

This is a one-week excerpt from the Starfall Kindergarten Mathematics Teacher's Guide.
If you have questions or comments, please contact us.
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## Starfall <br> Kindergarten MATHEMATICS

## Starfall Dducation Foundation

P.O. Box 359, Boulder, CO 80306


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

## Fun with Numbers

## Week 5

Summary \& Preparation ..... 104
One-to-One Correspondence and the Number Nine ..... 109
The Number Zero ..... 112
The Number Ten ..... 115
Pattern Review ..... 118
Learning Centers ..... 120

## Week 5 Summary

The children will be introduced to math equations, one-to-one correspondence, and the numerals 0,9 and 10 . They will review patterns and use their skills to create patterns of their own. The children will also:

- Become familiar with the time concepts of yesterday, today, and tomorrow
- Practice skip counting by fives and tens
- Solve story problems
- View the calendar as a graph that organizes information


## Preparation

## DAY 1

Optional: Prepare Yesterday and Tomorrow word cards to place above the corresponding days on the classroom calendar. Place a star above "today." The children will reposition the word cards each day.

## DAY 2

You will need three connect cubes, seven crayons, and five books as props for today's Magic Math Moment.

## DAY 3

The children will need to have their math bags available.
If you have projection capabilities, project Backpack Bear's Math Workbook \#1 page 15 as a guide.

## DAY 4

If you have projection capabilities, duplicate Backpack Bear's Math Workbook \#1 page 16 to project as a guide.

Activity Center 1 - Navigate classroom computers to Starfall.com.
Activity Center 2 - The children will use Number Activity Mats 6-9 and enough play dough for each of them to form these numbers.

Activity Center 3 - The children will complete the dot-to-dot on page 17 of Backpack Bear's Math Workbook \#1.

Activity Center 4 - Prepare materials for this week's Teacher's Choice Activity.
Summative Assessment - You will use a set of Number Activity Mats 1-9. The children will need math mats, paper, pencils, and crayons. They will use their math mats to define their working space in several learning center activities.

Prepare a copy of the Summative Assessment Checklist for Unit 3 - Week 5 (Writing Numbers).


Summative Assessment Unit 3 - Week 5

## UNIT 3

## WEEK <br> Daily Routines

## Magic Math Moment

## Math Concepts

## Formative /

Summative
Assessment

Workbooks
\& Media

## DAY 1

## DAY 2

- Calendar
- Place Value
- Weather • Hundreds Chart
- Number Line
-"How Many Days Have We Been In School?"
- Day 1 Add $>$ Yesterday, Today, Tomorrow and Skip Counting by Tens
- Day 2 Add $>$ Skip Counting by Fives

Introduce Vertically and
Horizontally (preview for writing equations)

One-to-one correspondence

## Introduce

The number nine
Counting backward

The number nine

Starfall.com, Numbers:"9"
Workbook page 13


Story Problems
(Addition and Subtraction)

Dramatize/solve simple story problems

Count backward to zero
Introduce
Positive numbers, negative numbers, and the meaning of zero

The number zero


Starfall.com, Numbers: "Rockets" and "Zero"

Math Melodies CD, Track 9,
"Five Little Speckled Frogs" and
Track 30, "Three Crows"
Workbook page 14


## 1 <br> anan <br> 31 Calendar

- A volunteer tells the name of the month.
- The children name the days of the week.
- The calendar helper turns the next number.


## Counting \& Cardinality

A. 2 - Count forward from a given number.
B. 4 - Understand the relationship between numbers and quantities.
B.4a-Say number names in order, pairing each object with one number.
B. 46 - The last number counted tells the total number of objects.
B.4C - Each successive number refers to one more.

## Weather

- Review yesterday's weather.
- The meteorologist goes to the window to look outside, predicts the weather, and places a tally mark under his or her prediction.
- Add a tally mark next to today's weather on the Weather Graph.


## $\prod_{2=1012}^{1+12}$ Number Line

NEW $>$ Say: Let's see if we can use the number line today to skip count by tens. Skip counting by tens means that when we count we will skip numbers until we reach ten more. Demonstrate by pointing to $0,10,20$, etc. on the Number Line.

Indicate zero on the Number Line. Say: Let's skip count by tens. Start at zero and count by tens to the last numeral revealed.

Sing "How Many Days Have We Been In School?"
A volunteer identifies the name of the number last revealed on the Classroom

## How Many Days Have

 We Been In School?(Tune: "Here We Go Round the Mulberry Bush")

How many days have we been in school, been in school, been in school?
How many days have we been in school, who can tell me please? Number Line. Say: Today we will add one more number. Raise your hand if you know what (today's number) plus one more is. The number helper chooses a volunteer to answer.

Remove the sticky note to reveal the next number.

## 100 Place Value

- Review the number of bundles and sticks in the Tens and Ones containers.
- Add one stick to represent today, and place it in the Ones container.
- Write the numeral that represents the number of days the children have been in school on the board.
- Every tenth day the children bundle the ten sticks that are in the Ones container and place the bundle in the Tens container.


## Magic Math Moment

## Vertically and Horizontally

Materials
$\square$ Backpack Bear

Choose a volunteer to come to the front of the classroom. Say: Let's learn two new vocabulary words today. (Child's name) is standing vertically. Say, vertically. Vertically means up and down. Now, everyone stand up vertically.

Choose a different volunteer to come forward. Say: (Child's name), lie down on the rug (or floor) horizontally. Say, horizontally. You can remember what horizontally means by thinking about lying in your bed. Everyone lie down horizontally on the floor.

Backpack Bear whispers that he would like to play a game. Say: Backpack Bear will whisper a direction. Ready? Backpack Bear says stand up vertically. (The children do this.) Good! Backpack Bear says lie down horizontally. Repeat several times.

Materials

## One-to-One Correspondence and the Number Nine

## (1) Introduce the Number Nine

Write the numeral 9 on the board. Say: This is the numeral 9. The numeral 9 stands for nine.

Indicate and count nine classroom objects to demonstrate nine.

## 2 Introduce One-to-One Correspondence

Choose nine children to stand in the front of the classroom. Ask: How many crayons do we need in order to give one to each of these children?

If the response is incorrect, a volunteer counts out the number of crayons and attempts to distribute one crayon to each of the nine children. Lead the children to understand why the response was incorrect (either there are not enough crayons or there are too many). Continue until the correct response is given.

## Counting \& Cardinality

A. 3 - Write numbers from 0 to 20.
B. 4 - Understand the relationship between numbers and quantities.
CC. 3 - Count backward from a given number.

## Geometry

A. 1 - Describe objects using shapes and relative positions.

Explain: This is called one-to-one correspondence because we matched one crayon to one child. There are nine children and nine crayons.

- Are there any crayons left over?
- Does every child have a crayon?

The children count backward from nine as the volunteers return to their seats.

## 3 Find Nines

Indicate Backpack Bear's Math Big Book, page 26. Ask: Can you find some pictures on this page that show nine? (The children do this.)

Ask: Where else can you see the number 9 or nine of something? (nine is the last digit in the ones container, nine crayons, $8+1=9$, nine children, etc.)

Project and play Starfall.com, Numbers: "9."
Ask: Did you see any other examples of nine?

## 4III Formative Assessment



## Backpack Bear's Math Workbook, page 13

Distribute Backpack Bear's Math Workbook \#1 and instruct the children to turn to page 13. Complete the page together as with previous workbook pages.

- A volunteer tells the name of the month.
- The children name the days of the week.
- The calendar helper turns the next number.


## Weather

- Review yesterday's weather.
- The meteorologist goes to the window to look outside, predicts the weather, and places a tally mark under his or her prediction.
- Add a tally mark next to today's weather on the Weather Graph.


## $\underset{2-1012}{+1+1}$ Number Line

Ask: Who remembers how we used the number line to count yesterday? (Volunteers respond.) Right, we skip counted by tens. Today we will skip count again, but this time we will skip count by fives. Choose fifteen children to stand side-by-side in the front of the classroom. Demonstrate skip counting by touching the head of every fifth child.

Indicate negative five on the number line.
Say: Let's skip count by fives. I will point to the numeral and you say its name with me. Then I will skip four numerals and say the fifth one. Start at negative five and continue until you reach the last revealed numeral.

Sing "How Many Days Have We Been In School?"

## How Many Days Have

 We Been In School?(Tune: "Here We Go Round the Mulberry Bush")
How many days have we been in school, been in school, been in school? How many days have we been in school, who can tell me please?

A volunteer identifies the name of the number last revealed on the Classroom Number Line. Say: Today we will add one more number. Raise your hand if you know what (today's number) plus one more is. The number helper chooses a volunteer to answer. Remove the sticky note to reveal the next number.

## 100 Place Value

- Review the number of bundles and sticks in the Tens and Ones containers.
- Add one stick to represent today, and place it in the Ones container.
- Write the numeral that represents the number of days the children have been in school on the board.
- Every tenth day the children bundle the ten sticks that are in the Ones container and place the bundle in the Tens container.


## Counting \& Cardinality

A.2-Count forward from a given number.
B. 4 - Understand the relationship between numbers and quantities.
B.4a-Say number names in order, pairing each object with one number.
B. 46 - The last number counted tells the total number of objects.
B.4C - Each successive number refers to one more.

## Hundreds Chart

- Say: Today we will turn the next number. The number helper does this.
- Ask: The hundreds chart shows we have been in school how many days?


## Magic Math Moment

## Story Problems

## Materials

2 connect cubes 7 crayons
Say: Listen to these story problems and see if you can tell the answers. Choose children to dramatize 5 books each of the problems.

- One day (child's name) went for a walk. Two friends joined him (or her). How many children went for a walk altogether?
- Here's another one. (Child's name) went to the store and bought six crayons. (A second child's name) went to the store and bought one more crayon. How many crayons did (both children's names) buy altogether?
- This is the last one. (Child's name) has five books. If he (or she) gives five books to a friend, how many books will (child's name) have left?


## Materials

## The Number Zero

## 1 Introduce Positive and Negative Numbers

## Counting \& Cardinality

A. 2 - Count forward from a given number.
CC. 3 - Count backward from a given number.
CC. 5 - Identify ordinal numbers.

## Operations \& Algebraic Thinking

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.

Indicate the Classroom Number Line. Say: We have negative numbers here. Point to the numerals -5 through -1.

Indicate the numerals to the right of zero and say: The numbers on this side of zero are positive numbers. The number line doesn't ever really end. All numbers to the left of zero (indicate) are negative and all numbers to the right of zero (indicate) are positive, and they go on forever in both directions!

Ask: What number is right in the middle of the positive and negative numbers? (Volunteers respond.) Right, zero is right in the middle of the positive and negative numbers. Is zero negative or positive? Backpack Bear whispers the answer to you. Say: Right, Backpack Bear! Zero isn't negative or positive.

## 2 Introduce the Meaning of Zero

Play Math Melodies CD Track 30,"Three Crows" and instruct the children to listen carefully. Ask: If all the crows flew away, how many were left? Right, zero! Hold up zero fingers. (The children do this.) Yes, since zero means none, you didn't hold up any fingers!

Project and view Starfall.com, Numbers:"Rocket" and "Zero."

## (3) Count Backward to Zero

Select five children to sit side-by-side in five chairs across the front of the classroom. Say: Let's pretend you are five little speckled frogs. Explain the meaning of speckled if necessary.

Number the children from one to five. Tell the first child: You are the first frog. Tell the second child: You are the second frog. Continue until all five children are numbered.

Say: Let's sing "Five Little Speckled Frogs." Each time we sing that the speckled frog falls into the pond, you fall to the floor. Ready?

Play Math Melodies CD Track 9, "Five Little Speckled Frogs" and encourage the children to sing along.

Ask: How many speckled frogs are left sitting in the chairs? (zero or none) Right, there are none left. What numeral can we use to show there are no frogs left? Yes, zero!

## IIII <br>  <br> Formative Assessment

## Backpack Bear's Math Workbook, Page 14

Distribute Backpack Bear's Math Workbook \#1 and instruct the children to turn to page 14. Explain the directions for the top half of the page and observe as the children complete it.
Assist as needed.
When the children have finished, direct their attention to the "My number 0" box. Ask: What should you draw in the number 0 box? (Volunteers respond.) Right, since zero is nothing, you should draw nothing in the box!

## "Five Little Speckled Frogs"

Five little speckled frogs
Sat on a speckled log
Eating some most delicious bugs (yum yum)
One jumped into the pool
Where it was nice and cool
Then there were four green speckled frogs (glub glub)
Four little speckled frogs...
Three little speckled frogs...
Two little speckled frogs...
One little speckled frog
Sat on a speckled log
Eating some most delicious bugs (yum yum)
One jumped into the pool
Where it was nice and cool
Then there were no green speckled frogs (glub glub)

## Daily $O$ Routines

## anain <br> 31. Calendar

- A volunteer tells the name of the month.
- The children name the days of the week.
- The calendar helper turns the next number.


## Counting \& Cardinality

A. 2 - Count forward from a given number.
B. 4 - Understand the relationship between numbers and quantities.
B. $4 a$ - Say number names in order, pairing each object with one number.
B. 46 - The last number counted tells the total number of objects.
B.4C-Each successive number refers to one more.

## Weather

- Review yesterday's weather.
- The meteorologist goes to the window to look outside, predicts the weather, and places a tally mark under his or her prediction.
- Add a tally mark next to today's weather on the Weather Graph.


## 

- Point to and count the days on the number line by ones, fives, or tens.
- Sing "How Many Days Have We Been In School?"
- Remove the sticky note to reveal the next number.


## How Many Days Have

 We Been In School?(Tune: "Here We Go Round the Mulberry Bush")

How many days have we been in school, been in school, been in school? How many days have we been in school, who can tell me please?

## 100 Place Value

- Review the number of bundles and sticks in the Tens and Ones containers.
- Add one stick to represent today, and place it in the Ones container.
- Write the numeral that represents the number of days the children have been in school on the board.
- Every tenth day the children bundle the ten sticks that are in the Ones container and place the bundle in the Tens container.



## Hundreds Chart

- The number helper turns the next number on the chart.
- Ask: The hundreds chart shows we have been in school how many days?


## Number Bundles

Review the place value containers. Ask:

- How many bundles of ten are there?
- How many sticks are in each bundle?

Explain: Right, there are ten sticks in each bundle. If there are (number of bundles) bundles of ten, we can count by tens to know how many sticks there are in all of the bundles.

Indicate the bundles. Say: If there are two bundles, we can count 10, 20, and we know there are 20 sticks. It's much faster to count by tens than to take the bundles apart and count each stick! What if there were three bundles? We would count 10, 20, 30 and we would know there were 30 sticks. Let's count by tens starting at zero.

## Materials

## The Number Ten

Essential Question: How can we use a numeral
to show how many objects there are?

## (1) Introduce the Number Ten

Indicate Starfall's Selected Nursery Rhymes (page 30). Read the rhyme "One Two Tie My Shoe" and encourage the children to join you. Ask: What was the last number we just said? Right, ten!

Write the numeral 10 on the board. Say:This is the numeral 10. The numeral 10 represents one set of ten and zero ones. That is why we bundle the sticks when we have ten of them.

Indicate a bundle of sticks. Say: If we know the bundles each have ten sticks, we don't have to count each stick because we already know there are ten.

Continue: Raise your hand if you can find the Number Wall Card that represents 10. What do you notice about the Wall Card? (It has one row of ten and no extra cubes.)

## Counting \& Cardinality

A. 1 - Count to 100 by ones and by tens.
A. 2 - Count forward from a given number.
A. 3 - Write numbers from 0 to 20.
B. 4 - Understand the relationship between numbers and quantities.
B.4a-Say number names in order, pairing each object with one number.
B. 46 - The last number counted tells the total number of objects.
B.4C - Each successive number refers to one more.

## Formative Assessment

## Backpack Bear's Math Workbook, page 15

Instruct the children to remove the connect cubes from their math bags. Say: Place the individual connect cubes in front of you. The children do this.

Continue: Now, connect your cubes together to make a set of ten. When you are finished, ask your neighbor to count your cubes to be sure you have ten.

This activity is used to determine whether the children understand one-to-one correspondence and how to form a set of ten. When the activity has been completed, direct the children to put the connect cubes and their math bags away.

The children count the cubes of a child next to them.
Project Starfall.com, Numbers:" 10 " or gather around a classroom computer. The children watch, carefully looking for examples of ten.

Distribute Backpack Bear's Math Workbook \#1 to each child. Say: Turn to page 15. How is this page different from the 0-9 pages? Volunteers compare and contrast the Number 10 page to the others. If possible, duplicate page 15 and project it for use as a guide.

Direct the children's attention to the number line at the top of the page. The children count together from zero to twenty then circle the numeral 10.

Ask: Where do you see a set of ten and no ones on this page? What does this remind you of? (Wall Card) Color the set of ten squares. The children do this.

Say: Look at the boxes with all the numbers. Put your finger on the first box. I see the number 100. Put an $X$ on 100 because it isn't 10. Continue with the remaining numerals, coloring the squares with tens and placing an $X$ on the others.

Say: Now, trace over the numeral 10, and the write your own 10.
Continue: 10 plus how many more equals 10? (0) Right, zero! The children complete the equation.

Discuss the numbers that come before and after 10. The children trace the 9 and 11.
Say: Look at the ten-frame. How many sections should you color to equal ten? The children color the sections of the ten-frame.

## CALENDAR <br> 31 Calendar

- A volunteer tells the name of the month.
- The children name the days of the week.
- The calendar helper turns the next number.

HNIII

## Weather

- Review yesterday's weather.
- The meteorologist goes to the window to look outside, predicts the weather, and places a tally mark under his or her prediction.
- Add a tally mark next to today's weather on the Weather Graph.

\section*{H H | -2 | 0 | 1 | 2 |
| :--- | :--- | :--- | :--- | :--- |}

- Point to and count the days on the number line by ones, fives, or tens.
- Sing "How Many Days Have We Been In School?"
- Remove the sticky note to reveal the next number.


## How Many Days Have We Been In School?

(Tune: "Here We Go Round the Mulberry Bush")

How many days have we been in school, been in school, been in school?
How many days have we been in school, who can tell me please?

## Counting \& Cardinality

A.2-Count forward from a given number.
B.4-Understand the relationship between numbers and quantities.
B.4a-Say number names in order, pairing each object with one number.
B. 46 - The last number counted tells the total number of objects.
B.4C - Each successive number refers to one more.

## 100 Place Value

- Review the number of bundles and sticks in the Tens and Ones containers.
- Add one stick to represent today, and place it in the Ones container.
- Write the numeral that represents the number of days the children have been in school on the board.
- Every tenth day the children bundle the ten sticks that are in the Ones container and place the bundle in the Tens container.


##  <br> Hundreds Chart

- The number helper turns the next number on the chart.
- Ask: The hundreds chart shows we have been in school how many days?


## Counting \& Cardinality

B. 4 - Understand the relationship between numbers and quantities.
B.4C - Each successive number refers to one more.

## Operations \& Algebraic Thinking

OA. 1 - Identify, describe, or extend simple patterns.

## Review Ten

Indicate Starfall's Selected Nursery Rhymes pages 42 and 43, "This Old Man." Discuss the illustrations with the children before reading the rhyme.

CD, Track 29

Materials
$\square$ Starfall's Selected Nursery Rhymes, pages 42 and 43
$\square$ Math Melodies

## Materials

Play Math Melodies CD, Track 29 and encourage the children to sing along and create motions to accompany the song. Read (or sing) the rhyme a third time and the children perform motions to accompany it.

## Materials

## Pattern Review

Backpack Bear's Math Workbook \#1, page 16Starfall.com: Geometry \& Measurement, "Patterns"

Pencils, crayons

## 1 Review Patterns

Say: Today let's review patterns. Who remembers what a pattern is? (Volunteers respond.) Right, a pattern is something that repeats.

Ask: Who remembers when we created $A B$ patterns, like boy/girl, boy/girl? Raise your hand if you can think of another AB pattern.

Continue: We learned about another type of pattern. See if you can remember. I will start the pattern and you join in. Ready? Perform this pattern without saying the words: clap, clap, wiggle, wiggle. Repeat it a second time and the children join you.

## 2 AABB Patterns

Say: Let's try another one. Use this pattern: stomp, stomp, jump, jump.
Repeat the pattern and the children join you.
Explain: These are called AABB patterns. Why do you think they are called AABB patterns? Lead the children to understand that there are two movements: $A$ is repeated two times and then $B$ is repeated two times.

The children partner and create AABB patterns. Volunteers share their patterns. They tell the rule and the class joins in.

Project Starfall.com, Geometry \& Measurement: "Patterns." Say: Look at the different kinds of patterns. Who can find the AABB pattern?

Say: An AABB pattern has two of one thing and then two of another thing. Let's do the AABB pattern maze. Volunteers assist to complete the maze.

Distribute Backpack Bear's Math Workbook \#1 and instruct the children to turn to page 16. If possible, duplicate the page and project it as a guide.

Indicate and read: Making Patterns. I can make a (say blank) pattern.
Say: Let's make an ABC pattern. Write a capital A, capital B, and capital C in the blank. Demonstrate how to write the letters.

Say: We will use our red, blue, and yellow crayons. A will be red, B will be blue, and C will be yellow. What color should we start with? (Volunteers respond.) Right, red for A. Color the first square red.

Ask: What is next in the pattern? (B) Yes, B. Color the next square blue.
Ask: What is next? (C) Yes, C. Color the third square yellow.

## IIIII Formative Assessment

## Backpack Bear's Math Workbook, Page 16

Say: Now you are ready to finish the ABC pattern. If you need help, check with your neighbor or raise your hand. The children complete the top section of the workbook page.

Say: Let's read the next sentence, I can make an (blank) pattern. Let's make an AABB pattern using red and blue crayons. Write AABB in the blank.
Demonstrate writing the letters.
Ask: What color should the first box be? (red) Yes, it should be red for A. What color should the next box be? (also red) Good, the next box should also be red for another A. Color the first two boxes red.

Say: We just did the AA part of the pattern. What's next? (BB) Yes, BB is next, so what color should we use for the next box? (blue) Right, blue. Color your next box blue. What color will the next box be? (also blue) Right, it is another $B$ so color the next box blue too.

Say: Now we have the pattern set up: red, red, blue, blue. Continue to color the boxes using the AABB pattern.

As you monitor the children, informally assess their understanding of patterns.

## Learning Centers

## 1 <br> Computer

## Materials

Computers navigated to Starfall.com- Monthly calendar
- Numbers: "Zero"
- Math Songs:"The Zero Song"


## 2 <br> Number Activity Mats

Each child selects a Number Activity Mat. The children roll play dough into a "snake" and form the number on

## Materials

Number Activity Mats 6-9Play dough their activity mats. They then form small balls to cover the corresponding number of sections on the ten-frame. The children remove the play dough and exchange Number Activity Mats with each other. They repeat as time allows.


Dot-to-Dot
The children complete Backpack Bear's Math Workbook \# 1, page 17. The use pencils to connect the dots from 1 through 10. They trace the pencil line with a dark crayon and color the picture.

## Materials

$\square$ Backpack Bear's Math Workbook \#1, page 17Pencils, crayons


## Teacher's Choice

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

## Summative Assessment

Indicate the Number Card 1. Ask: Who knows what numeral this is? A volunteer answers and places the Number Card in the top row of a pocket chart. Continue with the remaining Number Cards in random order.

Distribute a sheet of paper and a pencil or crayons to

## Materials

SummativeAssessment Checklist (Unit 3, Week 5
Writing Numbers)Number Cards: 0-9Paper, pencils, crayonsPocket chartMath mats each child. Say: Listen to the number I say and then write it on your paper. You may use the Number Cards or your math mat to help you remember how to write the numbers.

Name each number in random order, pausing for the children to write them. Record mastery on the Summative Assessment Checklist for Unit 3, Week 5, or collect the papers to record at a later time. The children turn their papers over, choose a number, write it, and use crayons to turn the number into an object.



It is common for kindergarten-aged children to write numerals backwards. It is not a cause for concern at this time.

