

NAME: _____

Math Words

more A nickel is worth more than a penny.

extra Something left over is extra.

Starter Problem

A red train has 6 cubes. A blue train has 5 cubes. How many more cubes does the red train have?

NAME: _____

Starter Problem

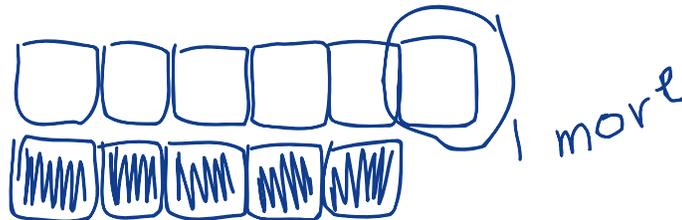
A red train has 6 cubes. A blue train has 5 cubes. How many more cubes does the red train have?

Student Thinking



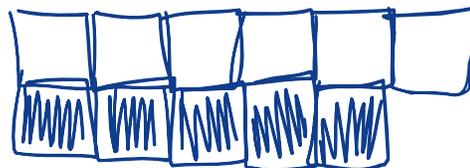
Latisha

The red train sticks out 1 extra. It has 1 more cube.



David

More means add. It's 11 more.



NAME: _____

Things to Remember



Handwriting practice area consisting of four sets of lines. Each set includes a solid top line, a dashed middle line, and a solid bottom line.



Handwriting practice area consisting of four sets of lines. Each set includes a solid top line, a dashed middle line, and a solid bottom line.

NAME: _____

Our Turn

Use cubes to solve the problems.

Write the answer on the line.

1. A red train has 8 cubes. A blue train has 5 cubes. How many more cubes does the red train have? _____

2. A blue train has 5 cubes. A red train has 3 cubes. How many more cubes does the blue train have? _____

3. A blue train has 8 cubes. A red train has 9 cubes. How many more cubes does the red train have? _____

NAME: _____

My Turn

Use cubes to solve the problems.

Write the answer on the line.

1. A blue train has 7 cubes. A red train has 3 cubes. How many more cubes does the blue train have? _____

2. A red train has 6 cubes. A blue train has 7 cubes. How many more cubes does the blue train have? _____

3. A blue train has 3 cubes. A red train has 8 cubes. How many more cubes does the red train have? _____

NAME: _____

Mini Lesson

Fill in the circle next to the answer you choose.

1. A red cube train has 8 cubes. A blue cube train has 6 cubes. How many more cubes does the red train have?

 8 14 2

2. A red cube train has 2 cubes. A blue cube train has 7 cubes. How many more cubes does the blue train have?

 7 5 9

How Many More?

Lesson at a Glance

Prior Learning Needed

- Solve subtraction word problems using invented strategies
- Recognize the number in small sets without counting

Lesson Preparation

- Study Lesson Foundation
- Review Teaching Guide and Student Pages
- Prepare packet of Student Pages 1–5 for each student
- Enlarge Student Pages for lesson circle or make transparencies (optional)
- Post *Discussion Builders* poster

Mathematical goals

- * Find the difference when comparing two amounts
- * Solve basic word problems

Mathematical language and reasoning goals

- * Demonstrate the meaning of difference using objects or drawings
- * Understand what “how many more” means

| LESSON ROADMAP | | | MATERIALS |
|---|---|---|---|
| CORE LESSON: DAY 1 | GROUPING | TIME | |
| Opener <i>Discussion Builders</i> Purpose Math Words Starter Problem |   |   | <ul style="list-style-type: none"> ○ <i>Discussion Builders</i> poster ○ Projector (optional) ○ Chart paper (optional) ○ Student Pages 1–3 ○ Teaching Guide ○ Linking or nonlinking cubes (suggested) |
| Discussion Student Thinking Things to Remember Reflection |   |   | |
| CORE LESSON: DAY 2 | | | |
| Review and Practice Review Day 1 Lesson Our Turn My Turn |    |    | <ul style="list-style-type: none"> ○ Clipboard Prompts, page 37 ○ Student Pages 2 and 3 (completed day 1) ○ Student Pages 4 and 5 ○ Teaching Guide ○ Linking or nonlinking cubes (suggested) |
| MINI LESSON: 2–3 DAYS LATER | | | |
| Assess and Reinforce Mini Lesson |  |  | <ul style="list-style-type: none"> ○ Student Page 6 ○ Teaching Guide ○ Linking or nonlinking cubes (suggested) |

Lesson Foundation

LESSON SNAPSHOT

Starter Problem

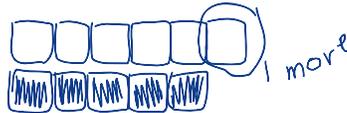
A red train has 6 cubes. A blue train has 5 cubes. How many more cubes does the red train have?

Student Thinking



Latisha

The red train sticks out 1 extra. It has 1 more cube.



David

More means add. It's 11 more.



MATHEMATICAL INSIGHTS & TEACHING TIPS

“More” Doesn’t Always Mean to Add

The cube train problem is a subtraction comparison problem, asking for the difference between two quantities. David made a common error when he incorrectly decided “More means add.” After all, more is usually associated with bigger and with problems involving increases when someone “got some more.”

Latisha correctly interpreted the problem and solved it by thinking about which cube train sticks out more. She noticed that the longer train had 1 extra cube, or 1 more cube. Students can correctly solve this problem using an informal method such as counting the extras, even though they may not associate this word problem with subtraction until later.



Young students should be encouraged to use informal methods, such as using materials, drawings, and counting, to solve “how many more” problems. Later, when they encounter larger numbers, they can learn to associate finding the difference with subtracting.

Oops!

David counted out both sets of cubes. He incorrectly chose to add because he associated the word “more” with addition.

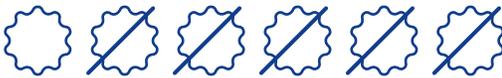
MATHEMATICAL INSIGHTS & TEACHING TIPS (CONTINUED)

Modeling “Comparing” Versus “Taking Away”

In school, students often learn to subtract only by using the take-away model. Comparison problems, which require finding the difference, are also subtraction situations. There are important distinctions between modeling a take-away situation and a comparison situation. Suppose you want to model “6 take away 5.” You would count out only one set, the 6; then you would take 5 away and count what is left to find the answer. In a comparison situation, you usually begin by counting out two sets, as Latisha and David did with their linking cubes. Notice that addition situations are usually modeled by counting out two sets as well. This may account for why David reverted to the more familiar action of counting all instead of finding the difference. Students need practice solving problems with varied situations.

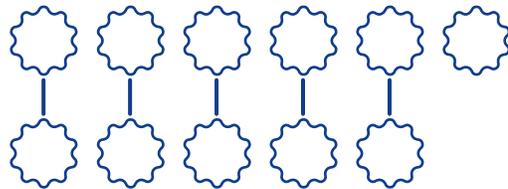
6 take away 5

Show 6, then take away 5.



6 compared with 5

Show 6 and 5. Match, then count the extras.



MATHEMATICAL DISCUSSION SUPPORT

Ask questions that prompt students to compare the numbers in the examples by counting the extras and to use the phrase “more than” to explain their comparison. Have them make their own cube trains, line them up, and count the extras. Encourage them to find out if they get the same number if they “take away” the amount in the smaller set from the larger set.



Be aware that the word “more” is used in many subtly different ways, as shown in the following examples.

- “I want more milk.” (additional)
- “There are more cookies than I can eat.” (extra)
- “I have 3 more pennies than my sister.” (comparison/difference)

Core Lesson Day 1

Opener

Review *Discussion Builders*

Read the poster. Suggest a section to focus on today:
Sharing Our Ideas, Adding to Others' Ideas, or Asking More Questions.

Purpose



The purpose of today's lesson is to compare amounts when a problem asks "How many more?"

Math Words

Distribute packets of Student Pages 1–5.

Display page 1.

Point to and say the first math word.

Ask students to repeat it aloud or silently.

Read the sentence containing the word.

Give an example using objects or drawings.

Repeat for the other math word.

Starter Problem

Read the Starter Problem. Call on a student to restate it in his/her own words.



Think about what you already know to help you solve this problem on your own. Then you'll be ready in our discussion later on to talk about the math and how to avoid pitfalls.

I'll walk around and make notes about things we need to discuss. Look out for oops, or pitfalls! 

Look at your work. It's easy to have an oops, or pitfall, in this type of problem. You might also have made a pitfall if your answer is more than 1.

Don't worry. Next we'll discuss how two imaginary students solved this problem. One has a pitfall! You won't have to share how you did the problem, but please bring up your ideas in the discussion.

STUDENT PAGE 1

Math Words

more A nickel is worth more than a penny.

extra Something left over is extra.

Starter Problem

A red train has 6 cubes. A blue train has 5 cubes. How many more cubes does the red train have?

Discussion

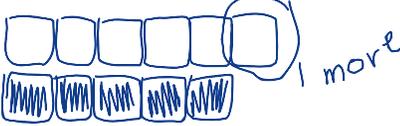
Student Thinking

STUDENT PAGE 2



The red train sticks out 1 extra.
It has 1 more cube.





Display page 2 or draw cube trains on the board like in the OK student's work.

Ask students to refer to page 2. **Read** the statement marked OK.

Explain that this statement is about the same problem students worked on earlier.

Reread the first sentence in the statement and discuss what it means. **Repeat** for the other sentence.

Ask students to discuss with a neighbor what the different parts of Latisha's work mean.

Discuss Latisha's work as a class using the prompts below.



Who can come up to explain how Latisha made her picture? Which is the red train? Which one is the blue train? Please label the trains so we know.

How are the two trains different? Which train has more cubes? Why did Latisha circle a cube and write "1 more"?

Talk to your neighbor about how Latisha lined up the cube trains to find out that the red train has 1 more cube than the blue train. 

Why did Latisha say that the red train "sticks out 1 extra"? How did she know it doesn't stick out 2 extra? How can we check?

Who can show a 4-cube red train? a 6-cube blue train? Which train has more cubes? Who can show how many more cubes the blue train has?

Call on students to state things to remember about solving problems like this.

Start a Things to Remember list on the board.



Core Lesson Day 1 (continued)

Discussion

Student Thinking, continued

STUDENT PAGE 2



More means add. It's 11 more.





David

Read the statement marked Oops! **Remind** students that this is a common pitfall.



David made a pitfall when he added instead of counting how many extra.
Talk with your neighbor about why this is incorrect. 

Is David's answer too large or too small?

Ask students to make a red cube train with 7 cubes and a blue cube train with 5 cubes.
Ask them to talk to a neighbor about how many more cubes the red cube train has. **Remind** them to look out for oops, or pitfalls. **Call on** students to explain why their answer makes sense.

Things to Remember

Call on students to add to the Things to Remember list on the board. **Read** the list.

Ask students to refer to Student Page 3.
Help students summarize and record two important Things to Remember.

Things to Remember List (sample)

1. "How many more" means how many extra.
2. You can line up the cube trains on one end to see how many extra.

Reflection

Ask students to reflect on the discussion process using one of the sample prompts.

Reflection Prompts (sample)

- Name a *Discussion Builder* that we used today. How did it help the discussion?
- What *Discussion Builder* could we use next time to make the discussion even better?
- What did someone do or say today that helped you understand the math?

Review and Practice

Review

Display page 2. Ask students to think about the previous discussion.

Read the statement marked OK. Call on a student to explain how the problem was solved.

Read the statement marked Oops! Call on a student to explain why it is incorrect or doesn't make sense.

Ask students to refer to page 3. Call on students to read an item from their Things to Remember list.

STUDENT PAGE 2

Student Thinking


Latisha

The red train sticks out 1 extra.
It has 1 more cube.





STUDENT PAGE 3

Things to Remember

✿ _____

Our Turn

Display page 4. Ask students to refer to page 4.

Use the procedure below and the Clipboard Prompts to discuss students' solutions. Discuss the problems one at a time.

Read the problem.

Ask students to work with a neighbor to solve it.

Discuss one or two students' solutions.

| | |
|---------------|------|
| Answer | 1. 3 |
| Key | 2. 2 |
| | 3. 1 |

My Turn

Ask students to refer to page 5. Read the instructions.

Ask students to solve the problems on their own.

Remind them to watch out for oops, or pitfalls!

After allowing time to work, read the answers. Have students mark and revise their papers using ink or crayon.

| | |
|---------------|------|
| Answer | 1. 4 |
| Key | 2. 1 |
| | 3. 5 |

STUDENT PAGE 4

Our Turn

Use cubes to solve the problems.
Write the answer on the line.

1. A red train has 8 cubes. A blue train has 5 cubes. How many more cubes does the red train have? _____
2. A blue train has 5 cubes. A red train has 3 cubes. How many more cubes does the blue train have? _____
3. A blue train has 8 cubes. A red train has 9 cubes. How many more cubes does the red train have? _____

STUDENT PAGE 5

My Turn

Use cubes to solve the problems.
Write the answer on the line.

1. A blue train has 7 cubes. A red train has 3 cubes. How many more cubes does the blue train have? _____
2. A red train has 6 cubes. A blue train has 7 cubes. How many more cubes does the blue train have? _____
3. A blue train has 3 cubes. A red train has 8 cubes. How many more cubes does the red train have? _____

Mini Lesson (2–3 Days Later)

Assess and Reinforce

Mini Lesson

Distribute and display page 6.

Problem 1



Let's read problem 1.

Talk with your neighbor about which choices don't make sense. 

Could the red train have 8 more cubes than the blue? Why or why not?

Do you think 14 is the answer?

Could someone come up and explain what the correct choice is?



Even though 14 is not the answer, students may still be cued to add the numbers, especially if they count out both sets or associate the word "more" with addition. Reiterate what "How many more?" means.

Problem 2



Let's read problem 2.

Find the correct choice on your own. 

Talk with your neighbor about which response is correct. 

Do you think the answer will be more than 7 or less than 7? Who would like to come up and explain?

What is the correct answer for this problem? How do you know?

Answer 1. 2
Key 2. 5

STUDENT PAGE 6

Mini Lesson

Fill in the circle next to the answer you choose.

- A red cube train has 8 cubes. A blue cube train has 6 cubes. How many more cubes does the red train have?
 8 14 2
- A red cube train has 2 cubes. A blue cube train has 7 cubes. How many more cubes does the blue train have?
 7 5 9