



Place Value, Number Collections, & Review 10-20

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Place Value, Number Collections, & Review 10-20

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Unit 12 Frequently Asked Questions

The Starfall Math Curriculum includes place value concepts from day one. Why is so much emphasis placed on this concept?

It is absolutely essential that children develop a solid understanding of the base ten numeration system and place value concepts. Starfall introduces place value through real-life experiences every day during the Gathering Routine in which the children chart the number of days they have been in school then group them by ones, tens, and one hundred. This daily exposure to place value helps children understand that our base ten number system only includes the numbers 0 through 9. Being introduced to the concept of regrouping from an early age helps children develop the concepts they will later need to successfully learn to regroup in addition and subtraction.

In which other types of lessons do children use their knowledge of place value?

Children use their individual ten-frames and manipulatives to construct number representations above 9. When the concept of teens is introduced, the children learn them by understanding the value of each number's placement. The children construct meaning for themselves by using manipulatives to represent groups of tens in classroom discussions and in authentic cooperative activities.

Unit 12 Research

The development of young children's number sense and understanding of the base ten system is essential for the acquisition of more complex number skills in later years. Once children have developed a basic sense of numbers up to ten, they need to develop a strong "sense of ten" as a foundation for both place value and mental calculations. Students need many instructional experiences to develop their understanding of numerical systems including how numbers are written. Research indicates that students' experience using physical models to represent tens and ones can be effective in dealing with place value issues early in the curriculum. The materials should help them think about how to combine quantities and eventually how this process connects with written procedure. Children, therefore, often need extra help in understanding the base ten organization underlying number names and in seeing quantities organized into hundreds, tens, and ones. Conceptual supports, such as manipulatives, show the magnitude of the quantities and connect them to the number names and written numerals, and have been found to help children acquire insight into the base ten number system. That insight is important to learning and understanding numerals and also to developing strategies for solving math problems.⁽¹⁾ However, "merely having manipulatives available does not ensure that students will think about how to group the quantities and express them symbolically", states The National Council of Teachers of Mathematics. Rather, students must construct meaning for themselves by using manipulatives to represent groups of tens in classroom discussions and in authentic, cooperative activities.⁽²⁾

Research findings suggest that in two-digit numeral representations, children's understanding of the ones place develops before knowledge of the tens place. These findings directly relate to mathematics contexts, with implications for early childhood mathematics instruction. Arthur J. Baroody at the University of Illinois argues that

exposure to foundational place value concepts (e.g., exposure to multiunit meanings, working with two-digit numbers) should be introduced much earlier than first grade, and can begin as soon as children begin working with two-digit numbers. Baroody's rationale for early exposure rests on the assertion that young children have the ability to make basic connections and establish foundational understanding for later mathematics. He suggests, "By introducing multiunit meanings concretely as soon as children begin using two-digit numbers in school and discussing them throughout the primary grades, children may develop a more secure basis for understanding multiunit concepts."⁽³⁾

Students need opportunities to practice the fundamentally important "exchange principle", e.g., ten ones is the same as one group of ten and explore the concept of leftovers.⁽⁴⁾ In Starfall Math, children learn that the meaning of a digit in a written number is determined by its placement within the number. Activities are designed to provide opportunities to create and count groups of 10 with connect cubes, providing students with a physical representation of how two-digit numbers are created, and emphasizes the place value concepts of groups of ten and leftover ones.

(1) Kilpatrick, J., Swafford, J., and Findell, B. (2015) *Adding It Up: Helping Children Learn Mathematics*, Center for Education, Division of Behavioral and Social Sciences and Education, National Research Council. National Academy Press; Washington, DC.

(2) *Principles and Standards for School Mathematics* (2000). National Council of Teachers of Mathematics [NCTM].

(3) Baroody, A. (1990). How and when should place value concepts and skills be taught? *Journal for Research in Mathematics Education*, 21(4), 281-286.

(4) Copley, J.V. (2000). *The young child and mathematics*. Washington, DC: NAEYC.

Unit 12 Summary

Time Frame: 10 days

In Unit 12 the children will learn about place value through the use of money and ten-frames. They will explore number concepts, with a focus on the numbers 0 through 20. They will also work with number collections to reinforce their skills in counting by twos, fives, and tens.

Essential Questions

(K.CC.A.1) How can we count in different ways to get to a certain number?

(K.OA.B.6) How can we tell if one group has more than, less than, or the same amount as another group?

(K.NBT.1.1) How can we group numbers by tens and ones to see how many of each we have?

(Starfall.Math.CC.1) What strategies can you use to identify a number that is not in order?

(Starfall.Math.CC.2) What strategies can you use to find a missing number in a sequence?

(Starfall.Math.M.1) How can knowing the name and value of a penny, nickel, dime, and quarter help us in the real world?

Vocabulary

The children will be introduced to these vocabulary words. Mastery is not expected at this time.

Bracket

Collection

Estimation

Horizontally

Vertically

Enduring Understandings

Understanding place value can lead to number sense and efficient strategies for computing with numbers.

Place value is based on groups of ten.

Grouping is a way to count, measure and estimate.

Estimation is a way to get an approximate answer.

Counting is a purposeful skill that assigns a number name to an object or set of objects.

Operations create relationships between numbers.

Knowing the reasonableness of an answer comes from using good number sense and estimation strategies.

Recommended Literature

A Place for Zero by Angeline Sparagna LoPresti

Bears on the Beach by Niki Yektai

Counting is for the Birds by Frank Mazzola, Jr.

Counting Wildflowers by Bruce McMillan

Earth Day -- Hooray! by Stuart J. Murphy

The Cheerios Counting Book by Barbara Barbieri McGrath

Unit 12 Standards & Benchmarks

Progress on the following standards and benchmarks will be made through the course of this unit. For your convenience, applicable learning outcomes are listed alongside each lesson in summary form.

Starfall Standards

Counting & Cardinality

- CC.2** Supply missing number in a sequence.
- CC.3** Count backward from a given number.
- CC.6** Identify odd and even numbers.
- CC.7** Compare two numbers between 1 and 10 presented as written numerals.

Money

- M.1** Identify the value of coins.

Common Core Standards

Counting & Cardinality

Inline Summary Form

- A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1). *Count forward from a given number.*
- A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). *Write numbers from 0 to 20.*
- B.4** Understand the relationship between numbers and quantities; connect counting to cardinality. *Understand the relationship between numbers and quantities.*
- B.4a** When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. *Say number names in order, pairing each object with one number.*
- B.4b** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. *The last number counted tells the total number of objects.*
- B.4c** Understand that each successive number name refers to a quantity that is one larger. *Each successive number refers to one more.*

Operations & Algebraic Thinking

Inline Summary Form

- A.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. *Represent addition and subtraction in a variety of ways.*
- A.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. *Solve word problems with addition and subtraction within 10.*
- A.3** Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$). *Decompose numbers less than 11.*

Number & Operations in Base Ten

Inline Summary Form

- A.1** Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. *Understand numbers 11-19 are ten ones plus more ones.*



1

2

3

4



5



6

7

8

9

Daily Routines

CALENDAR
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.
- Assist the calendar helper to place one penny on the money graph to match the number of today's date.
- Remind them that there are other coins (nickels, dimes) available, and lead the children to exchange the appropriate number of pennies for these coins.



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.



Number Line

- 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?**

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.4b – The last number counted tells the total number of objects.

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

Refer to this page for reminders of the Daily Routines for each day in this Unit.

Week 28 Summary

This week the children will learn about place value by composing and decomposing tens and ones, and determining the number that is represented by sets of tens and ones. They will practice writing the teen numerals and explore the various ways numbers can be represented (tally marks, ten-frame, dice, and dominoes).

The children will also:

- Order the numbers 0 to 20
- Determine numbers of tens and ones in various numbers
- Practice “bundling” tens
- Review greater than and less than

Preparation

DAY 1

Have several craft or other sticks (those used in the calendar routine) available to demonstrate place value. You will also need 10 red and 10 blue connect cubes.

DAY 2

The children will use individual whiteboards, markers, and workbooks.

DAY 3

You will use two Classroom Ten-frames and either red and blue markers or magnets to fit the ten-frames.

Check the children’s math bags to make sure they contain 2 ten-frames and 10 red and 10 blue connect cubes.

DAY 4

Prior to today’s lesson, create 9 “bundle crowns” by writing one large numeral 10, 20, 30, 40, 50, 60, 70, 80, and 90 in the center of a sentence strip. Attach the ends of the sentence strips to create wearable crowns for each number.

You will also need Number Cards 1-9.

DAY 5

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

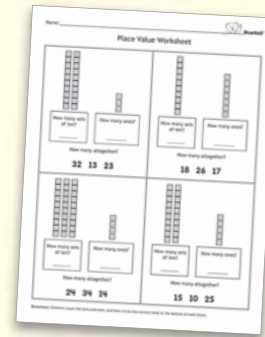
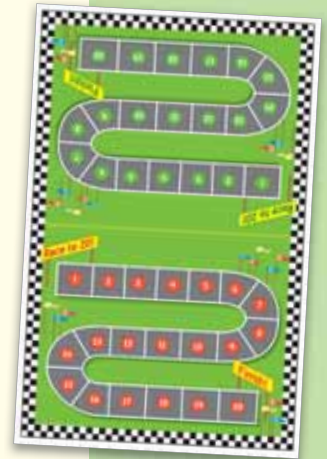
Activity Center 2 — The children will need a “Race to 20” game board for each set of partners, a game spinner labeled with the numerals 1 through 5 (or a die) and playing pieces.

Activity Center 3 — The children will use a set of Representation Cards for the numbers 11 through 19.

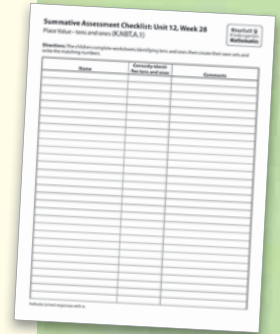
Activity Center 4 — Prepare materials for this week’s Teacher’s Choice Activity.

Summative Assessment — Duplicate a “Place Value” worksheet for each child. The children will also use pencils and crayons.

Prepare a copy of the Summative Assessment Checklist for Unit 12, Week 28.



“Place Value” Worksheet



Summative Assessment
Unit 12 - Week 28

DAY 1

DAY 2

Daily Routines

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

Magic Math Moment

Counting on from 10

“One, Two, Tie My Shoe”

Math Concepts

Counting on from a number other than 1
 Counting on using connect cubes
 Place Value – tens and ones
 Math “I Spy” Numbers from 10 to 20

Counting by ones
 Recognize numbers and sets 10 to 20
 Write teen numbers
 Place Value (Tens and Ones)
 Number representations

Formative / Summative Assessment

Place Value 11 through 19

Place Value (Tens and Ones)

Workbooks & Media

Starfall.com: Add & Subtract, “Compose/Decompose Tens and Ones”

“One, Two Tie My Shoe”

Workbook page 36



DAY 3	DAY 4	DAY 5
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- | | |
|--|---|
| <ul style="list-style-type: none"> • Calendar • Weather • Number Line | <ul style="list-style-type: none"> • Place Value • Hundreds Chart |
|--|---|

Learning Centers

"I Spy a Number"	Place Value	<i>Starfall.com:</i> <ul style="list-style-type: none"> • Monthly Calendar • Add & Subtract: "Place Value" and "Compose/Decompose" 	1
Place Value Add tens and ones and equations to create teens	Count by ones and tens Place Value - Adding tens and ones	"Race to 20"	2
Solve story problems and create equations and representations of teens	Place Value (Bundles of Ten)	Number Representation	3
		Teacher's Choice	4
		Summative Assessment: Place Value Place Value Worksheets	5

Magic Math Moment

Counting On from 10

Materials

 None

Say: **Let's practice counting, but we won't start at 1.**

Instead let's start at 10 and count on. Raise your hand if you can begin counting at 10 and count to 19. The children do this.

Continue: **Let's count together. Ready?** Begin at 10 and count together with the children to 19.

Repeat for:

- 10 to 15
- 10 to 18

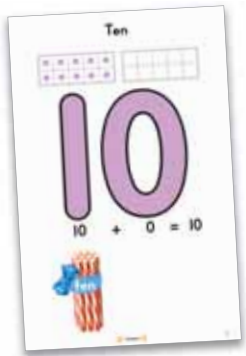
Add others as time allows.

Counting & Cardinality

CC.2 - Supply missing number in a sequence.

Number & Operations In Base Ten

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



Numbers 10-20

1 Count On Using Connect Cubes

Gather the children in a semi-circle on the floor or a rug.

Place a row of 10 unconnected red connect cubes on the floor in front of the children.

Ask: **How many connect cubes are there?** The children count the connect cubes and respond.

Place a blue connect cube in front of the row of red connect cubes.

Ask: **How many connect cubes are there in all?**

Increase the number of blue connect cubes by 1, and continue as above until the number of connect cubes reaches 19.

Ask: **How many more connect cubes would it take to get to 20?** (Volunteers respond.) **Right, 19 plus one more equals 20.** Add one more connect cube.

Explain: **If we want to count to 20, we can start at 10 and count on. Let's try. Point to the connect cubes and count.** Count from 10 to 20 with the children.

2 Count On Using Place Value Sticks and Bundles

Distribute bundles of 10 place value sticks to two children and individual craft sticks to each of the other children.

Choose 5 children to place their place value sticks side-by-side in front of you.

Materials

- Individual and bundles of sticks from your calendar routine
- 10 red connect cubes
- 10 blue connect cubes
- Backpack Bear's Math Big Book*, pages 27-37
- Individual whiteboards, markers

Ask: **How many sticks are there? (5) How many sticks should we add to these 5 in order to have 15?** Accept 10 more individual sticks or 1 bundle of sticks. Lead the children to realize that 1 bundle of 10 sticks plus 5 more equals 15.

The children retrieve their sticks or bundles.

Ask: **Who has a bundle of 10 sticks?** A child brings a bundle of 10 sticks forward.

Continue: **How many sticks should we add in order to have 17?**

Seven children bring their individual place value sticks and lay them next to the bundle of 10.

Say: **Let's count starting at 10 to be sure there are 17 place value sticks altogether.** Count from 10 to 17 with the children.

Children retrieve their bundles and sticks.

Continue as above with other numbers to 19.

Ask: **How many sticks should we add in order to have 20? Right, (number of sticks).** The children add the correct number of place value sticks.

Lead the children to create a set of 20 sticks with both 2 bundles of 10 or 20 individual place value sticks. Ask: **Which set of place value sticks is faster to count?**

3 I Spy

Gather the children around *Backpack Bear's Math Big Book* with pages 27-37 ready to display.

Say: **Let's play "I Spy" with Backpack Bear's Math Big Book. Listen for a number, then find the page that shows that number. Ready?**

Say a number between 10 and 20.

- A volunteer locates the corresponding page of *Backpack Bear's Math Big Book*.
- Discuss the different ways to represent that number (ten-frames, equation, bundles and individual place value sticks).

Repeat for each teen number and 20 in random order.



Formative Assessment

Add Numbers to Teens

Say: **Give a quiet thumbs-up if you know what 10 plus 4 equals.**

The children do this. Choose a volunteer to respond.

Repeat, choosing various numbers to add for the numbers 11 through 19.

One, Two, Tie My Shoe

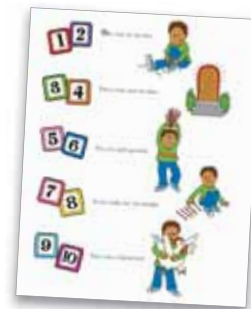
Indicate *Nursery Rhymes*, page 30.

Read the rhyme.

Ask: **Does the rhyme count by ones, twos, or fives? Right, it counts by ones. Let's say the rhyme together.**

Materials

- Nursery Rhymes*, page 30

**Counting & Cardinality**

A.2 - Count forward from a given number.

A.3 - Write numbers from 0 to 20.

Number & Operations In Base Ten

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

Recognize Numbers and Sets 10 to 20**Materials**

- Individual whiteboards, markers
- Backpack Bear's Math Workbook #2*, page 36
- Pencils

1 Add and Subtract: Compose/Decompose Tens and Ones

Navigate a classroom computer to *Starfall.com*: Add & Subtract, "Compose/Decompose Tens and Ones."

Volunteers take turns navigating the link to demonstrate adding tens and ones.

2 Writing Teen Numbers

Distribute individual whiteboards and markers. Write 4 on a classroom whiteboard.

Say: **Write 4 on your whiteboard.** (The children do this.) **If we want to change the number 4 to 14, what should we do?** (Accept all answers.)

Draw a "tower" with 10 sections to the left of the 4 on the whiteboard.

Say: **Now there are 10** (Indicate the 10 sections.) **plus 4 more. Do we have 14 now? What does the tower of ten look like? Right, it looks like a 1. Turn your 4 into 14 by placing 1 to represent a set of ten in front of it.** Check to see that the children do this correctly.

Write 41 on the whiteboard. Ask:

- **What is this number?**
- **How is this number different from 14?**

Discuss the placement of the 4 and the 1, and the importance of the order of these numerals.

Say: **In 41, the 4 means 4 sets of 10, and the 1 means one more. Four sets of 10 plus 1 more equals 41.**

Repeat for the placement of the numerals in 14: **In 14, the 1 means 1 set of ten and the 4 means 4 more. One set of 10 plus 4 more equals 14.**

Write a 6 on the whiteboard, and instruct the children to do the same.

Say: **Let's make some magic! Turn your 6 into 16!** Observe and assist the children who write 61 rather than 16.

Continue: **Erase the 16 and write 6 again.** (The children do this.) **This time turn the 6 into 61.** Observe and assist as needed.

Repeat for several other teen numbers.



Formative Assessment

Number Representations from 10 to 20

Distribute *Backpack Bear's Math Workbook #2* and instruct the children to turn to page 36.

Say:

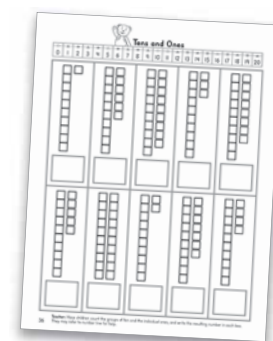
- **Look at the first section. How many "towers" or sets of 10 do you see? Right, one. Write 1 in the box under the tower.**
- **How many more are there? Right, there is one more. Write 1 next to the other 1 in the box. What number is 1 ten and 1 more? Right, 11.**
- **Now look at the representations of tens and ones in each section and write the number the picture represents.**

Explain that each picture represents a number between 11 and 20.

Note: The children may use the number line to help them write the numbers.

Observe the children as they work and offer assistance where needed.

If time permits, review the number representations on the workbook page. Volunteers may take turns to write the correct answers on the whiteboard.



I Spy a Number

Materials

 None

Say: **Let's play "I Spy a Number." Ready? I spy a number on the number line that is greater than 11 but less than 13. What number is it?** Volunteers respond. The child who guesses the correct answer chooses a number between 11 and 20 and uses the number line to give the class clues. The game continues as time allows.

Number & Operations In Base Ten

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

Teens Practice

Materials

- Math mats
- Math bags (containing 2 ten-frames, 10 red connect cubes and 10 blue connect cubes)
- Two classroom ten-frames
- Red and blue markers or magnets to fit the ten-frame
- Whiteboards and markers

1 Adding Tens and Ones to Create Teen Numbers

Display the Classroom Ten-frames on a whiteboard side-by-side. Draw ten large red circles, or add ten red magnets to the first ten-frame.

Ask: **How many dots (or magnets) are there? Right, there are 10. Did you have to count to tell there are 10?** Volunteers respond.

Continue: **If we want to represent the number 13, how many blue dots (or magnets) should we add to the second ten-frame? Right, 3.** Add three blue dots or magnets.

Say: **Let's write an equation to show 10 plus 3 more equals 13.** Write $10 + 3 = 13$ on the whiteboard.

Note: Repeat using other examples before moving on to Step 2.

2 Create Equations to Equal Teen Numbers

Distribute math mats and math bags (containing 2 ten-frames, blue and red connect cubes - 10 of each), whiteboards and markers.

Instruct the children to place the ten-frames in front of them side-by-side.

Say: **Fill in the first ten-frame using your red connect cubes.** The children do this.

Ask: **How many blue connect cubes should you add to the second ten-frame in order to make 15? Right, 5.**

The children add 5 blue connect cubes to the second ten-frame. Continue:
You have one 10 plus 5 ones. On your whiteboard write the equation $10 + 5 = x$. Demonstrate.

Say: **Now let's solve for x. $10 + 5 = \text{what?}$ (15) Right, x equals 15.**

Repeat the procedure for 17, 13 and 19.

Collect the math bags and math mats.



Formative Assessment

Create Representations of Teen Numbers

Partner children, and write a teen number on the board.

Partners work together to create a representation of tens and ones equaling that teen number.

Partners raise their hand when finished. Ask partners to explain their representation of the number.

Repeat with other numbers as time allows.

Starfall.com: "Place Value"

Materials

 Starfall.com

Navigate a computer with projection capabilities (or gather the children around a classroom computer) to Starfall.com: Add & Subtract, "Place Value."

Volunteers take turns to navigate this activity.

Note: This activity goes up to 1000. Demonstrate to 20 or 30 as time allows.

Counting & Cardinality

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

CC.2 - Supply missing number in a sequence.

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

Number & Operations In Base Ten

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

Place Value

Materials

- Nine prepared "bundle crowns"
- Number Cards 1-9
- Whiteboards and markers

1 Counting by Tens

Distribute the "bundle crowns" to 9 children. Say: **Let's see if you can arrange yourselves in order. Look at your number and see where you fit in with the other numbers.** The children place themselves in order, with help from volunteers if necessary.

Say: **Let's count to see if these children are in the right order.** The children do this.

The 9 children wearing the "bundle crowns" remove them and find new volunteers. The new volunteers arrange themselves in order.

Repeat until all of the children have a turn to wear a "bundle crown."

2 Counting by Ones

Select 2 children to wear the 10 and 20 "bundle crowns" and 3 children to hold Number Cards 1, 2, and 3. The children stand in the front of the classroom. (Example: 10, 20, 1, 2, 3)

Say: **Let's see if we can count using the "bundle crowns" and Number Cards.** Lead the children to count 10, 20, 21, 22, 23.

Continue: **We started off counting by tens and then we switched to counting by ones.**

Write the number represented by the children on the whiteboard ($20 + 3 = 23$).

Ask: **What is 20 plus 3 more? Right, 23.** Complete the equation.

Repeat the procedure several times with different equations and children. Choose a volunteer to write the equation on the whiteboard after each demonstration.



Formative Assessment

Combinations of Tens and Ones

Distribute whiteboards and markers. Repeat the above procedure with a new set of volunteers to wear the “bundle crowns” and hold the Number Cards, creating additional combinations of tens and ones.

The children at their seats write the numbers represented by the volunteers on their whiteboards and on your signal they show their answers.

Learning Centers

1 Computer

The children explore:

- Monthly calendar
- Add & Subtract: "Place Value"
- Add & Subtract: "Compose/Decompose"

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.3 - Write numbers from 0 to 20.

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

Number & Operations In Base Ten

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

2 "Race to Twenty"

The children take turns to spin the spinner and move their playing pieces the corresponding number of spaces.

Play continues until one child reaches 20. The children repeat the game as time permits.

Materials

- "Race to 20" game board for each set of partners
- Spinner with numbers 1-5 (or a die)
- Playing pieces



3 Number Representation Activity

The children work together to sort the Number Representation Cards by number using math mats or a pocket chart.

They place the Number Cards in the pocket chart or on a math mat then find the Number Representation Cards that match.

Materials

- Pocket chart or math mats
- 1 set of Number Representation Cards 11-19

4 Teacher's Choice

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

5 Summative Assessment

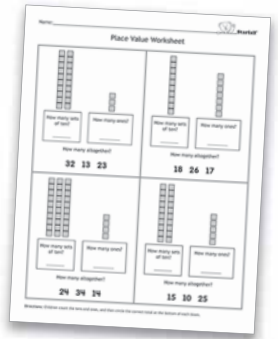
Distribute the "Place Value" worksheet.

Say: **Look at Box 1. Put your finger on the towers of 10. How many sets of ten do you see? (2) Write a two on the line. How many ones do you see? (3) Write the number 3 on the line. Now, look at your choices. Does 2 sets of 10 plus 3 ones equal 32, 13, or 23? (23) Circle the 23.**

Depending on your group, choose to either complete the worksheet together, or read the problems and allow the children to work independently to complete this worksheet. When they have finished working, discuss the correct answers.

Materials

- "Place Value" worksheet for each child
- Pencils
- Summative Assessment Checklist for Unit 12, Week 28



Week 29 Summary

This week the children will use their own monthly calendars to explore a variety of math concepts such as story problems, before or after, addition, the number that comes between, counting on, and smallest and largest. They will review the different ways to represent numbers, the value of coins, and they will be introduced to the quarter and “Coin Bingo.” The children will also:

- Play the “Number Grid Game”
- Review numbers and sets from 10 to 20
- Perform number exercises
- Review place value

Preparation

DAY 1

Choose a set of Number Cards for the children to use for “number exercises,” and generate a calendar for the current month for each child.

DAY 2

The children will use their math bags, individual whiteboards and markers. They will also need a “Number Grid” game board, a pair of dice, and two playing pieces.

DAY 3

For today’s lesson you will need a bag of coins that contains 1 quarter, 25 pennies, 5 nickels, and 2 dimes.

Label a blank game spinner with 1¢ , 5¢ , 10¢ , and 25¢ on the spinner. The children will each need a Bingo coin card to play “Coin Bingo.” Prepare extra copies to accommodate a larger class.



DAY 4

The children will need pencils, crayons, scissors and glue sticks.

Optional: Set up “mini centers” for the children to work in as they finish today’s worksheet.

DAY 5

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

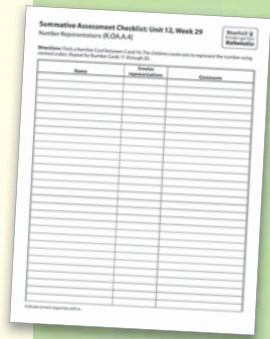
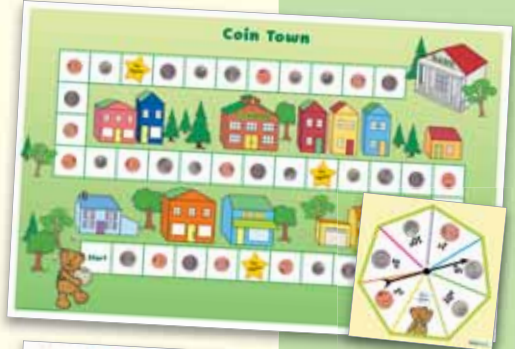
Activity Center 2 — The children will need “Coin Town” game board, a paper or plastic cup of coins (pennies, nickels and dimes) to use as a bank, one empty paper or plastic cup for each child, and a coin spinner.

Activity Center 3 — The children will need a “Number Grid Game: Count to 50” game board, dominoes and playing pieces.

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

Summative Assessment — You will use a box of connect cubes and Number Cards 5 through 20 to perform this week’s Summative Assessment.

Prepare a Summative Assessment Checklist for Unit 12, Week 29.



Summative Assessment
Unit 12 - Week 29

DAY 1

DAY 2

Daily Routines

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

Magic Math Moment

Number exercises Find That Number

Math Concepts

Number recognition
 Counting on
 Calendar activity
 More/Less

Place Value (Tens and Ones)
 "The Number Grid Game"
 Number representations
 Number recognition

Formative / Summative Assessment

Complete Monthly Calendar (Number Concepts) Coin combinations to solve story problems

Workbooks & Media

Monthly Calendar

DAY 3

DAY 4

DAY 5

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

Learning Centers

Counting between numbers

Coin Book 1

Starfall.com:

- Monthly Calendar
- Add & Subtract: "Coin Book," 0–10 and Place Value

Counting on to a specified number

Count backward

Review coin values

Introduce Quarter

Coin combinations to equal a quarter

Introduce "Coin Bingo"

Addition and subtraction combinations 0 through 10

Number representations

Trace numerals 10 through 20

"Coin Town" Game

"Coin Bingo"

Match numbers to objects

"Count to 50 Number Grid" Game

Starfall.com: Add & Subtract: "My Coin Book 1"

Workbook pages 37, 38, and 39

Starfall.com: Add & Subtract: "My Coin Book 1"

Workbook pages 37, 38, and 39

Teacher's Choice

Summative Assessment: Number Representations

Use connect cubes to create number representations 5 through 20



Number Exercises (Numbercises)

Materials

- Pocket chart
- Teacher's choice of Number Cards

Place several Number Cards face down in a pocket chart.

Say: **Let's do some number exercises! First we'll count how many times we can hop on one foot. Ready?**

(Do this.)

Say: **I will choose someone to turn a Number Card and we will hop on one foot enough times to match the number on the card.** A volunteer does this. The children identify the number on the Number Card then hop on one foot the corresponding number of times.

The volunteer chooses the next volunteer who chooses an action, then reveals a Number Card. The class identifies the number and does the action the corresponding number of times.

Play continues as time allows.

Note: Choose numbers the children have difficulty recognizing to reinforce number recognition.

Counting & Cardinality

A.1 - Count to 100 by ones and by tens.

A.2 - Count forward from a given number.

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

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

Operations & Algebraic Thinking

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

Materials

- Generated calendar for each child
- Pencils

The Calendar

1 Counting On

Gather the children in a circle on a rug or on the floor. Choose a target teen number such as 14. Say: **Let's count in order until we get to 14.**

- Choose a child to begin counting.
- The children take turns saying the next numbers in sequence. The child who says the target number (14) moves to the middle of the circle.
- The child who moved to the middle of the circle chooses the next child, who chooses the next number, and the children repeat the activity.

Challenge: Instruct the children to count by twos or fives.

2 Calendar Activity

Gather the children around the classroom calendar. Ask: **What do you notice about the numbers on this calendar?** Volunteers respond. Lead the children to understand that the numbers are in sequential order.

Choose a number on the calendar and continue: **Raise your hand if you can find the number (chosen number).** Select a volunteer to indicate the number.

Say: **Raise your hand if you can find the number that is:**

- **one more than 10**
- **two less than 13**

Continue with volunteers indicating the correct numbers.



Formative Assessment

Calendar Questions

Distribute a Starfall calendar for the current month to each child. The children write their names on the calendars, listen to the following clues and use pencils to trace the answers.

Clues:

- **What is the smallest number on the calendar?**
- **What is the largest number on the calendar?**
- **How old are you?**
- **What number comes after 11?**
- **Count to 5. What number comes between 3 and 5?**
- **Find the number 26.**
- **What number comes before 20?**
- **If your friend gave you 6 cookies plus 2 more, how many cookies would you have?**
- **What if another friend gave you one more cookie? How many cookies would you have altogether?**
- **What number comes between 13 and 15?**
- **What is 20 plus 4 more?**
- **Find 18.**
- **What number comes before 18?**
- **What is 10 plus 1 more?**
- **Find 13.**
- **What number comes before 16?**
- **Find the number that is 10 plus 10.**

Volunteers identify any number(s) that weren't traced. As these numbers are identified, the children trace them.

Find That Number

Materials

 None

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

Write 41 and 14 on a whiteboard. Ask: **Who can circle the number that is 14?** (A volunteer does this.) **How do you know this number and not the other one is 14?**

Discuss the tens and the ones columns. The children should understand that the number 41 represents 4 sets of ten and 1 more, and that 14 represents 1 set of ten and 4 more. Continue as time allows with:

- 17 and 71
- 31 and 13
- 15 and 51
- 61 and 16

Counting & Cardinality

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.3 - Decompose numbers less than 11.

Number & Operations In Base Ten

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

Money

M.1 - Identify the value of coins.

The Number Grid Game

Materials

- Number Cards 11-20
- Pocket chart
- Individual whiteboards, markers
- Number grid game board
- Pair of dice
- Two playing pieces
- Math bags

1 Ways to Show Numbers

Write the numeral 15 on the whiteboard. Ask: **What are some different ways we can show or represent the number 15?** Volunteers respond. Examples include a bundle of 10 and 5 ones, a dime and a nickel, and 15 tally marks.

Display the 11-20 Number Cards face down in a pocket chart.

Select a volunteer to reveal a Number Card. The volunteer announces the number to the class and places the Number Card back in the pocket chart (revealed).

2 Number Representations

Distribute individual whiteboards and markers.

Say: **On your whiteboard, draw as many ways as you can to represent the number** (revealed number). Volunteers share their answers.

Repeat until all of the Number Cards are revealed. Encourage the children to consider a variety of representations. Volunteers order the Number Cards if necessary.

3 "The Number Grid" Game

Gather the children in a semi-circle on the floor or a rug.

Say: **Backpack Bear has a new game he would like to teach us today. It's called "The Number Grid Game."**

Decide whether to use the up to 50 or up to 100 game board. Choose 2 volunteers to model the game as you give directions.

- The players place their playing pieces at 0 on the game board.
- They take turns. For each turn the players roll the dice, add the dots together, then move their playing pieces the corresponding number of spaces.
- The children name the numbers they land on.
- The game ends when the first player reaches 50 or 100.

Note: For demonstration purposes, once a player moves his or her playing piece, the player chooses a classmate to name the number he or she landed on. It is not necessary to finish the game. The children will play "The Number Grid Game" during **Day 5** Learning Centers.



Formative Assessment

Number Stories

Distribute a math bag to each child. The children remove the plastic bags containing coins.

Ask: **If you want to buy a balloon that costs 12 cents, what coins could you use to pay for it? Take the coins out of your bags and count out 12 cents.**

Walk around as the children do this to assess their understanding.

Choose volunteers to name combinations of 12 (12 pennies, 2 nickels and 2 pennies, 1 dime and 2 pennies, and 1 nickel and 7 pennies).

Create additional number stories that require the children to form coin combinations to 20 using their pennies, nickels, and dimes.

Counting Between Numbers

Materials

 None

Say: **Let's practice counting, but instead of starting with one, let's start with 14 and count to 18. Ready?** Count together with the children from 14 to 18.

Continue: **Now you try. This time start at 11 and count to 15.**
The children do this.

Say: **Let's count again. This time we will start at 20 and count backward to 16.**
Count backward with the children from 20 to 16.

Continue: **Now you try. This time start at 17 and count backward to 13.**
The children do this.

Note: Indicate the numbers on the Number Line as you and the children count.

Counting & Cardinality

A.2 - Count forward from a given number.

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

CC.3 - Count backward from a given number.

CC.6 - Identify odd and even numbers.

Money

M.1 - Identify the value of coins.

Introduce Quarter and Review Coin Values

Materials

- Backpack Bear's Math Big Book, pages 13-15
- Bag of coins containing 1 quarter, 25 pennies, 5 nickels, and 2 dimes
- Bingo Coin Cards
- Prepared game spinner

Essential Question: How can knowing the name and value of a penny, nickel, dime, and quarter help us in the real world?

1 Review the Penny, Nickel, and Dime and Introduce the Quarter

Say: **Let's review the coins we have learned so far.**
(penny, nickel, dime)

Review *Backpack Bear's Math Big Book*, pages 13-15

Ask: **Who knows the name of a coin that is worth 25 cents?** (Volunteers respond.) **Right, it is a quarter.**

Turn to page 14 and introduce the quarter by reciting the rhyme and then having the children repeat the rhyme with you.

2 Combinations of Coins That Equal a Quarter

Gather the children in a semi-circle on a rug or the floor. Indicate your bag of coins. Say: **I have a bag of coins.**

Indicate the quarter. Say: **This is a quarter. A quarter is worth twenty-five cents. If a penny is worth one cent, how many pennies would it take to make twenty-five cents? Right, it would take twenty-five pennies to equal twenty-five cents.** Count out 25 pennies and have the children count with you.

Write 25 pennies = 1 quarter on the whiteboard.

Indicate a nickel and ask: **How much is a nickel worth?** (Volunteers respond.)
Right, a nickel is worth five cents. Let's see how many nickels it takes to make twenty-five cents. Since nickels are worth 5 cents we can count by fives. Use your fingers as we count to keep track of how many nickels or fives it takes.

Raise one finger for each set of fives as you count with the children.
 Write 5 nickels = 1 quarter on the whiteboard.

Indicate a dime.

Ask: **How much is a dime worth?** **Right, a dime is worth 10 cents. Let's see how many dimes it takes to make twenty-five cents. Since a dime is worth 10 cents we can count by tens.** (Count 10, 20.)

Ask: **Are two dimes enough to make twenty-five cents?** (Volunteers respond.)
No, two dimes are only twenty cents. Let's try adding one more.

Count 10, 20, 30. Say: **Oh no! Two dimes are not enough, and three dimes are too many. What can we do to make twenty-five cents?**

Lead the children to discover that two dimes and one nickel or two dimes and five pennies both equal twenty-five cents. Write both combinations on the board.

3 Introduce "Coin Bingo"

Distribute a "Coin Bingo" card and a math bag to each child. Say: **You will use the connect cubes from your math bags for this game.**

Choose a volunteer to spin the spinner and identify the coin it lands on.

Say: **Look for a (name of coin) on your Bingo card. If you have one, place a connect cube on it.**

The volunteer chooses the next volunteer to spin. The game continues until a child covers a complete row.

Explain: **The first one to cover a complete row, horizontally, vertically, or diagonally (indicate), is the winner.**



Formative Assessment

Play "Coin Bingo"

The children play "Coin Bingo." Observe their coin recognition skills as they play.

My Coin Book 1

Materials

 Starfall.com

Gather the children around a classroom computer navigated to *Starfall.com*, Addition & Subtraction: "My Coin Book 1."

The children take turns finding the combinations for a given number.

Counting & Cardinality

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

Operations & Algebraic Thinking

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

Materials

- Backpack Bear's Math Workbook #2, pages 37, 38, and 39
- Pencils, crayons, scissors, glue sticks

Review Numbers and Sets 10 Through 20

1 Review Numbers 10 Through 20

Say: **Let's review the numbers from 10 to 20.** Lead the children to do this both orally and by having volunteers write the numerals on the whiteboard.



Formative Assessment

Workbook Page 39

Distribute *Backpack Bear's Math Workbook #2* and math mats. Instruct the children to turn to page 39. Check to be sure they have the correct page.

Say: **Carefully tear out page 39.** Assist as needed.

When all of the children have done this say:

- **Cut the boxes apart on the dotted lines, and place them on your math mat.**
- **Turn to page 37. Use a pencil to trace the numbers on this page.**
- **Look at the first number of this page. What is the number? (10) Right, 10.**
- **Find the box on your math mat that has 10 objects and glue that box in the space next to the number it matches.**

Instruct the children to complete the remainder of the page. When they finish, they turn to page 38 and follow the above directions to complete it in the same way.

As the children complete their workbook pages, partner them to compare their answers.

The children may color the objects as time allows. If you think the children will complete the pages quickly, you may set up "mini" activity centers for them while the other children complete their work.



Learning Centers

DAY

5

1 Computer

The children explore:

- Monthly calendar
- Add & Subtract: Coin Book: 0-10
- Add & Subtract: Place Value

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

Materials

- Computers navigated to *Starfall.com*

2 "Coin Town" Game

The children take turns to spin then move their playing pieces to the next coin equal to the amount shown on the spinner.

The child identifies the coin, takes the same coin out of the bank, and puts it into his or her own bank (cup).

At the end of the game, the children sort their coins and compare how many of each they have.

Materials

- "Coin Town" game board and coin spinner
- 1 cup (bank) of coins (pennies, nickels, dimes)
- 1 empty cup for each player



3 "Count to 50" Number Grid Game

The children place the dominoes face down. They place their playing pieces at 0 on the game board.

For each turn the player turns over a domino and adds together the dots on both sides then moves his or her playing piece the corresponding number of spaces.

Play ends when the first player reaches 50.

Note: For a more challenging game use the Count to 100 side of the game.

Materials

- "Number Grid Game: Count to 50" game board
- Playing piece for each player
- Dominoes



Counting & Cardinality

A.3 - Write numbers from 0 to 20.

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

Operations & Algebraic Thinking

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

Number & Operations In Base Ten

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

Money

M.1 - Identify the value of coins.

4 Teacher's Choice

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

5 Summative Assessment: Number Representations

Flash a Number Card between 5 and 10. The children create sets to represent the number using connect cubes.

Repeat for Number Cards 11 through 20. The children create sets of 10 (connecting a group together) and ones for these numbers. Record results on the Summative Assessment Checklist for Unit 12, Week 29.

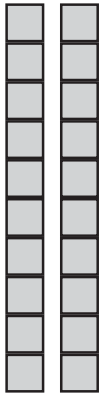
Materials

- Box of connect cubes
- Number Cards 5 through 20
- Summative Assessment Checklist for Unit 12, Week 29



Name: _____

Place Value



How many sets
of ten?

How many ones?

How many altogether?

32 13 23

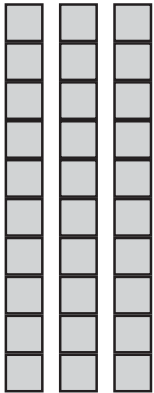


How many sets
of ten?

How many ones?

How many altogether?

18 26 17



How many sets
of ten?

How many ones?

How many altogether?

24 34 14



How many sets
of ten?

How many ones?

How many altogether?

15 10 25

Directions: Children count the tens and ones, and then circle the correct total at the bottom of each block.