



GRADE 1 SUPPLEMENT

Set A9 Number & Operations: Number Puzzles Calendar Pattern

Includes

May Calendar Pattern

A9.1

Skills & Concepts

- ★ write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value (e.g., $\square + 4 = 7$)
- ★ recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true
- ★ recognize that “=” indicates that the two sides of an equation are expressions of the same number
- ★ use the commutative and identity properties of addition and the mathematical relationship between addition and subtraction to solve problems
- ★ solve and create word problems that match addition or subtraction equations
- ★ apply and explain strategies to compute addition facts and related subtraction facts for sums to 18

Bridges in Mathematics Grade 1 Supplement

Set A9 Number & Operations: Number Puzzles Pattern

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Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

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Set A9 ★ May & June Calendar Pattern



CALENDAR GRID

Number Puzzles

Overview

This set of Calendar Grid markers replaces the student-made markers in the month of May. Each marker in the sequence features a single equation or story problem. Each day, students are challenged to solve the problem by finding the missing addend, minuend, or subtrahend. Strategies for solving these problems may include dramatization, modeling with cubes or drawings, and using a number line. In addition to using a variety of strategies to solve the daily problems, students will also discover patterns in the sequence of markers as the month unfolds.

Skills & Concepts

- ★ write and solve number sentences from problem situations involving addition and subtraction, using symbolic notation for the missing value (e.g., $\square + 4 = 7$)
- ★ recognize that unknowns in an addition or subtraction equation represent a missing value that will make the statement true
- ★ recognize that “=” indicates that the two sides of an equation are expressions of the same number
- ★ use the identity property and the mathematical relationship between addition and subtraction to solve problems
- ★ solve and create word problems that match addition or subtraction equations
- ★ apply and explain strategies to compute addition facts and related subtraction facts for sums to 18

You'll need

- ★ Calendar Grid pocket chart
- ★ Day, Month, and Year Calendar Grid cards
- ★ May & June Number Puzzles Calendar Markers (available at <http://gotomlc.org/calmarkers>) Print 1 copy of the calendar marker sheets in black and white, single-sided, on white cardstock. Cut the calendar markers apart and laminate if desired.)
- ★ Calendar Grid Observations sheet from Set C2 (see Advance Preparation)
- ★ number line(s)
- ★ Unifix cubes or other counters
- ★ helper jar containing a popsicle stick for each child with his/her name on it

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Advance Preparation Erase the Calendar Grid Observations sheet from Set C2. Redraw the lines to create 4 columns. Label the columns at the top of the first sheet as shown below for use with this month's markers.

Calendar Grid Observations			
Date	Equation	Story Problem	Solution

.....

Introducing the Number Puzzles Calendar Grid Pattern: Day 1

Open your first Number Corner lesson in May by directing students' attention to the calendar grid. Place the first marker in the correct pocket, and ask children to pair-share observations. What do they notice about this marker? After a few moments, pull popsicle sticks from your helper jar to call on children to share their observations with the class.

May & June Calendar Pattern (cont.)

$$6 - \square = 1$$

Students *It's a take away problem!*

It's a kind with one of those boxes.

I know the answer!

Write the equation on the whiteboard or a piece of chart paper. Ask children what number you could put in the box to make the equation true. Give them a few moments to pair-share ideas, and then call on volunteers.

$$6 - \square = 1$$

Students *It's 7 because 6 and 1 is 7. You have to add the numbers to get the answer!*

But it says 6 minus something is 1. I don't think you add.

It has to be 5. 6 take away 1 is 5.

6 take away 5 is 1, so I think it's 5.

Chances are, students will have several different responses. Rather than confirming any of them immediately, work with a volunteer to enact the equation, using anything close at hand (books, markers, linking cubes) to do so.

Teacher *It sounds like people have different ideas about what number we should put in the box. Sometimes acting a problem out helps solve it. Let's try that right now. Jorge, you're class helper today. Will you help act out this problem?*

Jorge *Okay.*

Teacher *Let's tell a story about the equation. Hmmm ... one day it was so rainy the kids had to stay indoors for recess. Jorge decided to read, so he got some books from the shelf. How many? Yep, that's right—6. Jorge, will you please get 6 books and bring them to the circle? What happened next?*

Students *It's take away, so maybe the teacher told him to put some back.*

He has to put 1 back because it says take away 1.

Maybe other kids kept asking him if they could look at his books, and then he only had 1 left!

Teacher *Jorge sat down with his stack of books and started to read. Some of the other kids wanted to look at his books so he started to share with them. Pretty soon, he only had 1 book left. How many of the books did he give to the other kids? Talk with the person next to you for a moment, and then hold up your fingers to show the number of books you think Jorge gave to the other kids.*

May & June Calendar Pattern (cont.)

Teacher I see some people holding up 1 finger, lots of people holding up 5 fingers, and a few holding up 2 or 3. Let's try it out. Jorge, would you give some of your books to the kids sitting near you? Let's see how many Jorge has to give away to end up with just 1 for himself. He's giving away—help me count—1, 2, 3, 4, 5 of the books. Does he only have 1 left now? How many did he give away?

Students 5—he gave 5 away!
I knew it!

When there is general agreement, read the equation with the class, and then fill in the missing number. Ask the children to read it together. Is it true? Is there any other number besides 5 that can be placed in the box to make a true equation?

$$6 - \boxed{5} = 1$$

Continuing through May with the Calendar Grid

Repeat the process described above on the 2nd and 3rd of the month. On the 3rd, introduce the calendar grid observation sheet after you have posted and solved the day's equation. Work with input from the class to fill in the information for that marker. Have the class help you fill in the information for the first two markers over the next day or two as time allows.

 May						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		6 - □ = 1 1	0 + □ = 2 2	3 = 2 + □ 3		

Calendar Grid Observations			
Date	Equation	Story Problem	Solution
5/1	$6 - \square = 1$	J got 6 books. He shared some. He has 1 left. How many did he share?	$6 - \boxed{5} = 1$
5/2	$0 + \square = 2$	S. had 0 cats. She got some. Now she has 2. How many did she get?	$0 + \boxed{2} = 2$
5/3	$3 = 2 + \square$	K wants \$3 for a toy. She has \$2. How many more \$ does K need?	$3 = 2 + \boxed{1}$

Each day thereafter, ask children to make predictions about the new marker before you post it. Once it is posted, work with the class to read and discuss the new equation, solve it, and enter the information on the observation sheet. The fourth marker in the sequence, and every fourth marker after that (Markers 8, 12, 16, and so on), features a story problem instead of an equation. On these days, you will need to read the problem with the students and work with their input to generate a matching equation.

The kids had 7 balls. They lost some. Now they only have 4 balls. How many balls did they lose? **4**

May & June Calendar Pattern (cont.)

Teacher Let's write an equation to match this story before we solve it. What happened first? Right, the kids had 7 balls, so let's write a 7 to show that. What happened next? Yep, they lost some, but we don't know how many yet. How can we show that?

Students We could make a box, like when you don't know what the number is.
It's 3! I know it's 3, because 4 and 3 make 7.

Teacher It could be 3, but do we know for sure? Not yet, so let's use a box. What happened next? You're right. They only had 4 balls left, so let's record that and read our equation together.

$$7 - \square = 4$$

Students 7 take away something is 4.
If you take away 3, you can get 4. I think 3 goes in the box.
I think it's 11 because $7 + 4$ is 11.
But they didn't get more balls. They lost some!

Once the equation has been recorded, have children solve it by modeling the story, either with manipulatives or by acting it out. Finally, work with the class to enter the information on the observation chart.

Calendar Grid Observations			
Date	Equation	Story Problem	Solution
5/1	$6 - \square = 1$	J got 6 books. He shared some. He has 1 left how many did he share?	$6 - \boxed{5} = 1$
5/2	$0 + \square = 2$	S. had 0 cats. She got some. Now she has 2. How many did she get?	$0 + \boxed{2} = 2$
5/3	$3 = 2 + \square$	K wants \$3 for a toy. She has \$2. How many more \$ does K need?	$3 = 2 + \boxed{1}$
5/4	$7 - \square = 4$	Kids had 7 balls. Lost some. Only 4 left. How many did they lose?	$7 - \boxed{3} = 4$

Here are some questions and prompts to use throughout the month:

- What predictions can you make about the marker for today?
- What do you notice about the marker, now that we have it posted?
- Let's read the equation (or the story problem) on today's marker together.
- Vary the ways in which you ask children to solve the equation or problem each day. Some days, you might have volunteers dramatize the situation. Other days, you might ask all the children in the class to model and solve the problem with Unifix cubes. You might also have children sketch the situation and record the equation on an individual chalkboard or whiteboard.
- Encourage children to use a number line to help solve some of the problems. This might be a number line you have posted in the room, number lines on students' desks, or a number line drawn on the board.

May & June Calendar Pattern (cont.)

- After the first week or two, encourage students to search for patterns in the sequence of markers with questions such as, “Will today’s marker have an addition or a subtraction sign? How do you know?” or, “Will we see an equation or a story problem on today’s marker? How do you know?”

***Note** There are a number of different patterns in this month’s sequence. For instance, there are always 3 equations and then a story problem. The first of the three equations is always subtraction, while the two that follow involve addition. The story problems alternate back and forth between subtraction and addition through the month. Starting with Marker 3, every fourth marker (7, 11, 15, and so on) begins with the total or the difference (e.g., $3 = 2 + \square$). See Grade 1 Supplement Set A4, Equivalent Names, for tips about how to help children understand and work with equations in this form. If you have taught Set A4 earlier in the year, these markers will provide a good opportunity to revisit the idea that equals means “the same as.”*

Extensions

- Toward the end of the the month, assign children to each write a story problem to match the equation on the day’s marker.
- It won’t be long before students realize that the total or difference on each marker matches the date. Starting mid-month, challenge interested students to write an equation for the next day. For instance, if the date the following day will be the 18th, invite students to write an equation in which 18 is the total on a slip of paper or a notecard. Have them post their equations near the calendar grid. Take time the next day to compare any equations that have been submitted to the equation on the marker.

May & June Calendar Pattern (cont.)

NOTE Below is a representation of the May calendar grid. The full-size calendar markers are available at <http://gotomlc.org/calmarkers>.

<div style="border: 1px solid black; padding: 5px; display: inline-block;"> May </div>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		$6 - \square = 1$ 1	$0 + \square = 2$ 2	$3 = 2 + \square$ 3	The kids had 7 balls. They lost some. Now they only have 4 balls. How many balls did they lose? 4	$\square - 2 = 5$ 5
$\square + 3 = 6$ 6	$7 = \square + 2$ 7	Maria had some pennies. Then she got 3 more. Now she has 8 pennies. How many did she start with? 8	$14 - \square = 9$ 9	$0 + \square = 10$ 10	$11 = 5 + \square$ 11	There were 16 kids in the room. Some of them went home. Now there are 12. How many kids went home? 12
$\square - 4 = 13$ 13	$\square + 7 = 14$ 14	$15 = \square + 5$ 15	Jon has some toy cars. Pablo has 9 toy cars. In all, they have 16 toy cars. How many does Jon have? 16	$17 - \square = 17$ 17	$9 + \square = 18$ 18	$19 = 9 + \square$ 19
There were 30 birds in the tree. Some flew away. Now there are only 20. How many birds flew away? 20	$\square - 8 = 21$ 21	$\square + 10 = 22$ 22	$23 = \square + 3$ 23	Abby wants to buy her mom a present for \$24. Abby has \$12. How many more dollars does she need? 24	$25 - \square = 25$ 25	$19 + \square = 26$ 26
$27 = 7 + \square$ 27	The pet store had 35 fish. They sold some. Now they have 28 fish. How many fish did they sell? 28	$\square - 4 = 29$ 29	$\square + 15 = 30$ 30	$31 = \square + 20$ 31		

May & June Number Puzzle Calendar Markers Sheet 1 of 16

$$6 - \square = 1$$

1

$$0 + \square = 2$$

2

May & June Number Puzzle Calendar Markers Sheet 2 of 16

$$3 = 2 + \square$$

3

The kids had 7 balls. They lost some. Now they only have 4 balls. How many balls did they lose?

4

May & June Number Puzzle Calendar Markers Sheet 3 of 16

$$\square - 2 = 5$$

5

$$\square + 3 = 6$$

6

May & June Number Puzzle Calendar Markers Sheet 4 of 16

$$7 = \square + 2$$

7

Maria had some pennies. Then she got 3 more. Now she has 8 pennies. How many did she start with?

8

May & June Number Puzzle Calendar Markers Sheet 5 of 16

$$14 - \square = 9$$

9

$$0 + \square = 10$$

10

May & June Number Puzzle Calendar Markers Sheet 6 of 16

$$11 = 5 + \square$$

11

There were 16 kids in the room. Some of them went home. Now there are 12. How many kids went home?

12

May & June Number Puzzle Calendar Markers Sheet 7 of 16

$$\square - 4 = 13$$

13

$$\square + 7 = 14$$

14

May & June Number Puzzle Calendar Markers Sheet 8 of 16

$$15 = \square + 5$$

15

Jon has some toy cars. Pablo has 9 toy cars. In all, they have 16 toy cars. How many does Jon have?

16

May & June Number Puzzle Calendar Markers Sheet 9 of 16

$$17 - \square = 17$$

17

$$9 + \square = 18$$

18

May & June Number Puzzle Calendar Markers Sheet 10 of 16

$$19 = 9 + \square$$

19

There were 30 birds in the tree. Some flew away. Now there are only 20. How many birds flew away?

20

May & June Number Puzzle Calendar Markers Sheet 11 of 16

$$\square - 8 = 21$$

21

$$\square + 10 = 22$$

22

May & June Number Puzzle Calendar Markers Sheet 12 of 16

$$23 = \square + 3$$

23

Abby wants to buy her mom a present for \$24.

Abby has \$12.

How many more dollars does she need?

24

May & June Number Puzzle Calendar Markers Sheet 13 of 16

$$25 - \square = 25$$

25

$$19 + \square = 26$$

26

May & June Number Puzzle Calendar Markers Sheet 14 of 16

$$27 = 7 + \square$$

27

The pet store had 35 fish. They sold some. Now they have 28 fish. How many fish did they sell?

28

May & June Number Puzzle Calendar Markers Sheet 15 of 16

$$\square - 4 = 29$$

29

$$\square + 15 = 30$$

30

May & June Number Puzzle Calendar Markers Sheet 16 of 16

$$31 = \square + 20$$

31