

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



Shapes & Coins

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



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Shapes & Coins

Week 9

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Week 9 Summary

The children will become more familiar with ten-frames and use them as a tool for solving equations and story problems. The children will also:

- Discriminate more than, less than, and equal to
- Use one-to-one correspondence
- Create and compare sets of connect cubes
- Solve number riddles

Preparation

DAY 1

Position the classroom ten-frame horizontally on a whiteboard. You will need five large red circles and five large blue circles that fit into the ten-frame sections. Create the circles so there is some additional space in the boxes. You will also need reusable adhesive or rolled masking tape. If your whiteboard is magnetic, use large colored magnets instead of circles.

The children will use their math bags containing connect cubes and a ten-frame.

DAY 2

You will need a classroom ten-frame and ten large circles or magnets that fit into the ten-frame sections.

DAY 3

Fill a container with pennies, nickels, and dimes, enough for each child to receive one coin. You will also need three paper plates and one individual whiteboard and marker.

DAY 4

Project or navigate a computer to *Starfall.com*: Math Songs, "Ten Little Kittens."

You will use a classroom ten-frame, an individual whiteboard and marker, and the container of coins. The children will need their math bags. They should contain a ten-frame and a resealable plastic bag that contains 10 pennies.

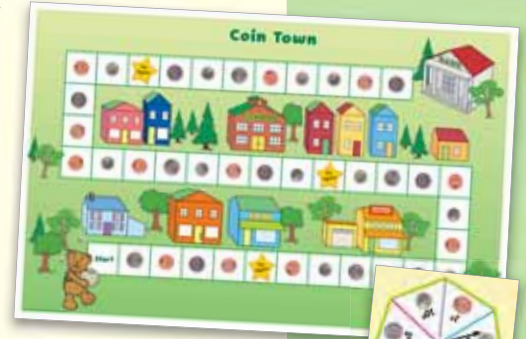
DAY 5

Activity Center 1 — Navigate classroom computers to *Starfall.com*.

Activity Center 2 — Choose the numbers between one and ten that the children most need to practice, and write them using a wet-wipe marker on the game spinner sections. (To remove the numbers, use non-acetone nail polish remover.) The children will also need a container of connect cubes or other manipulatives and individual ten-frames.



Activity Center 3 — The children will need 1 or 2 “Coin Town” game boards, playing pieces, and 1 or 2 coin spinners.



Activity Center 4 — Prepare materials for this week’s Teacher’s Choice Activity.

Summative Assessment — The children will need 4 sets of Number Cards 0-10 to play “High/Low” as you perform Summative Assessments. Prepare a copy of the Summative Assessment Checklist for Unit 4 Week 9.

Summative Assessment: Unit 4, Week 9
Identifying Greater Than, Equal to, and Less Than

Directions: Use a manipulatives (such as connect cubes or other manipulatives) to identify the greater than, equal to, or less than relationship between the two numbers in each row. Record the relationship in the space provided.

Number 1	Number 2	Relationship	Comments

Summative Assessment
Unit 4 - Week 9

DAY 1

DAY 2

Daily Routines

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

Magic Math Moment

"The Ants Go Marching"

Distinguish more and less

Math Concepts

Demonstrate one-to-one correspondence
Identify shapes and number of sides; match to ten-frames

Demonstrate more and less
Create sets that are more than, less than, and equal to using ten-frames

Formative / Summative Assessment

Color corresponding squares to match written numerals

Partners create sets to match letters in words and determine which has more or less, or if they are equal

Workbooks & Media

Math Melodies CD Track 24, "The Ants Go Marching"

Workbook page 23



DAY 3

DAY 4

DAY 5

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

Learning Centers

Number Line Riddles (more and less)

"Ten Little Kittens"

Starfall.com:

- Monthly Calendar
- Math Songs: "Ten Little Kittens"
- Add & Subtract: Addition Intro: "Let's Add Potatoes" and "Make 10"

1

Review Penny, Nickel, and Dime
Sort coins
Compare coin groups

Solve addition equations using money
Write equations to match ten-frames
Equivalent coin values
Story Problems

Ten-frames

2

Evaluate value of coin groups

Solve a story problem (addition)

"Coin Town"

3

Teacher's Choice

4

Starfall.com, Math Songs: "Ten Little Kittens"

Summative Assessment: Number Cards— High/Low

5

"The Ants Go Marching"**Materials**

- Math Melodies CD, Track 24

Say: **Let's listen to a song about some marching ants.**

Ready? Play *Math Melodies* CD Track 24, "The Ants Go Marching." The children listen and create simple motions to accompany the song.

"The Ants Go Marching"

The ants go marching one by one, hurrah, hurrah

The ants go marching one by one, hurrah, hurrah

The ants go marching one by one

The little one stops to suck his thumb

And they all go marching down to the ground

To get out of the rain, BOOM! BOOM! BOOM!

The little one stops to tie his shoe...

The little one stops to ride a bee...

The little one stops to ask for more...

The little one stops to jump and to dive...

The little one stops to pick up sticks...

The little one stops to write with a pen...

The little one stops to roller skate...

The little one stops to drink and dine...

The little one stops to shout "The End!"

Counting & Cardinality

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

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

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

Ten-Frames

Essential Question: How can we use a ten-frame to compare numbers?

Materials

- Math bags containing connect cubes and 1 ten-frame
- Backpack Bear's Math Workbook #1*, page 23
- Classroom ten-frame
- 2-D Shape Cards
- Ten large magnets
- Pocket chart
- Crayons

1 Demonstrate One-to-One Correspondence

The children gather in front of a pocket chart with their math bags. Display the 2-D Shape Cards in a pocket chart face down, and attach the classroom ten-frame to a whiteboard close by.

Say: **Today let's play a one-to-one correspondence game.** Reveal a Shape Card and a volunteer identifies the shape. The volunteer counts the number of sides.

Ask: **If we want to create one-to-one correspondence between magnets in a ten-frame and sides on a triangle, how many magnets would we place in the ten-frame?** (Volunteers respond.) **Right, a triangle has 3 sides so we would place 3 magnets in the ten-frame to create one-to-one correspondence.**

A volunteer places 3 magnets on the classroom ten-frame.

2 Match Ten-Frames and Sides of Shapes

The children return to their seats and remove the ten-frame and ten cubes from their math bags. A volunteer reveals a Shape Card and identifies the shape. He or she counts the number of sides. Each child places the corresponding number of cubes in his or her ten-frame. Confirm that each child has the correct number of cubes, then the children clear their ten-frames.

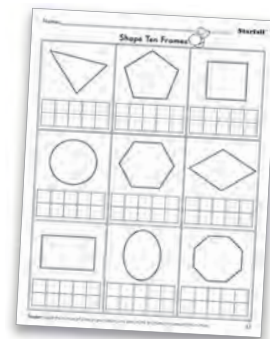
Repeat this procedure for the remaining Shape Cards.



Formative Assessment

One-to-One Correspondence

Distribute *Backpack Bear's Math Workbook #1*. Instruct the children to turn to page 23. Explain that they will count the sides of the shapes and color the equivalent number of boxes in the ten-frames. Observe the children as they work to determine whether they understand the concept of one-to-one correspondence.



"Thumbs-Up, Thumbs-Down"**Materials** None

Say: **Look at the number I write on the board and listen to the number I say. If the number I say is more than the number I wrote, give a thumbs-up.** Demonstrate this.

Say: **If the number I say is less than the number I wrote, give a thumbs-down.**

Write 6 on the board and say: **One. Is one more than six or less than six?** (Volunteers respond.) **Right, one is less than six, so give a thumbs-down. Let's try another one. Eight, is eight more than six or less than six?**

Repeat with several additional examples.

Counting & Cardinality

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

C.6 - Identify greater than, less than, and equal to.

CC.7 - Compare two written numerals between 1 and 10.

**Ten-Frame Activities:
More and Less****Materials**

- Classroom whiteboard, markers
- Classroom ten-frame
- Prepared circles or magnets
- Math bags

Essential Question: *How can we tell that one group has more than, less than, or the same amount as another group?*

1 Demonstrate More and Less

Choose 6 boys and 4 girls to stand in the front of the classroom. (The boys stand together and the girls stand together.) Say: **There are two sets of children, a set of boys and a set of girls.** Ask:

- **Which set has more children?**
- **Which has less?**
- **How can we make sure?**

Explain: **We can use one-to-one correspondence to check. We'll match one boy with one girl.** (Do this.) **Are there any children left? Yes, there are two boys left. That means there are more boys than girls, and there are less girls than boys!**

2 Using Ten-Frames to Demonstrate More

Gather the children around a classroom whiteboard with the Classroom Ten-Frame displayed. Say: **Now let's have some fun working with sets that are more than, less than, and equal to.**

Choose volunteers to place five blue circles (or magnets) in the top row of the ten-frame and other volunteers to place three red circles (or magnets) in the bottom row. Ask:

- **How many blue circles are there?**
- **How many red circles are there?**
- **Which set has more?**
- **How do you know?**
- **How many more blue circles than red circles are there?**

Demonstrate one-to-one correspondence to check answers by drawing arrows from each blue circle to the red circles below them.

The children remove the ten-frames from their math bags.

Say: **Now you will make your own sets using your ten-frames and connect cubes.**

- **Place four cubes in the top row.**
- **Now place five cubes in the bottom row.**

Continue: **Use one-to-one correspondence to tell which set has more, the set of four cubes or the set of five cubes.** The children do this. Ask:

- **Which set has more?**
- **How do you know?**

The children should understand that if a set has extra connect cubes after the cubes are matched, that set has more than the other one.

The children remove the connect cubes. Say: **Let's try another one.**

- **Make a set of two cubes in the top row.**
- **Make a set with more than two cubes in the bottom row.**
- **Now use one-to-one correspondence to make sure the bottom row has more cubes.**

Ask: **How many cubes did you put in the bottom row?** (Answers will vary.)
How do you know that the bottom row has more cubes?



Formative Assessment

Partner Share

Instruct each child to partner with the child sitting beside them. Identify which child is “Partner 1” and which is “Partner 2” in each pair. Partners will share the same ten-frames.

Say: **I will write a word on the board. Partner 1, place a connect cube in the top row for each letter in the word. Ready? The word is *frogs*. Remember, place one cube for each letter in the word *frogs* in the top row.** The children who are “Partner 1” do this.

Continue: **Partner 2, your word is *cat*. Place a cube for each letter in the word *cat* in the bottom row.** The children who are “Partner 2” do this.

Say: **Partners, discuss which word has more letters and which word has less.** Volunteers share their results.

After a short time, say: **Let’s try another one. Partner 1, your word is *red*. Place a cube in the top row for each letter in the word *red*.** The children who are “Partner 1” do this.

Continue: **Partner 2, your word is *dog*. Place a cube in the bottom row for each letter in the word *dog*.** The children who are “Partner 2” do this.

Partners discuss which word has more letters and which has less, and conclude that the sets are equal.

Ask: **What do you notice about these two sets? Right! Both sets have the same number of letters. These sets are equal or the same.**

Partners work together to create their own sets that are more than, less than, or equal to each other. Circulate to observe and assist when necessary.

Number Line Riddles

Materials

 None

Say: **Let's solve some number line riddles.**

Who's ready? Remind the children that they may use the strategies of referencing the Classroom Number Line or using their fingers to arrive at the answers.

Say:

- **I am the number that is 3 plus one more. What number am I?**
- **I am the number that is 1 less than 5. What number am I?**
- **I am the number that is 4 and 2 more. What number am I?**
- **I am the number you get when you start at 0 and count up 9. What number am I?**

Continue creating riddles for the children to solve, or select volunteers to create riddles for the class.

Operations & Algebraic Thinking

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

Measurement & Data

B.3 - Classify, count, and sort objects.

Math

M.1 - Identify the value of coins.

Money Review

1 Review Penny, Nickel, Dime

Indicate *Backpack Bear's Math Big Book*, page 13.

Ask: **Remember when Backpack Bear helped us learn about money? Why do people need money?**

Discuss.

Continue: **Let's see if we remember the rhymes Backpack Bear wrote to help us learn about some different coins.**

Review the penny on page 13, the nickel on page 14, and the dime on page 15.

2 Sorting Coins

Gather the children in a semi-circle and indicate the container of coins.

Say: **Here is a container of coins. Are the coins all the same? How are they different?** The children briefly describe the coins.

Ask: **What do you see in this container? Right, there are pennies, nickels, and dimes.**

Materials

- Backpack Bear's Math Big Book*, pages 13, 14, and 15
- Container with pennies, nickels, dimes (enough for 1 coin per child)
- One individual whiteboard and marker
- Three paper plates



Indicate the three paper plates. Say: **Today we will sort the coins. When we sort things, we put them into groups.**

- Place a penny on one paper plate. Say: **This is a penny. It is worth 1 cent.**
- Place a nickel on the middle paper plate. Say: **This is a nickel. It is worth 5 cents.**
- Place a dime on the third paper plate. Say: **This is a dime. It is worth 10 cents.**

Say: **Let's sort the coins by pennies, nickels, and dimes.**

Randomly distribute a coin from the container to each child.

Say: **When I call your name, bring your coin and place it on the paper plate that has a coin that looks like yours. Then say the name of the coin, and how much it's worth.** The children do this with help from their classmates as needed.

When the sorting is complete say: **Let's give ourselves a Rocket Cheer!**

3 Equivalent Coins

Say: **Let's see if the pennies, nickels, or dimes have the most coins.**

Count the number of pennies, nickels, and dimes. Ask:

- **Which has the most coins?**
- **Which has the least or the lowest number of coins?**



Formative Assessment

Which Is Worth More?

Say: **Here's a hard question! Which group of coins is worth the most? Let's find out!**

Indicate the individual whiteboard.

Say: **A penny is worth 1 cent. Let's count how many pennies there are.**
(Do this.) **There are** (number of pennies) **pennies. Since each penny is worth 1 cent, that means we have** (total cents) **cents.**

On the whiteboard write: _____ pennies = _____ ¢.

Continue: **A nickel is worth more than a penny. It is worth 5 cents. Let's count how many nickels there are.** Do this.

Say: **There are** (number of nickels) **nickels. Since each nickel is worth 5 cents, we can count by fives to tell how many cents there are.** Count by fives with the children to determine the total number of cents.

On the whiteboard write: _____ nickels = _____ ¢.

Continue: **A dime is worth even more than a nickel! It is worth 10 cents. Let's count how many dimes there are.** Do this.

Say: **There are** (number of dimes) **dimes. Since each dime is worth 10 cents, we can count by tens to tell how many cents we have.** Count by tens with the children to determine the total number of cents.

On the whiteboard write: _____ dimes = _____ ¢.

Review the amounts on the whiteboard.

Ask: **Which set of coins is worth the most?** Discuss.

"Ten Little Kittens"

Project, or navigate a classroom computer to *Starfall.com*: Math Songs, "Ten Little Kittens."

The children watch and sing along.

Materials

- Computer navigated to *Starfall.com*

Counting & Cardinality

CC.3 - Count backward from a given number.

Operations & Algebraic Thinking

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

Math

M.1 - Identify the value of coins.

Solving Addition Equations Using Money

Materials

- Individual whiteboard, marker
- Math bags containing ten-frames and ten pennies in a resealable plastic bag
- Classroom ten-frame
- Container of coins

1 Use Coins to Solve Equations

Display the classroom ten-frame on a table and gather the children in a semi-circle around it.

Say: **Here is a ten-frame. How many sections do you see?** (Volunteers respond.)
Let's count them.

Place 3 pennies in the ten-frame. Ask: **How many pennies are in the ten-frame? Right, there are 3.**

Write $3 + \underline{\quad} = 5$ on the whiteboard and read the equation.

Ask: **How many more pennies should we add to the 3 cents to equal 5 cents?**

A volunteer adds the pennies needed to equal 5.

Ask: **How many pennies did (volunteer's name) add to the 3 pennies to equal 5? Right, 2.**

Write 2 in the equation. Read the completed equation and the children read with you: $3 + 2 = 5$.

Say: **Let's try another one.** Repeat the procedure using $2 + \underline{\quad} = 5$.

2 Math Bags and Coins

Distribute math bags and instruct the children to remove their ten-frames and pennies.

Say: **I have 5 pennies. Let's count to confirm that there are 5 pennies.**
Raise each penny and the class counts to make sure there are 5.

Say: **Take 5 pennies and place them on your ten-frame to match the pennies in my left hand.**

Say: **Now add 2 more pennies to your ten-frame.** (The children do this.) **How many pennies do you have on your ten-frame altogether?**

Say: **Let's write an equation to show what we just did.** (Example: $5\text{¢} + 2\text{¢} = 7\text{¢}$.)

Ask: **Who can read the equation?** A volunteer does this.

3 Equivalent Coins

Backpack Bear whispers to you, "I know a coin that is worth 5 cents!"

Say: **Backpack Bear whispered that he knows a coin worth 5 cents. Do any of you know what coin is worth 5 cents? Right, a nickel is worth the same amount as 5 pennies. Find a nickel in your math bag and hold it up. Say, 5 pennies are worth the same as 1 nickel.**

4 Demonstrate Story Problem #1

Say: **Listen carefully to this story problem. Then you will use your pennies and ten-frames to help solve it.**

Use the names of children in your class in the following story problem.

- (Child's name) **wants to buy a toy dinosaur. The dinosaur costs 10 cents. (Child's name) has 9 pennies. Let's see if we can tell how many more pennies she (or he) needs to buy the toy dinosaur.**
- **How much money does (child's name) have?** (9 cents).
- **Put 9 pennies in your ten-frame to represent the 9 cents.**
- **How much money does (child's name) need to buy the toy dinosaur?** (10 cents)
- **Add pennies to your ten-frame to make 10.**
- **How many pennies did you add?** (one).
- Write $9 + 1 =$ on the board. Say: **Here is the equation that shows what you did. (Child's name) needs 10 cents to buy the dinosaur. She (or he) has 9 cents. You had to add 1 more penny to make 10 cents, so $9 + 1 =$ what?**
- Add the 10 to the equation. Say: **Let's read the equation together.** Indicate the equation as the children read, $9 + 1 = 10$.
- **Does (child's name) have enough to buy the toy dinosaur?**
- Instruct the children to clear their ten-frames.



Formative Assessment

Story Problem #2

Repeat the above procedure for the following story problem.

(Child's name) **needs 10 cents to buy a balloon. He (or she) has 5 pennies. How many more pennies does he (or she) need to buy the balloon?**

1 Computer

The children explore:

- Monthly calendar
- Math Songs, "Ten Little Kittens"
- Add & Subtract, Addition Intro, "Let's Add Potatoes"
- Add & Subtract, "Make 10"

Materials

- Computers navigated to *Starfall.com*

2 Ten-Frames

The children take turns spinning the spinner. After each spin the children place the corresponding number of connect cubes or manipulatives on their ten-frames.

The group works together to check each other's work. After they have checked, they remove the manipulatives, the next child spins, and play continues.

Materials

- Prepared game spinner
- Container of connect cubes or manipulatives
- Ten-frame for each child

3 "Coin Town" Game

The children play "Coin Town"

Players place their playing pieces on start. They take turns spinning the spinner and moving their playing pieces to the next coin that equals the amount shown.

If a player lands on a spin-again star, he or she takes another turn. The first player to get to the bank wins, or play may continue until all players reach the bank.

Materials

- 1 or 2 "Coin Town" game boards
- One playing piece for each player
- 1 or 2 coin spinners



4 Teacher's Choice

Prepare an activity that will provide the children with an opportunity to practice a skill from this unit.

Counting & Cardinality

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

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

C.6 - Identify greater than, less than, and equal to.

Operations & Algebraic Thinking

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

A.4 - For 1-9, find the number that makes 10.

Money

M.1 - Identify the value of coins.

5 Summative Assessment: Banker, Customer

Partner the children and divide the Number Cards so that each set of partners has a set of cards. Partners form a stack of cards face down between them and play “High/Low.”

- Partner 1 chooses a card from the stack and turns it over.
- Partner 2 chooses the next card from the stack and turns it over.
- The children compare the two numbers to determine which is the higher number.
- The partner with the higher number takes both Number Cards.
- Play continues until all the cards are drawn.

During this time observe whether the children are able to identify the number that is greater. Record your observations on the Summative Assessment Checklist for Unit 4, Week 9.

Materials

- Summative Assessment Checklist, Unit 4 Week 9
- Number Cards 0-10 (4 sets)

