Problem Solving • Use Numbers to 15

LESSON AT A GLANCE

**Focus:**
K.NS.2 Write whole numbers from 0 to 20 and recognize number words from 0 to 10. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).

**Math Processes and Practices**
MPP1 Problem Solving
MPP2 Abstract and Quantitative Reasoning
MPP4 Mathematical Modeling

**Coherence:**
Concepts and Skills Across the Grades
Grade K | After
K.NS.2 | 1.NS.1, 1.NS.2

**Rigor:**
Level 1: Understand Concepts ...................... Share and Show (_Checked Items)_
Level 2: Procedural Skills and Fluency .......... On Your Own
Level 3: Applications ................................ Think Smarter and Go Deeper

**Learning Objective**
Solve problems by using the strategy _draw a picture._

**Language Objective**
Children draw a picture that shows the solution to a problem.

**Materials**
MathBoard

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**About the Math**

**Teaching for Depth**

_Draw a picture_ is one of the problem-solving strategies that children can use to solve word problems. Representing a problem with a drawing can help a child work toward a solution. A drawing may show such things as size, quantity, or action.

It is not important that children draw a detailed picture. They can draw pictures of manipulatives, circles, lines, or other representations for the objects in the problem.

Encourage children to develop a plan to solve a problem by identifying the information needed, carrying out the plan by drawing a picture, and checking whether their answer makes sense. Have children spend time sharing how they solved the problem.

**Professional Development Videos**

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**GO Digital**

Interactive Student Edition
Personal Math Trainer
Math on the Spot
Animated Math Models
iTools: Counters
HMH Mega Math

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391A  Chapter 7
Daily Routines

Problem of the Day 7.6
Calendar Math How many days are in one week? How many days are in two weeks? How many days would it be if we add one more day?
7; 14; 15

Lead children in finding two full weeks and counting the 14 days. Help children count the 15 days that make up two full weeks and one more day.

Vocabulary

Fluency Builder
Write Numerals to 10
Have one partner hold up any number of fingers on two hands. Have the other partner write the numeral that shows the number of fingers. Children can work together to check the answer. Have partners take turns.
Circulate to check their work and to ask children questions, such as:
• How do you know how many fingers there are?
• If your partner wrote a number, how could you show that many fingers?

1 ENGAGE

with the Interactive Student Edition

Essential Question
How can you solve problems using the strategy draw a picture?

Making Connections
Invite children to tell about problem solving strategies.
• Tell what you know about the strategy make a model. I make a model using objects like counters. The objects show me what is going on in the problem.
• When do you use the strategy act it out? Sometimes we can do what we read in a problem. Then we act it out to understand it.

Learning Activity
Introduce children to the strategy draw a picture.
• You have 14 friends at a party and only 12 party hats. You want to know how many more hats you need.
Guide children to understand that they can draw a picture to solve. Discuss why the strategies make a model and act it out would not be good ways to solve the problem.

Access Prior Knowledge
Use iTools: Counters. Stamp a set of 10 counters and click Line up. Then stamp one counter.
Have children describe the set using the pattern “10 ones 1 one.”
Continue stamping counters to show 12, 13, and 14. Have children describe each set using the pattern of 10 ones and some more ones.
Unlock the Problem

Read aloud this problem as children listen.

There are 14 children sitting on chairs. There is one chair with no child on it. How many chairs are there?

MPP1 Problem Solving
- What do you need to find out? how many chairs there are
- What do you need to find first? how many children are sitting on chairs

MPP4 Mathematical Modeling Ask children to draw the chairs as described in the problem.
- Explain how you can find out how many chairs there are. I know there are 14 children sitting on chairs. There is one chair with no child on it. So there are 14 and one more chairs.
- How many chairs are there in all? 15
- Write the number of chairs.

MPP2 Abstract and Quantitative Reasoning Ask children how the solution would be different if an adult were sitting in the chair that has no child in it instead. The number of chairs would be the same.

ELL Strategy: Illustrate Understanding

Have children listen to the following problem: There are 14 baseball hats and 15 children at a picnic. How many more baseball hats are needed so every child has a hat?

Help children find the number of hats needed by having them draw circles to show the 15 children. They can draw a hat on 14 of the circles. 1 more hat

Discuss the problem. Connect the words in the problem to the picture children drew.

Unlock the Problem

Problem Solving • Use Numbers to 15

Essential Question How can you solve problems using the strategy draw a picture?

Name ____________________________

Problem Solving • Use Numbers to 15

Learning Objective You will use the strategy draw a picture to help you solve problems about numbers to 15.

Unlock the Problem Real World

Chapter 7 • Lesson 6

three hundred ninety-one 391

DIRECTIONS There are 14 children sitting on chairs. There is one chair with no child on it. How many chairs are there?

Problem Solving • Use Numbers to 15

Check children's work.

There are 14 children sitting on chairs. There is one chair with no child on it. How many chairs are there?

Name ____________________________

Problem Solving • Use Numbers to 15

Learning Objective You will use the strategy draw a picture to help you solve problems about numbers to 15.

Unlock the Problem Real World

Chapter 7 • Lesson 6

three hundred ninety-one 391

DIRECTIONS There are 14 children sitting on chairs. There is one chair with no child on it. How many chairs are there?

Problem Solving • Use Numbers to 15

Check children's work.
DIRECTIONS 1. There are 15 flowers. Ten flowers have 1 bee on them. How many more bees would you need to have one bee on each flower? Draw to solve the problem. Write how many more bees.

ERRORS

Error Children may focus more on drawing the flowers and bees than on matching items one-to-one to show how many more bees are needed.

Example Children's drawings do not show a bee on each flower to show one-to-one correspondence.

Springboard to Learning Model drawing 15 flowers on the board. Draw a dot on 10 flowers as children count them. Explain that the dots stand for bees. Guide children in counting the remaining flowers.
Share and Show

Read the problem to children. Ask them to explain how they will solve the problem. Use the checked exercise(s) for Quick Check.

Quick Check

If a child misses the checked exercise(s)

Then Differentiate Instruction with

• Reteach 7.6
• Personal Math Trainer K.CC.A.3
• RtI Tier 1 Activity (online)

THINK SMARTER

Have children draw pictures to model this problem: Stella has 14 pencils. She has 1 pencil more than Joseph. How many pencils does Joseph have?

DEEPER

MPP2 Abstract and Quantitative Reasoning

Children will need to use reverse thinking. They need to know that if Stella has 1 more, this also means that Joseph has 1 fewer. Have children act out the problem to solve it. How many pencils does Joseph have? 13

Math on the Spot

Video Tutor

Use this video to help children model and solve this type of Think Smarter problem.

Meeting Individual Needs

DIFFERENTIATED INSTRUCTION

INDEPENDENT ACTIVITIES

Essential Question

Reflect Using the Language Objective Have children draw a picture to answer the Essential Question.

How can you solve problems using the strategy draw a picture? I can find out what information I have and draw pictures to solve the problem.
Mid-Chapter Checkpoint

Concepts and Skills

1. Count and tell how many. Write the number.
2. Draw a set of 14 objects. If you circle 10 of the objects, how many more objects are there? Complete the addition sentence to match.
3–4. Count and tell how many. Write the number.
5. Write the number that shows how many flowers.

DIRECTIONS

1. Count and tell how many. Write the number.
2. Draw a set of 14 objects. If you circle 10 of the objects, how many more objects are there? Complete the addition sentence to match.
3–4. Count and tell how many. Write the number.
5. Write the number that shows how many flowers.

Check children’s work.

14 = 10 + 4

3. THINK SMARTER

THINK SMARTER

This item assesses children’s ability to recognize numbers from 11 to 19 as ten ones and some more ones. Children who write the wrong number may not know the numeral 13 or may have counted incorrectly. You may wish to point out that the three flowers outside of the ten frame are represented as the “3” in the number “13.”

Data-Driven Decision Making

Based on the results of the Mid-Chapter Checkpoint, use the following resources to strengthen individual or whole class instruction.

<table>
<thead>
<tr>
<th>Item</th>
<th>Lesson</th>
<th>Common Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.2</td>
<td>May miscount the counters.</td>
</tr>
<tr>
<td>2</td>
<td>7.3</td>
<td>May confuse 10 ones and ones.</td>
</tr>
<tr>
<td>3, 4</td>
<td>7.1, 7.5</td>
<td>May write an incorrect number.</td>
</tr>
<tr>
<td>5</td>
<td>7.4</td>
<td>May write an incorrect number.</td>
</tr>
</tbody>
</table>

Key: R—Reteach (in the Chapter Resources)
Problem Solving • Use Numbers to 15

Learning Objective You will use the strategy draw a picture to help you solve problems about numbers to 15.

There are 15 vegetables in the garden. They are planted in rows of 5. There are 2 carrot plants and 3 potato plants in each row. How many carrot plants are in the garden? Draw to solve the problem.

Check children’s work.

6 carrot plants

DIRECTIONS There are 15 vegetables in the garden. They are planted in rows of 5. There are 2 carrot plants and 3 potato plants in each row. How many carrot plants are in the garden? Draw to solve the problem.

Chapter 7
Lesson Check

1. There are 15 children. Ten children are each wearing 1 cap. How many more caps would you need to have one cap on each child? Draw to solve the problem. Write how many more caps.

2. Trace and write to show the subtraction sentence for the penguins.

3. Look at the cube train. How many white cubes are added to the gray cubes to make 10? Write and trace to show this as an addition sentence.

Spiral Review

4. Check children’s work.

DIRECTIONS

1. There are 15 children. Ten children are each wearing 1 cap. How many more caps would you need to have one cap on each child? Draw to solve the problem. Write how many more caps.

2. Trace and write to show the subtraction sentence for the penguins.

3. Look at the cube train. How many white cubes are added to the gray cubes to make 10? Write and trace to show this as an addition sentence.

Continue to practice concepts and skills with Lesson Check. Use Spiral Review to engage children in previously taught concepts and to promote content retention.