

The text "Student Pages" is centered between two horizontal wavy lines. To the right of the wavy lines is a large, gray, three-dimensional sphere.

Student Pages

Name _____

21 Party Time

It is April 2 and Emily is walking to school. She is thinking about her birthday party, which will be on April 30.

When she looked at the calendar that morning, she saw that April had five Sundays.

On what day of the week is Emily's birthday party?



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Name _____

22 Notebook Numbers

Sharla is numbering the pages in her mathematics notebook. The notebook has 64 pages in all.

How many times will Sharla write the numeral 5 as she numbers the pages?



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A decorative header element consisting of two horizontal wavy lines. A gray sphere is positioned on the right side, partially overlapping the wavy lines.

Teacher Pages

21 Party Time

Mathematics Concepts and Skills

Focus: Using a Calendar

Problem-Solving Strategies

- ❖ Make a Chart
- ❖ Use Logical Reasoning

About the Mathematics

This problem requires that students be familiar with the calendar. A calendar shows the 12 months of the year in order. Every month is divided into weeks, and each week has seven days. Students must know the number of days in each month and that the corresponding days of consecutive weeks are separated by seven days.

Explain to students that sometimes information may not be stated in a problem because they are expected to know it. In this case, it is assumed that students know that April has 30 days and that if someone is going to school, it is most likely a weekday.

Because of the reasoning involved, do not present this problem until students have worked on basic calendar skills. Many students will need guidance to get started on the solution.

After distributing the problem to the class, have students work in pairs or small groups to find a solution. Once they have had a chance to work, ask students to share their strategies and solutions, or encourage students to find other ways to solve the problem. Use the problem-solving strategies presented in this lesson as a basis for class discussion. Try to relate the Key Questions to students' methods that may differ from the ones presented here.

Name _____

21 Party Time

It is April 2 and Emily is walking to school. She is thinking about her birthday party, which will be on April 30. When she looked at the calendar that morning, she saw that April had five Sundays.

On what day of the week is Emily's birthday party?



Problem-Solving Strategies

❖ Make a Chart/Use Logical Reasoning

Teacher Tip

You may wish to prepare and distribute a blank calendar template for students to use.

Have students use a calendar handout or draw a blank calendar for the month of April. Remind them that April has 30 days. In order for there to be five Sundays in April, they must occur on April 1, 8, 15, 22, and 29 or on April 2, 9, 16, 23, and 30. Since it is unlikely that Emily would be walking to school on a Sunday, April 2 must be a Monday, so April 1 was a day earlier, on Sunday. Use the information to complete the calendar.

April						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

The completed calendar shows that Emily's party will be held on a Monday.

Key Questions

1. On what date is Emily walking to school? *(April 2)*
2. On what date will her birthday party take place? *(April 30)*
3. How many days does the month of April have? *(30)*
4. According to the problem, how many Sundays will the month of April have? *(5)*
5. If April 1 is a Sunday, what is the date of the next Sunday? *(April 8)*
6. If April 3 is a Sunday, could the month have five Sundays? *(No) Why not? (The Sundays would be April 3, 10, 17, 24, and 31, but April has only 30 days.)*
7. According to the calendar you made, what is the date of the last Friday in April? *(April 27)*
8. According to the calendar you made, on what day of the week is April 11? *(Wednesday)*

Assessing Understanding

Use the following problem to assess students' understanding of the mathematical concepts and strategies in this lesson.

[Problem] Use the calendar you made for April to solve the following problem. Mr. Huang went to California on April 12. He returned home 10 days later. On what date did he return? *(April 22)* What day of the week was that? *(Saturday)*

Key Questions

1. What day of the week was April 12? *(Thursday)*
2. Did Mr. Huang stay away for more or less than one week? *(More)*
3. If he had stayed away for two weeks, on what day and date would he have returned? *(Thursday, April 26)*

Extending the Mathematics

Extending the Mathematics provides opportunities for students to consider the problem with a new condition. This section may also provide opportunities to introduce other mathematical concepts.

[Problem 1] Use the calendar you made for April to help you solve this problem. Emily has a dental appointment on May 16. What day of the week will that be? (*Wednesday*)

Key Questions

1. On what day will May start? (*Tuesday*)
2. What will be the date of the second Tuesday? (*May 8*) The third Tuesday? (*May 15*)
3. What day is May 16? (*Wednesday*) How do you know? (*It is one day after Tuesday, May 15.*)

[Problem 2] One year, Gavin's birthday was on Wednesday, June 27. On what day of the week did June begin? (*Friday*)

Key Questions

1. What was the date of the Wednesday before Gavin's birthday? (*June 20*)
2. What were the dates of the other Wednesdays in June? (*June 13, June 6*)
3. How many days must you count back from June 6 to June 1? (*Five*)
4. What day was June 5? (*Tuesday*) June 4? (*Monday*)

[Problem 3] If Presidents' Day was on Monday, February 16, on what day did the year begin? (*Thursday*)

Key Questions

1. What was the date of the first Monday in February? (*February 2*)
2. On what day did February begin? (*Sunday*)
3. What is the last date in January? (*January 31*) What day was it? (*Saturday*)
4. What were the dates of the other Saturdays in January? (*January 24, 17, 10, 3*)
5. If January 3 was on Saturday, on what day was January 1? (*Thursday*)

22 Notebook Numbers

Mathematics Concepts and Skills

Focus: Base 10 Number System
Patterns
Place Value

Problem-Solving Strategy

❖ Make an Organized List

About the Mathematics

This problem gives students the opportunity to apply their understanding of the base 10 number system. Students may approach the problem in different ways: they could simply list all the numbers from 1 to 64 and count the 5s, or they could think about place value. The numbers can have a 5 in the ones place, such as 5, 15, and 25, or a 5 in the tens place, such as 51, 52, or 53. The number 55 would appear on both lists and be counted twice.

Use this lesson to review two-digit numbers and to prepare students for comparing and ordering numbers. It will also help them gain insight into the patterns of our number system.

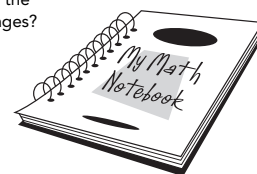
After distributing the problem to the class, have students work in pairs or small groups to find a solution. Once they have had a chance to work, ask students to share their strategies and solutions, or encourage students to find other ways to solve the problem. Use the problem-solving strategies presented in this lesson as a basis for class discussion. Try to relate the Key Questions to students' methods that may differ from the ones presented here.

Name _____

22 Notebook Numbers

Sharla is numbering the pages in her mathematics notebook. The notebook has 64 pages in all.

How many times will Sharla write the numeral 5 as she numbers the pages?



Problem-Solving Strategy

❖ Make an Organized List

The numbers from 1 to 64 have either one place (ones) or two places (tens and ones). One way to make an organized list is to write the numbers that have a 5 in the ones place and then the numbers that have a 5 in the tens place.

5 in Ones Place	5 in Tens Place
5	50
15	51
25	52
35	53
45	54
55	55
	56
	57
	58
	59

There are six numbers on the first list and ten numbers on the second list, so Sharla will write the numeral 5 a total of 16 times ($6 + 10 = 16$). (Note that the number 55 appears on both lists and is counted twice. This is correct because two 5s are used to write 55.)

Key Questions

1. How many places do the numbers from 1 to 64 have? (*One or two*) What are the places? (*Ones or tens and ones*)
2. Which of these numbers have 5 in the ones place? (5, 15, 25, 35, 45, 55)
3. Which of these numbers have 5 in the tens place? (50, 51, 52, 53, 54, 55, 56, 57, 58, 59)
4. Will Sharla write the number 65? (*No*) Why not? (*The notebook has only 64 pages.*)
5. Which number uses two 5s? (55)

Assessing Understanding

Use the following problem to assess students' understanding of the mathematical concepts and strategies in this lesson.

[Problem] Sharla's science notebook has 70 pages, which she also numbered. How many times did she write the numeral 6? (*17 times: 6, 16, 26, 36, 46, 56, 66, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69*)

Key Questions

1. What is the greatest number Sharla will write using a 6? (69)
2. How many tens are in the number 66? (6)
How many ones? (6)

Extending the Mathematics

Extending the Mathematics provides opportunities for students to consider the problem with a new condition. This section may also provide opportunities to introduce other mathematical concepts.

[Problem 1] Sharla's reading journal has 90 pages. If she numbers the pages, will she use more 8s or more 9s? (*More 8s*) How many more? (*She will use nineteen 8s and ten 9s. $19 - 10 = 9$, so she will use nine more 8s.*)

Key Questions

1. In what places will she use 8s? (*Ones and tens*)
2. In what places will she use 9s? (*Ones and tens*)
3. How many numbers will have 9 in the tens place? (*Only one: 90*)
4. How many numbers will have 8 in the tens place? (*Ten: 80, 81, 82, 83, 84, 85, 86, 87, 88, 89*)

[Problem 2] If Sharla numbered the 100 pages of her history notebook, which numeral would she write the most times? (1) How many times? (20)

Key Questions

1. How many times would Sharla use each numeral to write the numbers from 1 to 99? (*19 times*)
2. Which numeral would she use in the hundreds place? (*She can only use the numeral 1.*)