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# MATH BY THE BOOK

Heinemann  
Portsmouth, NH

**FIRST GRADE**

**Heinemann**

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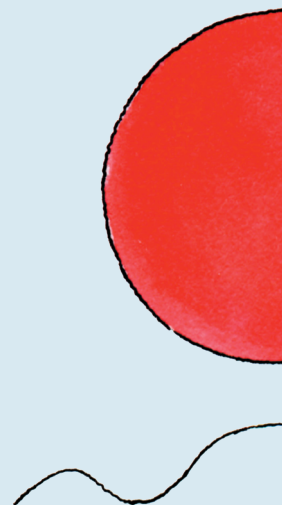
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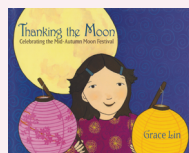
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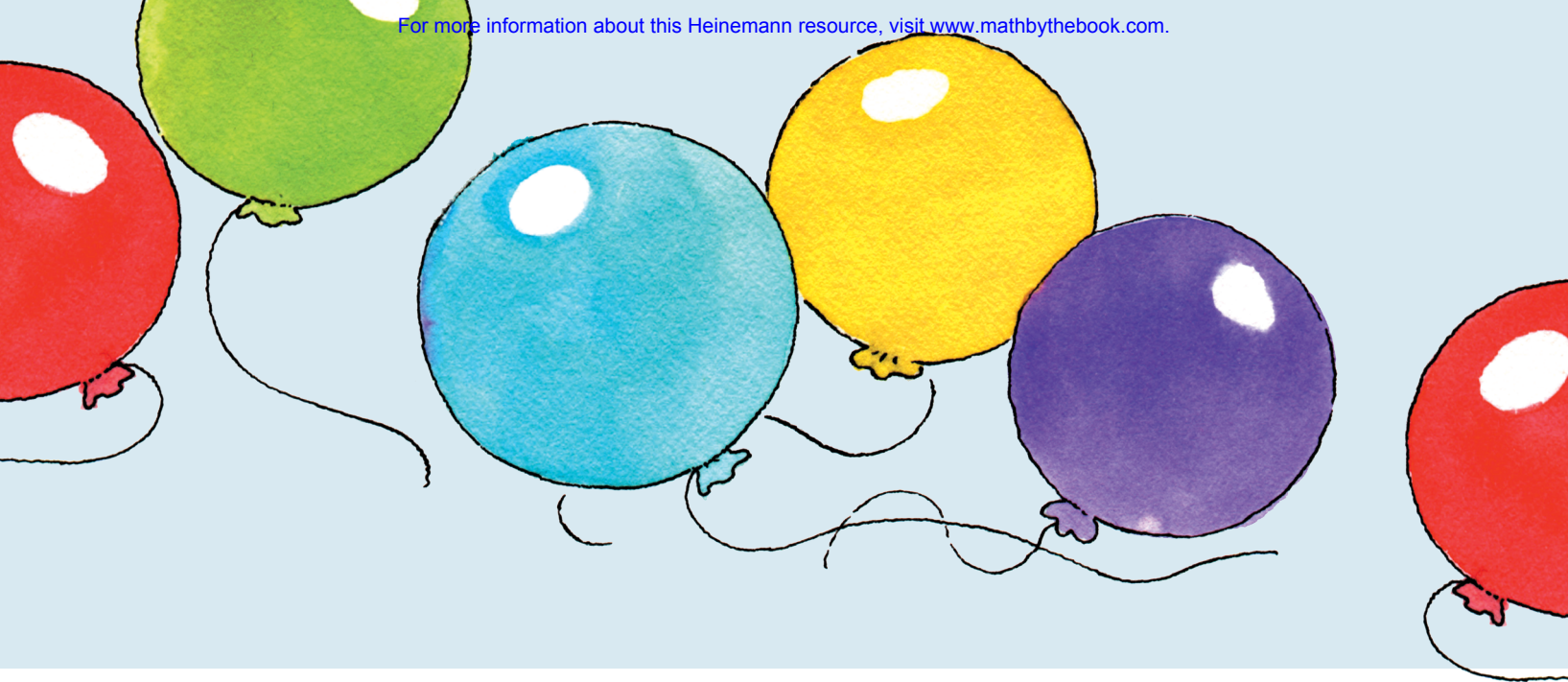
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# Online Resources

## Operations and Algebraic Thinking

### 1 \* *Apple Picking Day!*

3–10 Spinner  
Apples Picked Data  
Comparing Apples Image  
Comparison Mat  
Cookie Compare Recording Sheet  
Part-Part-Whole Mat

### 2 \* *Saturday*

How Many? Recording Sheet  
Part-Part-Whole Mat

### 3 \* *Baby Goes to Market*

1–10 Number Strip  
1–10 Spinner  
Fruit Cards  
Number Bond Cards  
Part-Part-Whole Mat  
Ten Frame Mat

### 4 \* *Thanking the Moon: Celebrating the Mid-Autumn Moon Festival*

Mooncake Spinner  
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### 5 \* *David's Drawings*

0–20 Number Strip  
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Tree Template

### 6 \* *The Two Mutch Sisters*

1–10 Spinner  
Domino Cards  
Double Ten Frame  
Part-Part-Whole Mat

### 7 \* *Monster Math Picnic*

1–9 Digit Cards  
1–10 Spinner  
Monster Scavenger Hunt Problems  
Part-Whole and Number Bond Mat  
Ten Frame Mat

### 8 \* *Math for All Seasons*

Adding on Umbrellas Recording Sheet  
Dab and Dot Images  
Dot Cards  
Look and Tell Images  
Ten Frame Cards

### 9 \* *I Love Saturdays y domingos*

1–6 Number Cards  
Part-Part-Part-Whole Mat

## Numbers and Operations in Base Ten

### 10 \* *Monster Math*

1–10 Spinner  
Hundred Chart  
Rolling Numbers Recording Sheet  
Ten Frame Mat  
Tens Cards

### 11 \* *The Wolf's Chicken Stew*

101–200 Chart  
120 Chart  
Blank Hundred Chart  
Blank Twenty Chart  
Colored 120 Chart  
Crossing the Decade Cards  
Hundred Chart  
Missing Numbers Recording Sheet

### 12 \* *Miss Nelson Has a Field Day*

0–9 Spinner  
Place Value Mat  
Ten Frame Mat  
Tens and Ones Mat  
Touchdown or Field Goal? Spinner

### 13 \* *Too Many Mangos*

Exploring Signs Cards  
Hundred Chart  
Place Value Mat  
Ten Frame Mat  
Wagon of Mangos Recording Sheet

### 14 \* *Pete the Cat: Snow Daze*

10–90 Cards  
Number Line Recording Sheet  
Tens Cards

## Geometry

### 15 \* *Quinto's Neighborhood*

Alike and Different Images  
Shape Cards  
Shapes Three-in-a-Row Spinner and Game Board  
What's That Shape? Images

### 16 \* *If You Give a Mouse a Brownie*

Brownie Geoboard Recording Sheet  
Sharing Treats Recording Sheet  
Spin and Partition Spinner and Recording Sheet  
Yes and No Cards

## Measurement and Data

### 17 \* *Hide and Snake*

0–10 Number Cards  
1-Inch Grid Paper  
Predict and Measure Recording Sheet  
Word Cards

### 18 \* *Dale, Dale, Dale / Hit It, Hit It, Hit It: Una fiesta de números / A Fiesta of Numbers*

0–20 Number Strips  
Make-a-Cake Spin and Tally Spinner and Recording Sheet  
Musical Instruments Images  
Piñata Images

### 19 \* *Hickory Dickory Dock*

1–12 Number Cards  
Blank Clock Faces  
Clock Face with Hands Template  
Digital Time Cards  
Time Match Cards

### 20 \* *My Rows and Piles of Coins*

1–10 Number Cards  
1–50 Chart  
Counting by Tens Cards  
Hundred Cent Chart  
Hundred Chart



## To access online resources for *Math by the Book*:

Go to <http://hein.pub/mbtb1-login>

- \* 1. Log in with your username and password. If you do not already have an account with Heinemann, you will need to create an account.
- \* 2. On the Welcome page, choose “**Click here to register an Online Resource.**”
- \* 3. Register your product by entering the code: (be sure to read and check the acknowledgment box under the keycode).
- \* 4. Once you have registered your product, it will appear alphabetically in your account list of **My Online Resources.**

**Note:** When returning to [Heinemann.com](http://Heinemann.com) to access your previously registered products, simply log into your Heinemann account and click on “View my registered Online Resources.”



# Literature Menus by Math Topic

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## *What You Will Find in the Literature Menus*

Throughout the remainder of this book, you will find a wealth of tasks, strategies, and tips for carefully selected pieces of children's literature that correlate to grade-specific math topics. The tasks appear in a menu format, to allow you to select the tasks that fit the needs of your students. For each piece of literature, the following menu items appear:

**Notes for you** about how to use this lesson most effectively: insights about how to make concepts easier to grasp, reminders of what to watch for as you formatively assess, simple strategies for managing materials, and more. These notes are the coach beside you as you teach.

Upfront list of **online resources** for the chapter.

# 5

OPERATIONS AND ALGEBRAIC THINKING

## Exploring adding 2 and the commutative property

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**David's Drawings** by Cathryn Falwell

**ABOUT THE BOOK**

A little boy spies a tree on his way to school. When he gets to school, he begins to draw a picture of the tree and his friends begin to add details to his picture. With the help of his friends, his drawing becomes a beautiful work of art.

**ABOUT THE MATH**

In first grade, students explore addition and subtraction math facts, including adding and subtracting 2. They recognize adding 2 as counting on and connect subtracting 2 to counting back. Rather than simply memorizing the sums and differences, they explore patterns and build models to see what *plus 2* and *minus 2* look like. Through lots of word problems, models, and math talk, they build an understanding of  $+2$  and then use that understanding to make sense of  $-2$ . Through problems and investigations, they realize that the order of the addends doesn't change the sum. And through repeatedly seeing and saying the facts, students work toward fluency.

In *David's Drawings*, David draws a tree and then his classmates add to his original drawing, adding leaves, dogs, people, and even stickers to make the picture a class project. Through the context of this story, students explore adding 2 as they revisit the details that were added to David's drawing.

**ONLINE RESOURCES**

- 0–20 Number Strip
- 1–10 Spinner
- Ten Frame Mat
- Tree Template

( 80 )

The **grade-specific math topic** addressed in this chapter.

An introduction to the **authentic children's literature** used in this chapter.

An **explanation of the math topic** and how it contributes to children's understanding of mathematics as a whole.

**Ideas for introducing the book** to students and questions to set a purpose for reading.

**Questions and suggestions to use during reading** to build interest without interrupting the flow of the literature.

OPERATIONS AND ALGEBRAIC THINKING

**READ THE BOOK**

**Before Reading**

Show students the book cover.

Have students turn and talk with partners about the following:

*What do you think this story will be about?*

Read the title and author.

*What do you like to draw?*

*What do you think David will draw?*

*Let's read to find out.*

**During Reading**

Share the illustrations as you read.

**After Reading**

Have students turn and share their responses to the following with partners:

*What did David draw?*

*What did his friends add to his picture?*

*Why did David write "Our Class Drawing" on the tree picture?*

*What did you think David's sister was going to do?*

*Do you think David was happy or sad that his sister didn't add anything to his drawing? Why?*

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**Reflection and discussion ideas** to use after reading to honor students' own responses to the literature before moving into math discussions.

Lessons to explore skills and concepts with manipulatives or physical activity, investigate them using data and discussion, and apply them to problem situations.

Student work and photos of materials to help you envision what this lesson looks like in the classroom.

Glimpses of some ready-to-use materials to support the lesson.

Opportunities for practice and support that provide differentiation, offer invitations for discussion and writing, share engaging and interactive tasks or games, and launch extension projects.

A selection of problems, from which you can choose, that offer opportunities for students to apply the skill or concept.

OPERATIONS AND ALGEBRAIC THINKING

## LESSONS

### INVESTIGATE

#### 2 More Leaves

Students create models and investigate number patterns for +2 facts.

**Materials for each pair:**  
12 counters • tree template

David saw a tree on the way to school. Describe the tree to your partner. (Big, lots of branches, no leaves...)

Why didn't the tree have leaves? (It was winter.)

What did David do when he got to school? (He drew a picture of the tree.)

Give each pair a tree template and 12 counters.

After David drew his tree, a friend added 2 leaves. Put 2 counters on your tree to show the leaves. How many leaves were on your tree to start? (0) How many leaves are on your tree now? (2)

What equation could we write to show the math we just modeled on the tree? There were 0 leaves on the tree and someone drew 2 on it. What equation shows that? ( $0 + 2 = 2$ )

Write the equation on the board.

Have students clear the counters from their trees.

What if David drew 1 leaf on his tree? Show that with a counter.

Then a friend drew 2 more leaves on the tree. Put 2 more leaves on your tree. How many leaves are on your tree now? (3)

There was 1 leaf on the tree and someone drew 2 more. What equation shows that? ( $1 + 2 = 3$ )

Write the equation on the board.




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OPERATIONS AND ALGEBRAIC THINKING

## Support and Practice

### DIFFERENTIATE

#### Support

To help students see the connection between +2 and counting on 2, provide some guided experiences with linking cubes. Pose a +2 story problem and have students use linking cubes to show and solve the problem. For "David drew 6 leaves," students show a train of 6 cubes of one color. Then pose the next part of the problem. For "Rosie drew 2 more leaves," students then add 2 more cubes of another color to find the sum. Students write the equation.



Continue with other \_\_\_ + 2 problems.

#### Enrich

Challenge students to use number strips, along with what they know about adding 2, to explore subtracting 2.

Possible problems:

There were 8 pencils in the cup. David took 2. How many were left in the cup?

Rosie had a pack of 8 crayons. She gave 2 to Jamal. How many did she still have?

#### SOLVE

Lee May drew 2 owls in the picture. Rosie drew 2 more. How many owls were in the picture now? Draw a model and write an equation. ( $2 + 2 = 4$ )

Jamal put 4 stickers on the picture. David put 2 more on the picture. How many stickers were on the picture now? Draw a model and write an equation. ( $4 + 2 = 6$ )

David drew 7 leaves on the tree. Ryan added 2 more leaves to the tree. How many leaves were on the tree now? Draw a model and write an equation. ( $7 + 2 = 9$ )

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Additional ideas to support students who may benefit from another way to think about, or more exposure to, the skill or concept, or a challenge for students who are ready to further explore the math topic.



OPERATIONS AND ALGEBRAIC THINKING

**TALK AND WRITE**

Amanda had 6 crayons. David gave her 2 more. Amanda says that now she has 9 crayons. Is she right? Why or why not?

Is the sum of  $2 + 7$  the same as the sum of  $7 + 2$ ? Explain your thinking.

**PRACTICE**

**Spin +2**

Students use manipulatives to add 2 and write the equation to match.

**Materials for each student:**  
1–10 spinner • 2 linking cubes of one color and 10 linking cubes of another color • paper

Students write the numbers 1–10 in a column on their paper.

Students spin the spinner to get the first number of the +2 equation.

They use the cubes to build a train showing that number and then add 2 cubes to the train.

They write the equation to match the train.

For example, if they spin the number 8, they build a train of 8 cubes and then add 2 more.

On their paper, they find the 8 and complete the equation  $8 + 2 = 10$ .



Students continue writing equations until they have written an equation for each number from 1 to 10.

If a student lands on a number for which they have already written the equation, they say the +2 fact and then spin again.

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Multiple prompts to get students talking or writing to explore the math concepts and show their math understandings.

Interactive tasks for engaging practice of the skill.

A creative way to further explore the skill through art, writing, experiments, or team projects.

## Let's Get Started!

On the following pages you will find a wealth of ideas for integrating children's literature into your mathematics lessons. Start by reviewing the description of the highlighted math skill. This will provide focus to your lessons. Then, use the menu to select tasks that show the mathematics in context, deepen your students' understanding, and bring energy to your lessons. These high-quality math tasks guide students to their learning goals. While they are exploring and learning the mathematics, the stories help them see the math in context and keep them engaged, active, and thinking like mathematicians.

Have fun with the stories! Dive deeply into the math!

**Recommendations for additional children's literature** to provide alternative options, continue the explorations, or allow students to compare multiple texts that relate to similar math concepts.

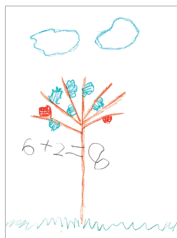
**A prompt to connect the literature to language arts,** asking students to talk, draw, or write about the story.

OPERATIONS AND ALGEBRAIC THINKING

**EXTEND**

**Our Beautiful Art**

Students draw and color pictures of a tree with any number of leaves, then add 2 more leaves of any other color. They label their drawing with the equation that shows the total number of leaves. Post the drawings on the bulletin board like David's drawing was posted on his classroom bulletin board.



**MORE BOOK CHOICES**

For more books to explore +2 facts, try the following:

*Let It Fall* by Maryann Cocca-Leffler (draw 2 more leaves on a tree)

*When Grandma Gives You a Lemon Tree* by Jamie L. B. Deenihan (draw 2 more lemons on a tree)

**LINK TO LANGUAGE ARTS**

David enjoyed creating a picture with his friends but was also happy to draw his own picture just the way he wanted to draw it. Draw a picture of something you enjoy doing with friends. Draw a picture of something you enjoy doing on your own. Write a sentence to describe what you are doing in each picture.

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## NUMBER AND OPERATIONS IN BASE TEN

# Comparing two-digit numbers

***Too Many Mangos*** by Tammy Paikai

### ABOUT THE BOOK

This story exemplifies community spirit and shows what it means to be a good neighbor.

Grandpa's mango tree has too many mangos! He sends his grandchildren, Kama and Nani, through the neighborhood to offer mangos to the neighbors. Their wagon is filled with mangos when they start their trip and filled with thank-you gifts from grateful neighbors when they return home.

### ABOUT THE MATH

In first grade, students explore place value concepts, developing an understanding of the meanings of the tens and ones digits. Through models and math talk, students discover that the digit in the tens place represents groups of tens. This helps them recognize the significance of the tens digit when comparing quantities. Students record the comparisons using the symbols  $>$ ,  $<$ , or  $=$ .

By modeling two-digit numbers on place value mats, students are able to visualize the numbers as tens and ones. Students also explore the comparisons through drawings (e.g., sticks and dots) or more abstract representation like expanded form ( $42 = 40 + 2$  or 4 tens and 2 ones). Thinking about numbers in varied ways helps students gain insights about comparisons as they apply their place value understanding.

*Too Many Mangos* sets a context for students to compare quantities of big, small, ripe, green, and spotted mangos.

### ONLINE RESOURCES

Exploring Signs Cards  
Hundred Chart  
Place Value Mat  
Ten Frame Mat  
Wagons of Mangos  
Recording Sheet

## READ THE BOOK

### Before Reading

Show the cover and read the title and author.

Pose the following for students to turn and share with partners:

*What is a mango?*

Show students the picture of the mango tree on the title page of the book.

*About how many mangos are on that tree?*

*You can't keep mangos for a long time. They get too ripe. Could your family eat all these mangos in just a few days?*

*What would you do with all the extra mangos if they were too many for your family to eat?*

*We are going to read a story about too many mangos. I wonder what these people will do with their mangos.*

This question focuses students on the fact that there are lots of mangos on the tree, but also offers a quick estimation challenge. There are actually 73 mangos on the tree, so partners who estimate 60 or 80 are close to the actual amount, while others might share estimates that are too high (e.g., 200) or too low (e.g., 20). Invite pairs to share how they arrived at their estimates and take a minute to count the mangos to see if any estimates were close to the actual number of mangos.

In Hawaii, *mahalo* is used to express gratitude. You might ask students how their family expresses gratitude or thanks people for their kindness. This is a chance for students to share their heritage and learn about one another's traditions.

### During Reading

Read the story, sharing the illustrations.

### After Reading

Pose the following for students to discuss with partners and then with the class:

*What did the family do with all their mangos?*

*How did the neighbors feel about getting the mangos? How do you know?*

*The neighbors liked different kinds of mangos. Some chose ripe ones or green ones or ones with spots on them. Why?*

*The children returned with mahalo gifts. What does that mean? Why did the neighbors give them gifts?*

*How did the children feel at the end of the story? Why?*



# LESSONS

## INVESTIGATE

### More Mangos

*Kama and Nani sort the mangos into piles, comparing to see which pile has more mangos.*

#### Materials for each pair:

2 place value mats • base-ten blocks (at least 15 rods and 15 unit cubes to share)

If students have not yet used base-ten blocks, give them some time to explore the blocks, comparing the rods and units and sharing their insights about the values of the blocks. Linking cubes can be substituted for base-ten blocks to allow students to create their own chains of 10.

#### Pose the following:

*Grandpa had too many mangos! Kama and Nani sorted the mangos into piles.*

*There were 27 soft mangos and 27 hard mangos.*

*Tell your partner if we have more soft or hard mangos. (27 mangos is the same as 27 mangos.)*

*What does it mean when we say two quantities are equal? (They are the same amount.)*

#### Pose the following:

**Kama and Nani counted 34 yellow mangos and 23 green mangos.**

**Were there more yellow mangos or green mangos?**

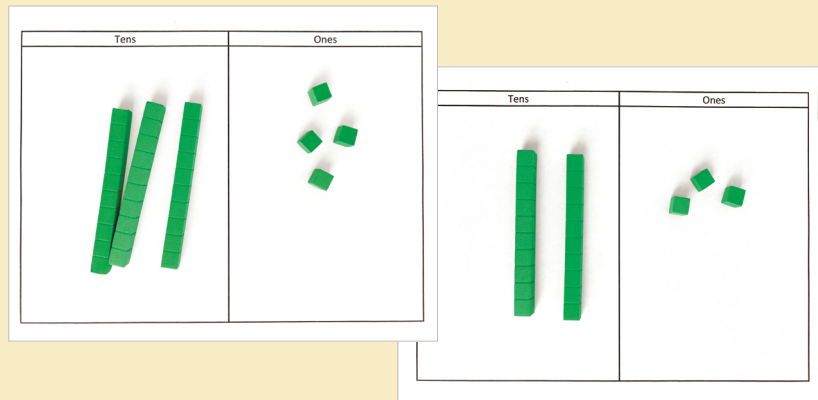
*Retell the problem to a partner. What are we trying to find out?*

*Work with a partner to model and solve the problem on your place value mats. One partner models the yellow mangos and the other partner models the green mangos.*

*Put your mats next to each other. What do you notice about the tens and ones?*

## NUMBER AND OPERATIONS IN BASE TEN

Circulate through the room and watch and listen as students create and discuss their models.



*How many tens and how many ones are in each number you showed on your place value mats?*

**34 = 3 tens and 4 ones      23 = 2 tens and 3 ones**

*Talk with your partner to decide which group of mangos has more mangos. Be ready to tell us why.*

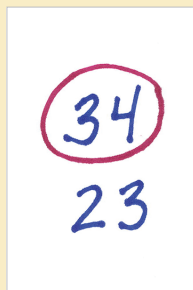
Circulate through the room and listen as partners share their thinking.

*Which mat shows more mangos? How do you know? (34 is more than 23.)*

*Are you looking at the tens or ones? Why?*

*Which mat shows fewer mangos? How do you know? (23 is fewer than 34.)*

Record both numbers on the board and circle the one that students said was the greater quantity.



Pose the following:

**Kama and Nani made a pile of 31 big mangos and 26 small mangos. Were there more big mangos or small mangos?**

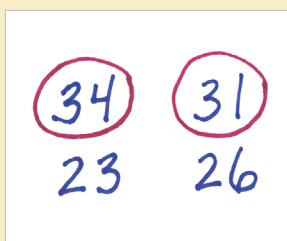


*Retell the problem to a partner. What are we trying to find out?*

*Work with a partner to model and solve the problem on your place value mats. One of you should model the big mangos and the other one should show the small mangos. Then put your mats side by side and decide who has more. Be ready to tell us why.*

*Which is more: 31 mangos or 26 mangos? How do you know? (31 is more than 26.)*

Record both numbers on the board and circle the one that students said was the greater quantity.



Pose the following:

**There were 42 mangos in the tree and 54 mangos on the ground.**

**Were there more mangos on the ground or in the tree?**

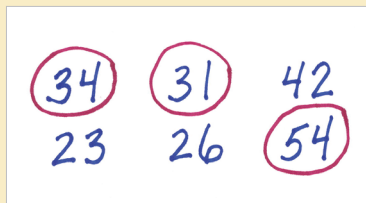
Have students, model, solve, and explain their thinking.

Have some pairs share their thinking.

*Which is more mangos: 42 or 54?*

Write the numbers on the board and circle the one that students say is a greater quantity.

Have students look at the comparisons you have been writing on the board:



*What do you notice? (The greater quantity has more tens.)*

## NUMBER AND OPERATIONS IN BASE TEN

You might have students think about the order of our counting numbers by looking at a hundred chart. Are the numbers with 5 tens always more than the numbers with 4 tens or 3 tens? Does that make sense? Why?

*Does that make sense? Will the number with more tens always be a greater quantity? Explain your thinking.*

*Predict which is more: 42 mangos or 39 mangos.*

*Now, model it and see if you were right.*

*How did you know? What were you thinking about when you made your prediction?*

**Pose the following:**

**There were 36 spotty mangos and 32 plain mangos.**

**Were there more spotty or plain mangos?**

**Have students, model, solve, and explain their thinking.**

**Have some pairs share their thinking.**

*Which is more mangos: 36 or 32?*

*How do you know?*

*How was this problem different from the others we have done? (The tens digits were the same.)*

*Which digit helped you decide? (The ones digit.)*

*Why did you look at the ones digit this time? (The tens digits were the same.)*

**Add the comparison to the board.**

**Pose the following comparisons for students to practice. Have them predict which is greater and check their prediction with a model.**

$\textcircled{34}$	$\textcircled{31}$	42	$\textcircled{36}$
23	26	$\textcircled{54}$	32

**36 soft mangos and 28 hard mangos**

**42 big mangos and 47 small mangos**

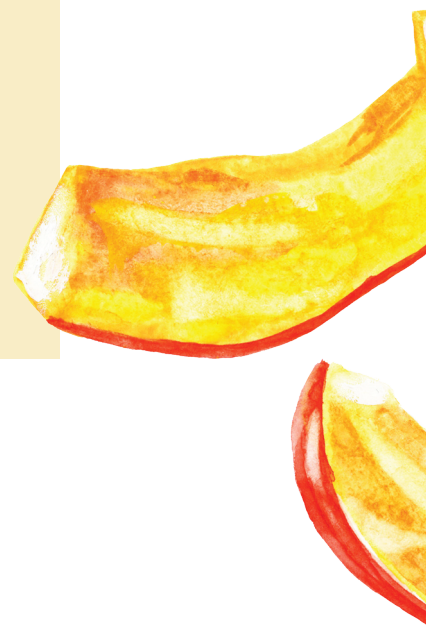
**35 yellow mangos and 53 green mangos**

**Circulate through the room and observe as students are working. Identify students who may need additional support.**

**To close the lesson, ask students to turn and share with their partners:**

*Could you figure out which is more without using your blocks and place value mats? Tell your partner how you would do it.*

Have students predict before they model. Listen to their predictions to get a quick formative assessment of their understanding.



## EXPLORE

## Exploring Signs

Students are introduced to the symbols to show greater than and less than, and review the symbol to show equal to.

**Materials for each pair:**

2 AngLegs® or 2 craft sticks • a set of Exploring Signs cards • 2 place value mats and base ten blocks (15 rods and 15 units), as needed

Allow students to use materials (e.g., base-ten blocks and place value mats) as needed to compare the numbers.

*Turn and tell your partner what happened in the story Too Many Mangos.*

*What did Kama and Nani do with all the mangos?*

*We have been comparing different types of mangos. Turn and tell your partner which is more: 36 yellow mangos or 45 green mangos.*

*How do you know?*

*Turn and tell your partner which is more: 25 soft mangos or 25 hard mangos.*

*Which is more? (Neither, they are the same amount.)*

*How could we show they are the same quantity using numbers and symbols, but not words?*

**Record on the board:**

$$25 = 25$$

*What does this mean? When we see the equal sign, what does it tell us?*

**Pose the following:**

**Grandpa made a fruit salad with the gifts the neighbors gave them. He put 23 banana slices and 17 mango slices in the salad. Were there more banana slices or mango slices in the fruit salad?**

*Retell the problem to a partner.*

*Solve the problem with your partner. You can do it any way you'd like, with or without a model, but be ready to explain your thinking.*

Exploring Signs Cards

23	26
29	34
37	38
42	46

The words *sign* and *symbol* are both used when talking about =, >, and <. Many students may need support with this language. In this lesson you will be making an anchor chart. Record words, symbols, models, and examples to build students' understanding of this math language.

While students may be familiar with the equal sign, this may look odd to them since their experiences have been with addition and subtraction equations. Emphasize that the equal sign is used when the quantities on either side are the same.

## NUMBER AND OPERATIONS IN BASE TEN

Have some pairs share their thinking and solution.

*How can I record that on the board? How could we show which is more or fewer? Can we use an equal sign? Why or why not? (No, we can't use an equal sign because they aren't the same amount of fruit slices.)*

Show students two index cards that both say 25.

Place a pair of AngLegs, or a pair of craft sticks, between the cards to show an equal sign.



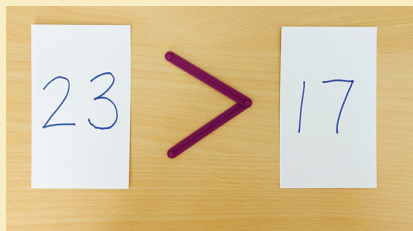
*What does this sign tell us?*

Replace the two index cards with a card that reads 23 and a card that reads 17.

*Does this sign make sense now? Why or why not?*

*How can we change the sign so it tells us which number is greater?*

Open one side of the AngLegs, or reposition the craft sticks, to show one side that opens wide facing the 23.



*What do you notice about the sign now?*

*How is it different than it was before?*

*What do you notice about the space between the sticks? (It is bigger/wider on one side.)*

*What number is by the wide, open part of the sign? (The number with greater value.)*

*What might that tell you?*

With your finger show the way we read this comparison from left to right, saying “23 is greater than 17.”

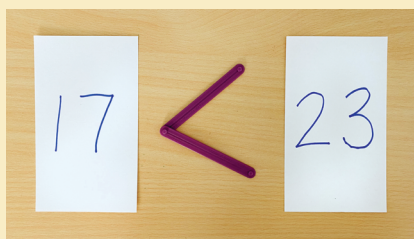
Revisit  $25 = 25$  to demonstrate the equal sign, then introduce the greater than and less than symbols through the movement of the AngLegs or craft sticks.

*What if I changed the cards. Is this okay?*



Have partners talk about what they notice. Focus discussions on which number is greater and how the wider part of the sign should be by that greater number.

Switch the sign and ask partners to talk about whether this is okay.



*Is 23 greater than 17? Is the wider part of the sign by 23?  
Does that make sense? (Yes.)*

*I wonder how we would read this. We always start at the left when we read.*

*If 23 is greater than 17, what is the opposite of greater than?  
(Less than.)*

*Is 17 less than 23?*

Read from left to right, showing the left to right movement with your finger as you read “17 is less than 23.”

*Are they both true? Is 23 greater than 17 and 17 less than 23?*

*Is 23 mangos more than 17 mangos? Are 17 mangos fewer than 23 mangos?*

This can be confusing vocabulary for students. We want students to understand both sets of comparison words. When we talk about things (like mangos), we say there are *more* or *fewer*. When we talk about numbers, we compare with the words *greater than* and *less than*. Add these words to your anchor chart.





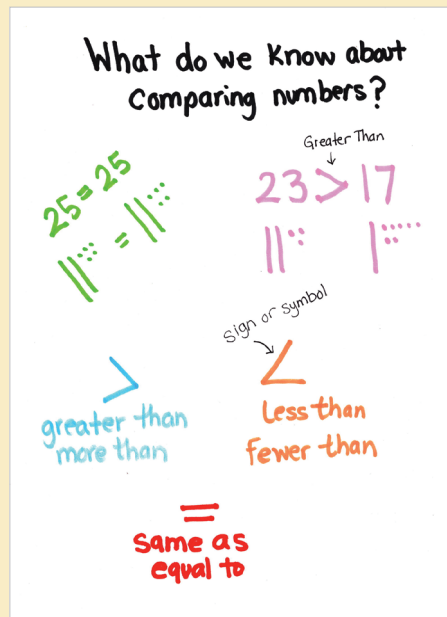
## NUMBER AND OPERATIONS IN BASE TEN

Give each pair a set of Exploring Signs cards.

Partners each pull one card from the set and they place their two cards face-up on the table. They take turns using AngLegs, or craft sticks, to create and place a sign between the cards to make the comparison true. Have them read the comparison out loud to each other. Circulate through the room to watch and listen as students continue to pull cards, create symbols, and read their comparisons.

Whenever needed, allow students to use materials to visualize the comparisons.

Begin an anchor chart with students. Have them talk with partners about some things they know about comparing numbers. Revisit the two comparisons that were done together ( $25 = 25$  and  $23 > 17$ ) and record a model, numbers, and comparison (using symbols). Record important words like *sign*, *symbol*, *compare*, *more than*, *fewer than*, *greater than*, and *less than*. Use pictures and phrases whenever possible to show meaning.

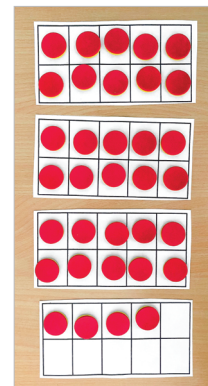


# Support and Practice

## DIFFERENTIATE

### Support

Have students use multiple ten frames and counters to model each number (e.g., 34 as 3 filled ten frames and 4 counters on another frame). Students then line up the ten frames to compare the two-digit numbers to see which number has more or fewer counters.



Connect comparing numbers to the counting sequence. Which number would you say first if you were counting? Have students find two numbers on the hundred chart. What do they notice about the number with the greater value? What do they notice about the number with the lesser value? Which number is closer to 1 on the chart? Which number is closer to 100 on the chart? What does that mean?

Comparing numbers is based on number sense. When comparing whole numbers, the number closest to 0 is less. As we count, numbers increase in value, so thinking about counting helps students recognize numbers that have greater value.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### Enrich

Challenge students with number riddles like the following. Provide them with a hundred chart to keep track of their thinking.

#### Guess how many mangos:

The number is greater than 45.

It is less than 56.

The sum of the digits is 6.

What is the number? (51)

#### Guess how many mangos:

The number is greater than 67.

It is less than 75.

The sum of the digits is 9.

What is the number? (72)

Hundred Chart

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

## NUMBER AND OPERATIONS IN BASE TEN

## SOLVE

Kama had 42 mangos in his wagon. Nani had 39 mangos in her wagon. Who had more mangos? Explain how you know. (Kama, because  $42 > 39$ )

• • • • •

Grandpa put 37 ripe mangos and 41 green mangos in the wagon. Did he have fewer ripe mangos or green mangos? How do you know? (fewer ripe mangos, because  $37 < 41$ )

• • • • •

Grandpa picked some mangos from the tree. He picked more than 29 mangos. He picked fewer than 37 mangos. How many mangos might he have picked? How do you know? (answers vary from 30 to 36 mangos)

## TALK AND WRITE

Kama says that 34 is greater than 42. Is he correct? Prove your answer.

• • • • •

Kama says that  $24 + 7$  is greater than  $30 + 5$ . Do you agree or disagree? Explain your thinking.

## PRACTICE

## Wagons of Mangos

Partners roll dice, build two-digit numbers, and compare to see who has the most mangos in their wagon.

## Materials for each pair:

two 1–6 number cubes (or dice) •  
Wagons of Mangos recording sheet

## Materials for each student:

place value mat • base-ten  
blocks (6 rods and 6 unit  
cubes)

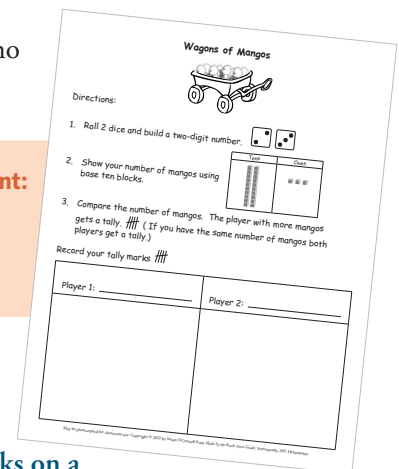
If your students don't know how to do tally marks, simply have them draw a line or circle or mango for each round they win.

Each player rolls two number cubes and builds a two-digit number to show how many mangos are in their wagon.

Each player models their two-digit number with base-ten blocks on a place value mat. The players then compare their models to see whose wagon has more mangos.

The player whose wagon has more mangos wins each round. If there is a tie, both players win.

Players keep track of each round they win with a tally mark. At the end of the game, players count their tallies to see how many rounds they won. The player who won the most rounds is the game winner.



**DO AT HOME****A Bag of Numbers**

Students search for and compare two-digit numbers at home with a family member. They find eight two-digit numbers in their house, in a magazine, at the store, or outside, and write each one on a small piece of paper. They put the papers in a small bag and take turns picking two numbers out of the bag and comparing them. Students tell their family member which number is greater and how they know.

**MORE BOOK CHOICES**

For more books to explore comparing numbers, try the following:

*May I Please Have a Cookie?* by Jennifer E. Morris (compare quantities of cookies)

*Planting a Rainbow* by Lois Ehlert (compare quantities of different types of flowers)

**LINK TO LANGUAGE ARTS**

What events in the story show kindness? Draw a picture from the story, or from your own life, that shows kindness.