Operations and Algebraic Thinking
Number and Operations in Base Ten
Teaching Tips: First Grade

Using Best Instructional Practices with Educational Media to Enhance Learning

pbskids.org/lab
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### Operations and Algebraic Thinking

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<tr>
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<tbody>
<tr>
<td>1.OA.B.4  Understand subtraction as an unknown-addend problem. For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.</td>
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<tr>
<td>1.OA.C.5  Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).</td>
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<tr>
<td>1.OA.C.6  Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., (8 + 6 = 8 + 2 + 4 = 10 + 4 = 14)); decomposing a number leading to a ten (e.g., (13 – 4 = 13 – 3 – 1 = 10 – 1 = 9)); using the relationship between addition and subtraction (e.g., knowing that (8 + 4 = 12), one knows (12 – 8 = 4)); and creating equivalent but easier or known sums (e.g., adding (6 + 7) by creating the known equivalent (6 + 6 + 1 = 12 + 1 = 13)).</td>
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<tr>
<td>1.OA.D.8  Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations (8 + ? = 11), (5 = __ – 3), (6 + 6 = __).</td>
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### Number and Operations in Base Ten

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<tr>
<td>1.NBT.A.1  Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</td>
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<tr>
<td>1.NBT.B.2  Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a “ten.” b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</td>
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<tr>
<td>1.NBT.C.4  Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.</td>
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## Vocabulary Acquisition and Use

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<tbody>
<tr>
<td>L.1.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.</td>
<td>⭐️</td>
<td>⭐️</td>
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<tr>
<td>L.1.5 With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings.</td>
<td>⭐️</td>
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<tr>
<td>L.1.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).</td>
<td>⭐️</td>
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### Alignment to ISTE Technology Standards: Students

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<tbody>
<tr>
<td><strong>2. Communication and Collaboration</strong></td>
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<tr>
<td>a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.</td>
<td>★</td>
<td>★</td>
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</tr>
<tr>
<td>d. Contribute to project teams to produce original works or solve problems.</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>4. Critical Thinking, Problem Solving, and Decision Making</strong></td>
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<tr>
<td>b. Plan and manage activities to develop a solution or complete a project.</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>5. Digital Citizenship</strong></td>
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<tr>
<td>a. Advocate and practice safe, legal, and responsible use of information and technology.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>6. Technology Operations and Concepts</strong></td>
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<tr>
<td>a. Understand and use technology systems.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>b. Select and use applications effectively and productively.</td>
<td>★</td>
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<td>★</td>
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## Alignment to ISTE Technology Standards: Teachers

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<tbody>
<tr>
<td><strong>1. Facilitate and Inspire Student Learning and Creativity</strong></td>
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<tr>
<td>a. Promote, support, and model creative and innovative thinking and inventiveness.</td>
<td>★</td>
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<tr>
<td>c. Promote student reflection using collaborative tools to reveal and clarify students’ conceptual understanding and thinking, planning, and creative processes.</td>
<td>★</td>
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<tr>
<td>d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.</td>
<td>★</td>
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<tr>
<td><strong>2. Design and Develop Digital-Age Learning Experiences and Assessments</strong></td>
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<tr>
<td>a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress.</td>
<td>★</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>3. Model Digital-Age Work and Learning</strong></td>
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<tr>
<td>a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations.</td>
<td>★</td>
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<td>★</td>
</tr>
<tr>
<td>b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation.</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats.</td>
<td>★</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>4. Promote and Model Digital Citizenship and Responsibility</strong></td>
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<tr>
<td>c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information.</td>
<td>★</td>
<td>★</td>
<td>★</td>
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</table>
Try Out the Games

Ergomania

Milk Bottles

Count-a-Melon

NOTE: These links will take you away from the Teaching Tips. They will open a web browser that lets you play the featured game.
Maintain Brisk Pacing
Research demonstrates that “brisk” pacing is related to greater content coverage, increased motivation and engagement, and, in turn, higher levels of student achievement.

• **Note the time allocated to each component of game play** (Build Background, Get Ready to Play, Play the Game). Monitor the length of your teaching and children’s turns so that all activities are completed within the allocated time.

• **Establish a predetermined system for calling on children** to work at the whiteboard. For example, write each child’s name on a Popsicle stick and place the sticks in a jar. To call a child to the board, draw a stick from the jar. When a child’s name is selected, set that stick aside, leaving in the jar only sticks of children not yet chosen.

• **Invite all selected children to the whiteboard at once** when more than one child will be playing.

Engage All Children
When children are highly focused and engaged, they attain higher levels of achievement.

• **Position children so they do not block the screen** when they stand at the whiteboard, so that everybody can see the images and game play.

• **Involve all children in thinking about the correct answers** even if it is not their turn at the whiteboard.
  • Use strategies such as “Turn and Talk.” For example, ask all children to tell a partner the answer they would choose, or if they agree/disagree with a stated choice.
  • When the child at the whiteboard gives an answer, invite all the others to show “thumbs up” if they agree with the answer or “thumbs down” if they disagree.

• **Observe children’s understanding of key concepts.** When most children demonstrate understanding by rapidly choosing correct responses, wrap up game play.

Support Independent Learning
When teachers notice and name the learning strategies children use, children are more likely to become strategic and independent learners.
Teaching Routines

Use Key Vocabulary Frequently
When children have many opportunities to hear and use new vocabulary words, they are more likely to acquire and use the words on their own.

• **Repeat key words as often as possible** during game play, as well as during other parts of the school day when use of these words is appropriate.

• **Ask children to use key words** while playing the games.
  • When children are at the whiteboard, encourage them to use key words to describe their actions. For example, “I’m going to **whack** the **mallet** that has the number forty-three.”
  • When children are invited to Turn and Talk with a partner, encourage them to use key words. For example, “We need to collect four purple ergs to create the **antidote**.”

Mediate Game Play
When well-developed educational media programs are effectively joined with a sound classroom curriculum, children demonstrate high levels of motivation and engagement as well as notable increases in early literacy and mathematics skills and knowledge.

• **Load the game on the computer and minimize it before you begin the lesson.** This allows you to optimize instructional time by beginning game play as soon as you and the children are ready.

• **Preview the screen to explain what children will do.** Point out game features such as selecting objects, moving objects, and repeating the game instructions.

• **Quickly mute/unmute the sound by using the mute button** on the top row of the computer keyboard. You can also use the volume down/up buttons on the keyboard, or the volume controls on the interactive whiteboard, to adjust the sound.

• **If the touch function doesn’t work, use your computer to click on the item the child touches.**

• **Prepare for the worst!** Have a dry erase board or manipulatives available to carry out activities intended for the interactive whiteboard (such as using cubes for solving number problems).
Preview the Game: Ergomania

Description
All the “bots” in Botopolis have caught a virus. Buzz and Delete must collect “ergs” from the river to create an antidote. They already have a pile of green ergs with the quantity labeled. Players need to figure how many more green ergs they need to reach the Goal number.

When players select the correct color erg, Buzz fishes it out of the river. The counter on the cart changes as each erg is added. Players click the Done button when the number of ergs in the pile and the cart add up to the Goal. When the answer is correct, Delete tosses the ergs from the pile onto the cart, which changes the number labels on each.

After collecting the correct number of green ergs, players then collect purple ergs. Ergs from the pile may fall into the river, changing the number of ergs players must collect to reach the total. The game ends when both sets of ergs are collected.

Helpful Background
This game can help build children’s algebraic understanding. To figure out how many ergs they need, children may use a “counting on” strategy, number facts, or an understanding of the relationship between addition and subtraction. Allowing children to choose their own strategies and to hear others’ strategies will help them become more proficient with numbers, operations, and algebraic thinking.

The more rounds you play, the more challenging the game becomes, ranging from finding missing addends for numbers lower than 10 to numbers up to 20. Children can take as much time as they need to figure out the answer.
In this lesson, children will:

- develop an understanding of the relationship between addition and subtraction
- use a “counting on” strategy, number facts, and subtraction to solve unknown addend problems
- recognize written unknown addend number sentences
- learn new vocabulary, including the word antidote, and use this word in context
- use technology to learn, working individually and in groups

**1. Build Background**
Conduct a whole-class activity that activates and builds children’s background knowledge.

**2. Get Ready to Play**
Use the interactive whiteboard to preview the game with the whole class.

**3. Play the Game**
Play the game as a whole-class or small-group activity.
Tell children that in this game an “erg” is the name used for a kind of rock that floats in the river. They will be adding two groups of ergs to get the total number of ergs that Buzz and Delete need to create an antidote. An antidote is a kind of medicine or remedy for something that makes you sick, such as a poison.

To play the game, children need to understand the relationship between addition and subtraction. Help them understand this relationship using a sample math problem, such as \( 6 + \square = 9 \). Write this number sentence on the whiteboard.

Have children tell their partners what number should go in the box to make this number sentence true. Ask someone to share the answer and have the class give a “thumbs up” if they agree or “thumbs down” if they don’t. Write the correct number in the box.

Next, write the number sentence \( 9 - 6 = \square \). Ask:
- What number should go in the box to make this number sentence true?
- How does thinking about “nine minus six” help us figure out the missing number in the addition problem?

Invite a few children to explain how they figured out the answer to \( 6 + \square = 9 \), to see whether they used a “counting on” strategy, number facts, or subtraction. Name the strategies the children used. For example:
- Since Buzz and Delete already have six ergs, you “counted on” to figure out how many more you needed: seven, eight, nine—that’s three more ergs.
- You already knew the number fact that six plus three equals nine.
- You used subtraction (nine minus six) to figure out that the missing number is three.
Teaching Tips: Ergomania

Get Ready to Play

Time: 5 minutes

Launch the game. Tell children to listen to the introduction. Then mute the sound. Remind children that the purpose of the game is to collect ergs to create an antidote. Call attention to key elements on the game-playing screen:

- Point out the “Goal” box in the top right side of the screen. Explain that this box shows what color ergs children should collect and the total number they need.
- Point to the pile of ergs on the riverbank next to Delete. Explain that these are the ergs Buzz and Delete have already collected.
- Point out the empty cart next to the pile of ergs. Explain that when they collect ergs from the river, Buzz will drop them onto this cart. When each erg is added, the number of ergs in the cart will appear in the box.
- Remind children that once the number of ergs in the pile plus the number of ergs on the cart equals the total number of ergs they need (the Goal number), they will select the green Done button.

Ask children to tell their partners:
- What they should touch on the screen to collect the ergs they need
- How to turn off the music if they don’t want to hear it while they’re playing

Invite a few children to share their answers, then confirm the correct responses (tap the correct color erg in the river; tap the musical note in the orange box on the top left corner).

To start the game:
1. Make sure your computer is connected to the whiteboard and the Internet.
2. Find the game on your computer by going to pbskids.org/lab
3. Click on Games on the left.
4. Games are in alphabetical order.
5. When you find the game, select PLAY NOW.
Teaching Tips: Ergomania

Play the Game

Play this game as a teacher-led, Whole-Class activity if children need guided support:
• finding sums up to 20
• solving number problems with unknown addends
• understanding that number problems with missing addends can be solved as subtraction problems
• using “counting on” strategies
• understanding and using the word antidote
• playing a game collaboratively

Play this game as an independent, Small-Group activity if children understand...
• that number problems with missing addends can be solved as subtraction problems
• how to use “counting on” strategies
• the meaning of antidote
• game navigation

...but need practice:
• finding sums up to 20
• solving number problems with missing addends
To help children determine how many green ergs they need to collect for the antidote, write a number sentence on a board or flip chart. For example, if Delete already has 7 ergs and the goal is 13, show that this can be written as $7 + \underline{} = 13$.

- Have children tell their partners the missing number. How many ergs must they collect to reach the goal?
- Invite one pair of children to share the answer and explain how they figured it out. Fill in the missing addend in the number sentence: $7 + \underline{6} = 13$.
- Unmute the sound and invite two children to the interactive whiteboard to take turns collecting the ergs. When the goal is reached, have one child select Done.
- Repeat these steps, including the number sentence, for the purple ergs, inviting two different children to the whiteboard. If any ergs fall back into the river, ask them to say how many they now must collect to reach the goal.

To continue playing, answer “No” to the question that pops up on the screen (Would you like to play the full “Buzz and Delete Save the Day” game?). As pairs of children play the game, have the rest of the class share their answers and strategies with a partner. Encourage them to try different strategies. Name and notice the strategies they use.

When most children have mastered the game, stop playing and review key concepts. Ask:
- What did we learn about the connection between addition and subtraction? (You can turn an addition problem with a missing number into a subtraction problem.)
- What strategies did we use to find the missing number in a number sentence? (counting on, number facts, subtraction)

Tell children: This game helped us solve number sentences with a missing number using different strategies. When you need to solve these kinds of problems, think about the strategies you can use to figure out the answer.
Teaching Tips: Ergomania

Play the Game: Small-Group Activity

Time: 10 minutes

Check in with children as they play the game, to see if they are using strategies such as “counting on,” number facts, or subtraction, or if they are randomly adding ergs. Ask questions such as:

• How many ergs do you need to collect?
• How did you figure that out?
• Can you figure it out a different way?

If you notice ergs fall back into the river while children are playing, ask:

• How does this affect the number of ergs you need to collect?
• How did you figure out how many you need to collect now?

Prompt children to use key vocabulary by asking:

• What are Buzz and Delete planning to do with the ergs they collect? (create an antidote)

If children are having difficulty, the activities for whole-class instruction will provide helpful practice.
Description

Children play a carnival game against Fast Food Freddy, determining the total number of milk bottles stacked in two or three rows. When players select the baseball with the correct answer, it knocks down the bottles.

The level of difficulty set for the game affects the number of milk bottles and the number of possible answers (ranging from three to five). If players continue to answer correctly, the difficulty level increases during the game.

When Freddy takes his turn, the total number of bottles is not shown. One player will generally win or tie the game unless s/he frequently selects wrong answers in each round. When two teams play against Freddy, he may beat one team but lose to the other.

Helpful Background

This is one of three games in Freddy’s Carnival Count-Off. After launching this set of games but before playing, make sure to uncheck the other games. You can change the settings for the number of teams, the number of rounds, and the level of difficulty.

Children may determine the number of milk bottles in each row by counting them individually or by subitizing (visually recognizing the quantity). Rather than having children count all the bottles individually, focus this lesson on creating number problems with three addends and using a “counting on” strategy or number facts to figure out the total.
In this lesson, children will:

- add three numbers within 20
- use a “counting on” strategy to add
- use number facts to find a total
- write number sentences representing addition problems with three addends
- use technology to learn, working individually and in groups

Teaching Tips: Milk Bottles

1. **Build Background**
   Conduct a whole-class activity that activates and builds children’s background knowledge.

2. **Get Ready to Play**
   Use the interactive whiteboard to preview the game with the whole class.

3. **Play the Game**
   Play the game as a whole-class or small-group activity.
Teaching Tips: Milk Bottles

Build Background

Time: 10 minutes

**NOTE:** Open the SMART Notebook™ file called Blocks. Touch the replicating block and drag your finger to another part of the screen 15 times to create a set of 15 blocks.

In this game, children will need to figure out the sum of three numbers. To prepare them for playing the game, have children practice finding the sum of three numbers and show how these problems can be written as number sentences.

- Invite a child to the whiteboard to create a set of eight blocks by touching and dragging them into a group.
- Invite another child to create another set of three blocks.
- Ask children how many they will have in total if they add these three to the group of eight.
- On the whiteboard, use the pen to write the number sentence $8 + 3 = \square$.
- Invite a few children to share their answers and explain how they figured out the total. Write the answer in the number sentence.
- Next, have another child create a new set of four blocks.
- Ask children to tell their partners how many blocks there are in total in the three sets. Invite a few children to share their answers and explain how they figured out the total (such as “counting on” or using number facts).
- Make an explicit connection to the three sets of blocks by showing children that the number sentence for this problem can be written in two ways:

\[
8 + 3 + 4 = 15
\]

\[
11 + 4 = 15
\]

It is important **NOT** to write: $8 + 3 = 11 + 4 = 15$. This is a false statement because $8 + 3$ is not the same as $11 + 4$. The value on one side of the equal sign must be the same as the value on the other side.

Review with the class that when adding three numbers together, they can first find the sum of two numbers, then add the third number to figure out the total. They can add the numbers in any order. (Close the Blocks file.)
Teaching Tips: Milk Bottles

Get Ready to Play
Time: 5 minutes

For this activity, children will use individual whiteboards. You can make these by putting a white piece of paper in a transparent sheet protector and providing dry erase markers. (Another option is for children to use paper and pencils.)

Mute the sound and launch Freddy’s Carnival Count-Off game. Select PLAY, then adjust the settings to:
- Teams: 1
- Rounds Per Game: 10
- Difficulty: 5

Be sure to uncheck the buttons for Bean Bags, Count-a-Melon, and Teacher Mode.

After you press START, the team name will be displayed. Press START again and the game screen will appear.
- Tell children that in this game they will write and solve numbers sentences to add the number of milk bottles in two or three rows.
- Explain that they could add the rows in any order, but for this activity they will start with the bottom row.
- Point out the team name on the bottom right of the screen. When children choose the correct answer, the circle will move up the bar toward the top. When Freddy takes a turn, his circle will move up too.
- Point out where they can see which round is being played, and where they can turn on/off captions, music, and sound.
- Remind children that to figure out the total number of milk bottles, instead of counting each bottle they will write number sentences on their individual whiteboards. Then they will pick the baseball with the correct total to knock down the milk bottles.
Teaching Tips: Milk Bottles

Play the Game

Play this game as a teacher-led, Whole-Class activity if children need guided support:
• adding three numbers within 20
• using a “counting on” strategy to add
• using number facts to find a total
• writing number sentences to represent an addition problem
• playing a game collaboratively
• using common game navigation

Play this game as an independent, Small-Group activity if children understand...
• using a “counting on” strategy to add
• using number facts to find a total
• game navigation
  ...but need practice:
• adding three numbers within 20
• writing number sentences to represent an addition problem
Teaching Tips: Milk Bottles

Play the Game: Whole-Class Activity

Time: 10 minutes

Unmute the sound. Ask the class:
- How many bottles are in the bottom row?
- How many bottles are in the second row?
- How many bottles are in the top row?

Write a number sentence for the three numbers, such as: $4 + 3 + 1 = \square$.
Have children copy this number sentence on their individual whiteboards (or paper).

Ask children to figure out how many milk bottles there are in total, and to write their answers on their whiteboards. Then have them hold up their whiteboards so you can see them.

Quickly scan the children’s answers. If you observe several incorrect responses, use the tips in the Build Background section to review how to find the total. If most responses are correct, call on a child to explain how s/he figured out the answer. Have that child select the ball to knock down the milk bottles. As you continue playing, reduce teacher support by having children write the number sentences on their individual whiteboards without first reviewing the amounts in each row.

When most children have mastered the game, stop playing and review key concepts. Ask:
- What did we do to find the total number of milk bottles in three rows? (wrote number sentences; added two numbers together, then added a third number)

Tell children: When you have several groups of objects and want to figure out the total number, try using number sentences instead of counting all the objects.
Remind children that this game will help them practice writing and using number sentences to solve number problems. Explain that as they play each round of the game, they should write a number sentence with the number of milk bottles in each row. Then they should figure out and write down the answer before selecting the ball with the correct total.

Observe children as they play to see if they are writing the number sentences correctly. Talk with them about the strategies they are using to find the totals, and encourage them to try other strategies. For example:

- What does the first number in your number sentence represent?
- How did you figure out the sum of these three numbers?
- I see you used a “counting on” strategy. Can you show me how you could find the total using number facts?

If children are having difficulty figuring out the total when there are three rows:

- demonstrate adding the first two numbers together then adding the third number to get the total
- observe them doing this independently

Check to see if children know how to turn closed captions, music, and Freddy’s voice on or off.
**Description**

Children play a carnival game against Fast Food Freddy, counting watermelon seeds. Each watermelon slice is labeled 10, 5, or 1, indicating how many seeds it has.

When players choose the mallet with the right number of seeds, the mallet first whacks the slices with 10 seeds into the holes. As each slice is hit, the number on a counter increases by 10. Then the mallet whacks the slices with 5 seeds, and the counter increases by 5 for each slice. Finally, the mallet whacks each slice with 1 seed; the counter increases by 1 until reaching the total.

The level of difficulty selected affects the number of melon slices and whether the slices all have 10 seeds, 5 seeds, or a combination of 10, 5, and 1. The difficulty level also affects whether there are three, four, or five answer choices. If players answer correctly, the difficulty level increases during the game.

**Helpful Background**

This is one of three games in Freddy’s Carnival Count-Off. It provides an excellent opportunity to teach and review place value for tens and ones.

When Freddy takes his turn, there is no counter adding up the seeds. One child playing against Freddy will generally win or tie the game unless s/he frequently selects wrong answers in each round. When two teams play against Freddy, he may beat one team but lose to the other.
Teaching Tips: Count-a-Melon

1. **Build Background**
   Conduct a whole-class activity that activates and builds children’s background knowledge.

2. **Get Ready to Play**
   Use the interactive whiteboard to preview the game with the whole class.

3. **Play the Game**
   Play the game as a whole-class or small-group activity.

In this lesson, children will:

- understand that the two digits of a two-digit number represent how many tens and how many ones (place value)
- understand that ten is composed of two fives
- add groups of tens, fives, and ones to determine a total number of objects
- learn new vocabulary, including *mallet* and *whack*, and use these words in context
- use technology to learn, working individually and in groups
NOTE: Open the SMART Notebook™ file called Hundreds Chart.

To get the most out of this game, children should be able to count by tens and fives. Use the Hundreds Chart to practice this skill with the class.

- Have children join you in counting by tens as you use your finger or a pen to touch and highlight the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 on the chart.
- Ask children to tell their partners if they notice a pattern in the numbers.
- Invite a few children to share their answers.
- Point out that when they count by tens, the tens place increases by one each time, while the ones place stays the same.
- To reinforce this pattern, have children count by 10 starting with a different number at the top, such as 3 or 7. (Clear all the highlighting by selecting the RESET button.) Touch each number in the column beginning with that number to highlight the numbers as they count.
- Reset the chart again, then have children count by fives, highlighting each number as you count. Use the Hundreds Chart to reinforce that two fives make ten. Close the Hundreds Chart file.

Tell children that in this game Freddy will use a mallet to whack watermelon slices. Explain that a mallet is like a hammer, but the head is bigger and sometimes it’s a little soft. Whack means to hit something really hard, with a lot of strength or force. Ask children to give a “thumbs up” if they have ever whacked a piñata. A baseball? A fly or mosquito?

As you play the game, use the words mallet and whack to describe game play and also encourage children to use them.
Get Ready to Play

Time: 10 minutes

For this activity, children will use individual whiteboards. You can make these by putting a white piece of paper in a transparent sheet protector and providing dry erase markers. (Another option is for children to use paper and pencils.) If children need help keeping track of the groups of ten, provide manipulatives such as Base Ten blocks.

Mute the sound and launch Freddy’s Carnival Count-Off game. Select PLAY, then adjust the settings to:
- Teams: 1
- Rounds Per Game: 10
- Difficulty: 5

Be sure to uncheck the buttons for Milk Bottles, Bean Bags, and Teacher Mode.

After you press START, the team name will be displayed. Press START again and the game screen will appear.
- Tell children that in this game they will find the total number of seeds in the watermelon slices, not the number of watermelon slices.
- Explain that although they could count the seeds in any order, they will first count tens, then fives, then ones.
- Point out the Team name on the bottom right of the screen. When children choose the correct answer, the circle will move up the bar toward the top. When Freddy takes a turn, his circle will move up too.
- Point out where you can see which round is being played, and where you can turn on/off captions, music, and sound.
- Unmute the sound.
Teaching Tips: Count-a-Melon

Play the Game

Play this game as a teacher-led, Whole-Class activity if children need guided support:

• counting by tens
• understanding place value (tens and ones)
• understanding that ten is composed of two fives
• adding groups of tens, fives, and ones to determine a total number of objects
• understanding and using the words mallet and whack
• playing a game collaboratively
• using common game navigation

Play this game as a independent, Small-Group activity if children understand...

• how to count by tens
• place value (tens and ones)
• that ten is composed of two fives
• the meaning of the words mallet and whack
• game navigation

...but need practice:

• adding groups of tens, fives, and ones to determine a total number of objects
Teaching Tips: Count-a-Melon

Play the Game: Whole-Class Activity

Time: 10 minutes

As you play, have children work with partners and write the answers to your questions on their whiteboards (or paper).

• Ask: How many slices of watermelon have ten seeds? How many slices have five seeds?

• Remind children that putting two fives together equals one ten. Then have children figure how many groups of ten seeds they have altogether (including all pairs of slices with five seeds). If possible, on the whiteboard use the pen to circle all pairs of five.

• Ask: How many extra groups of slices with five seeds do we have? (The answer should always be 0 or 1.)

• Ask: If we have ___ groups of ten seeds and ___ slice(s) with five seeds left over, how many seeds do we have so far?

• If there are any slices with one seed, have children add these seeds to get the total number of seeds.

• Have several children share their answers.

• Invite one child with the correct answer to explain how s/he figured out the total. Have the child select the correct mallet to whack the watermelon slices.

Before moving to the next round, write the total on a board or flip chart and ask:

• What does the number in the tens place mean? (how many groups of ten seeds there are)

• What does the number in the ones place mean? (how many seeds are left over after making groups of ten)

As you continue playing, reduce teacher support by having children work with their partners to figure out the answers.

When most children have mastered the game, stop playing and review key concepts. Ask:

• In this game, what did the number in the tens place mean? (the number of groups of ten seeds)

• In this game, what did the number in the ones place mean? (the number of seeds left over after making groups of ten)

Tell children: When you need to find the total of a large number of objects, try figuring out how many groups of ten you can make, then add on the leftover number of objects.
Teaching Tips: Count-a-Melon

Play the Game: Small-Group Activity

Time: 10 minutes

Before children play the game, explain that to find the answer they must first figure out how many groups of ten seeds there are, then add the remaining number of seeds to come up with the total. Remind them that two groups of five seeds equal ten seeds.

As they play the game, check to see how they are counting the seeds. Observe whether they recognize the relationship between counting by tens and the number in the tens place in the total. To help strengthen their understanding, ask questions such as:

• How are you figuring out the total number of seeds?
• How many groups of ten seeds can you make?
• How many seeds are left over?
• When you write the total number of seeds that you counted, which number shows how many groups of ten you have?
• What does the number in the ones place mean? (how many seeds are left over after making groups of tens)

Prompt children to use the key vocabulary words by asking them what happens when they select the correct answer (the mallet whacks the watermelon slices).
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