

**Student Guide**

**Addition with Larger Numbers  
(SG pp. 140–144)  
Questions 1–11**

1. \* 945

**Addition with Larger Numbers**

Nikia and Maruta work at the TIMS Candy Company. On Monday, Nikia made 678 Chocos. Maruta made 267 Chocos. They used base-ten pieces to help find the amount of candy they made altogether.

First they showed each number with base-ten pieces:

$$\begin{array}{r} 678 \\ + 267 \\ \hline \end{array}$$

They combined the pieces to show addition:

Nikia used a base-ten recording sheet to record their work with the pieces. Tom looked at her work.

	1000s	100s	10s	1s
		6	7	8
+	2	6	7	7
	8	13	15	

**Tom**

81315 Chocos! That cannot be right. Nobody could make that many pieces in one day. When I estimate, about 950 Chocos is more reasonable.

**Nikia**

You cannot get the total by writing down all the numbers from the recording sheet. You have to use the Fewest Pieces Rule first. That will give you the number in standard form.

- Use the Fewest Pieces Rule to find the total number of Chocos Nikia and Maruta made.

Solve the problems on the *Adding with Base-Ten Pieces* pages in the *Student Activity Book*.

140 SG • Grade 3 • Unit 6 • Lesson 5 Addition with Larger Numbers

**Student Guide - Page 140**

**Paper-and-Pencil Addition Methods**

Sometimes you can solve addition problems in your head. Other times it helps to use paper and pencil. Here are two paper-and-pencil methods you can use. For both methods, you can think of base-ten pieces to help them make sense.

**All-Partials Method**

Tom looked at the base-ten pieces in Nikia's problem. He added like this:

$$\begin{array}{r} 678 \\ + 267 \\ \hline 800 \\ 130 \\ + 15 \\ \hline 945 \end{array}$$

Nikia showed her work this way:

$$\begin{array}{r} 678 \\ + 267 \\ 15 \\ 130 \\ + 800 \\ \hline 945 \end{array}$$

**Nikia**

I see what you did. You wrote down the value of the flats, skinnies, and bits. Then you added them all. I use a method like that, but I do it in a different order. It does not matter—we get the same answer.

- Look at Tom's and Nikia's methods.
  - What number shows the value of the bits?
  - What number shows the value of the skinnies?
  - What number shows the value of the flats?

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Addition with Larger Numbers SG • Grade 3 • Unit 6 • Lesson 5 141

- 15
  - 130
  - 800

**Student Guide - Page 141**

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

3. **A.** They traded 12 ones for 1 ten and 2 ones. The 1 means 10.

**B.** They traded 13 tens for 1 hundred and 3 tens. The 1 means 100.

4. **A.** 695

**B.** 618

**C.** 972

**D.** 1211

**E.** 2291

**F.** 7902

**G.** 9211

**H.** 9013

5. **Nisha** started with 13 bits. She traded 10 of them for 1 skinny. The 1 above the 3 shows the new skinny. Then she added the total number of skinnies. She had 10 skinnies. She traded all 10 skinnies for 1 flat. There were no skinnies left so she recorded a 0 in the skinnies column. The new flat was recorded by writing a 1 above the 4. She added all the flats. She had 6 flats in all.

**Fern** had 13 bits to start with. She traded 10 bits for 1 skinny and recorded 13. She added 3 skinnies and 6 skinnies and got 9 skinnies. She recorded this in a new row as 90, 9 skinnies and 0 bits. She added 4 flats and 1 flat and got 5 flats. In a third row she recorded 500 or 5 flats, 0 skinnies, and 0 bits. Altogether she had 5 flats, 10 skinnies, and 3 bits. She traded the 10 skinnies for 1 flat. No skinnies remained.

3. Tom made 547 Chocos in one day and Eric made 285 choccos. This is how they added using the compact method to find the total:

$$\begin{array}{r} \phantom{1} \phantom{1} \\ 547 \\ + 285 \\ \hline 832 \end{array}$$

**A.** Why did they put a little 1 above the 4? What does the 1 mean?  
**B.** Why did they put a little 1 above the 5? What does that 1 mean?

4. Use the All-Partials Method to solve some of the problems and the Compact Method to solve the others.

**A.**  $\begin{array}{r} 457 \\ + 238 \\ \hline \end{array}$     **B.**  $\begin{array}{r} 123 \\ + 495 \\ \hline \end{array}$     **C.**  $\begin{array}{r} 689 \\ + 283 \\ \hline \end{array}$     **D.**  $\begin{array}{r} 722 \\ + 489 \\ \hline \end{array}$

**E.**  $\begin{array}{r} 1485 \\ + 806 \\ \hline \end{array}$     **F.**  $\begin{array}{r} 3609 \\ + 4293 \\ \hline \end{array}$     **G.**  $\begin{array}{r} 7423 \\ + 1788 \\ \hline \end{array}$     **H.**  $\begin{array}{r} 8001 \\ + 1012 \\ \hline \end{array}$

5. Nisha and Fern solved a problem using paper and pencil. Here is their work.

<p>Nisha's solution</p> $\begin{array}{r} \phantom{1} \phantom{1} \\ 435 \\ + 168 \\ \hline 603 \end{array}$	<p>Fern's solution</p> $\begin{array}{r} 435 \\ + 168 \\ \hline 13 \\ 90 \\ + 500 \\ \hline 603 \end{array}$
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Compare the two pencil-and-paper solutions. Explain what Nisha and Fern did to find their answers.

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Addition with Larger Numbers SG • Grade 3 • Unit 6 • Lesson 5 **143**

**Student Guide - Page 143**

✓ **Check-In: Questions 6-11**

6. Solve the following problems using a paper-and-pencil method. Use the *Addition Strategies Menu* in the *Student Guide* Reference section. Check to see if your answer is reasonable.

A. 
$$\begin{array}{r} 68 \\ + 39 \\ \hline \end{array}$$

B. 
$$\begin{array}{r} 403 \\ + 79 \\ \hline \end{array}$$

C. 
$$\begin{array}{r} 247 \\ + 130 \\ \hline \end{array}$$

D. 
$$\begin{array}{r} 1235 \\ + 2638 \\ \hline \end{array}$$

E. 
$$\begin{array}{r} 5762 \\ + 1829 \\ \hline \end{array}$$

F. 
$$\begin{array}{r} 3208 \\ + 5732 \\ \hline \end{array}$$

7. Show how Question 6B can be solved using a mental math strategy.
8. Explain an estimate strategy that shows your answer to Question 6E is reasonable.
9. Choose one problem from Question 6 to solve:
- A. using expanded form.
  - B. using the all-partials method.
  - C. using the compact method.
  - D. Which method do you like best? Why?
10. Eric and Tom made 1432 Chocos on Wednesday, 938 Chocos on Thursday, and 2007 Chocos on Friday. Put these numbers in order from smallest to largest.
11. How many Chocos did they make altogether on Wednesday and Thursday?

Play the *Digits Game* and then complete the *Problem Solving* pages for more addition practice. Both items are in the *Student Activity Book*.

Solution strategies will vary.

6. A. 107  
 B. 482  
 C. 377  
 D. 3873  
 E. 7591  
 F. 8940

7. Possible strategy:  
 $79 + 1 = 80$ ;  
 $402 + 80 = 482$

8. Possible response: It is a reasonable answer because if only the thousands and hundreds are added together the answer is 7500.

9. A. Possible strategies for 6F:

$$\begin{array}{r} 3208 = 3000 + 200 + 0 + 8 \\ + 5732 = 5000 + 700 + 30 + 2 \\ \hline = 8000 + 900 + 30 + 10 \\ = 8940 \end{array}$$

B. All-Partials:

$$\begin{array}{r} 3208 \\ + 5732 \\ \hline 10 \\ 30 \\ 900 \\ + 8000 \\ \hline 8940 \end{array}$$

C. Compact:

$$\begin{array}{r} 1 \\ 3208 \\ + 5732 \\ \hline 8940 \end{array}$$

D. Answers will vary.

10. 938, 1432, 2007  
 11. 2370 Chocos

Student Guide

Homework (SG p. 145)  
Questions 1–7

$$\begin{array}{r} 1. \quad 732 \\ + 197 \\ \hline 929 \end{array}$$

$$\begin{array}{r} 2. \text{ A.} \quad 379 \\ + 613 \\ \hline 992 \end{array}$$

$$\begin{array}{r} \text{B.} \quad 543 \\ + 182 \\ \hline 725 \end{array}$$

$$\begin{array}{r} \text{C.} \quad 418 \\ + 824 \\ \hline 1242 \end{array}$$

$$\begin{array}{r} \text{D.} \quad 328 \\ + 593 \\ \hline 921 \end{array}$$

3. I used friendly numbers. 328 is close to 300. 593 is close to 600.  $300 + 600 = 900$ . 921 is a reasonable answer.

$$\begin{array}{r} 4. \quad \begin{array}{r} 11 \\ 654 \\ + 879 \\ \hline 1533 \end{array} \end{array}$$

5. Maruta traded 13 tens for 1 hundred and 3 tens. The one means 100.

$$\begin{array}{r} 6. \text{ A.} \quad \begin{array}{r} 1 \\ 84 \\ 28 \\ + 72 \\ \hline 184 \end{array} \end{array}$$

$$\begin{array}{r} \text{B.} \quad \begin{array}{r} 1 \\ 417 \\ + 329 \\ \hline 746 \end{array} \end{array}$$

$$\begin{array}{r} \text{C.} \quad \begin{array}{r} 1 \\ 928 \\ + 434 \\ \hline 1362 \end{array} \end{array}$$

$$\begin{array}{r} \text{D.} \quad \begin{array}{r} 1 \quad 1 \\ 3928 \\ + 4645 \\ \hline 8571 \end{array} \end{array}$$

E. If I add the hundreds  $900 + 400 = 1300$ . 1362 is reasonable.

1. Tom was working on the problem below when the fire alarm rang. Finish his problem using the all-partials method.
 

732	
+ 197	
800	
120	
+	
  
2. Use Tom's all-partials method to solve these problems. Check to see if your answer is reasonable.
 

A. $\begin{array}{r} 379 \\ + 613 \\ \hline \end{array}$	B. $\begin{array}{r} 543 \\ + 182 \\ \hline \end{array}$	C. $\begin{array}{r} 418 \\ + 824 \\ \hline \end{array}$	D. $\begin{array}{r} 328 \\ + 593 \\ \hline \end{array}$
--	--	--	--
  
3. Explain an estimation strategy that shows your answer to Question 2D is reasonable.
  
4. Maruta started the problem below. Finish it using the compact method.
 

654	
+ 879	
33	
  
5. Why did Maruta put a 1 above the 6?
  
6. Use Maruta's compact method to solve these problems. Check to see if your answer is reasonable.
 

A. $\begin{array}{r} 84 \\ 28 \\ + 72 \\ \hline \end{array}$	B. $\begin{array}{r} 417 \\ + 329 \\ \hline \end{array}$	C. $\begin{array}{r} 928 \\ + 434 \\ \hline \end{array}$	D. $\begin{array}{r} 3926 \\ + 4645 \\ \hline \end{array}$
--	--	--	--
  
- E. Explain an estimation strategy that shows your answer to Question 6C is reasonable.
  
7. Solve these problems. Use the *Addition Strategies Menu* in the Reference section to choose a method.
 

A. $\begin{array}{r} 268 \\ + 359 \\ \hline \end{array}$	B. $\begin{array}{r} 409 \\ + 312 \\ \hline \end{array}$	C. $\begin{array}{r} 5617 \\ + 2193 \\ \hline \end{array}$	D. $\begin{array}{r} 6891 \\ + 2534 \\ \hline \end{array}$
--	--	--	--
  
- E. Explain an estimation strategy that shows your answer to Question 7A is reasonable.

Addition with Larger Numbers SG • Grade 3 • Unit 6 • Lesson 5 145

Student Guide - Page 145

7. Methods will vary.

$$\begin{array}{r} \text{A.} \quad \begin{array}{r} 1 \quad 1 \\ 268 \\ + 359 \\ \hline 627 \end{array} \end{array}$$

$$\begin{array}{r} \text{B.} \quad \begin{array}{r} 1 \\ 409 \\ + 312 \\ \hline 721 \end{array} \end{array}$$

$$\begin{array}{r} \text{C.} \quad \begin{array}{r} 5617 \\ + 2193 \\ \hline 10 \\ 100 \\ 700 \\ + 7000 \\ \hline 7810 \end{array} \end{array}$$

$$\begin{array}{r} \text{D.} \quad \begin{array}{r} 1 \quad 1 \\ 6891 \\ + 2534 \\ \hline 9425 \end{array} \end{array}$$

E. Possible explanation: I use friendly numbers. 268 is close to 250 and 359 is close to 350.  $250 + 350 = 600$ . 627 is reasonable.