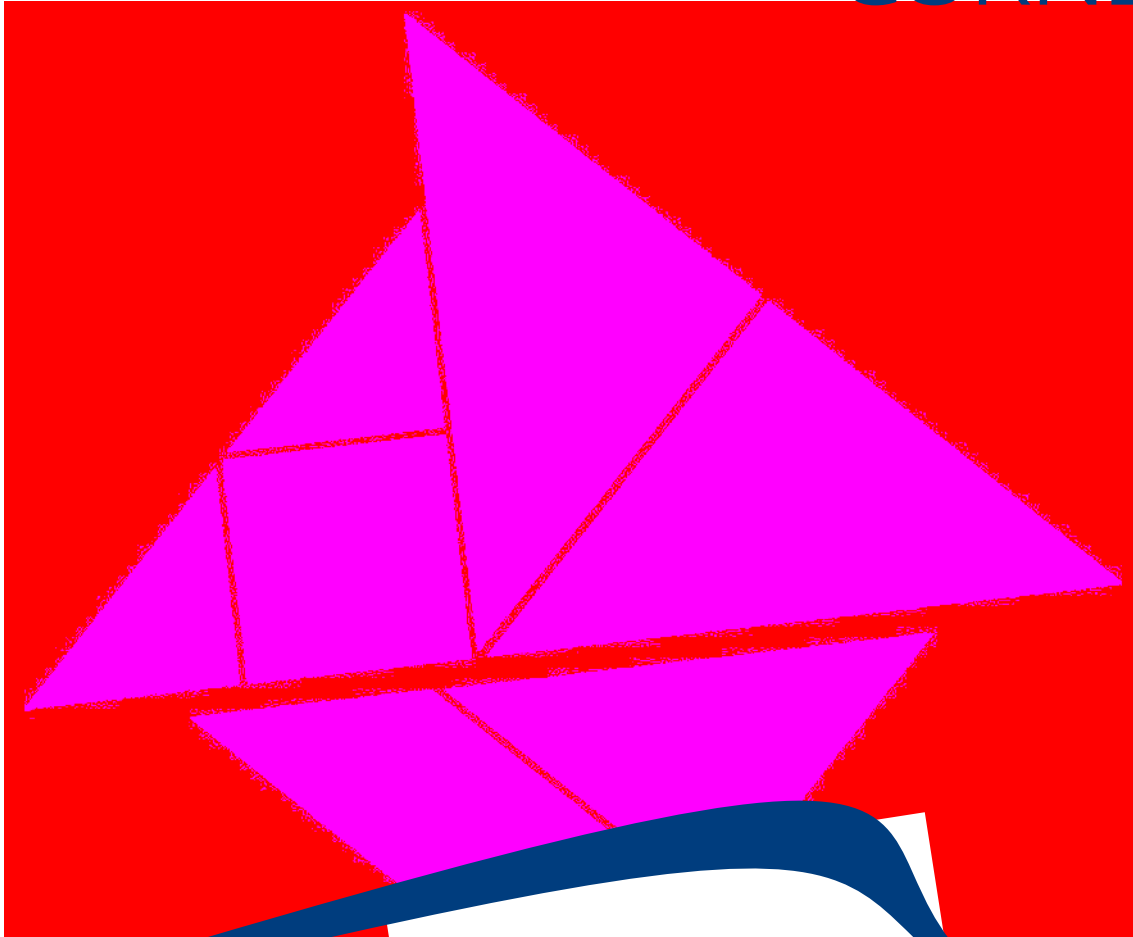


NUMBER[®]
CORNER



SECOND EDITION

TEACHERS GUIDE
FEBRUARY



Published by



The MATH LEARNING CENTER Salem, Oregon

Number Corner February

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February 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	Height	Width	Color	Perimeter (cm)	Area (cm ²)
1	1	1	red	1 + 1 + 1 + 1 = 4 cm	1 cm ²
2	2	1	orange	1 + 2 + 1 + 2 = 6 cm	2 cm ²
3	1	3	yellow	1 + 3 + 1 + 3 = 8 cm	3 cm ²
4	2	2	green	2 + 2 + 2 + 2 = 8 cm	4 cm ²
5	2	3	blue	2 + 3 + 2 + 3 = 10 cm	6 cm ²
6	2	4	red/purple	2 + 4 + 2 + 4 = 12 cm	8 cm ²
7	3	3	purple	3 + 3 + 3 + 3 = 12 cm	9 cm ²
8	3	4	red	3 + 4 + 3 + 4 = 14 cm	12 cm ²
9	3	5	orange	3 + 5 + 3 + 5 = 16 cm	15 cm ²
10	4	4	yellow	4 + 4 + 4 + 4 = 16 cm	16 cm ²
11	4	5	green	4 + 5 + 4 + 5 = 18 cm	20 cm ²

Collection 1: Tenths of a Dollar

$\frac{1}{10}$ dollar = 10 cents
 $\frac{2}{10}$ dollar = 20 cents
 $\frac{3}{10}$ dollar = 30 cents
 $\frac{4}{10}$ dollar = 40 cents

Collection 2: Fourths of a Dollar

$\frac{1}{4}$ dollar = 25 cents
 $\frac{2}{4}$ dollar = 50 cents
 $\frac{3}{4}$ dollar = 75 cents
 $\frac{4}{4}$ dollar = 100 cents (1 whole dollar)

Collection 3: Halves of a Dollar

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 Grid Pocket Chart

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

Number Line Fractions

Keep this number line display, which was created in January Number Line activities, posted where students can see it this month.

Calendar Collector Collections

Students will spin for and collect fractions of a dollar in this month's Calendar Collector. You'll assemble the three collection displays shown from poster, chart or butcher paper and copies of included teacher masters. See the Preparation section of the workout for details.

February Daily Planner

Day	Calendar Grid	Calendar Collector	Computational Fluency	Number Line	Solving Problems
1	Activity 1 Introducing the New Calendar Markers (p. 8) <i>Update</i>				
2		Activity 1 Collecting Tenths of a Dollar (p. 17) <i>Update</i>			
3	Activity 2 Identifying Perimeter (p. 9) <i>Update</i>				
4	<i>Update</i>		Activity 1 Multiples of Three (p. 24)		
5	<i>Update</i>			Activity 1 Labeling Number Lines with Halves, Fourths & Eighths (p. 28)	
6	<i>Update</i>		Activity 1 Multiples of Four (p. 24)		
7	Activity 3 Identifying Area (p. 11) <i>Update</i>				
8	<i>Update</i>	Activity 2 Collecting Fourths of a Dollar (p. 19) <i>Update</i>			
9	<i>Update</i>			Activity 2 Labeling Number Lines with Thirds & Sixths & Playing Find the Fraction (p. 29)	
10	<i>Update</i>		Activity 1 Multiples of Eight (p. 24)		
11	<i>Update</i>				Activity 1 Looking at Graphs (p. 34)
12	<i>Update</i>			Activity 3 Playing Find the Fraction (p. 30)	
13	Activity 4 Area & Perimeter Challenges (p. 12) <i>Update</i>				
14	<i>Update</i>				Activity 2 Interpreting Graphs (p. 35)
15	<i>Update</i>	Activity 2 Collecting Halves of a Dollar (p. 19) <i>Update</i>			
16	<i>Update</i>		Activity 4 Scout Them Out (p. 25)		
17	<i>Update</i>			Activity 4 Thinking About Equivalent Whole Numbers & Fractions (p. 32)	
18	<i>Update</i>				Activity 3 Making Graphs (p. 37)
19	Activity 5 Reviewing Area & Perimeter Concepts (p. 13) <i>Update</i>				
20	<i>Update</i>	Activity 3 Reviewing Fractions of a Dollar (p. 21)			

Note *Calendar Grid and Calendar Collector are updated by student helpers, except when the workout is the subject of an activity. Computational Fluency, Problem Strings, 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 in Activity 3, the student will update the chart as well.

Calendar Collector – The student helper spins the spinner to see what fraction of a dollar to add to the collection. The helper glues those fraction pieces to a dollar grid and fills in the record sheet to bring the information up to date.

Number Corner February

Overview

This month's workouts offer a rich exploration of geometry and measurement, fractions, multiplication fact fluency, and problem solving with data and graphing. The Calendar Grid features a growing pattern focused on area and perimeter. The Calendar Collector and the Number Line focus on fractions. Computational Fluency follows the same sequence of activities as in previous months with students now exploring strategies for multiplying by 3, 4, and 8. In the Solving Problems workout, students explore graphs and data.

Activities

Workouts	Day	Activities	D	G	SB
Calendar Grid Investigating Area & Perimeter The calendar markers this month feature rectangles that increase in area in predictable ways. They calculate the area and perimeter of each rectangle and complete a few challenges involving area and perimeter of rectangles. Students develop their own strategies for calculating area and perimeter and also learn formulas for calculating the area and perimeter of any rectangle.	1	1 Introducing the New Calendar Markers	●		
	3	2 Identifying Perimeter	●		
	7	3 Identifying Area	●		
	13	4 Area & Perimeter Challenges	●		
	19	5 Reviewing Area & Perimeter Concepts	●		●
Calendar Collector Collecting Fractions of a Dollar Students create three separate collections this month: first they collect dimes, then quarters, and finally half dollars. They represent each kind of coin as a fraction of a dollar and keep track of the growing collections in terms of fractions of a dollar and cents. Students use a 10-by-10 array to keep track of the collections and visualize the coins as parts of a dollar. At the end of the month, they practice using these skills by completing a Student Book page independently.	2	1 Collecting Tenths of a Dollar	●		
	8, 15	2 Collecting Fourths & Halves of a Dollar	●		
	20	3 Reviewing Fractions of a Dollar	●		●
Computational Fluency Fact Fluency for Multiplying by Three, Four & Eight Students review how to multiply by 3, 4, and 8. They use the multiplication table to consider patterns among these multiplication facts and complete Scout Them Out activities, as they did last month, for practice.	4, 6, 10	1 Multiples of Three, Four & Eight	●		●
	16	2 Scout Them Out	●		●
Number Line Comparing Fractions Using the 0–1 number lines from last month as a reference, students create their own number lines marked with fractions (halves, fourths, eighths, thirds, and sixths). They locate fractions on the number lines and use them to play a game called Find the Fraction, in which they compare fractions with the same denominator and different numerators, and then fractions with the same numerator and different denominators. At the end of the month, they use the number line model to identify fractions that are equal to different whole numbers.	5	1 Labeling Number Lines with Halves, Fourths & Eighths	●		●
	9	2 Labeling Number Lines with Thirds & Sixths & Playing Find the Fraction	●	●	●
	12	3 Playing Find the Fraction	●	●	
	17	4 Thinking About Equivalent Whole Numbers & Fractions	●		●
Solving Problems Data Problems In this workout, students examine, interpret, compare, and construct graphs. While the main focus is on bar graphs, they also briefly explore picture graphs. A key part of this workout involves understanding scale. After studying various graphs and answering one- and two-step questions about them, students participate in a class survey and then construct their own graphs.	11	1 Looking at Graphs	●		
	14	2 Interpreting Graphs	●		●
	18	3 Making Graphs	●		●

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

Teaching Tips

Uses the results of the January Number Corner Checkup to help guide your instruction. If there are areas in which students need more support, you may want to take extra time to address those or emphasize the February activities that will support those areas. Conversely, if there are areas where students seem proficient, you may choose to spend less time on those topics.

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
3.OA.6 Solve division problems by finding an unknown factor (e.g., solve $32 \div 8$ by finding the number that makes 32 when multiplied by 8)			●		
3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations.			●		
3.OA.9 Identify patterns among basic multiplication facts			●		
3.OA.9 Identify patterns in the multiplication table			●		
3.OA.9 Explain patterns among basic multiplication facts by referring to properties of the operation			●		
3.NBT.3 Multiply whole numbers from 1–9 by multiples of 10 from 10–90 using strategies based on place value and properties of operations		●			●
3.NF.1 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.2 Locate fractions on a number line				●	
3.NF.2 Place fractions in their correct positions on a number line				●	
3.NF.2a Show a unit fraction $1/b$ on a number line by defining the interval from 0 to 1 as the whole and then partitioning it into b equal parts				●	
3.NF.3c Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers				●	
3.NF.3d Compare two fractions with the same numerator or the same denominator by reasoning about their size				●	
3.NF.3d Recognize that comparisons are valid only when the two fractions refer to the same whole.				●	
3.NF.3d Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions				●	
3.MD.2 Solve story problems involving addition and subtraction of mass measurements given in kilograms					●
3.MD.3 Make a scaled bar graph to represent a data set with several categories					●
3.MD.3 Solve one-step comparison problems using data shown on a scaled bar graph with several categories					●
3.MD.3 Solve two-step comparison problems using data shown on a scaled bar graph with several categories					●
3.MD.5a Demonstrate an understanding that a square with a side length of 1 unit is called a “unit square” and has 1 square unit of area	●				
3.MD.5a Demonstrate an understanding that unit squares can be used to measure the areas of other plane figures	●				
3.MD.5b Demonstrate an understanding that a plane figure that can be covered without gaps or overlaps by n unit squares has an area of n square units	●				
3.MD.6 Measure the area of a plane figure by counting the number of square units that cover it, with no gaps or overlaps	●				
3.MD.7a Demonstrate that the area of a rectangle with whole-number side lengths can be found by multiplying the side lengths	●				

Major Skills/Concepts Addressed	CG	CC	CF	NL	SP
3.MD.7b Find the area of a rectangle by multiplying its side lengths	●				
3.MD.8 Find the perimeter of a polygon, given its side lengths	●				
3.MD.8 Create rectangles with the same area but different perimeters	●				
3.MP.1 Make sense of problems and persevere in solving them	●	●			
3.MP.2 Reason abstractly and quantitatively			●		
3.MP.3 Construct viable arguments and critique the reasoning of others					●
3.MP.4 Model with mathematics				●	
3.MP.5 Use appropriate tools strategically	●	●			
3.MP.6 Attend to precision			●		
3.MP.7 Look for and make use of structure	●			●	
3.MP.8 Look for and express regularity in repeated reasoning					●

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

Materials Preparation

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
Copies	Run copies of Teacher Masters T1–T12 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 31–41.	
	Run a single display copy of Number Corner Student Book pages 31–41.	
Charts	Prepare the Calendar Grid Observations Chart and the three Calendar Collector collection charts according to preparation instructions in the workout.	
	Make sure the 0 to 1 number lines created in January’s Number Line workout remain posted this month.	
Special Items	Have 4 pipe cleaners or Wikki Stix on hand for Calendar Grid Activity 2. See the activity for details.	

February Calendar Grid

Investigating Area & Perimeter

Overview

The calendar markers this month feature rectangles that increase in area in predictable ways. Students calculate the area and perimeter of each rectangle and complete a few challenges involving area and perimeter of rectangles. They develop their own strategies for calculating area and perimeter and also learn formulas for calculating the area and perimeter of any rectangle.

Skills & Concepts

- Demonstrate an understanding that a square with a side length of 1 unit is called a “unit square” and has 1 square unit of area (3.MD.5a)
- Demonstrate an understanding that unit squares can be used to measure the areas of other plane figures (3.MD.5a)
- Demonstrate an understanding that a plane figure that can be covered without gaps or overlaps by n unit squares has an area of n square units (3.MD.5b)
- Measure the area of a plane figure by counting the number of square units that cover it, with no gaps or overlaps (3.MD.6)
- Demonstrate that the area of a rectangle with whole-number side lengths can be found by multiplying the side lengths (3.MD.7a)
- Find the perimeter of a polygon, given its side lengths (3.MD.8)
- Create rectangles with the same area but different perimeters (3.MD.8)
- Make sense of problems and persevere in solving them (3.MP.1)
- Look for and make use of structure (3.MP.7)

Materials

Activities	Day	Copies	Kit Materials	Classroom Materials
Activity 1 Introducing the New Calendar Markers	1		Needed for all Calendar Grid workouts this month: <ul style="list-style-type: none"> • Calendar Grid pocket chart • Day, Month, and Year markers • Rectangle Calendar Markers 	Needed for all Calendar Grid workouts this month: <ul style="list-style-type: none"> • Calendar Grid Observations Chart (see Preparation) • erasable markers
Activity 2 Identifying Perimeter	3			<ul style="list-style-type: none"> • 4 pipe cleaners or Wikki Stix • centimeter ruler
Activity 3 Identifying Area	7			
Activity 4 Area & Perimeter Challenges	13		<ul style="list-style-type: none"> • colored tiles, 12 per student 	
Activity 5 Reviewing Area & Perimeter Concepts	19	NCSB 31* Solving Area & Perimeter Problems		

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

* Run 1 copy of this page for display.

Vocabulary

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

area*
dimension*
formula
length
perimeter*
product*
rectangle*
square unit*
sum or total*
width

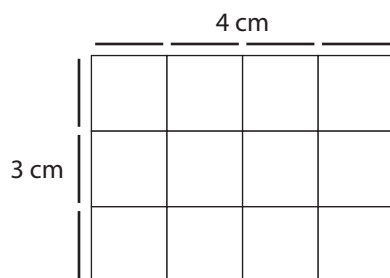
Preparation

Erase the Calendar Grid Observations Chart and redraw the lines to create 6 columns. Label the columns at the top of the first sheet as shown below for use with this month's markers. 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	Height	Width	Color	Perimeter (cm)	Area (cm ²)

Mathematical Background

Each day, a larger rectangle is presented on a calendar marker. At first, students make general observations, but as the month goes on, they begin determining the perimeter (measured in centimeters) and area (measured in square centimeters) of each rectangle. Area is the total number of square units needed to cover a two-dimensional surface with no gaps or overlaps. Perimeter is the distance around the outside of a two-dimensional figure, measured in linear units. Students will notice that it is possible for two rectangles to have the same area and different perimeters, just as it is possible for two rectangles to have the same perimeter and different areas. Toward the end of the month, after they have used their own strategies for determining area and perimeter, students learn formulas for calculating the area and perimeter of any rectangle. Students will review and extend these skills and concepts in the March Solving Problems workout.



$$\text{Area} = w \times l$$

$$\text{Area} = 3 \text{ cm} \times 4 \text{ cm}$$

$$\text{Area} = 12 \text{ cm}^2$$

$$\text{Perimeter} = 2w + 2l$$

$$\text{Perimeter} = (2 \times 3) \text{ cm} + (2 \times 4) \text{ cm}$$

$$\text{Perimeter} = 14 \text{ cm}$$

About the Pattern

The following patterns will become evident on the Calendar Grid this month. Don't tell students what the patterns are: instead, let them find the patterns themselves.

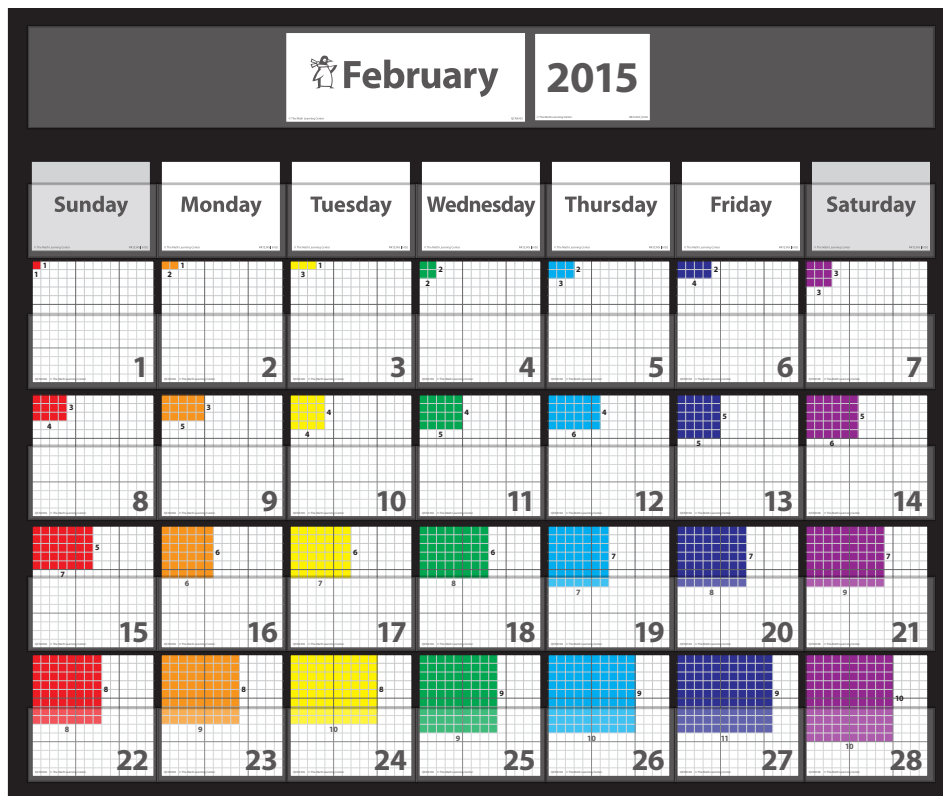
- The dimensions (height and width) of the rectangles increase in a predictable pattern.
- The areas increase in a predictable manner as a result of the increasing dimensions.
- The colors repeat in this sequence: red, orange, yellow, green, blue, indigo, and violet.



Key Questions

Learning to search for, describe, and extend patterns facilitates algebraic thinking. Use any of the question below to help your students think about this month's pattern:

- What is the perimeter of this rectangle?
- What is the area of this rectangle? How do you know?
- Do you see a connection between the dimensions of yesterday's markers and those for today?
- What do you predict will be the dimensions, perimeter, and area of the next marker?



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.



February

Date	Height	Width	Color	Perimeter (cm)	Area (cm ²)
1	1	1	red	4	1
2	1	2	orange	6	2
3	1	3	yellow	8	3
4	2	2	green	8	4
5	2	3	blue	10	6
6	2	4	indigo	12	8
7	3	3	violet	12	9
8	3	4	red	14	12
9	3	5	orange	16	15
10	4	4	yellow	16	16
11	4	5	green	18	20
12	4	6	blue	20	24
13	5	5	indigo	20	25
14	5	6	violet	22	30
15	5	7	red	24	35
16	6	6	orange	24	36
17	6	7	yellow	26	42
18	6	8	green	28	48
19	7	7	blue	28	49
20	7	8	indigo	30	56
21	7	9	violet	32	63
22	8	8	red	32	64
23	8	9	orange	34	72
24	8	10	yellow	36	80
25	9	9	green	36	81
26	9	10	blue	38	90
27	9	11	indigo	40	99
28	10	10	violet	40	100
29	10	11	red	42	110
30	10	12	orange	44	120
31	11	11	yellow	44	121

About the Pattern

The following patterns will become evident on the Calendar Grid this month. Don't tell students what the patterns are: instead, let them find the patterns themselves.

- The dimensions (height and width) of the rectangles increase in a predictable pattern.
- The areas increase in a predictable manner as a result of the increasing dimensions.
- The colors repeat in this sequence: red, orange, yellow, green, blue, indigo, and violet.

Notes:

February Calendar Collector

Collecting Fractions of a Dollar

Overview

Students create three separate collections this month: first they collect dimes, then quarters, and finally half dollars. They represent each kind of coin as a fraction of a dollar and keep track of the growing collections in terms of fractions of a dollar and cents. Students use a 10-by-10 array to keep track of the collections and visualize the coins as parts of a dollar. At the end of the month, they practice using these skills by completing a Number Corner Student Book page independently.

Skills & Concepts

- 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)
- Demonstrate an understanding of a unit fraction $\frac{1}{b}$ as 1 of b equal parts into which a whole has been partitioned (e.g., $\frac{1}{4}$ is 1 of 4 equal parts of a whole) (3.NF.1)
- Demonstrate an understanding of a fraction $\frac{a}{b}$ as a equal parts, each of which is $\frac{1}{b}$ of a whole (e.g., $\frac{3}{4}$ is 3 of 4 equal parts of a whole or 3 parts that are each $\frac{1}{4}$ of a whole) (3.NF.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
Activity 1 Collecting Tenths of a Dollar	2	TM T1 How Many Pieces? Spinner	• spinner overlay	• black felt-tip marker • chart paper (see Preparation) • 3 envelopes
Activity 2 Collecting Fourths & Halves of a Dollar	8, 15	TM T2 Fractions of a Dollar Record Sheet TM T3 Dollar Grid TM T4 Tenths Pieces TM T5 Fourths Pieces TM T6 Halves Pieces		• real or plastic coins (at least 10 dimes, 4 quarters, and 2 half dollars)
Activity 3 Reviewing Fractions of a Dollar	20	SB 32–33* Fractions of a Dollar		

Vocabulary

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

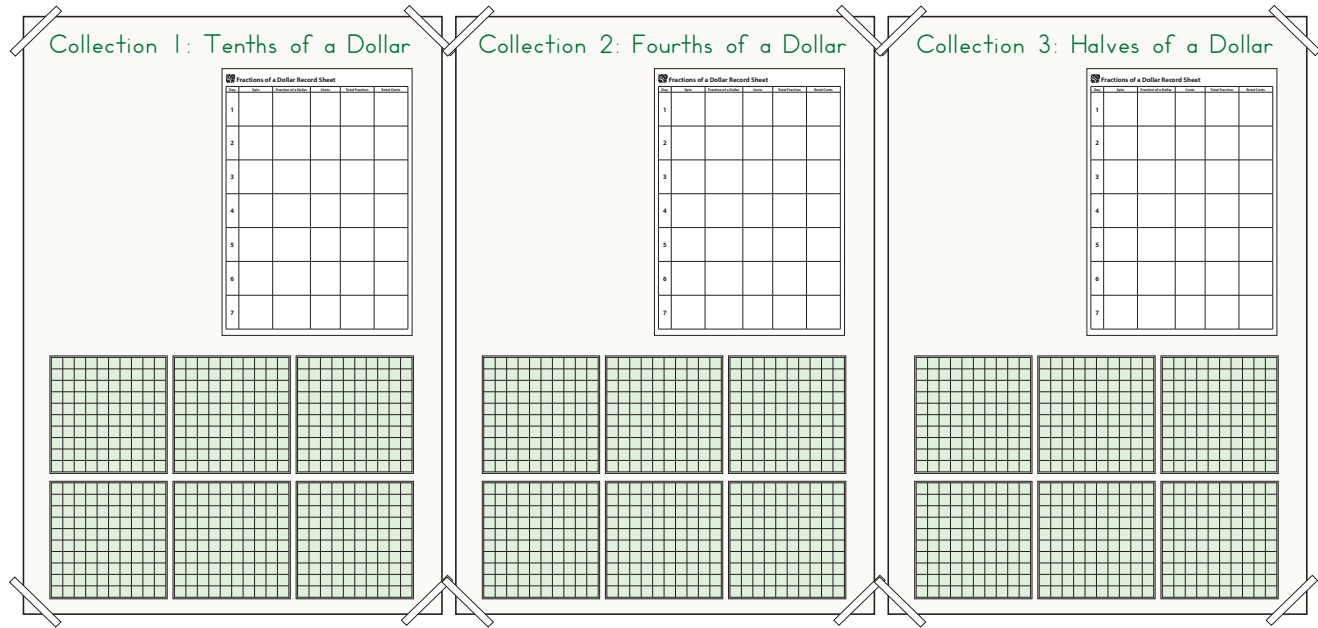
dime
dollar
fourth
fraction*
half*
half dollar
improper fraction*
nickel
penny
quarter
tenth*
whole

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.

Preparation

- Each week, students will collect a different kind of coin (fraction of a dollar). Prepare a piece of chart paper for each of these three collections as shown here, using the Fractions of a Dollar Record Sheet and Dollar Grid Teacher Masters.



- Run copies of the Tenths, Fourths and Halves Pieces Teacher Masters. Cut out the pieces and store each kind in a labeled envelope. You'll use the dimes in the first week, the quarters in the second week, and the half dollars in the third week.

Key Questions

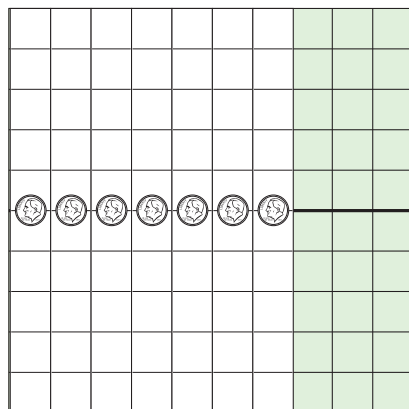
You can use the following questions to challenge students throughout this month:

- What fraction of a dollar has been collected?
- How many dimes (quarters, half dollars) are equal to 1 dollar?
- How many dimes (quarters, half dollars) are equal to 2 dollars?

Mathematical Background

For the first seven days of school, students collect some number of dimes each day (either 1, 2, 3, or 4 dimes). For the next seven days of school, they collect quarters, and for the third seven days of school, they collect half dollars. Students determine what fraction of a dollar each kind of coin represents, and then use that information to determine what fraction the different numbers of coins represent. Students compare the three collections, which gives them an opportunity to think about fractions, whole numbers, mixed numbers, and the relative sizes of different fractions.

Students use a dollar grid (a 10-by-10 array) to represent each amount as a fraction of a whole dollar. This model nicely connects to decimal numbers, and you can draw out that connection if you feel students need practice with decimal numbers, though it is not a required part of the activities.



7 dimes = 70 cents
1 dime is $\frac{1}{10}$ of a dollar, so 7 dimes is $\frac{7}{10}$ of a dollar.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.

February Computational Fluency

Fact Fluency for Multiplying by Three, Four & Eight

Overview

Students review how to multiply by 3, 4, and 8. They use the multiplication table to consider patterns among these multiplication facts and complete Scout Them Out activities, as they did last month, for practice.

Skills & Concepts

- Solve division problems by finding an unknown factor (e.g., solve $32 \div 8$ by finding the number that makes 32 when multiplied by 8) (3.OA.6)
- Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. (3.OA.7)
- Identify patterns among basic multiplication facts (3.OA.9)
- Identify patterns in the multiplication table (3.OA.9)
- Explain patterns among basic multiplication facts by referring to properties of the operation (3.OA.9)
- Reason abstractly and quantitatively (3.MP.2)
- Attend to precision (3.MP.6)

Materials

Activities	Day	Copies	Kit Materials	Classroom Materials
Activity 1 Multiples of Three, Four & Eight	4, 6, 10	TM T7 Doubles Plus One Set Facts TM T8 Double-Doubles Facts TM T9 Double-Double-Doubles Facts NCSB 20 Multiplication Table (from December and January) NCSB 34* Multiplying by Three NCSB 35* Multiplying by Four NCSB 36* Multiplying by Eight		• orange, red, green, and brown colored pencils, 1 per student
Activity 2 Scout Them Out	16	NCSB 37* Scout Them Out (3, 4, 8)		

Vocabulary

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

divide*
equal*
equation*
factor*
multiple*
multiply*
pattern*
product*
skip-count
strategy

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.

Mathematical Background

In the December Computational Fluency Workout, students focused on multiplying by 2 as a process of doubling. This month, they focus on multiplying by 3, 4, and 8, using strategies that make use of doubling, as shown in this table.

Fact Category		Description	Example
× 3	Doubles Plus One Set	Double and then add 1 more set.	$6 \times 3 = (2 \times 6) + 6 = 12 + 6 = 18$
× 4	Double-Doubles	Double and then double again.	$6 \times 4 = 6 \times 2 \times 2 = 12 \times 2 = 24$
× 8	Double-Double-Doubles	Double, double again, and double one last time.	$6 \times 8 = 6 \times 2 \times 2 \times 2 = 12 \times 2 \times 2 = 24 \times 2 = 48$

Describing a strategy that can be used to multiply by a given number by any other number helps students develop computational fluency with their basic facts and beyond.



Key Questions

These questions guide students to think about the operation of multiplication.

- Can you skip-count to find the product of these two numbers?
- How can addition help you with multiplication?
- How can multiplication help you with division?

Literature Connections

Use the following books as read-alouds this month.

- *What Comes in 2s, 3s and 4s* by Suzanne Aker Dahl
- *One Is a Snail, Ten Is a Crab* by April Pulley Sayre & Jeff Sayre

February Number Line

Comparing Fractions

Overview

Using the 0–1 number lines from last month as a reference, students create their own number lines marked with fractions (halves, fourths, eighths, thirds, and sixths). They locate fractions on the number lines and use them to play a game called Find the Fraction, in which they compare fractions with the same denominator and different numerators, and then fractions with the same numerator and different denominators. At the end of the month, they use the number line model to identify fractions that are equal to different whole numbers.

Skills & Concepts

- Locate fractions on a number line (3.NF.2)
- Place fractions in their correct positions on a number line (3.NF.2)
- Show a unit fraction $1/b$ on a number line by defining the interval from 0 to 1 as the whole and then partitioning it into b equal parts (3.NF.2a)
- Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers (3.NF.3c)
- Compare two fractions with the same numerator or the same denominator by reasoning about their size (3.NF.3d)
- Recognize that comparisons are valid only when the two fractions refer to the same whole. (3.NF.3d)
- Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions (3.NF.3d)
- Model with mathematics (3.MP. 4)
- Look for and make use of structure (3.MP. 7)

Materials

Activities	Day	Copies	Materials
Activity 1 Labeling Number Lines with Halves, Fourths & Eighths	5	NCSB 38* Fraction Number Lines	• 0 to 1 number line poster from January Number Line activities
Activity 2 Labeling Number Lines with Thirds & Sixths and Playing Find the Fraction	9		
Activity 3 Playing Find the Fraction	12		
Activity 4 Thinking About Equivalent Whole Numbers & Fractions	17	NCSB 39* Extended Fraction Number Lines	

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

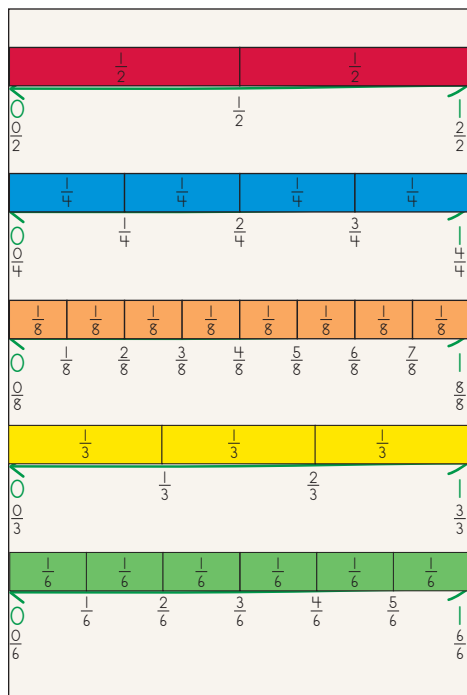
* Run 1 copy of these pages for display.

Vocabulary

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

denominator*
eighth
fraction*
half*
numerator*
sixth
third
whole
whole number*

Preparation



Make sure the poster of 0 to 1 number lines you created as a class in January is still posted. Students will refer to it all month long, especially in Activities 1 and 2.



Key Questions

- Which is greater: $\frac{1}{8}$ or $\frac{1}{3}$? What do you know, then, about which is greater: $\frac{2}{8}$ or $\frac{2}{3}$? (You can use any pair of denominators.)
- If you are marking this number line in fourths (eighths, sixths, etc.), into how many parts must you divide it?

Literature Connections

- *The Wishing Club: A Story About Fractions* by Donna Jo Napoli
- *Full House: An Invitation to Fractions* by Gayle Ann Dodds

Mathematical Background

Last month, students iterated fractions to build number lines from 0 to 1 marked in halves, fourths, eighths, thirds, and sixths. This month, they will use those number lines, which were also marked with fraction pieces, as a reference for marking 0–1 number lines with fractions only. They will use those number lines to compare fractions with the same numerator but different denominators: after doing this repeatedly, they will begin to generalize that if two fractions have the same numerator, the fraction with the larger number in the denominator must be smaller, because the size of the associated unit fraction is smaller. For example, $\frac{3}{8}$ must be less than $\frac{3}{6}$: $\frac{1}{8}$ is less than $\frac{1}{6}$, so $\frac{3}{8}$ must be less than $\frac{3}{6}$. Conversely, when two fractions have the same denominator, the fraction with the larger numerator must be greater. The unit fraction is the same, so the fraction that refers to more of those unit fractions must be greater. For example, $\frac{5}{8}$ is greater than $\frac{3}{8}$. The number line model helps students make and understand generalizations like these.

Students all consider fractional jumps on their number lines to identify fractions that are equal to whole numbers. For example, they imagine that a frog goes $\frac{1}{2}$ meter with each hop and then determine, by making such hops on their number lines, how many hops it would take for the frog to go 3 meters. There are 6 half-meter hops in 3 whole meters, so $\frac{6}{2}$ (6 halves) is equal to 3 wholes.

February Solving Problems

Data Problems

Overview

In this workout, students examine, interpret, compare, and construct graphs. While the main focus is on bar graphs, they also briefly explore picture graphs. A key part of this workout involves understanding scale. After studying various graphs and answering one- and two-step questions about them, students participate in a class survey and then construct their own graphs.

Skills & Concepts

- 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)
- Solve story problems involving addition and subtraction of mass measurements given in kilograms (3.MD.2)
- Make a scaled bar graph to represent a data set with several categories (3.MD.3)
- Solve one- and two-step comparison problems using data shown on a scaled bar graph with several categories (3.MD.3)
- Construct viable arguments and critique the reasoning of others (3.MP.3)
- Look for and express regularity in repeated reasoning (3.MP.8)

Materials

Activities	Day	Copies	Kit Materials	Classroom Materials
Activity 1 Looking at Graphs	11	TM T10 Food Bank Bar Graph 1 TM T11 Food Bank Bar Graph 2 TM T12 Food Bank Picture Graph		• sticky notes
Activity 2 Interpreting Graphs	14	NCSB 40* Kilograms of Food Served		
Activity 3 Making Graphs	18	NCSB 41* Make Your Own Graph		

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.

bar graph*
data*
maximum*
minimum*
picture graph*
scale*
x-axis*
y-axis*

Preparation

You may want to collect a variety of types of graphs from newspapers, magazines, and other sources to share with students.

Mathematical Background

Working with data is an important and relevant area of mathematics. Students need to learn to identify, interpret, compare, and construct graphs. Graphs provide a visual means of presenting information, which often makes it easier for people to assess that information and use it to draw conclusions. For example, graphs can make it easy for students to quickly recognize the minimum and maximum values in a set of data. Students should also have a sense of the different purposes of different graphs; they should be able to determine when it make sense to use a particular kind of graph.

In this workout, students deal with scale, focusing in particular on a 1:10 ratio. Dealing with a scale of 10 is not only usually manageable for students, it also deepens their understanding of what happens when you multiply and divide numbers by 10. Students will quickly see the need for scale when dealing with larger numbers. They will see, for example, that it would be inefficient and impractical to have a bar that is 125 units long. Even if they do not know how many 10s are in 125, they can figure it out as they create or interpret a graph.

Day 1

Date:

Calendar Grid	Calendar Collector	Computational Fluency
Activity 1 – Introducing the New Calendar Markers (pg. 8)		
Number Line	Solving Problems	Assessment

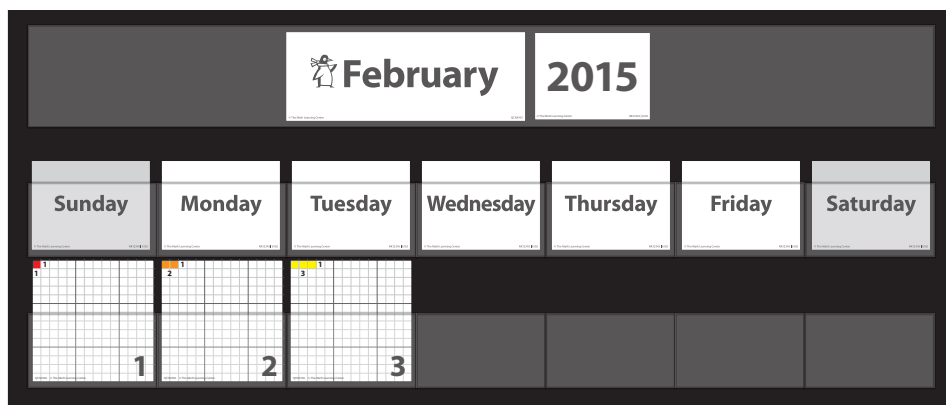


Activity 1

Introducing the New Calendar Markers

Day 1

- 1 Gather students in front of the Calendar Grid and invite a student volunteer to reveal the calendar markers for all the days that have passed so far this month. (If today is the first of the month, you may want to post the second and third markers as well in order to generate more consideration and conversation.)



- 2 Give students time to study the markers in silence, and then have them share observations, first in pairs and then as a whole group.

Alana I think maybe the pattern is going to be about shapes again this month.

Nguyen There are little squares inside each shape. On this marker, there is 1 square. On the second there are 2. On the third, there are 3. Is it going to keep going like this all month?

Gregory If they do, they won't fit on the marker.

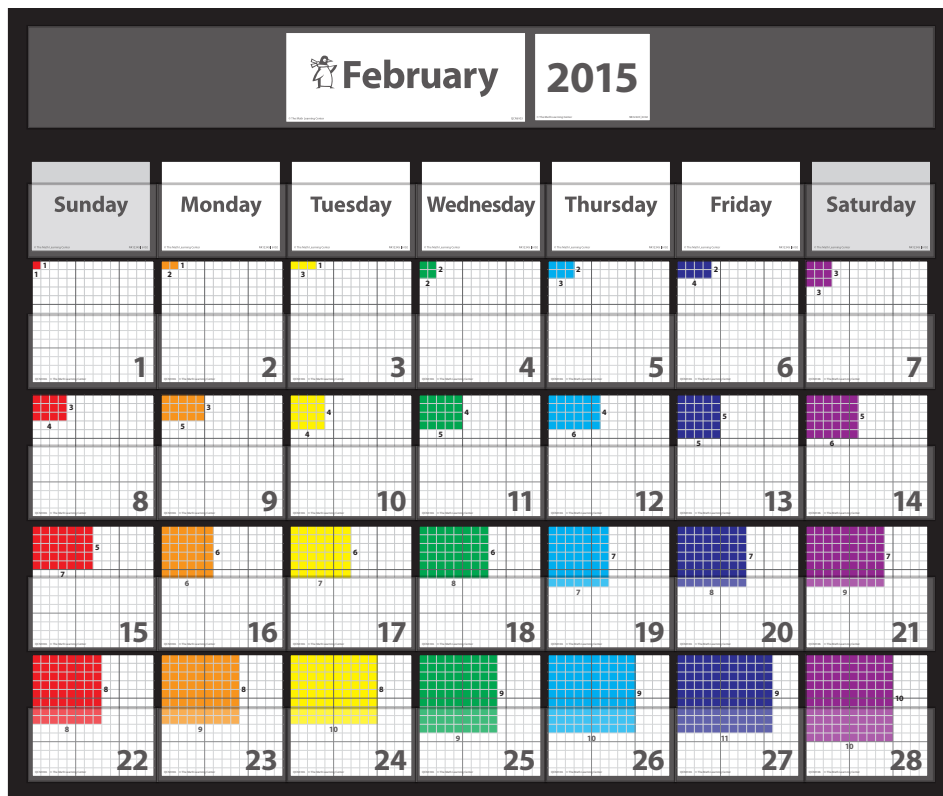
Shawna So far they go red, then orange, then yellow. I bet the next one will be green. Like a rainbow.

- 3 After students have shared observations, review what *area* means.
 - Ask students to share ideas about what *area* means.
 - Clarify that for these rectangles, you'll use the smallest square on the grid as the basic unit of area, 1 square unit.
 - Explain that each of side 1 square unit is exactly 1 unit in length.
- 4 Ask students how many square units are in each of the rectangles displayed so far.
- 5 Close the activity by having students make some predictions about what markers will come next in the pattern.
 - What will the shapes look like?
 - What colors might they be?
 - What might their areas be?

Day 2

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	Activity 1 – Collecting Tenths of a Dollar (pg. 17)	
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.



Activity 1

Collecting Tenths of a Dollar

Day 2

- 1 Introduce the Calendar Collector for this month.
 - Explain that students will be collecting money. Each week, they will collect a different kind of coin.
 - Show students different coins one at a time and invite them to share what they know about each.
 - » What is the name of the coin?
 - » How much is the coin worth?

- 2 Hold up a dime and explain that this week they will be collecting dimes. With student input, record how to write the value of the dime in different ways.

To help students think about how to write the value of the dime as a fraction of a dollar, ask them to identify how many dimes are equal to a dollar. If there are 10 dimes in a dollar, a single dime is one-tenth of a whole dollar.

- ten cents
 - 10¢
 - \$0.10
 - $\frac{1}{10}$ dollar
- 3 Let students know that each day they will collect 1, 2, 3, or 4 dimes. Work with them to identify how much each number of dimes is worth and express those amounts in cents and as some fraction of a dollar. Record the amounts on the chart paper you prepared for this week's collection.

You might have students work on this in pairs; then work with their input to record the values as a whole class on the collection chart.

Collection 1: Tenths of a Dollar

$\frac{1}{10}$ dollar = 10 cents

$\frac{2}{10}$ dollar = 20 cents

$\frac{3}{10}$ dollar = 30 cents

$\frac{4}{10}$ dollar = 40 cents

Fractions of a Dollar Record Sheet

Day	Spin	Fraction of a Dollar	Cents	Total Fraction	Total Cents
1					
2					
3					
4					
5					
6					
7					

- 4 Work with participation from students to add the first dime or dimes to the collection.
 - Invite a student to come spin the spinner.
 - Explain that this number shows how many dimes they need to add to the collection.
 - Invite a different student to come take that number of dime pieces and glue them to the Money Pieces Collection Record Sheet.
 - Fill in the first row of the Calendar Collector Record Sheet.

- 5 Explain that they will repeat this process for the first 7 days of school this month. Then work together to repeat the update procedure for the rest of the school days that have passed so far this month.

Collection 1: Tenths of a Dollar

$\frac{1}{10}$ dollar = 10 cents

$\frac{2}{10}$ dollar = 20 cents

$\frac{3}{10}$ dollar = 30 cents

$\frac{4}{10}$ dollar = 40 cents

Fractions of a Dollar Record Sheet					
Day	Spin	Fraction of a Dollar	Cents	Total Fraction	Total Cents
1	2	$\frac{2}{10}$	20¢	$\frac{2}{10}$	20¢
2	1	$\frac{1}{10}$	10¢	$\frac{3}{10}$	30¢
3	4	$\frac{4}{10}$	40¢	$\frac{7}{10}$	70¢
4					
5					
6					
7					

- 6 Wrap up today’s activity by explaining that the student helper will repeat this process each day of school until they have made a total of 7 updates to the collection. Answer any questions students have about what to do when it is their turn to complete the update procedure.

Day 3

Date:

Calendar Grid	Calendar Collector	Computational Fluency
Activity 2 – Identifying Perimeter (pg. 9)	<i>Update</i>	
Number Line	Solving Problems	Assessment



Activity 2

Identifying Perimeter

Day 3

- 1 Open today's activity by gathering students in front of the Calendar Grid, giving them a moment to study the grid in silence, and then inviting them to share observations, as well as predictions about today's marker.

Listen for any mention of the word or idea of *perimeter*. You can use what students say now to help develop their understanding when this term is introduced more formally in a few minutes.

Students All the shapes are either squares or rectangles.

Hey look! It goes square, rectangle, rectangle, square, rectangle, rectangle. I wonder if that will be a pattern all month.

The numbers on the sides keep getting bigger.

- 2 Then, invite a student helper to reveal the next marker. Have students turn to a partner to share their observations about the marker.

- 3 Introduce or review the term *perimeter*.

- Point to the 5th marker and ask students if they know the measurements for the unmarked sides of the rectangle.
- Build discussion around the idea that because it is a rectangle the opposite sides have to have the same measurement.

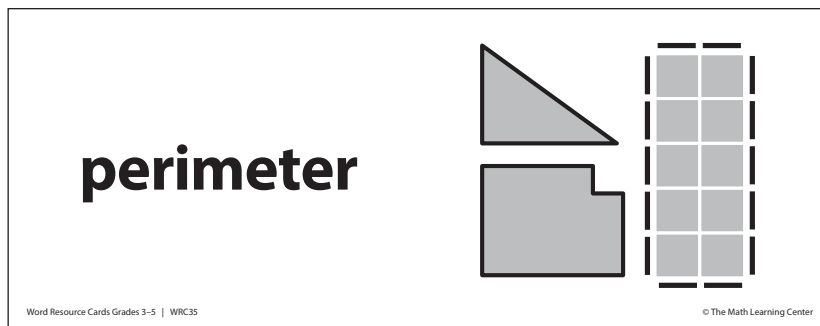
Teacher We know that this side is 2 units tall and the side is 3 units long. Do you know how tall this side is?

Students I think it has to be 2 also. It looks just the same as the opposite.

And the other side should be 3 because it is a rectangle. I think on a rectangle the opposite sides have to be the same or else it would not be a rectangle.

- Then, ask students if they can add up all the side measurements.
 - When they do, let them know that they just found the perimeter of the rectangle. In other words, they added up the side measurements to find the total distance around the rectangle.
- 4 Show students both sides of the *perimeter* Word Resource Card and then post it so students can see, remember, and use the word.

Teacher If I talk about how long one side is I might use the word *length*, or I could also talk about the *width* (pointing to the dimensions as the terms are spoken). But we have a special term we use to talk about measuring around the edge of a shape. It is called *perimeter*. Inside the word *perimeter* is the little word "rim" that helps me remember the meaning of this word, like the rim of a cup.



- 5 Let students know that the linear units on the calendar markers are actually centimeters, and then quickly review what centimeters are.
- Ask students to raise their hand if they have heard the word *centimeter*.
 - Then, have them show you with their finger and thumb about how big they think a centimeter is.
 - Hold up a centimeter ruler, and measure the sides of one of the calendar markers to show students that these units are actually centimeters.
 - The sides can be measured in centimeters. Each square unit is actually one square centimeter.
- 6 Invite a student to help you and explain that together you will measure the perimeter of the rectangle on today's marker.
- Have that student take a pipe cleaner or Wikki Stix and bend it so it fits exactly around the perimeter of the rectangle.
 - Trim the stick so that only the perimeter remains.
 - Hand the student a centimeter ruler. Have them measure the length and the width of the bent shape to the nearest whole centimeter. Record those numbers where students can see them.
 - Straighten the pipe cleaner or Wikki Stix back out.
 - Have the student measure the total length, which is equal to the perimeter of the rectangle.
 - Record the measurement and be sure to label it in centimeters.
- 7 Ask students to discuss, first in pairs and then as a whole class, how they could have used the length and width measurements to figure out the perimeter, without actually measuring it.

Students You could just count the units along each side.

We know 2 sides always and we know the other 2 sides will be the same. So, you can just add up the sides. So on day 6 it will be $2 + 2 + 4 + 4$ or $2 + 4 + 2 + 4$. The order doesn't matter.

You could just double each side that you know.

- 8 If you have time, work with students to find the perimeter of other rectangles.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

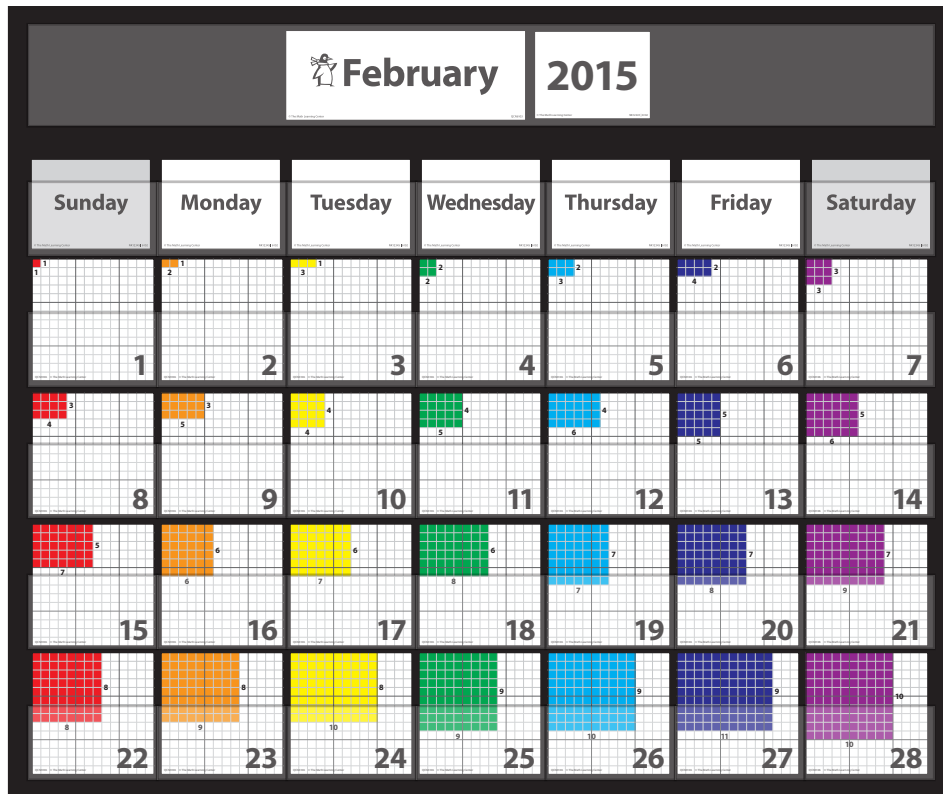
The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.

Day 4

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	Activity 1 – Multiples of Three (pg. 24)
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

✓ 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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 1

Multiples of Three, Four & Eight

Days 4, 6, 10

This activity is written for the first week when students will review multiplying by 3. On Day 6, repeat the activity for multiplication by 4. On Day 10, repeat with multiplication by 8. The featured strategies for multiplying by all of these numbers involve using doubling as a starting point, so be sure to have students make the connection to doubling.

- 1 Open today's activity by explaining that in Computational Fluency this month, students will practice using what they know about doubles to multiply by 3, 4, and 8. Today they will focus on multiplying by 3.
- 2 Display the Doubles Plus One Set Facts Teacher Master and use it to review multiplying by 3.
 - Read the poem out loud or invite a student volunteer to read the poem out loud.
 - Invite students to use the strategy to solve the challenge problems if it seems appropriate for your group.
- 3 Display your copy of the Multiplication Table Number Corner Student Book page, and ask students to turn to the same in their own books.

You might want to skip steps 3–5 if students have already spent time studying the multiplication table during your regular math instruction.
- 4 Ask students to look for the Doubles Plus One Set facts on the table. Where do they see these facts? What patterns do they notice?
- 5 Take some time together as a class to mark the Doubles Plus One Set facts by coloring them lightly in orange and marking them in the legend. (On Day 6, color the Double-Doubles in red. On day 10, color the Double-Double-Doubles in brown.)
- 6 Display your copy of the Multiplying by Three Number Corner Student Book Page, and review the instructions. (On day 6, use the Multiplying by Four page, and on day 10, use the Multiplying by Eight page.)
- 7 Give students time to complete the page independently. Emphasize that they should complete items 1 and 2. If they have time, they can move on to the other items.
- 8 When there are just a few minutes left in the period, review the products for item 2 so that students can check their own work. Ask them to circle any products they could not recall or that they recalled incorrectly.
- 9 Let students know that they will have time to practice these facts and more in the months to come.



Key Questions

These questions guide students to think about the operation of multiplication.

- Can you skip-count to find the product of these two numbers?
- How can addition help you with multiplication?
- How can multiplication help you with division?

Literature Connections

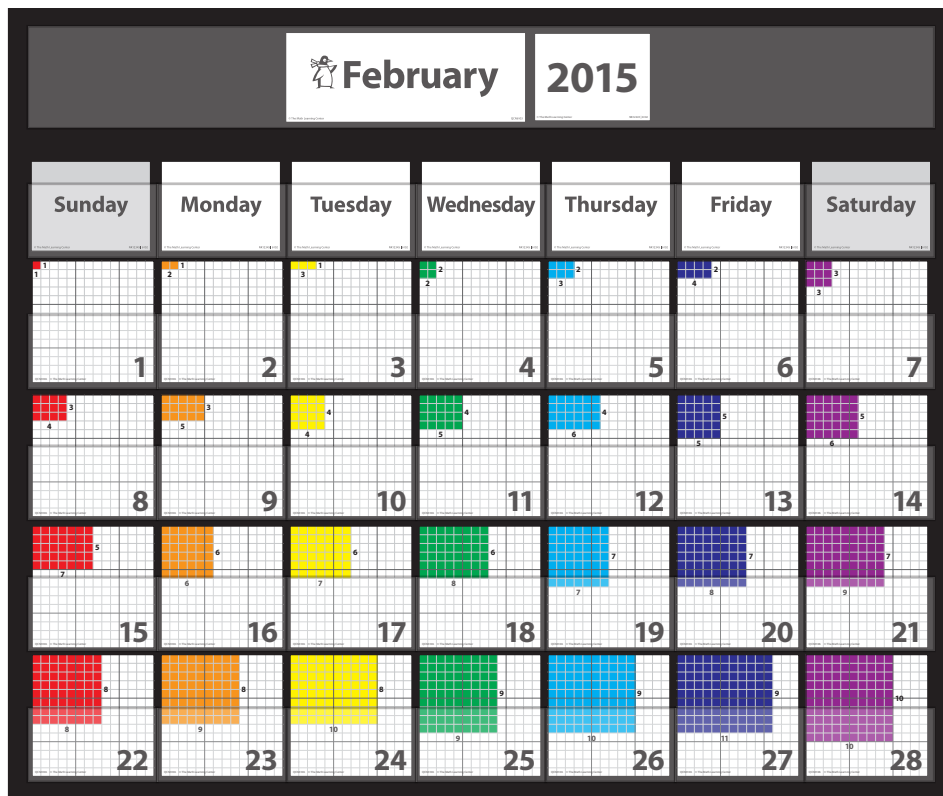
Use the following books as read-alouds this month.

- *What Comes in 2s, 3s and 4s* by Suzanne Aker Dahl
- *One Is a Snail, Ten Is a Crab* by April Pulley Sayre & Jeff Sayre

Day 5

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
Activity 1 – Labeling Number Lines with Halves, Fourths & Eighths (pg. 28)		



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 1

Labeling Number Lines with Halves, Fourths & Eighths Day 5

- 1 Make sure all students can see the 0–1 number lines you created together last month. Display your copy of the Fraction Number Lines page, and have students turn to the page in their Number Corner Student Books.
- 2 Introduce today’s activity.
 - Explain that students will label the unmarked 0 to 1 number lines on this page in their Number Corner Student Books.
 - They will use these number lines all month to compare fractions.
 - They can work in pairs or alone, and they can refer to the poster of 0–1 number lines they created last month.
 - Last month, they put fraction strips on the number line to mark each fraction. This time, however, they will just locate points on the line that match each fraction.
- 3 Give students time to mark $\frac{1}{2}$ on the halves line. Explain that they can work on their own or with a partner and that they should do their best to mark $\frac{1}{2}$ but that it does not have to be exact. Invite them to refer to the poster of number lines from last month if it helps them.
- 4 After students have had some time to work, invite them to share how they located $\frac{1}{2}$ on the number line, and then invite them to share how they would mark 2 halves on the same line.
- 5 Now challenge students to mark $\frac{3}{4}$ on the fourths line. Give them time to work and then invite students to share their strategies.

Some students might have approximated the location of $\frac{3}{4}$ and marked it. Others might have divided the line into four equal parts and counted 3 fourths to mark $\frac{3}{4}$. Invite students to talk about how they can use the halves line to mark the fourths line: if necessary, help them see that they can divide the line in half and then in half again to label fourths.
- 6 Now challenge students to mark $\frac{5}{8}$ on the eighths line. Give them time to work and then invite students to share their strategies.
- 7 Ask students to make sure that all halves, fourths, and eighths are labeled on their number lines.
- 8 Close the activity and explain that they will finish labeling the number lines and use them for an activity next time.



Key Questions

- Which is greater: $\frac{1}{8}$ or $\frac{1}{3}$? What do you know, then, about which is greater: $\frac{2}{8}$ or $\frac{2}{3}$? (You can use any pair of denominators.)
- If you are marking this number line in fourths (eighths, sixths, etc.), into how many parts must you divide it?

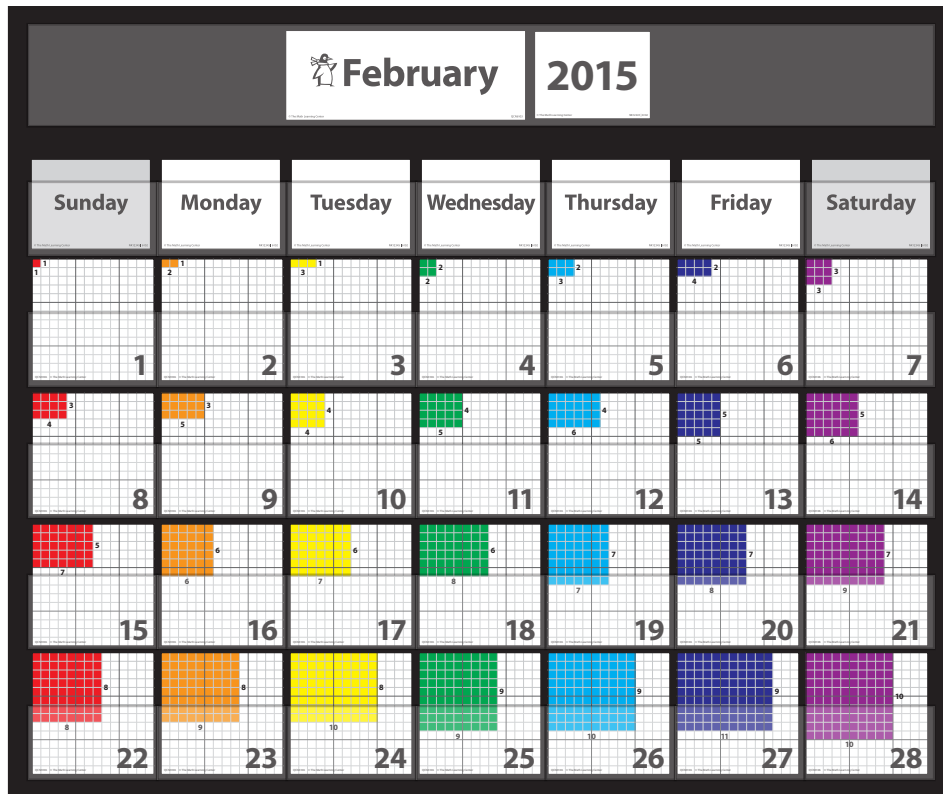
Literature Connections

- *The Wishing Club: A Story About Fractions* by Donna Jo Napoli
- *Full House: An Invitation to Fractions* by Gayle Ann Dodds

Day 6

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	Activity 1 – Multiples of Four (pg. 24)
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

✓ 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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 1

Multiples of Three, Four & Eight

Days 4, 6, 10

This activity is written for the first week when students will review multiplying by 3. On Day 6, repeat the activity for multiplication by 4. On Day 10, repeat with multiplication by 8. The featured strategies for multiplying by all of these numbers involve using doubling as a starting point, so be sure to have students make the connection to doubling.

- 1 Open today's activity by explaining that in Computational Fluency this month, students will practice using what they know about doubles to multiply by 3, 4, and 8. Today they will focus on multiplying by 3.
- 2 Display the Doubles Plus One Set Facts Teacher Master and use it to review multiplying by 3.
 - Read the poem out loud or invite a student volunteer to read the poem out loud.
 - Invite students to use the strategy to solve the challenge problems if it seems appropriate for your group.
- 3 Display your copy of the Multiplication Table Number Corner Student Book page, and ask students to turn to the same in their own books.

You might want to skip steps 3–5 if students have already spent time studying the multiplication table during your regular math instruction.
- 4 Ask students to look for the Doubles Plus One Set facts on the table. Where do they see these facts? What patterns do they notice?
- 5 Take some time together as a class to mark the Doubles Plus One Set facts by coloring them lightly in orange and marking them in the legend. (On Day 6, color the Double-Doubles in red. On day 10, color the Double-Double-Doubles in brown.)
- 6 Display your copy of the Multiplying by Three Number Corner Student Book Page, and review the instructions. (On day 6, use the Multiplying by Four page, and on day 10, use the Multiplying by Eight page.)
- 7 Give students time to complete the page independently. Emphasize that they should complete items 1 and 2. If they have time, they can move on to the other items.
- 8 When there are just a few minutes left in the period, review the products for item 2 so that students can check their own work. Ask them to circle any products they could not recall or that they recalled incorrectly.
- 9 Let students know that they will have time to practice these facts and more in the months to come.



Key Questions

These questions guide students to think about the operation of multiplication.

- Can you skip-count to find the product of these two numbers?
- How can addition help you with multiplication?
- How can multiplication help you with division?

Literature Connections

Use the following books as read-alouds this month.

- *What Comes in 2s, 3s and 4s* by Suzanne Aker Dahl
- *One Is a Snail, Ten Is a Crab* by April Pulley Sayre & Jeff Sayre

Day 7

Date:

Calendar Grid	Calendar Collector	Computational Fluency
Activity 3 – Identifying Area (pg. 11)	<i>Update</i>	
Number Line	Solving Problems	Assessment



Activity 3

Identifying Area

Day 7

- Open today's activity by inviting students to share observations and predictions before updating the Calendar Grid.
 - Ask students to study the calendar for a moment.
 - Invite them to share some predictions about what today's marker might look like.

At this point in the month, there are many patterns that will help students make predictions. What relationships do they see between the rectangles? What do they notice about the growing pattern? How much bigger does each rectangle get with each day? Are there any rectangles that are twice as big as others?

 - Invite a student helper to turn over or post the next marker.
 - Have students turn to a partner to share their observations about the marker.
- Ask students to sketch the rectangle on their student whiteboards and determine exactly how many square centimeters are in the rectangle.
- Ask students to talk, first in pairs and then as a class, about how they can determine and confirm the total number of square centimeters in the rectangle.

If students do not suggest counting each square one by one, skip-counting by rows or columns, or writing repeated addition equations, feel free to suggest these methods.
- Connect the work students just did to the term *area*.
 - Explain that when students found the number of square centimeters in the shape, they found the area of the shape.
 - Show both sides of the Word Resource Card for *area*, and then post it where students can refer to it.
- Ask students to determine the area of another rectangle, using some of the strategies they just discussed.
- Introduce the Calendar Grid Observations Chart and work with student input to record information about the first few markers.
 - Draw students' attention to the chart.
 - Invite them to share observations about the chart.
 - Clarify how to find the height and width of each rectangle, if needed.
 - Work with the class to fill in the appropriate information for the first few rows of the chart.

Date	Height	Width	Color	Perimeter (cm)	Area (cm ²)
1	1	1	red	$1 + 1 + 1 + 1 = 4$ cm	1 cm ²
2	1	2	orange	$1 + 2 + 1 + 2 = 6$ cm	2 cm ²
3	1	3	yellow	$1 + 3 + 1 + 3 = 8$ cm	3 cm ²
4	2	2	green	$2 + 2 + 2 + 2 = 8$ cm	4 cm ²
5	2	3	blue	$2 + 3 + 2 + 3 = 10$ cm	6 cm ²
6	2	4	indigo	$2 + 4 + 2 + 4 = 12$ cm	8 cm ²

- 7 Have students work in pairs to determine how to fill in the rest of the chart.
 - Assign the rest of the rows to partners or small groups.
 - Have students determine what goes in each column for the row they have been assigned.
 - Invite students to share the information for their rows and fill it in as they share.
- 8 At the end of the activity, ask students to talk with a partner about what area is and what perimeter is.
- 9 Conclude the activity by letting students know that when they update the Calendar Grid from now on, they will need to add information to the Observations Chart for the new markers they post.

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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 Grid as part of Activities 2 and 3 as well.

Procedure

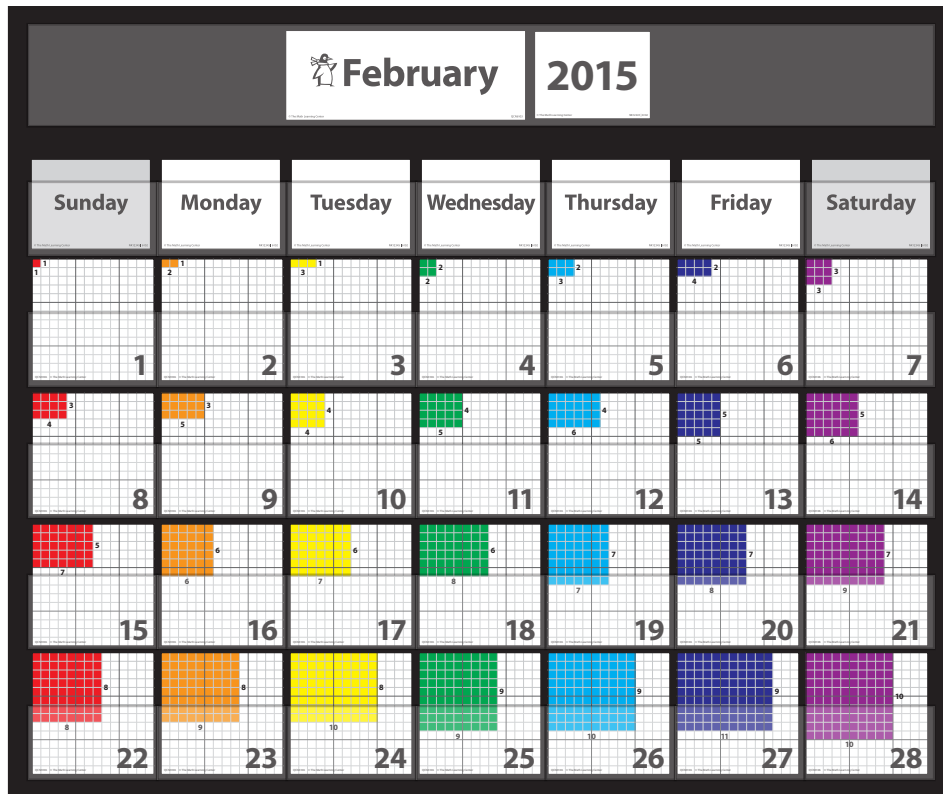
The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.

Day 8

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	Activity 2 – Collecting Fourths of a Dollar (pg. 19)	
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

Activity 2

Collecting Fourths & Halves of a Dollar

Days 8, 15

Depending on your school calendar, you may need to adjust the days assigned to this activity. This activity is written for collecting fourths, and it should be updated exactly 7 times. When you repeat the activity, begin by reviewing the collection of fourths and then initiating the collection of halves. It may be helpful to determine the activity days by counting school days backward from the end of the month.

- 1 Open today’s activity by asking students to study the collection in silence for a moment. Then ask them to share observations, first in pairs and then as a class.

To promote discussion, you might ask students to respond to questions like these.

- How many tenths did we collect altogether? Is there some way to determine the total without counting them one by one?
- How many whole dollars and what fraction of a dollar did we collect? [1 whole dollar and $\frac{7}{10}$ of a second dollar in the example below]
- How many more tenths of a dollar (dimes) would it take to make another whole dollar (to complete the second dollar in the example below)?

Collection 1: Tenths of a Dollar

$\frac{1}{10}$ dollar = 10 cents

$\frac{2}{10}$ dollar = 20 cents

$\frac{3}{10}$ dollar = 30 cents

$\frac{4}{10}$ dollar = 40 cents

Fractions of a Dollar Record Sheet					
Day	Spots	Fraction of a Dollar	Cents	Total Fraction	Total Cents
1	2	$\frac{2}{10}$	20¢	$\frac{2}{10}$	20¢
2	1	$\frac{1}{10}$	10¢	$\frac{3}{10}$	30¢
3	4	$\frac{4}{10}$	40¢	$\frac{7}{10}$	70¢
4	3	$\frac{3}{10}$	30¢	$\frac{10}{10}$	100¢
5	2	$\frac{2}{10}$	20¢	$\frac{12}{10}$	120¢
6	1	$\frac{1}{10}$	10¢	$\frac{13}{10}$	130¢
7	4	$\frac{4}{10}$	40¢	$\frac{17}{10}$	170¢

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- 2 Let students know that each day for the next seven days, they will collect 1, 2, 3, or 4 quarters. Work with students to identify how much each number of quarters is worth and express those amounts in cents and as some fraction of a dollar. Record the amounts on the chart paper you prepared for this week's collection.

You might have students work on this in pairs and then work with their input to record the values as a whole class on the collection chart.

Collection 2: Fourths of a Dollar

$\frac{1}{4}$ dollar = 25 cents

$\frac{2}{4}$ dollar = 50 cents

$\frac{3}{4}$ dollar = 75 cents

$\frac{4}{4}$ dollar = 100 cents
(1 whole dollar)

Fractions of a Dollar Record Sheet

Day	Spin	Fractions of a Dollar	Cents	Total Fraction	Retail Cents
1					
2					
3					
4					
5					
6					
7					

- 7 Work with participation from students to add the first quarter or quarters to the collection.
- Invite a student to come spin the spinner.
 - Explain that this number shows how many quarters they need to add to the collection.
 - Invite a different student to come take that number of quarter pieces and glue them to a fresh Dollar Grid.
 - Fill in today's row on the chart.
- 8 Explain that they will repeat this process for the next 6 days of school, and then close the activity by asking students to share predictions, first in pairs and then as a class.

To promote discussion, you might ask students to respond to questions like these.

- After seven days have passed, do you think we will have collected more or less money than we did when we were done collecting dimes? Why?
- After seven days have passed, about how much money do you think we will have collected?
- After how many days do you think we'd have a collection that is about equal to the finished collection of dimes? Why?

Students Fourths are so much bigger than tenths. I think for sure we'll get more money this time.

What do you mean?

Well, it only takes 4 fourths to make a whole dollar, but it takes 10 tenths to make a whole dollar. So I think we'll end up with a lot of whole dollars.

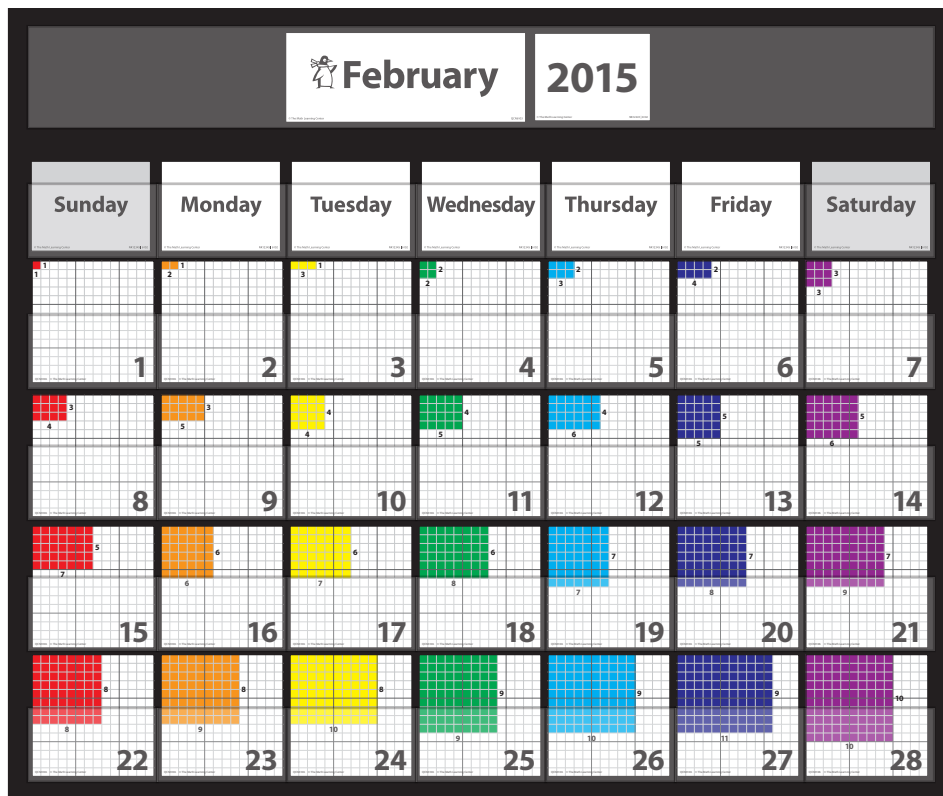
If we spin a 4, we could get a whole dollar in just 1 day!

We could never get a whole dollar with the dimes. You'd need 10 of them, but the most we could get was 4. That's not even half of a dollar.

Day 9

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
Activity 2 – Labeling Number Lines with Thirds & Sixths & Playing Find the Fraction (pg. 29)		



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 2

Labeling Number Lines with Thirds & Sixths & Playing Find the Fraction

Day 9

- 1 Make sure all students can see the 0–1 number lines you created together last month, display your copy of the Fraction Number Lines page, and have students turn to the page in their Number Corner Student Books.
- 2 Give students time to mark $\frac{2}{3}$ on the thirds line. Explain that they can work on their own or with a partner, and invite them to refer to the poster of number lines from last month if it helps them.
- 3 Now challenge students to mark $\frac{3}{6}$ on the sixths line. Give them time to work and then invite students to share their strategies.
Some students might have approximated the location of $\frac{3}{6}$ and marked it. Others might have divided the line into six equal parts and counted 3 sixths to mark $\frac{3}{6}$. Many students will have realized, either before or after they marked the point on the line, that $\frac{3}{6}$ is equal to $\frac{1}{2}$.
- 4 Ask students to make sure that all thirds and sixths are labeled on their number lines. Invite them to refer to the poster of 0–1 number lines created in January as needed.
- 5 Now explain how students will use the number lines in their books for the rest of the month.
 - Tell students that they will use their number lines to play a game called Find the Fraction.
 - They will play in two teams.
 - You will say a fraction and invite them to find another fraction that meets some requirement. For example, you might say $\frac{2}{3}$ and then ask students to find a fraction with the same numerator that is less than $\frac{2}{3}$.
 - Teams will take turns going first. The first team names a fraction. Then the other team needs to name a different fraction that also meets the requirements. If both teams can name a fraction, they both get 1 point. If only one team is able to name a fraction, only that team gets a point. The team with the most points at the end wins.

Because teams take turns going first, the advantage switches each time. Especially when their team is taking the second turn, students are motivated to search for a variety of fractions that meet the requirements.

6 Divide the class into teams and play as many rounds of Find the Fraction as you have time for.

- Use the prompts suggested here or make up your own in response to students' strengths and needs.
- State each prompt verbally, and write it as shown in the table.
- Record each valid response in the form of an inequality statement or equation, as shown in the table.
- Keep track of each team's points during the game.

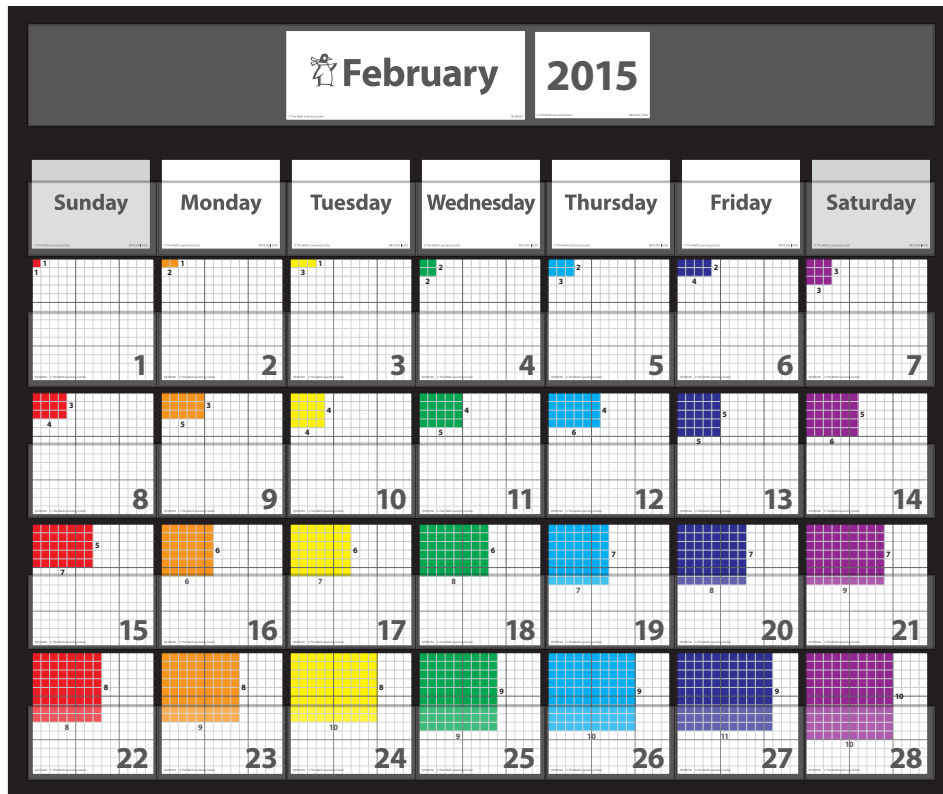
Try to ensure that a different student from each team makes and justifies the selection each time. You might also promote broader engagement by asking students to whisper in pairs about the different fractions that meet the requirements so that any student can be prepared to respond. Then you might select a student from each team at random. The selected student can name a fraction and explain their thinking if they feel confident doing so. If not, the student can ask for support from their teammates.

Name a fraction that:	Recording	Possible Answers		
Has a 6 in the denominator and is less than $\frac{4}{6}$	$\frac{5}{6} < \frac{4}{6}$	$\frac{3}{6} < \frac{4}{6}$	$\frac{2}{6} < \frac{4}{6}$	$\frac{1}{6} < \frac{4}{6}$
Has a 4 in the denominator and is greater than $\frac{2}{4}$	$\frac{3}{4} > \frac{2}{4}$	$\frac{3}{4} > \frac{2}{4}$	$\frac{4}{4} > \frac{2}{4}$	
Has a 3 in the denominator and is greater than $\frac{1}{3}$	$\frac{2}{3} > \frac{1}{3}$	$\frac{2}{3} > \frac{1}{3}$	$\frac{3}{3} > \frac{1}{3}$	
Has an 8 in the denominator and is less than $\frac{3}{8}$	$\frac{2}{8} < \frac{3}{8}$	$\frac{2}{8} < \frac{3}{8}$	$\frac{1}{8} < \frac{3}{8}$	
Is equal to $\frac{1}{2}$	$\frac{2}{4} = \frac{1}{2}$	$\frac{2}{4} = \frac{1}{2}$	$\frac{3}{6} = \frac{1}{2}$	$\frac{4}{8} = \frac{1}{2}$
Is equal to 1	$\frac{2}{2} = 1$	$\frac{2}{2} = 1$ $\frac{3}{3} = 1$	$\frac{4}{4} = 1$ $\frac{6}{6} = 1$	$\frac{8}{8} = 1$

Day 10

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	Activity 1 – Multiples of Eight (pg. 24)
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 1

Multiples of Three, Four & Eight

Days 4, 6, 10

This activity is written for the first week when students will review multiplying by 3. On Day 6, repeat the activity for multiplication by 4. On Day 10, repeat with multiplication by 8. The featured strategies for multiplying by all of these numbers involve using doubling as a starting point, so be sure to have students make the connection to doubling.

- 1 Open today's activity by explaining that in Computational Fluency this month, students will practice using what they know about doubles to multiply by 3, 4, and 8. Today they will focus on multiplying by 3.
- 2 Display the Doubles Plus One Set Facts Teacher Master and use it to review multiplying by 3.
 - Read the poem out loud or invite a student volunteer to read the poem out loud.
 - Invite students to use the strategy to solve the challenge problems if it seems appropriate for your group.
- 3 Display your copy of the Multiplication Table Number Corner Student Book page, and ask students to turn to the same in their own books.

You might want to skip steps 3–5 if students have already spent time studying the multiplication table during your regular math instruction.
- 4 Ask students to look for the Doubles Plus One Set facts on the table. Where do they see these facts? What patterns do they notice?
- 5 Take some time together as a class to mark the Doubles Plus One Set facts by coloring them lightly in orange and marking them in the legend. (On Day 6, color the Double-Doubles in red. On day 10, color the Double-Double-Doubles in brown.)
- 6 Display your copy of the Multiplying by Three Number Corner Student Book Page, and review the instructions. (On day 6, use the Multiplying by Four page, and on day 10, use the Multiplying by Eight page.)
- 7 Give students time to complete the page independently. Emphasize that they should complete items 1 and 2. If they have time, they can move on to the other items.
- 8 When there are just a few minutes left in the period, review the products for item 2 so that students can check their own work. Ask them to circle any products they could not recall or that they recalled incorrectly.
- 9 Let students know that they will have time to practice these facts and more in the months to come.



Key Questions

These questions guide students to think about the operation of multiplication.

- Can you skip-count to find the product of these two numbers?
- How can addition help you with multiplication?
- How can multiplication help you with division?

Literature Connections

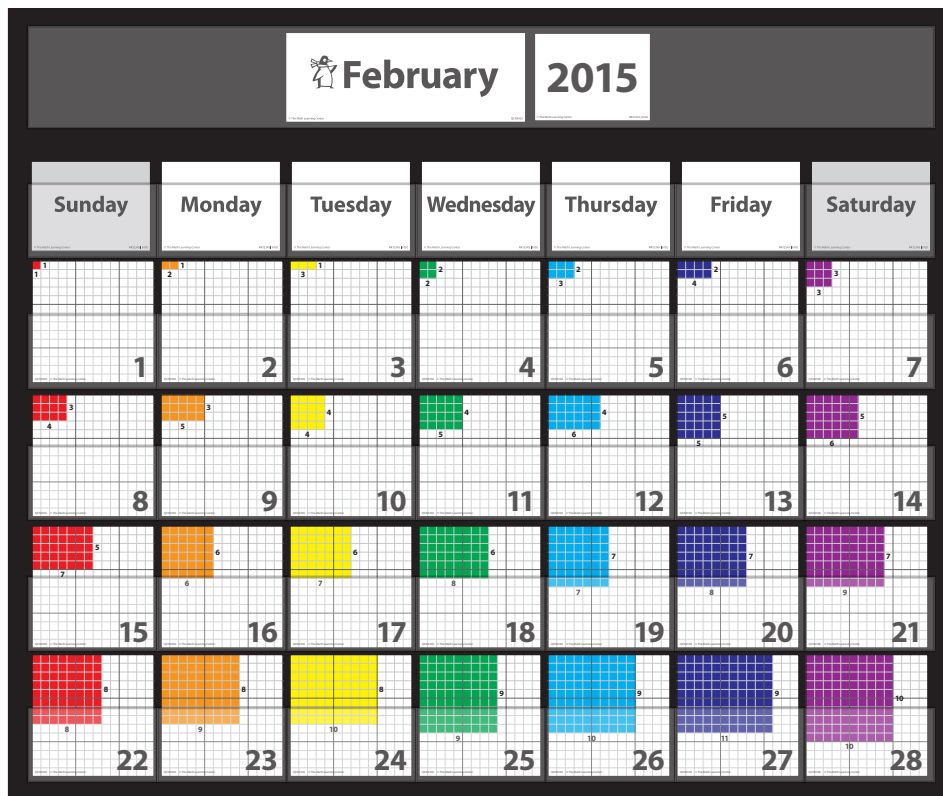
Use the following books as read-alouds this month.

- *What Comes in 2s, 3s and 4s* by Suzanne Aker Dahl
- *One Is a Snail, Ten Is a Crab* by April Pulley Sayre & Jeff Sayre

Day 11

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
	Activity 1 – Looking at Graphs (pg. 34)	



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **Update**

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Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 1



Key Questions

Use these questions to help guide students' discussion this month.

Looking at Graphs

Day 11

- 1 Open today's activity by gathering students in your Number Corner discussion area and introducing graphs.

- Let them know that they will focus on graphs this month.
- Ask them to think silently about what they already know about graphs.

ELL/SUPPORT. You might want to have a few examples of graphs for students to look at.

- After a minute or so, prompt more thinking with the following questions.
 - » Where have you seen graphs?
 - » What do graphs tell us?
 - » Have you even made a graph? What kind of graph? What was it about?

- 2 Then, display the Food Bank Bar Graph 1 Teacher Master and give students a few moments to study it in silence before sharing observations as a class.

As students share, emphasize key vocabulary terms that come up and use the Word Resource Cards to clarify them.

ELL. Help ELL students with key graph vocabulary. Use the Word Resource Cards or point to each part of the graph as it comes up.

Teacher This kind of graph is called a bar graph. What do you notice about it?

Students I see bars! That must be why it is called a bar graph.

It's about cans of food collected.

There are numbers on the side going up and down and words on the side going across.

Teacher Do you know what to call these lines on a graph? The one going up and down or vertically is called the *y*-axis and the one going across or horizontally is called the *x*-axis. Many graphs have 2 axes, but some only have 1.

- 3 Emphasize the importance of the title and bar labels. Cover them up with sticky notes and ask students why it is important for the graph to have a title and labels.

Students If they were not there, the graph could be about anything.

Yeah, you would not know what it was about!

- 4 Display the Food Bank Bar Graph 2 Teacher Master and give students a minute to look at the graph quietly before inviting them to discuss how the graph is similar to and different from the first graph.

Listen carefully as students realize that although the graph looks different, the data is the same. The scale makes it look different.

Students It's also about food for a food bank.

They did not collect as much food this time.

This one has a key. The other one didn't.

What's a key?

- What do you notice about this graph?
- What are some features that you see on this graph? (sample answers: *y*-axis, *x*-axis, title, labels, bars, pictures, key, numbers, information)
- What is the minimum?
- What is the maximum?
- What is the difference between the minimum and the maximum?
- What is the scale? If the scale is ____, then how many do 3 squares (or pictures) represent?
- Why do people use graphs?
- What can you learn from this graph? What information does this graph share? How can you use words to explain what this graph shows visually?

I think it is telling us how much each square is worth. See? It says each square equals 10 cans of food.

So, they actually collected 30 cans of chicken soup. I thought it was just 3, because there are 3 squares shaded in, but each one is worth 10, so that is 30.

Oh look, for 25 cans, they did 2 and $\frac{1}{2}$ squares. That makes sense. Two squares would be 20 and then half a square is 5 because half of 10 is 5.

Teacher *You can tell how important the key is. It tells about the scale for the graph. You are exactly right that each square equals 10 cans of food. Why do you think we might want to use a different scale and have a key to explain the scale in certain graphs?*

Students *I think it might easier.*

Maybe if your numbers are really big, it would make the information fit on the page better. It would not take so long to make the graph either.

- 5 Quickly display the Food Bank Picture Graph Teacher Master. Tell students that this graph shows the same information as the second Food Bank graph. Ask students what is different about this graph.

Students *There are cans of soup on it!*

It uses pictures instead of bars.

Each can is worth 10 cans instead of each square being worth 10 cans.

The pictures go across instead of up and down.

Teacher *I'm so glad you noticed that. In the bar graphs we saw, the bars were vertical. Do you think they could be horizontal too?*

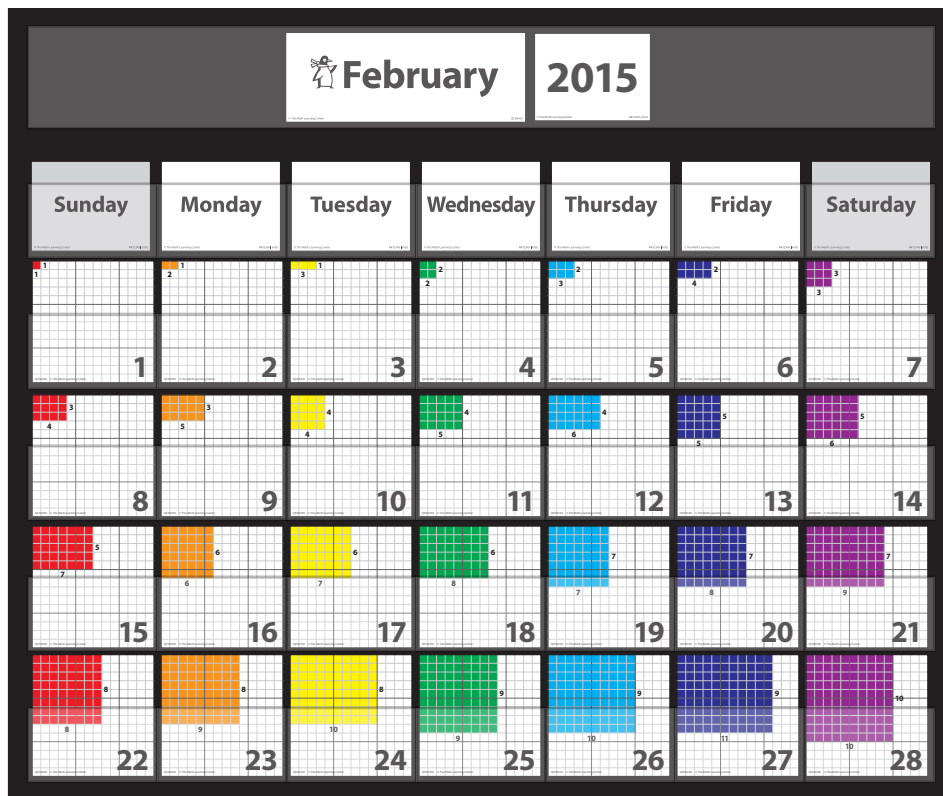
- 6 Ask students why they think bar graphs are called bar graph and picture graph are called picture graphs.
- 7 Wrap up today's activity by reviewing key parts of bar graphs and picture graphs. Using the second bar graph, point to each of the following parts one at a time and ask students to name and explain them:

<i>x</i> -axis	title	numbers	key
<i>y</i> -axis	labels	bars	

Day 12

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
Activity 3 – Playing Find the Fraction (pg. 30)		



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

Update

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Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.


Activity 3
Playing Find the Fraction**Day 12**

- 1 Help students prepare to play Find the Fraction again.
 - Divide the class into two teams.
 - Invite students to turn to the Fraction Number Lines page in their Number Corner Student Books.
 - Remind students how the game is played. (See step 5 in Activity 2.)
 - Remind students to refer to their own fraction number lines and to the 0–1 number lines poster they created in January.

- 2 Answer any questions and play as many rounds as you have time for.
 - Use the prompts suggested here or make up your own in response to students' strengths and needs.
 - State each prompt verbally, and write it as shown in the table.
 - Record each valid response in the form of an inequality statement, as shown in the table.
 - Keep track of each team's points during the game.

Try to ensure that a different student from each team makes and justifies the selection each time. You might also promote broader engagement by asking students to whisper in pairs about the different fractions that meet the requirements, so that any student can be prepared to respond. Then you might select a student from each team at random. The selected student can name a fraction and explain their thinking if they feel confident doing so. If not, the student can ask for support from their teammates.

CHALLENGE Invite students to think of fractions that are not necessarily labeled on the number lines. For example, any fraction that has a 2 in the numerator and a number greater than 3 in the denominator will be less than $\frac{2}{3}$, so students might suggest fractions like $\frac{2}{10}$, $\frac{2}{12}$, or $\frac{2}{16}$ as possible answers to the first prompt in the table.

Name a fraction that:	Recording	Possible Answers		
Has a 2 in the numerator and is less than $\frac{2}{3}$	$\frac{2}{4} < \frac{2}{3}$	$\frac{2}{4} < \frac{2}{3}$	$\frac{2}{6} < \frac{2}{3}$	$\frac{2}{8} < \frac{2}{3}$
Has a 3 in the numerator and is greater than $\frac{3}{6}$	$\frac{3}{2} > \frac{3}{6}$	$\frac{3}{2} > \frac{3}{6}$	$\frac{3}{3} > \frac{3}{6}$	$\frac{3}{4} > \frac{3}{6}$
Has a 1 in the numerator and is greater than $\frac{1}{6}$	$\frac{1}{2} > \frac{1}{6}$	$\frac{1}{2} > \frac{1}{6}$	$\frac{1}{3} > \frac{1}{6}$	$\frac{1}{4} > \frac{1}{6}$
Has a 4 in the numerator and is less than $\frac{4}{4}$	$\frac{4}{6} < \frac{4}{4}$	$\frac{4}{6} < \frac{4}{4}$	$\frac{4}{8} < \frac{4}{4}$	
Has a 1 in the numerator and is less than $\frac{1}{2}$	$\frac{1}{3} < \frac{1}{2}$	$\frac{1}{3} < \frac{1}{2}$ $\frac{1}{4} < \frac{1}{2}$	$\frac{1}{6} < \frac{1}{2}$	$\frac{1}{8} < \frac{1}{2}$
Has a 2 in the numerator and is greater than $\frac{2}{6}$	$\frac{2}{4} > \frac{2}{6}$	$\frac{2}{4} > \frac{2}{6}$	$\frac{2}{3} > \frac{2}{6}$	$\frac{2}{2} > \frac{2}{6}$

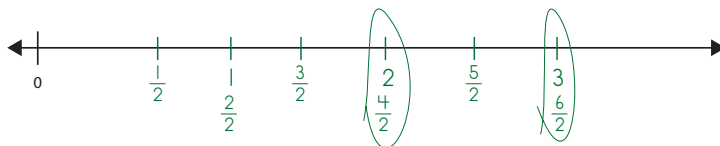
- 3 After playing the game, invite students to talk, first in pairs and then as a class, about the fractions $\frac{4}{2}$ and $\frac{6}{2}$.

Use questions like the following to promote discussion.

- How are these fractions similar to each other, and how are they different?
- How are these fractions similar to and different from the fractions we have shown on our number lines last month and this month?
- How could you show these fractions on a number line?
- Which of these two fractions is greater? How can you tell?

- 4 During the discussion, work with students to show these two fractions on a number line. Mark the number line first from 0 to 1 and show $\frac{1}{2}$ and $\frac{2}{2}$. Then ask students to help you extend the number line to show 4 halves and then 6 halves.

CHALLENGE Invite students to name other fractions that are equal to 2 and 3. For example, what fraction with a denominator of 4 is equal to 2? To 3?
.....



- 5 Close the activity by letting students know they will think about more fractions and whole numbers like these next week.

Day 13

Date:

Calendar Grid	Calendar Collector	Computational Fluency
Activity 4 – Area & Perimeter Challenges (pg. 12)	<i>Update</i>	
Number Line	Solving Problems	Assessment



Activity 4

Area & Perimeter Challenges

Day 13

- 1 Open today's activity by inviting students to share observations and predictions before updating the Calendar Grid and Observations Chart.
 - Ask students to study the calendar for a moment.
 - Invite them to share some predictions about what today's marker might look like.
 - Invite a student helper to turn over or post the next marker.
 - Have students turn to a partner to share their observations about the marker.

- 2 Spend a few minutes with students making sure that the chart has been filled out correctly, and make any needed corrections with student input.

- 3 Ask students to look carefully at the Observations Chart and find examples of markers that have the same perimeter but different area.

Some examples of when the perimeter is the same and the area is different include days 3 and 4, 6 and 7, 9 and 10, 15 and 16, and 17 and 18.

- 4 Then, ask students to find examples of markers that have the same area but different perimeter.

There are no examples of this because the area gets bigger with every additional marker.

- 5 Let students know that they are each going to get 12 tiles. They will use the tiles to see how many rectangles they can build that all have an area of exactly 12 tiles but different perimeters.

- 6 Answer any questions students have, make sure everyone has 12 tiles, and then give them time work. While they work, circulate to make observations, listen to students' conversations, and provide differentiated instruction as needed.

SUPPORT/ELL This is a good time to review and extend vocabulary such as *length*, *width*, *height*, *area*, *perimeter*, *square*, *rectangle*, *polygon* and so on. Also make sure students understand the directions by modeling how to find one rectangle with an area of 12 square units.

CHALLENGE Challenge students to find as many possibilities as they can. Ask them if they can make a square with 12 tiles; why or why not?

- 7 Invite students to share and discuss their rectangles as a class.
 - Record and label the rectangles for everyone to see.
 - » There are 3 possibilities: 1-by-12, 2-by-6, and 3-by-4.
 - Ask students to compare and contrast the rectangles. Which one has the biggest perimeter? Which one has the smallest? Is there a connection between the shape of the rectangle and the size of the perimeter?
 - » Longer, skinnier rectangles will have bigger perimeters than rectangles that are more square-like; in other words, rectangles in which the dimensions are farther apart (e.g., the 1-by-12) will have larger perimeters than rectangles in which the dimensions are closer together (e.g., 3-by-4).

- 8 Wrap up today's activity by recognizing students for their participation, reasoning, and thinking.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

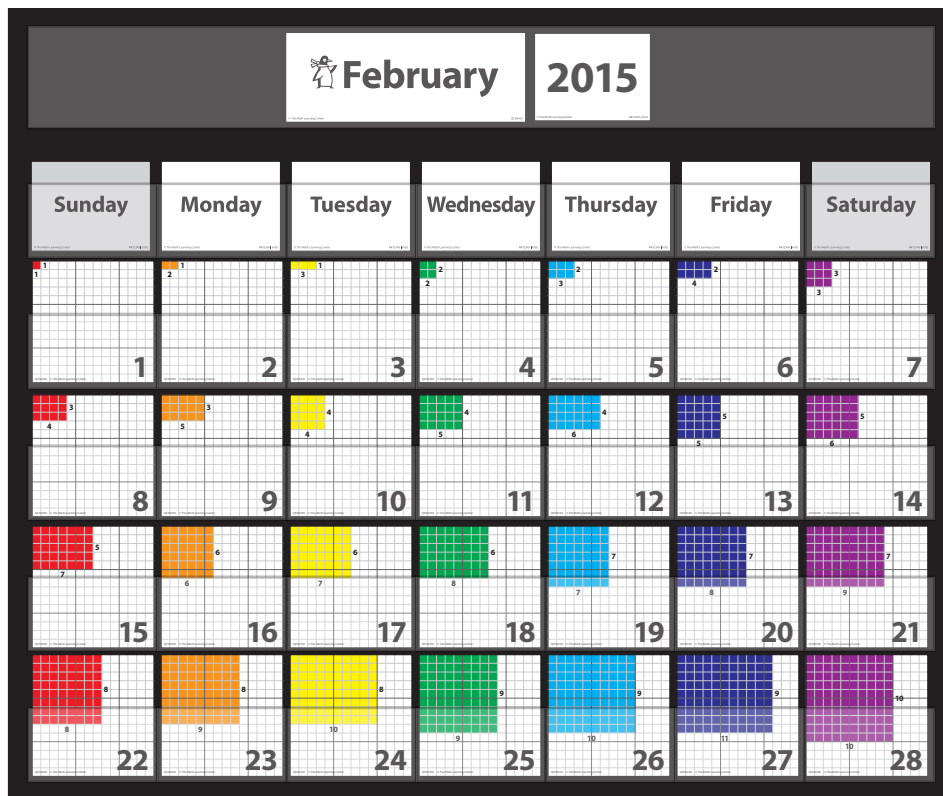
The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.

Day 14

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
	Activity 3 – Interpreting Graphs (pg. 35)	



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 2

Interpreting Graphs

Day 14

- 1 Open today's activity by letting students know they will continue working with graphs today.
- 2 Display the top of the Kilograms of Food Served page from the Number Corner Student Book. Write the word *scale* where everyone can see it, and show that on this graph, 1 square represents 10 kilograms of food.
- 3 Ask students the following questions.

When students share their thinking, push them away from the idea that when you multiply by 10, you just “add a zero.” Instead, encourage students to understand multiplying by 10 in terms of place value: 80 is 8 groups of 10 and 80 is 10 times as much as 8. The 8 shifts from the ones place to the tens place when multiplied by 10.

 - If 1 square equals 10, then how much do 8 squares equal? How do you know?
 - If 1 square equals 10, then how much do 13 squares equal? How do you know?
 - If 1 square equals 10, then how much do 3 and $\frac{1}{2}$ squares equal? How do you know?
- 4 Ask students to imagine that the scale of the graph is changed so that each square represents 30 kilograms, and then ask each of the following questions one at a time.
- 5 Continue to guide students away from thinking about adding a zero and more about place value and the properties of the operation.

For example, help students use the associative property to see and explain that $30 \times 5 = 3 \times 10 \times 5 = 3 \times (10 \times 5) = 10 \times (3 \times 5) = 10 \times 15 = 150$.

 - If 1 square equals 30, then how much do 5 squares equal? How do you know?
 - If 1 square equals 30, then how much do 8 squares equal? How do you know?
 - If 1 square equals 30, then how much do 2 $\frac{1}{2}$ squares equal? How do you know?
- 6 Give students some time to study the graph in silence and then ask them to share observations.
- 7 Ask students to identify the minimum and maximum amounts of food served in a single month.
 - Explain that mathematicians have terms for the greatest and smallest amounts shown on a graph. The maximum is the biggest amount in a set of data, and the minimum is the smallest amount.
 - Show students the Word Resource Cards for *maximum* and *minimum*.
 - Ask students to identify the month in which the most food was served and the number of kilograms that were served that month.
 - Ask students to identify the month in which the least food was served and the number of kilograms that were served that month.

8 Then, have students describe how they could find the range of the data.

- Explain that it can be helpful to determine the range of the data.
- The range is the difference between the minimum and maximum.
- Ask students how they could find the range of this data.

Students You could start at the minimum and count up to the maximum.

You could subtract the minimum from the maximum.

9 Help students prepare to complete the Number Corner Student Book page on their own.

- Display the rest of the page and explain that students will use the graph to answer questions about the data.
- Read the questions aloud.
- Answer any questions students have about what to do.
- Have students turn to the page in their own books.

10 Give students time to work independently. As they work, circulate around the room to make observations and answer questions.

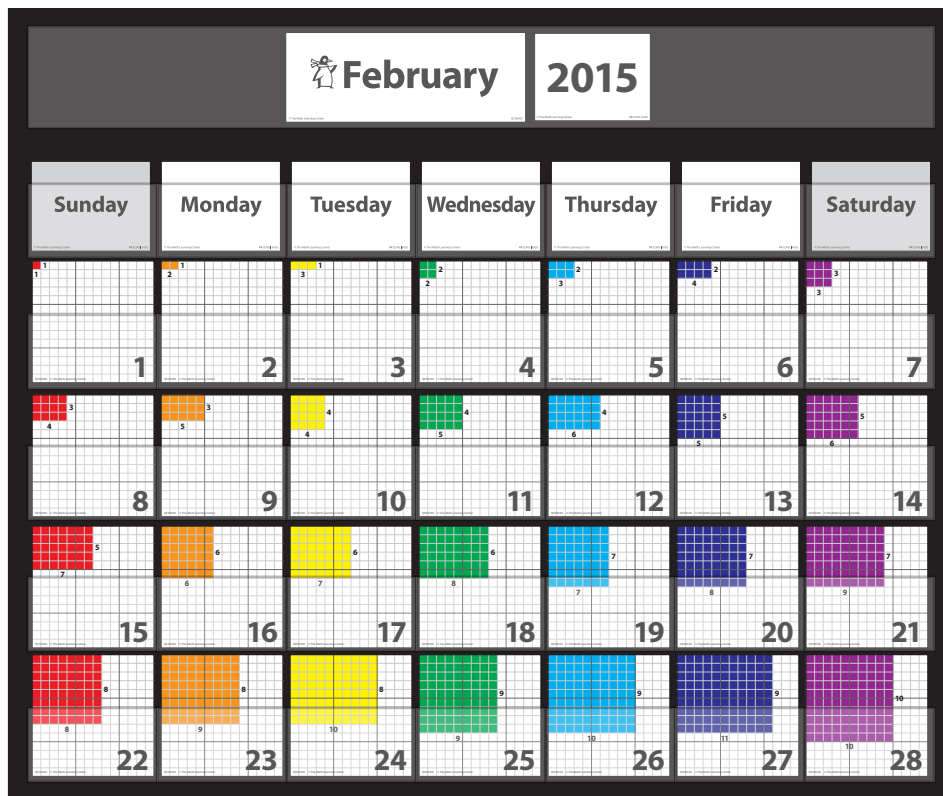
11 At the end of Number Corner time today, have students compare their answers with a partner. If their answers are different, encourage them to justify their thinking or rework the problem until they reach agreement about the answer.

12 Wrap up today's activity by letting students know they will make their own graphs next time.

Day 15

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	Activity 2 – Collecting Halves of a Dollar (pg. 19)	
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

Activity 2

Collecting Fourths & Halves of a Dollar

Days 8, 15

Depending on your school calendar, you may need to adjust the days assigned to this activity. This activity is written for collecting fourths, and it should be updated exactly 7 times. When you repeat the activity, begin by reviewing the collection of fourths and then initiating the collection of halves. It may be helpful to determine the activity days by counting school days backward from the end of the month.

- 1 Open today’s activity by asking students to study the collection in silence for a moment. Then ask them to share observations, first in pairs and then as a class.

To promote discussion, you might ask students to respond to questions like these.

- How many tenths did we collect altogether? Is there some way to determine the total without counting them one by one?
- How many whole dollars and what fraction of a dollar did we collect? [1 whole dollar and $\frac{7}{10}$ of a second dollar in the example below]
- How many more tenths of a dollar (dimes) would it take to make another whole dollar (to complete the second dollar in the example below)?

Collection 1: Tenths of a Dollar

$\frac{1}{10}$ dollar = 10 cents

$\frac{2}{10}$ dollar = 20 cents

$\frac{3}{10}$ dollar = 30 cents

$\frac{4}{10}$ dollar = 40 cents

Fractions of a Dollar Record Sheet					
Day	Spots	Fraction of a Dollar	Cents	Total Fraction	Total Cents
1	2	$\frac{2}{10}$	20¢	$\frac{2}{10}$	20¢
2	1	$\frac{1}{10}$	10¢	$\frac{3}{10}$	30¢
3	4	$\frac{4}{10}$	40¢	$\frac{7}{10}$	70¢
4	3	$\frac{3}{10}$	30¢	$\frac{10}{10}$	100¢
5	2	$\frac{2}{10}$	20¢	$\frac{12}{10}$	120¢
6	1	$\frac{1}{10}$	10¢	$\frac{13}{10}$	130¢
7	4	$\frac{4}{10}$	40¢	$\frac{17}{10}$	170¢

- 2 Let students know that each day for the next seven days, they will collect 1, 2, 3, or 4 quarters. Work with students to identify how much each number of quarters is worth and express those amounts in cents and as some fraction of a dollar. Record the amounts on the chart paper you prepared for this week's collection.

You might have students work on this in pairs and then work with their input to record the values as a whole class on the collection chart.

Collection 2: Fourths of a Dollar

$\frac{1}{4}$ dollar = 25 cents

$\frac{2}{4}$ dollar = 50 cents

$\frac{3}{4}$ dollar = 75 cents

$\frac{4}{4}$ dollar = 100 cents
(1 whole dollar)

Fractions of a Dollar Record Sheet

Day	Spin	Fractions of a Dollar	Cents	Total Fraction	Retail Cents
1					
2					
3					
4					
5					
6					
7					

- 7 Work with participation from students to add the first quarter or quarters to the collection.
- Invite a student to come spin the spinner.
 - Explain that this number shows how many quarters they need to add to the collection.
 - Invite a different student to come take that number of quarter pieces and glue them to a fresh Dollar Grid.
 - Fill in today's row on the chart.
- 8 Explain that they will repeat this process for the next 6 days of school, and then close the activity by asking students to share predictions, first in pairs and then as a class.

To promote discussion, you might ask students to respond to questions like these.

- After seven days have passed, do you think we will have collected more or less money than we did when we were done collecting dimes? Why?
- After seven days have passed, about how much money do you think we will have collected?
- After how many days do you think we'd have a collection that is about equal to the finished collection of dimes? Why?

Students Fourths are so much bigger than tenths. I think for sure we'll get more money this time.

What do you mean?

Well, it only takes 4 fourths to make a whole dollar, but it takes 10 tenths to make a whole dollar. So I think we'll end up with a lot of whole dollars.

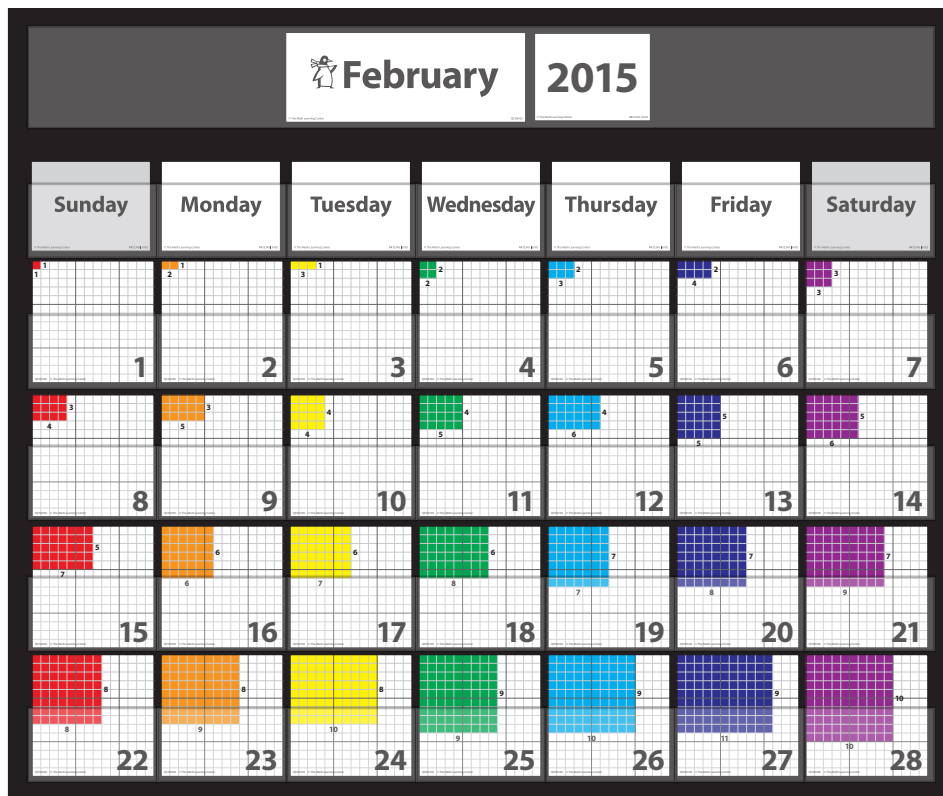
If we spin a 4, we could get a whole dollar in just 1 day!

We could never get a whole dollar with the dimes. You'd need 10 of them, but the most we could get was 4. That's not even half of a dollar.

Day 16

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	Activity 4 – Scout Them Out (pg. 25)
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.

Activity 2

Scout Them Out

Day 16

- Open today’s activity by displaying your copy of the Multiplication Table Number Corner Student Book page, which should have the $\times 2$, $\times 10$, $\times 5$, $\times 3$, $\times 4$, and $\times 8$ facts colored in.

Number Corner Grade 3 Student Book

Multiplication Table

December | Computational Fluency Activities 3 & 4

x	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

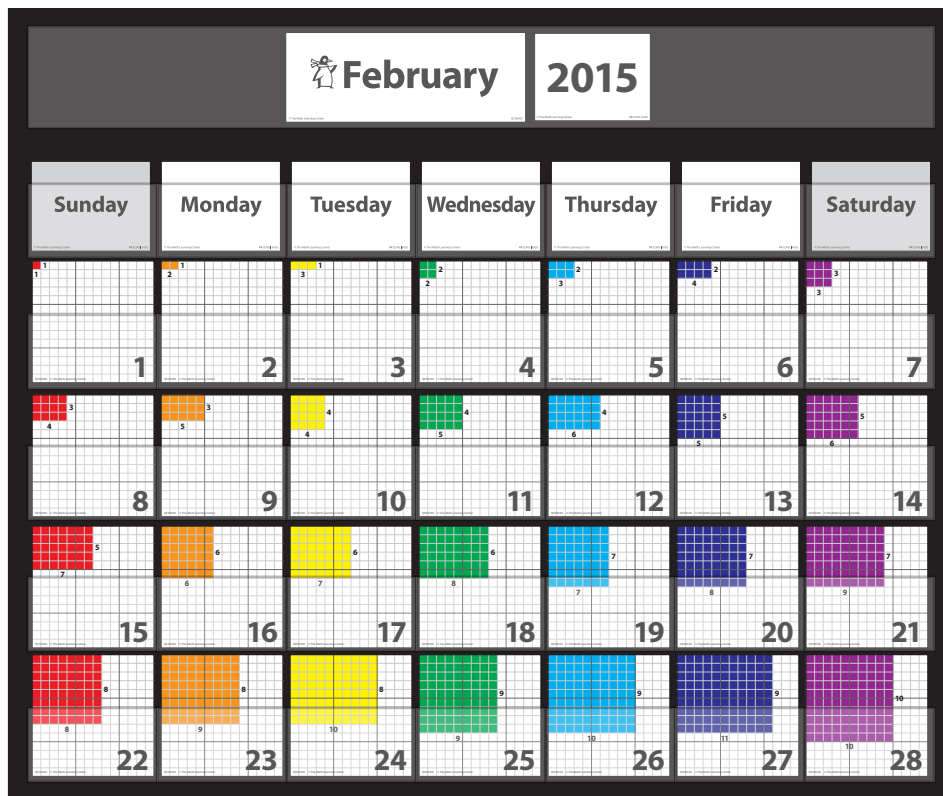
- Zero facts ($\times 0$)
- Ones facts ($\times 1$)
- Doubles facts ($\times 2$)
- Doubles Plus One Set facts ($\times 3$)
- Double-Doubles facts ($\times 4$)
- Half-Tens facts ($\times 5$)
- Half-Tens Plus One Set facts ($\times 6$)
- Double-Double-Doubles facts ($\times 8$)
- Tens Minus One Set facts ($\times 9$)
- Tens facts ($\times 10$)

- Give students a minute to study the page in silence and then share what they notice about the facts they have addressed already.
- Then, have students get out their Number Corner Student Books, a pencil, and a red, blue, and green colored pencil. Let them know they may stay at their desks for today’s activity.
- Display a copy of the Scout Them Out Multiplication (3, 4, 8) page and have them turn to that page in their Number Corner Student Books.
- Read the directions out loud and work with students to circle each kind of fact in the specified color.
 - Let students know that they might have an easier time if they do all the problems in one category first and then all the problems in the other category afterward.
 - Tell students they have a few minutes to complete this section of the page independently.
 - Remind students they should use what they know about multiplication to help solve the division problems.
- Then give students time to work on the page independently.
- Once students have finished the page, have them share their work with a partner. If students have different answers, encourage them to justify their thinking or rethink the problem together.
- In any time remaining, have students go back to the Multiplying by Three, Multiplying by Four, and Multiplying by Eight pages and finish any problems they did not have time to complete.

Day 17

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
Activity 4 – Thinking About Equivalent Whole Numbers & Fractions (pg. 32)		



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

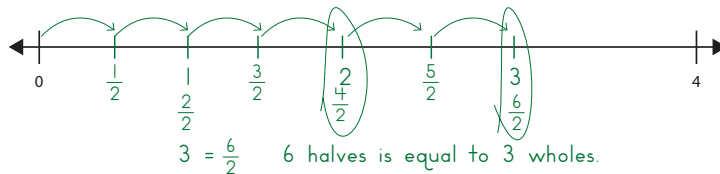
The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.


Activity 4
Thinking About Equivalent Whole Numbers & Fractions Day 17

- 1 Display your copy of the Extended Fraction Number Lines page, and ask students to turn to the page in their Number Corner Student Books.
- 2 Pose the following problem, and work together with students to model it on the first number line. Use words and numbers to record that $\frac{6}{2}$ is equal to 3.

Teacher Freddy Frog goes half a meter every time he hops. How many hops will it take him to go 3 whole meters?



- 3 Pose the following problems one at a time. Give students time to model and solve them independently or in pairs. Ask them to use a different number line each time. Work together to write the equivalencies between the improper fractions and whole numbers.
 - Delores Frog goes $\frac{1}{4}$ meter every time she hops. How many hops will it take her to go 2 whole meters?
 - Leanne Frog goes $\frac{1}{3}$ meter every time she hops. How many hops will it take her to go 3 whole meters?
 - Jason Frog goes $\frac{1}{6}$ meter every time he hops. How many hops will it take him to go 3 whole meters?
 - Tyrell Frog goes $\frac{1}{8}$ meter every time he hops. How many hops will it take him to go 2 whole meters?
- 4 Ask students to talk, first in pairs and then as a class, about any patterns they notice.

Ask questions like the following to promote discussion:

- Can you see a way to write fractions that are equal to a given whole number without taking the jumps on a number line?
 - For example, how many fifths are equal to 2? How many tenths? What about 3?
- 5 Close the activity by asking students to write and then share as many fractions that are equal to 4 as they can. Invite them to justify their responses, look for patterns, and make generalizations.

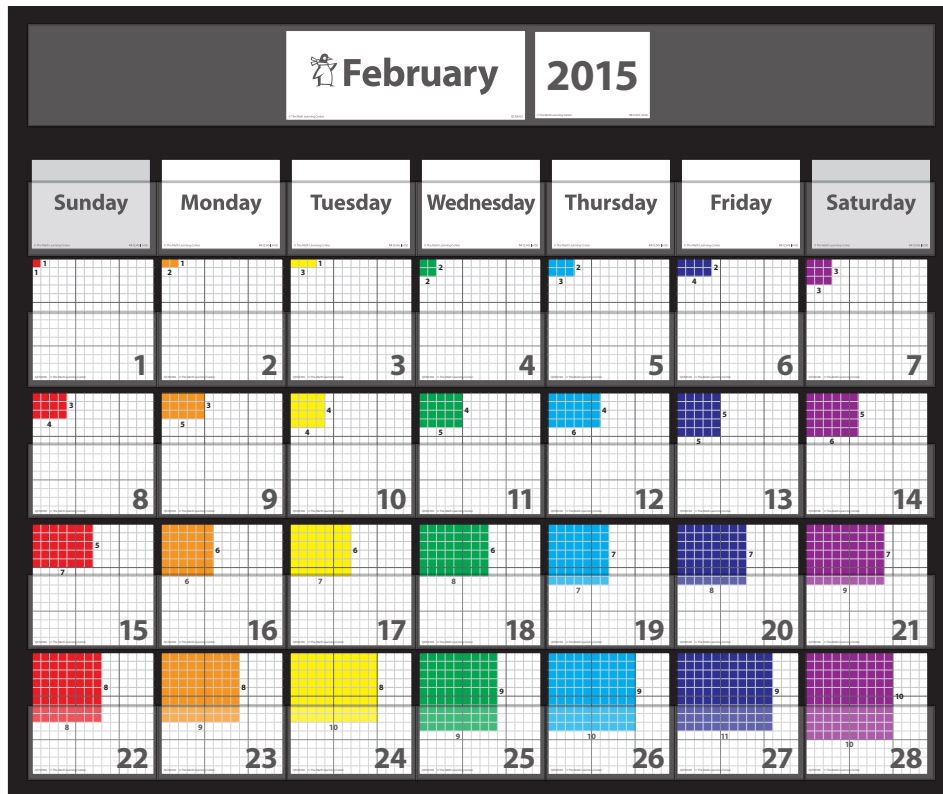
At this point, quite a few students might notice that you can simply multiply the denominator of the fraction by the target whole number to generate a fraction equal to the whole number. For example, there are 5 fifths in 1 whole, so there must be 20 fifths (4×5) in 4 wholes; there are 8 eighths in 1 whole, so there must be 32 eighths (4×8) in 4 wholes; and so on.

When students see these equivalencies written as a group— $2\% = 4$, $3\% = 4$, and so on—this might become clearer.

Day 18

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	<i>Update</i>	
Number Line	Solving Problems	Assessment
	Activity 4 – Making Graphs (pg. 37)	



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.

 **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 Grid as part of Activities 2 and 3 as well.

Procedure

The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.



Activity 3

Making Graphs

Day 18

Extension

- 1 Open today's activity by introducing the activity and deciding as a class what the topic of today's survey will be.
 - Let students know that they will take a survey to generate some data to put on a graph.
 - Ask students if they would like to collect data about their favorite book genres, favorite afterschool activities, or favorite kind of pizza. (You can give them other choices you feel would be more appropriate or of greater interest to them. If you do, select topics that will allow you to gather categorical data.)
 - If you vote on the survey choices, it would be a great time to talk about voting systems and how the people who were in the minority might feel. If your class is divided roughly half and half, you could generate data for two different topics.
- 2 Invite students to generate a list of between 3 and 5 choices students can choose from in the survey.

If the topic is favorite kinds of books to read, for example, the choices might be fiction, fantasy, nonfiction, sports, and science. Have students help create the list of choices.
- 3 When the list of choices has been decided, poll the class and record the results where everyone can see them.
- 4 Use the display copy of the Make Your Own Graph Number Corner Student Book page to introduce the task of creating a bar graph to show the data they just generated.
 - Tell students they will make a bar graph to show the results of this poll.
 - Ask students what information they need to include on the graph. Have them imagine someone visiting the classroom after school and reading their graphs without anyone there to explain them. How could the students make sure that person could understand the graph?
 - Ask students for a few examples of what the title might be, and fill one of them in where the title should go.
 - Ask students what scale they might use for this data. How many people should each square represent?

Students We don't have too many people in our class. Each square could equal 1.

It might be faster if each square was 2 or 5.

- Let students know they can choose their own scale, but they should have a scale of at least 1 to 2 (1 square equals 2 people) so they can practice making a scaled bar graph. Also remind them to record the scale in the key.

Invite students to bring in graphs they find outside of school. Create a class display of these graphs and include students' observations and comments about the graphs on the display.

5 Answer any questions students have and then give them time to work. As students work, circulate around the room to make observations, answer questions, and offer differentiated instruction.

SUPPORT/ELL Work with students in a small group to review the directions. Brainstorm ideas for getting started. Troubleshoot challenging areas such as determining the scale.

CHALLENGE Have students find the minimum, maximum, and range. Also, encourage students to experiment with scale. What happens to the appearance of the graph as the scale increases or decreases? What if they surveyed the entire third grade? What might the data look like then?

6 Toward the end of Number Corner time today, have students put everything away except their graphs. Then, invite them to take a quick walk around to look at each other's work.

7 Wrap up this month's Solving Problems workout by encouraging students to be on the lookout for graphs in and out of school. Remind them that being able to interpret a graph is not only part of being mathematically proficient but also a useful skill in everyday life.

.....

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Extension

Invite students to bring in graphs they find outside of school. Create a class display of these graphs and include students' observations and comments about the graphs on the display.

Day 19

Date:

Calendar Grid	Calendar Collector	Computational Fluency
Activity 5 – Reviewing Area & Perimeter	<i>Update</i>	
Number Line	Solving Problems	Assessment



Activity 5

Reviewing Area & Perimeter Concepts

Day 19

- 1 Open today's activity by inviting students to share observations and predictions before updating the Calendar Grid and Observations Chart.
 - Ask students to study the calendar for a moment.
 - Invite them to share some predictions about what today's marker might look like.
 - Invite a student helper to turn over or post the next marker.
 - Have students turn to a partner to share their observations about the marker.

- 2 Ask students to discuss, first in pairs and then as a group, any generalizations they have about how to find the area and the perimeter of any rectangle, including squares.

Students Well, for perimeter you can just add up the sides.

I usually double one side and double the other side and then add those together. That seems faster for me.

If it's a square, the sides are the same, so you multiply one side length by 4.

For area, I figure out how many squares are in one row and then skip-count by that number. However many columns there are is how many times I skip-count.

I used to just count all the squares, but that took too long so I started skip-counting too.

Skip-counting is a multiplication strategy. I think it's easier to just multiply one side by the other.

- 3 Thank students for sharing their ideas and then share the formula for area.
 - Let students know that there is a formula for finding area. A formula tells how to solve a certain kind of problem correctly every time.
 - Write the area formula $l \times w = A$ and explain that the l stands for length and the w stands for width.
 - Ask students to talk with a partner about how they could use this formula to find the area of one of the rectangles on the Calendar Grid.
 - Call on several students to share what they talked about with their partners.
- 4 Challenge students to think about perimeter: can they write a formula to find the perimeter of a rectangle?
 - Give students some time to work in pairs.
 - Call on several pairs to share their ideas.
 - If students don't share the formula, share it with them: $2l + 2w = P$

5 Use your display copy to introduce the Solving Area & Perimeter Problems Number Corner Student Book page.

6 Ask students to turn to the page in their own books and get started. As students work, circulate around the room to make observations, answer questions, and offer differentiated instruction.

SUPPORT/ELL If necessary, help students read the directions. Help them connect the work on this page to the work they have been doing with the calendar all month. If some students aren't able to complete the page within the allotted time, allow them to finish it during a designated seatwork time.

CHALLENGE If students finish quickly, you might have them either see what different perimeters they can come up with for rectangles with an area of 24 square units, or have them see what happens when they try to keep the perimeter the same but change the area.

7 At the end of the activity, have students share some of the big ideas from the Calendar Grid this 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 Grid as part of Activities 2 and 3 as well.

Procedure

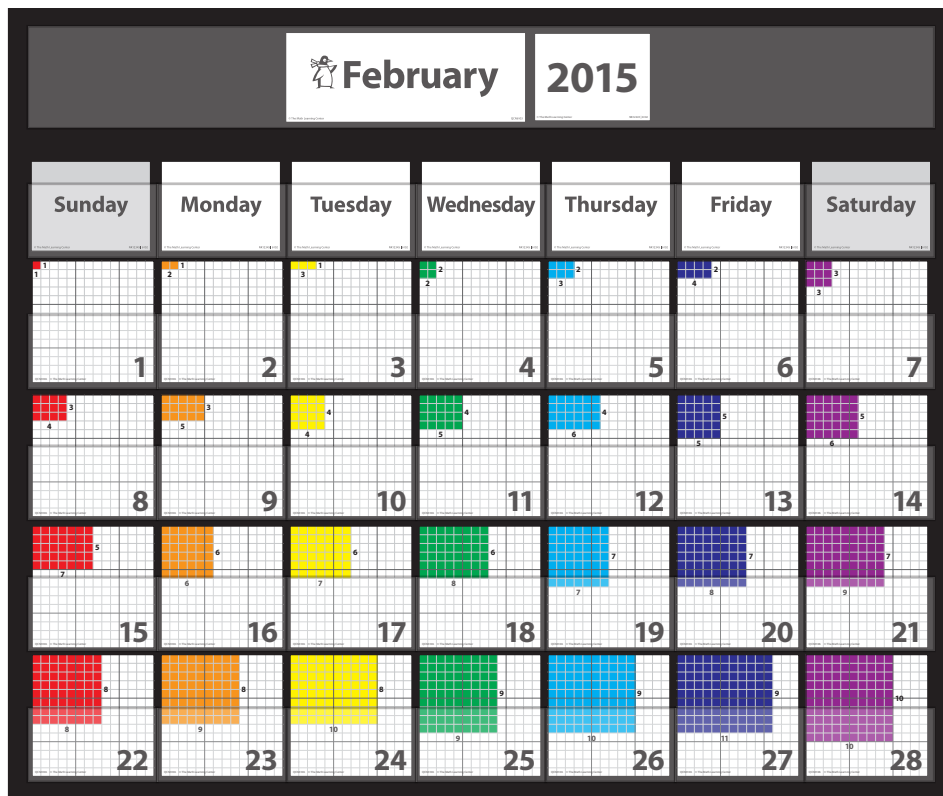
The student helper:

- Spins the How Many Pieces? Spinner to determine how many dimes, quarters, or half dollars to add to the collection.
- Then the helper glues that number of pieces to the Dollar Grid and updates the chart.

Day 20

Date:

Calendar Grid	Calendar Collector	Computational Fluency
<i>Update</i>	Activity 3 – Reviewing Fractions of a Dollar (pg. 21)	
Number Line	Solving Problems	Assessment



Literature Connections

Use the following books as read-alouds this month.

- *All the Colors of the Rainbow* by Allan Fowler
- *Spaghetti and Meatballs for All* by Marilyn Burns
- *A Rainbow of My Own* by Don Freeman

 **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, 4, and 5 as well.

Procedure

The student helper:

- Posts or reveals a new marker.
- After Activity 3, updates the Observations Chart for the new marker.



Activity 3

Reviewing Fractions of a Dollar

Day 20

- 1 Open today's activity by asking students to study the three collections. Let them know how many more additions they will make to the third collection (the halves) and then invite them to share observations, comparisons, and predictions, first in pairs and then as a class.
 - Does anything surprise them?
 - Do they see any patterns or data that they did not see or think about before?
 - What would be a reasonable estimate for the total of the third collection when they finish adding to it?
- 2 Use your display copy to introduce the Fractions of a Dollar page in the Number Corner Student Book.
 - Explain that students will complete the page to practice some of the skills they have been learning this month.
 - Read the directions out loud.

SUPPORT/ELL Complete the first two empty rows of the table in item 1 with input from students. Complete a few additional rows if students need even more support. Leave the page displayed for students' reference.

 - Answer any questions students have.
 - Invite students to turn to the page in their own Number Corner Student Books.
- 3 Give students time to work on the page independently. As they work, circulate around the room to make observations, answer questions, and offer differentiated instruction as needed.

SUPPORT/ELL Consider asking students who are struggling to focus on completing one problem as best they can, rather than trying to complete the entire page.

CHALLENGE Students ready for a challenge could solve multiple problems if time allows or even make up their own story problems.
- 4 At the end of Number Corner time today, invite students to identify and discuss some of the big ideas of this month's workout. What did they learn this month? Do they think about money and fractions in a new way?