



This is a one-week excerpt from the Starfall Kindergarten Mathematics Teacher's Guide.

If you have questions or comments, please contact us.

Email: helpdesk@starfall.com **Phone:** 1-888-857-8990 or 303-417-6414 **Fax:** 1-800-943-6666 or 303-417-6434



Subtraction

Starfall Education Foundation
P.O. Box 359, Boulder, CO 80306



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Subtraction

Week 22

Summary & Preparation	424
“Little Boy Blue” Story Problems	428
Subtraction Story Problems	430
Subtraction and Money.....	432
Using a Number Line to Subtract.....	434
Learning Centers	437

Week 22 Summary

The children will continue their study of the operation of subtraction as they use storyboards and manipulatives to solve subtraction story problems and create corresponding equations.

The children will also:

- Solve “Backpack Bear Says” subtraction stories
- Pretend to go shopping and subtract money
- Identify the number that is one less
- Identify the number of tens and ones in two-digit numbers

Preparation

DAY 1

You will need eight magnets (or other objects) to cover the sheep on page 26 of *Nursery Rhymes*.

Prepare a large blank game spinner with the numbers -1 to -6 (repeated).

DAY 2

Check the children’s math bags to make sure they each contain ten connect cubes.

DAY 3

You will need a set of Picture Cards with Price Tags (from **Unit 8**) and ten pennies for demonstration. You will also need one small paper cup per child.

Prepare the children’s math bags with ten pennies for each child.

DAY 4

You will use four sets of Number Cards 1-9 for today’s Magic Math Moment.

You will also use the index cards from **Unit 8** to create a number line, twenty connect cubes for each child, and one die for each pair of partners.

DAY 1

DAY 2

Daily Routines

- Calendar
- Weather
- Number Line
- Place Value
- Hundreds Chart

Magic Math Moment

"Five Little Chickadees"

Number line subtraction

Math Concepts

Count backward from 5

Act out subtraction story problems

Act out story problems

Write equations to match story problems

Use a storyboard to create subtraction problems

Write equations to match story problems

Formative / Summative Assessment

"Subtraction Train"

Use connect cubes to practice subtraction/write equations and solve

Workbooks & Media

Starfall.com: "Subtraction"

Starfall.com: Add & Subtract: "Word Problems"

Math Melodies, Tracks 6 and 13

Starfall's Selected Nursery Rhymes

"Little Boy Blue"

Workbook page 18



DAY 3

DAY 4

DAY 5

- Calendar
- Weather
- Number Line
- Place Value
- Hundreds Chart

Learning Centers

Subtraction flash cards

Teen numbers

Starfall.com:

- Monthly Calendar
- Subtraction, "Subtraction Practice"
- Subtraction, Subtract within 10" (Bowling)
- Add & Subtract, "Word Problems"

1

Answer subtraction problems
Subtract using money
"Let's Go Shopping"

Place value (tens and ones)
Use a number line to subtract

"Add & Subtract"

2

Use pennies to "buy" items/write and solve equations

Train Subtraction

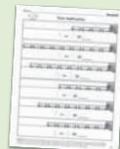
"Backpack Bear's Subtraction Train"

3

Teacher's Choice

4

Workbook page 19



Summative Assessment:
Use connect cubes to represent subtraction equations

5

"Five Little Chickadees"**Materials**

- Math Melodies*, Track 6
- Number Cards 1-5

Navigate a computer with projection capabilities (or gather the children around a classroom computer) to *Starfall.com*, Subtraction. The children play Subtraction Intro: "Five Little Chickadees." You may also use *Math Melodies*, Track 6 and the children sing along.

Distribute Number Cards 1-5 to five volunteers and they come to the front of the classroom.

Say: **Let's sing the song again, and this time we will act it out. The volunteers line up in order holding their Number Cards. As each "chickadee" leaves, the child holding the highest Number Card sits, until there are no children left standing.**

Repeat with different volunteers as time permits.

Operations & Algebraic Thinking

A.1 - Represent addition and subtraction in a variety of ways.

A.2 - Solve word problems with addition and subtraction within 10.

"Little Boy Blue" Story Problems**Materials**

- Math Melodies*, Track 13
- Nursery Rhymes*, page 26
- 8 magnets or objects to cover the sheep
- Pencil, crayons
- Prepared (large) game spinner
- Backpack Bear's Math Workbook #2*, page 18

Essential Question: *What strategies can we use to solve word problems?*

**1 "Little Boy Blue"**

Ask: **I know a nursery rhyme about a little boy who fell asleep and lost some sheep! Would you like to hear it?** Indicate *Nursery Rhymes* page 26, "Little Boy Blue" and recite the rhyme.

Continue: **Let's listen to it again.** Play *Math Melodies*, Track 13 and the children listen. Play the nursery rhyme again and encourage the children to sing along.

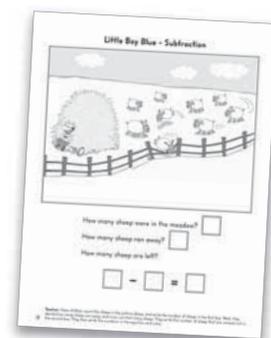
2 "Little Boy Blue" Story Problems

Indicate the "Little Boy Blue" rhyme. Say: **Here is a picture of the nursery rhyme we just said together. How many sheep did Little Boy Blue have?** (Volunteers respond.) **Right, there are 8 sheep. Let's use this illustration to create subtraction problems about Little Boy Blue and his sheep.**

Read the following story problems. Choose a volunteer to place magnets or other objects on the illustration over the number of sheep that ran away for each problem. Write the equations to match each story problem on the board.

Optional: The children may represent the sheep and act out the story problems.

- Little Boy Blue had 8 sheep. He was supposed to watch the sheep so none of them ran away, but he fell asleep. While he was sleeping 4 sheep ran away. When Little Boy Blue woke up how many sheep were left?
- Little Boy Blue put 8 sheep in a pen. (Explain if necessary.) He decided to take a walk. When he got back, he realized he had left the gate to the pen open, and there were only 6 sheep left. How many sheep ran away?
- Little Boy Blue was playing with 8 sheep. After a while, he counted the sheep to be sure he still had 8, but he only counted 3 sheep. How many sheep were missing?



3 "Little Boy Blue" Subtraction

Distribute *Backpack Bear's Math Workbook #2* and instruct the children to turn to page 18.

Say: **Today you will get to decide how many sheep got away while Little Boy Blue was sleeping. Let's start together.**

Say: **Point to the first line of writing under the picture. Follow as I read. It says: How many sheep were in the meadow? (Volunteers respond.) Right, there are 9. Write 9 in the box.**

Continue: **Let's read the next line together. Ready? How many sheep ran away? We don't know, so you get to decide! Put an X on each sheep you think ran away, then count the sheep you put Xs on, and write the number in the blank.**

Ask: **Who can read the last line? (Volunteers respond.) Right, how many sheep are left? Count the sheep that don't have Xs on them.**

Say: **Now, we will write the equation in the boxes. What number did we start with? Right, 9. Write 9 in the first box. Write the number of sheep that ran away in the next box, and the number of sheep that were left in the last box. The children do this.**

Volunteers share their story problems with the class.



Formative Assessment

Human Subtraction Train

Attach a game spinner to a whiteboard. Say: **Today let's play a game called "Subtraction Train."**

Divide the class into two "trains." The children form two lines side-by-side. Assign a volunteer to be the "spinner." Say: **First, the spinner will spin and name the number he (or she) lands on.** The "spinner" does this.

Continue: **Team 1, count that number of children, starting from the end of your train, and they sit down (in the line).**

The "spinner" spins again and names the number. Say: **Team 2, this time that number of children at the end of your train sit down.** Play continues until all of the children are sitting.

Number Line Subtraction

Materials

 None

Ask: **Who would like to choose a number on the number line between 1 and 20?** A volunteer does this.

Ask: **What is 1 less than (the number chosen)?**

Repeat this procedure changing volunteers to choose numbers.

Counting & Cardinality

A.3 - Write numbers from 0 to 20.

B.4 - Understand the relationship between numbers and quantities.

Subtraction Story Problems

Materials

- Individual whiteboards, markers
- Backpack Bear
- Math bags (containing 10 connect cubes)

1 Acting Out Story Problems

Present the following story problems or create your own. Choose volunteers to dramatize them. Replace the names in the story problems with the names of children in your class. After each story problem, a volunteer writes the corresponding subtraction equation on the whiteboard, with your help if necessary.

Note: If the children have individual whiteboards, they may first write the equations on their whiteboards then volunteers copy them onto a classroom whiteboard.

- **Sophia, Jacob, Juan, and Mia were playing on the playground. Jacob went inside to get a drink of water. How many children were left on the playground?**
- **Roberto had a birthday party. He invited 5 friends. Two of his friends left the birthday party early. How many of Roberto's friends were left at the end of Roberto's party?**
- **Lucas was playing ball with 4 friends. Lucas left when his mother called him for dinner. How many children were left playing ball?**
- **Seven penguins were playing on the ice. Three of the penguins dove into the water. How many penguins were left playing on the ice?**

2 Starfall.com

Navigate a computer with projection capabilities (or gather the children around a classroom computer) to *Starfall.com*, Add & Subtract: "Word Problems," and select the "Take From: Total Unknown" activity. Volunteers take turns navigating the online activity.



Formative Assessment

“Backpack Bear Says”

Gather the children with their math bags in a semi-circle on a rug or the floor. The children remove ten connect cubes from their math bags then place their bags behind them.

Place a set of ten connect cubes on the floor. Say: **Here are 10 connect cubes. I will take away five of them.** (Do this.) **How many connect cubes are left?** (Volunteers respond.) **Right, there were ten connect cubes and I took five away. Now there are five connect cubes left.**

Write the equation to match the demonstration on a whiteboard ($10 - 5 = 5$). Indicate the equation as you read: **Ten minus five equals five.**

Continue: **Now let’s play “Backpack Bear Says.” Ready?**

- **Backpack Bear says put ten of your connect cubes side-by-side in front of you.**
- **Backpack Bear says take two of the connect cubes away.**
- Ask: **How many connect cubes do you have left?** (Volunteers respond.)
Right, you each have eight connect cubes left.

Write the equation to match on the whiteboard, $10 - 2 = 8$. Indicate the equation as you read: **Ten minus two equals eight.**

Select volunteers to create “Backpack Bear Says” subtraction stories using the sentence stem, Backpack Bear says: “Take _____ connect cubes away.”

Write the equations to match the stories on the whiteboard. The children read them with you. Check to be sure the children reset their connect cubes between stories.

Subtraction Flash Cards

Say: **Today we will play a flash card game. I will flash a card and you give a quiet thumbs-up if you know the answer.** Backpack Bear whispers, "Don't forget to look at the sign!"

Display the 10 - 1 Equation Card. The children give a thumbs-up if they know the answer. Choose a volunteer to respond.

Note: Choose the Subtraction Equation Cards you think your children can most easily answer.

Materials

- Subtraction Equation Cards
- Backpack Bear

Counting & Cardinality

B.4c - Each successive number refers to one more.

Operations & Algebraic Thinking

A.1 - Represent addition and subtraction in a variety of ways.

A.2 - Solve word problems with addition and subtraction within 10.

Money

M.1 - Identify the value of coins.



Subtraction and Money

1 Do I Have Enough?

Gather the children on the floor or a rug near a pocket chart.

Say: **Today let's pretend to go shopping again.**

Place the Picture Cards with Price Tags in the pocket chart. Volunteers take turns identifying the items and their costs.

Say: **Each item costs a different amount of money. If you had 10 cents, which of the items could you buy?** Volunteers identify the items with prices that are ten cents or less.

Ask: **Why couldn't you buy the baseball mitt?** (Volunteers respond.) **Right, you wouldn't have enough money.**

2 "Let's Go Shopping"

Place ten pennies and a paper cup or container on the floor in front of the pocket chart.

Say: **Here are ten pennies. The cup will hold the number of coins needed to buy the items we choose to buy.** Write the numeral 10 on the board.

Continue: **Let's buy the pencil. How much does the pencil cost?** (four cents) **Let's take four of the pennies and place them in this cup.** Do this.

Ask: **How many pennies did we take away? Right, 4. Write 10 - 4 on a whiteboard. How many pennies are left? Right, 6 pennies are left.**

Write and read: **10 - 4 = 6.**

Materials

- Pictures Cards with Price Tags (from Unit 8)
- Pocket chart
- 10 pennies and a paper cup or container for demonstration
- Math bags (containing 10 pennies per child)
- 1 small paper cup per child

- **Is there enough money left to buy anything else?** Volunteers respond. **Right, 6 cents is enough to buy a pretzel.** Write 6.
- **How much does the pretzel cost? Right, the pretzel costs 5 cents, so how much more money should go into the cup? Yes, 5 pennies.** Write $6 - 5$.
- **There were 6 pennies. We took 5 pennies away to buy the pretzel. How many pennies are left? Right, 1.** (Write $6 - 5 = 1$.) **Is there enough money left to buy anything else? No, because everything costs more than 1 cent.**



Formative Assessment

Practice with Coins

Distribute the math bags with coins.

Place the *airplane*, *orange*, *apple*, *party hat*, and *marble* Picture Cards with Price Tags in a pocket chart face down.

Say: **Now you will go shopping!**

A volunteer chooses one item from the pocket chart and identifies the item and its cost. Each child places the number of pennies needed to buy the item in his or her cup or container.

Ask: **How many pennies do you have left?** The children count their remaining pennies. A volunteer writes the corresponding equation on a whiteboard. The children read the equation with you.

Note: Children may use individual whiteboards to write the equations.

Choose additional volunteers and repeat for the remaining Picture Cards.

Add the *slinky* and *book* Picture Cards to the pocket chart. Ask:

- **How much does the slinky cost?** (Volunteers respond.) **Right, the slinky costs eleven cents.**
- **Do you have enough to buy a slinky?**
- **What would you need in order to buy the slinky?** (Volunteers respond.) **Yes, you would need one more penny.**
- **If you really wanted to buy the slinky, where could you get one more penny?** (Example: You could borrow a penny from a friend.)
- **What is something else you could do?**

Lead children to realize they could save the money they have and try to earn more money.

Place the remaining Picture Cards with prices over ten cents in the pocket chart and repeat the above procedure.

Scrambled Teens

Materials

- Four sets of Number Cards 1-9

Essential Question: How can we group numbers by tens and ones to see how many of each we have?

Divide the children into four groups and distribute a set of Number Cards 1-9 to each group.

Say: **Let's see if we remember how to form teen numbers. I will say a number and one person in each group will use the number cards to form that number. Ready? 14.**

The children in each group work together to form 14. Observe the results and make corrections if necessary. Continue with the other teen numbers.

Operations & Algebraic Thinking

A.1 - Represent addition and subtraction in a variety of ways.

A.2 - Solve word problems with addition and subtraction within 10.

Number & Operations In Base Ten

A.1 - Understand numbers 11-19 are ten ones plus more ones.

Using a Number Line to Subtract

Materials

- Backpack Bear's Math Big Book, page 46
- Index cards made during **Unit 8** (Number Line activity)
- Subtraction Equation Cards
- Backpack Bear's Math Workbook #2, page 19
- "Backpack Bear's Subtraction Train" game board
- 20 connect cubes per player
- 1 die

1 Using the Number Line to Subtract

Indicate *Backpack Bear's Math Big Book* page 46, Strategies for Subtraction.

Say: **Today let's try the strategy of using a number line to help us perform the operation of subtraction. Who can find that strategy on our list?**

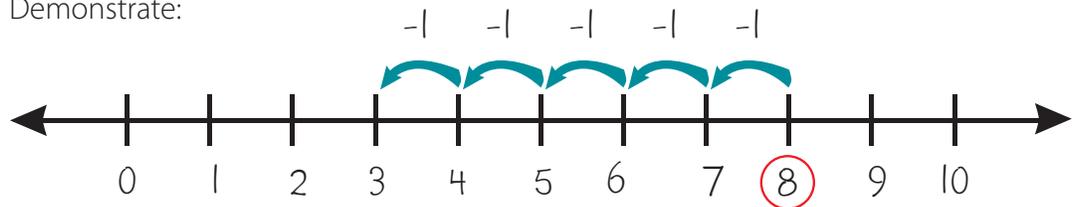
A volunteer does this.

Draw a number line from 0 to 10 on a classroom whiteboard. Write $8 - 5 = 3$.

Say: **We will use our number line to count backward to solve the equation. The problem starts at 8. Who can find 8 on the number line?**

A volunteer circles 8. Continue: **The problem says to take away 5. Taking away 5 is the same as counting backward 5 times!**

Demonstrate:



Say: **We started at 8 and subtracted 5. What number did we land on? Right, 3!**

Repeat with several other equations.

2 Making a Large Number Line

Distribute a number index card to each child. Say: **Let's make our own number line!**

Children bring their folded index cards to an area where they can arrange them in order on the floor. Make sure there is space behind the cards for the children to stand.

The child with zero places his or her index card where you would like the number line to begin.

Call each child to place his or her card in order to create a floor number line.

Note: To make this more challenging, call children out of numerical order.

3 Use the Floor Number Line to Subtract

Flash and read a Subtraction Equation Card, for example 5-2. Instruct a volunteer to stand behind the number 5 index card. Say: **The equation says 5 - 2. Should we hop to a larger number or hop backward to a lower number? Right, since we are taking away, or subtracting, the answer will be a lower number.** A volunteer "mini-hops" back two times.

Ask: **On what number did (child's name) land? (3) 5 minus 2 equals 3.**

Repeat this activity so each child has an opportunity to be the "hopper."



Formative Assessment

Train Subtraction

Say: **Let's practice subtraction problems.**

Distribute *Backpack Bear's Math Workbook #2* and instruct the children to turn to page 19.

Ask:

- **What does the first number in the subtraction sentence mean?**
Lead children to understand the first number stands for how many train cars there are in all, or how many we have to begin with.
- **What sign do you see?**
- **What does that sign tell you to do?**
- **What does the next number in the subtraction sentence mean?**
- **What does the last number in the subtraction sentence mean?** Lead the children to understand the last number stands for how many train cars are left.



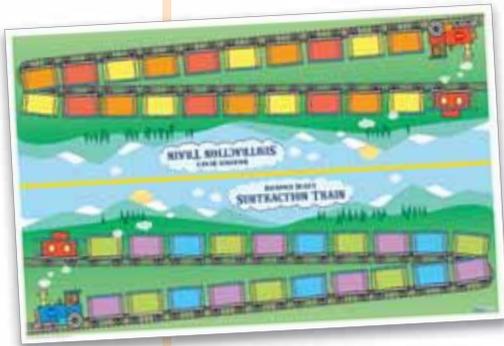
Demonstrate the first problem. Say: **Let's read the first equation together.** (Do this.) **It says $4 - 3 = \underline{\quad}$. Trace the numerals. Now, find the last train car and place an X on the cars the problem tells us to take away.** The children do this.

Ask: **How many cars are left? Right, 1, so write 1 in the blank. Let's read the equation again, $4 - 3 = 1$.**

The children may complete the remainder of the workbook page together as a class, or they may work independently. If you choose to have the children complete the page independently, discuss the correct answer with them after they complete each problem.

If time permits introduce the "Backpack Bear's Subtraction Train Game," which will be played in learning centers on **Day 5**.

Place a cube on each car of both trains (not on the engine or caboose). The players take turns rolling a die, and removing the corresponding number of connect cubes. The first player to uncover his or her whole train wins, or play continues until both players remove all of the connect cubes from their trains.



Learning Centers

DAY

5

1 Computer

The children explore:

- Monthly calendar
- Subtraction, "Subtraction Practice"
- Subtraction, "Subtract within 10" (Bowling)
- Add & Subtract, "Word Problems" (Take From/Unknown)

Children may navigate to other *Starfall.com* math activities after they have explored those suggested above.

Materials

- Computers navigated to *Starfall.com*

Counting & Cardinality

A.2 - Count forward from a given number.

B.4a - Say number names in order, pairing each object with one number.

Operations & Algebraic Thinking

A.1 - Represent addition and subtraction in a variety of ways.

A.2 - Solve word problems with addition and subtraction within 10.

2 "Add and Subtract"

The children partner to play "Add and Subtract" (demonstrated on **Day 4**).

Each pair of children shares a game board. The children may share the spinners if there are more than four children in the learning center.

Materials

- 2 prepared game spinners
- 2 to 4 "Add and Subtract" game boards
- 20 connect cubes for each player



3 "Backpack Bear's Subtraction Train"

Place a cube on each car of both trains (not on the engine or caboose). The children take turns rolling a die, and removing the corresponding number of connect cubes.

The first child to uncover his or her whole train wins, or play continues until both children remove all of the connect cubes from their trains.

Materials

- 20 connect cubes per child
- 2-4 "Backpack Bear's Subtraction Train" game boards
- 1 die for each pair of children



4 Teacher's Choice

Review or expand a skill from this unit according to the needs of your students.

5 Summative Assessment: Subtraction

Flash a Subtraction Equation Card. The children use their connect cubes to demonstrate the equation (Example: $5-4$) by placing connect cubes on their math mats to represent the first number in the equation. They take away the appropriate number of cubes and state how many connect cubes are left. Repeat for several equations.

Observe the children and note those who have difficulty with the concept of subtraction on the Summative Assessment Checklist for Unit 9, Week 22.

Materials

- Subtraction Equation Cards
- Math mats
- Connect cubes
- Summative Assessment Checklist for Unit 9, Week 22

