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
Kindergarten
MATHEMATICS

Place Value, Number Collections, & Review 10-20

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

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Kindergarten
MATHEMATICS

Place Value, Number Collections, & Review 10-20

Week 28

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.

*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.
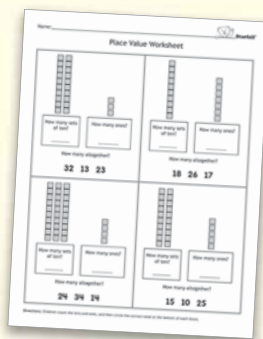
"Place Value" Worksheet

Summative Assessment
Unit 12 - Week 28

	DAY 1	DAY 2
Daily Routines	• Calendar • Place Value • Weather • Hundreds Chart • Number Line	
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

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

DAY 3	DAY 4	**Learning Centers**
"I Spy a Number"	Place Value	*Starfall.com:* **1** • Monthly Calendar • Add & Subtract: "Place Value" and "Compose/Decompose"
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 **5** Place Value Worksheets

Magic 2 3 1 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.
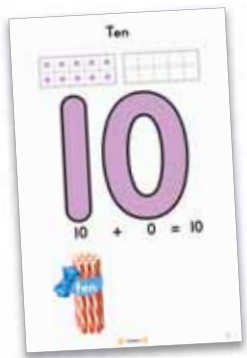
Repeat for:

- 10 to 15
- 10 to 18

Add others as time allows.

Numbers 10-20

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

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.

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.

Magic Math Moment
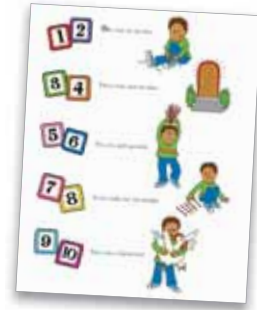
One, Two, Tie My Shoe

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.**

Recognize Numbers and Sets 10 to 20

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.

Magic Math Moment
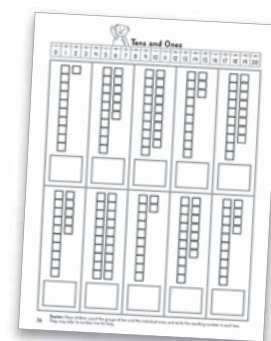
I Spy a Number

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 = 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.

Magic ✦ Math Moment

Starfall.com: "Place Value"

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
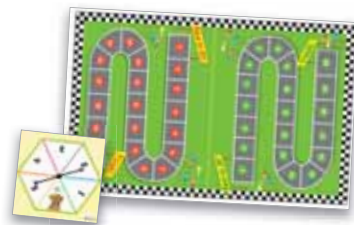- ☐ Computers navigated to *Starfall.com*

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