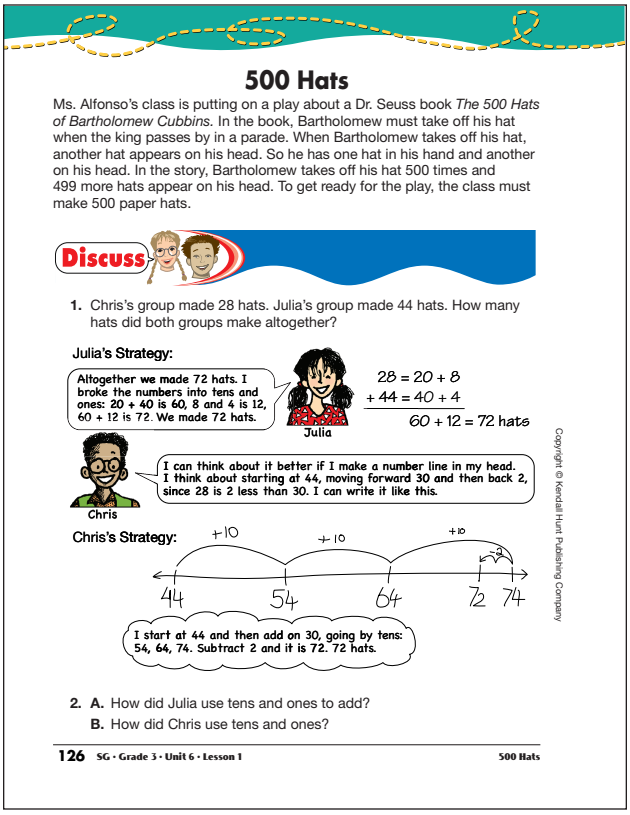

500 Hats

Ms. Alfonso's class is putting on a play about a Dr. Seuss book *The 500 Hats of Bartholomew Cubbins*. In the book, Bartholomew must take off his hat when the king passes by in a parade. When Bartholomew takes off his hat, another hat appears on his head. So he has one hat in his hand and another on his head. In the story, Bartholomew takes off his hat 500 times and 499 more hats appear on his head. To get ready for the play, the class must make 500 paper hats.

Discuss

1. Chris's group made 28 hats. Julia's group made 44 hats. How many hats did both groups make altogether?

Julia's Strategy:

Altogether we made 72 hats. I broke the numbers into tens and ones: 20 + 40 is 60, 8 and 4 is 12, 60 + 12 is 72. We made 72 hats.

Julia

28 = 20 + 8
+ 44 = 40 + 4
60 + 12 = 72 hats

Chris

I can think about it better if I make a number line in my head. I think about starting at 44, moving forward 30 and then back 2, since 28 is 2 less than 30. I can write it like this.

Chris's Strategy:

I start at 44 and then add on 30, going by tens: 54, 64, 74. Subtract 2 and it is 72. 72 hats.

2. **A.** How did Julia use tens and ones to add?
   B. How did Chris use tens and ones?

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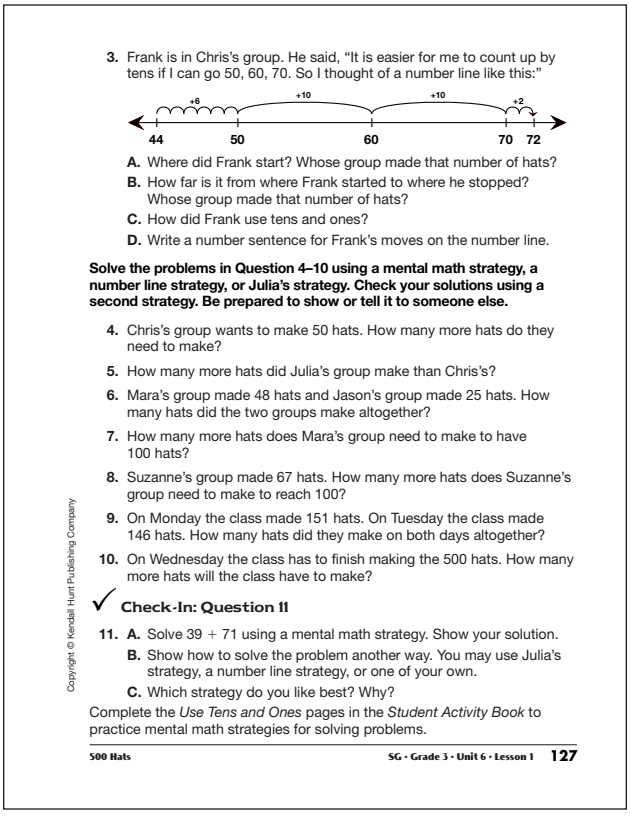

3. Frank is in Chris's group. He said, "It is easier for me to count up by tens if I can go 50, 60, 70. So I thought of a number line like this:"

   A. Where did Frank start? Whose group made that number of hats?
   B. How far is it from where Frank started to where he stopped? Whose group made that number of hats?
   C. How did Frank use tens and ones?
   D. Write a number sentence for Frank's moves on the number line.

Solve the problems in Question 4–10 using a mental math strategy, a number line strategy, or Julia's strategy. Check your solutions using a second strategy. Be prepared to show or tell it to someone else.

4. Chris's group wants to make 50 hats. How many more hats do they need to make?
5. How many more hats did Julia's group make than Chris's?
6. Mara's group made 48 hats and Jason's group made 25 hats. How many hats did the two groups make altogether?
7. How many more hats does Mara's group need to make to have 100 hats?
8. Suzanne's group made 67 hats. How many more hats does Suzanne's group need to make to reach 100?
9. On Monday the class made 151 hats. On Tuesday the class made 146 hats. How many hats did they make on both days altogether?
10. On Wednesday the class has to finish making the 500 hats. How many more hats will the class have to make?

✓ **Check-In: Question 11**

11. **A.** Solve 39 + 71 using a mental math strategy. Show your solution.
    B. Show how to solve the problem another way. You may use Julia's strategy, a number line strategy, or one of your own.
    C. Which strategy do you like best? Why?

Complete the *Use Tens and Ones* pages in the *Student Activity Book* to practice mental math strategies for solving problems.

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500 Hats (SG pp. 126–127)
Questions 1–11

1.* Discussion is included in the lesson.

2. Descriptions will vary. Possible responses:

   A.* Julia broke her numbers into tens and ones. Then she added the tens together and the ones together. Then she added the tens to the ones.

   B.* Chris counted by tens on the number line. He counted three times to add 30. Then he went back 2 because he was only supposed to add 28.

3. **A.** Frank started at 44. Julia's group made 44 hats.

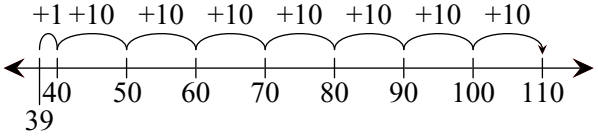
   B. 28; Chris's group made 28 hats.

   C. Frank counted up 6 from 44 to 50 using ones. Then he counted on 20 using tens to get to 70. That's only 26 more and he needs 28, so he counted on two more ones to get to 72.

   D. Possible responses: 44 + 28 = 72 or 44 + 6 + 20 + 2 = 72.

4. 22 hats
5. 16 hats
6. 73 hats
7. 52 hats
8. 33 hats
9. 297 hats
10. 203 hats
11. **A–B.** Strategies will vary. Possible responses:

$$\begin{array}{rcl} 39 & = & 30 + 9 \\ +\ 71 & = & \underline{70 + 1} \\ & & 100 + 10 = 110 \end{array}$$



   C. Responses will vary.

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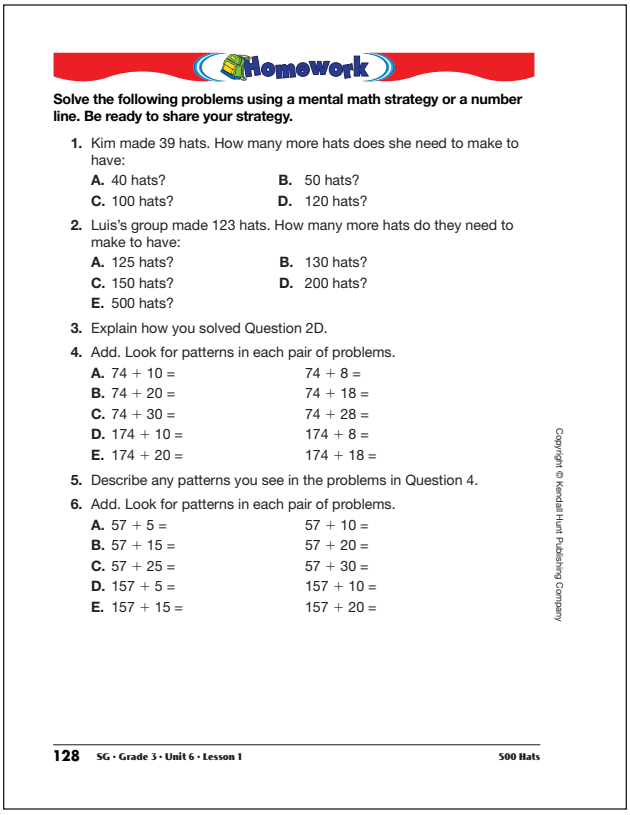
***Answers and/or discussion are included in the lesson.**

Homework (SG p. 128)
Questions 1–6

1. **A.** 1 hat **B.** 11 hats
   C. 61 hats **D.** 81 hats
2. **A.** 2 hats **B.** 7 hats
   C. 27 hats **D.** 77 hats
   E. 377 hats
3. Explanations will vary. Possible response: I looked on my class number line and used what I knew from Question C. It is 27 from 123 to 150. Then it is 50 more to 200. 27 and 50 more is 77.
4. **A.** 84 82
   B. 94 92
   C. 104 102
   D. 184 182
   E. 194 192
5. Descriptions will vary. Possible responses include: When you add 10, 20, or 30 more, the ones don't change. Adding 8 more is two less than adding ten more. Adding 18 more is two less than adding 20 more. Adding 28 more is two less than adding 30 more.
6. **A.** 62 67
   B. 72 77
   C. 82 87
   D. 162 167
   E. 172 177



Homework

Solve the following problems using a mental math strategy or a number line. Be ready to share your strategy.

1. Kim made 39 hats. How many more hats does she need to make to have:
   A. 40 hats? **B.** 50 hats?
   C. 100 hats? **D.** 120 hats?
2. Luis's group made 123 hats. How many more hats do they need to make to have:
   A. 125 hats? **B.** 130 hats?
   C. 150 hats? **D.** 200 hats?
   E. 500 hats?
3. Explain how you solved Question 2D.
4. Add. Look for patterns in each pair of problems.
   A. 74 + 10 = 74 + 8 =
   B. 74 + 20 = 74 + 18 =
   C. 74 + 30 = 74 + 28 =
   D. 174 + 10 = 174 + 8 =
   E. 174 + 20 = 174 + 18 =
5. Describe any patterns you see in the problems in Question 4.
6. Add. Look for patterns in each pair of problems.
   A. 57 + 5 = 57 + 10 =
   B. 57 + 15 = 57 + 20 =
   C. 57 + 25 = 57 + 30 =
   D. 157 + 5 = 157 + 10 =
   E. 157 + 15 = 157 + 20 =

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Use Tens and Ones

Julia's Strategy for 28 + 44:

28 = 20 + 8
+ 44 = 40 + 4
60 + 12 = 72

1. Solve each problem using Julia's strategy.

A. 41 = + 36 =

B. 33 = + 57 =

C. 57 = + 26 =

D. 38 = + 67 =

E. 79 = + 26 =

F. 84 = + 19 =

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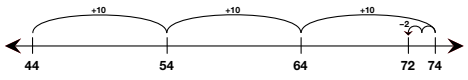
Name _____ Date _____

Chris's Strategy for 28 + 44:



Chris's Number Sentence: 44 + 30 − 2 = 72

2. Solve each problem using Chris's strategy or another number line strategy.

A. 37 + 49

Number Sentence: _____

B. 69 + 26

Number Sentence: _____

C. 138 + 27

Number Sentence: _____

D. 84 + 19

Number Sentence: _____

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Student Activity Book

Use Tens and Ones (SAB pp. 171–174)
Questions 1–5

1. A.
41 = 40 + 1
36 = 30 + 6
70 + 7 = 77

B.
33 = 30 + 3
57 = 50 + 7
80 + 10 = 90

C.
57 = 50 + 7
26 = 20 + 6
70 + 13 = 83

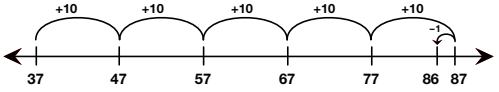
D.
38 = 30 + 8
67 = 60 + 7
90 + 15 = 105

E.
79 = 70 + 9
26 = 20 + 6
90 + 15 = 105

F.
84 = 80 + 4
19 = 10 + 9
90 + 13 = 103

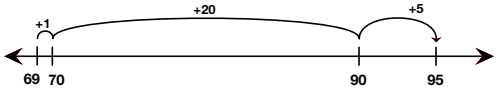
2. Number line strategies will vary. One possible strategy is shown for each.

A.



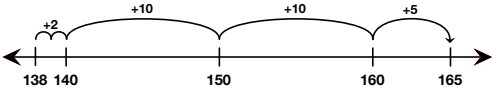
37 + 50 – 1 = 86

B.



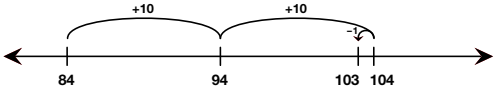
69 + 1 + 20 + 5 = 95

C.



138 + 2 + 10 + 10 + 5 = 165

D.



84 + 10 + 10 – 1 = 103

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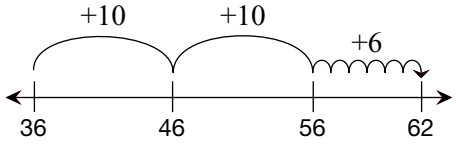
3. Strategies will vary. One possible strategy given for each.

A. Using Julia's strategy.

$$\begin{array}{r} 47 = 40 + 7 \\ +\ 35 = 30 + 5 \\ \hline 70 + 12 = 82 \end{array}$$

B. Using mental math: Instead of $29 + 54$, think of $30 + 53 = 83$.

C.



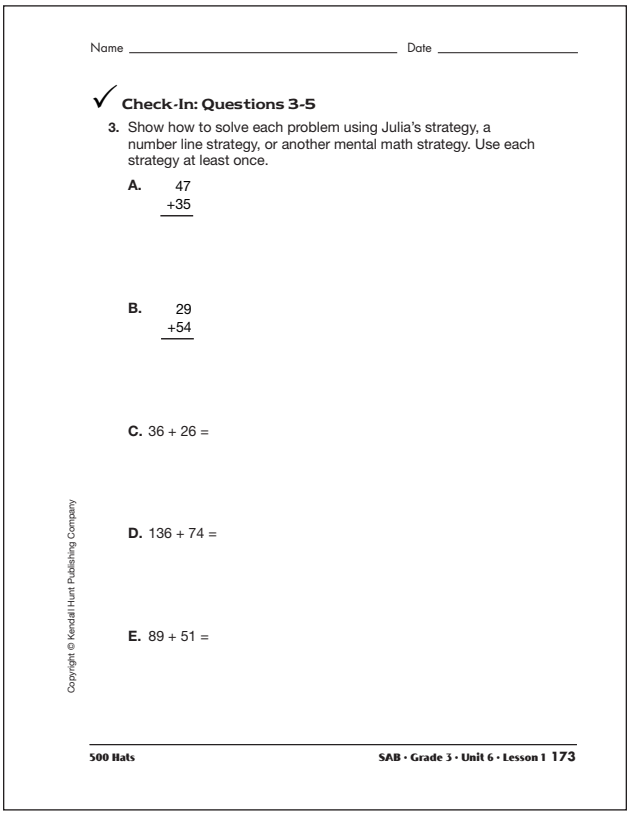
D.

$$\begin{array}{r} 136 = 100 + 30 + 6 \\ +\ 74 = \quad\ 70 + 4 \\ \hline 100 + 100 + 10 = 210 \end{array}$$

E. Using mental math: Instead of $89 + 51$, think of $90 + 50 = 140$.

4. Responses will vary. Both Chris and Julia partitioned numbers into tens and ones. Chris used a number line and broke apart only one number. Julia broke both numbers into tens and ones.

5. Responses will vary.



Name _____ Date _____

✓ **Check-In: Questions 3-5**

3. Show how to solve each problem using Julia's strategy, a number line strategy, or another mental math strategy. Use each strategy at least once.

A. 47
+35

B. 29
+54

C. 36 + 26 =

D. 136 + 74 =

E. 89 + 51 =

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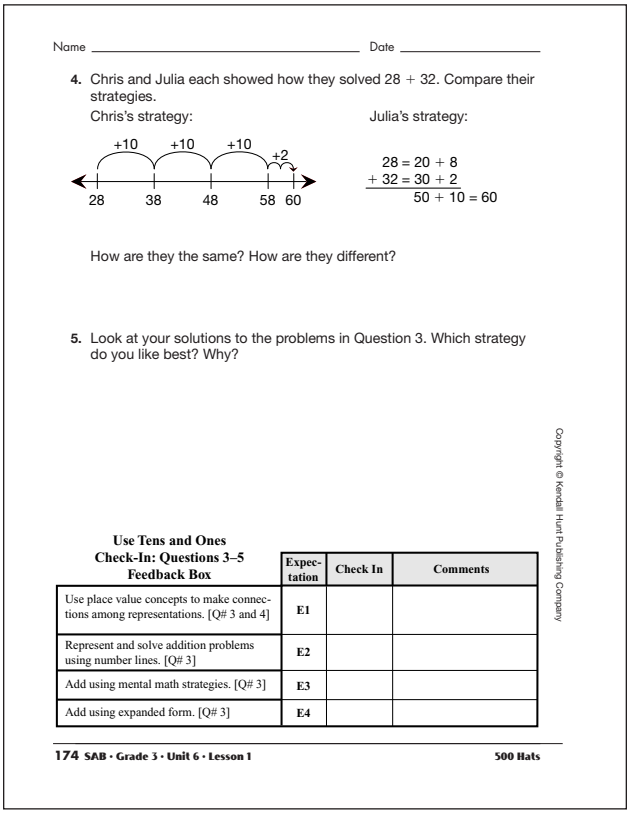

Name _____ Date _____

4. Chris and Julia each showed how they solved $28 + 32$. Compare their strategies.

Chris's strategy:

Julia's strategy:

$$\begin{array}{r} 28 = 20 + 8 \\ +\ 32 = 30 + 2 \\ \hline 50 + 10 = 60 \end{array}$$

How are they the same? How are they different?

5. Look at your solutions to the problems in Question 3. Which strategy do you like best? Why?

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Use Tens and Ones
Check-In: Questions 3–5
Feedback Box

	Expectation	Check In	Comments
Use place value concepts to make connections among representations. [Q# 3 and 4]	E1		
Represent and solve addition problems using number lines. [Q# 3]	E2		
Add using mental math strategies. [Q# 3]	E3		
Add using expanded form. [Q# 3]	E4		

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