If Children Ask

- In this lesson, children analyze addition facts to select appropriate solution strategies. Some children may find memorization easy and resist explaining their strategies. “I just know it!” is a common response. These children may ask why they need to explain their reasoning even though they get the correct answer.

- Selecting a solution strategy requires that children analyze the relationship between the addends, categorize problems by the features of the addends, and use that information to make a choice.

- Challenge children who easily memorize facts to describe to another child who may be struggling a strategy they could use to find the sum.

Learning Objective
Use the strategies count on, doubles, doubles plus 1, and doubles minus 1 to practice addition facts within 20.

Language Objective
Children work in teams to brainstorm and share the strategies you can use to solve addition fact problems.

Materials
MathBoard, red, blue, and yellow crayons, (optional) connecting cubes or two-color counters

161A Chapter 3
**Problem of the Day 3.6**

**What strategies can you use to solve addition fact problems?**

**Making Connections**

Review with children the strategies count on, doubles, doubles plus 1, and doubles minus 1.

**What is the count on strategy?** It is when you count on 1, 2, or 3 from a number to find a sum of a number plus 1, 2, or 3. **What are doubles facts?** Addition facts with the same addends. **What is the doubles plus 1 strategy?** It is when you add 1 to a doubles fact. **What is the doubles minus 1 strategy?** It is when you subtract 1 from a doubles fact.

**Learning Activity**

Ask the following question.

- How can you model this problem with counters? Possible answer: I can use 2 red counters for the soccer balls and 4 yellow counters for the footballs.

**Literacy and Mathematics**

Choose one or more of the following activities.

- Make a class chart showing addition fact strategies. Work with children to include drawings that represent each strategy.
- Have children write a number sentence showing each strategy.

**Fluency Builder**

**One Up, One Down**

**Materials**

*connecting cubes, writing paper, Basic Facts (See eTeacher Resources)*

Have children work in pairs. Give one partner 20 red connecting cubes and give the other partner 20 blue connecting cubes.

Tell children to make a cube train. Tell children their cube trains can have 1 to 10 cubes. Have partners exchange cube trains.

Tell children to use their partner’s cube train to make a doubles fact. Have children write their doubles fact. Then have them use the cube trains to write doubles plus one and doubles minus one. Tell children to write the number sentence for each doubles plus one and doubles minus one they show with their cube trains.

Have children read their number sentences aloud to their partners.

Repeat the activity by having children take back their cube trains and making a new cube train.

**Fluency**

**Fluency Builder**

**Common Core Fluency Standard 1.OA.C.6**

**Problem of the Day 3.6**

**Word of the Day** fewer

Sam and Derrick collect dinosaur models. Sam has 9 models. Derrick has 12 models. Who has fewer models? Sam

Ask children to explain how they solved the problem.

**Vocabulary**

- Interactive Student Edition
- Multimedia eGlossary
**Lesson 3.6**

**Lesson 3.6**

**Listen and Draw**

**Materials** (optional) two-color counters or connecting cubes

Read the following problem aloud.

*Think of different addition strategies. How can you show two ways to solve 4 + 3?*

• **What are you asked to find?** two different ways to find the sum of 4 + 3

Have children choose two methods to solve the problem and record each way in the workspace. Remind children to write the sum at the top. Encourage them to use words or pictures to communicate their ideas. Have volunteers share their strategies.

• **What strategies did you use to solve 4 + 3?** Possible answers: model with cubes or counters, count on, doubles minus 1, doubles plus 1

• **How did you decide which ways to solve the problem? Explain your reasoning.** Possible answers: I counted on because the second addend is 3; I used doubles minus 1 because 3 is 1 less than 4, so 4 + 3 is 1 less than 4 + 4.

Encourage children to look for relationships between addends when they choose a strategy to solve addition fact problems.

**Math Talk**

MP7 Look for and make use of structure. Use Math Talk to focus on children’s understanding that different addition strategies can be used to find the same sum.

• **Why is it helpful to know different strategies for solving the same problem?** Possible answer: I can use the way that works best for me.

**ELL**

**Strategy:** Scaffold Language

Children define new terms by matching visuals to definitions. List addition facts. Suggest a strategy, such as “count on 2.” Have children explain how they can apply it to a fact to find the sum.

Continue the activity with other strategies: doubles, doubles plus 1, doubles minus 1, count on 1, count on 3.
1. **Count On 1**
   - \(4 + 1 = 5\)
   - \(5 + 1 = 6\)
   - \(6 + 1 = 7\)
   - \(7 + 1 = 8\)

2. **Count On 2**
   - \(5 + 2 = 7\)
   - \(6 + 2 = 8\)
   - \(7 + 2 = 9\)
   - \(8 + 2 = 10\)

3. **Count On 3**
   - \(6 + 3 = 9\)
   - \(7 + 3 = 10\)
   - \(8 + 3 = 11\)
   - \(9 + 3 = 12\)

4. **Doubles**
   - \(7 + 7 = 14\)
   - \(8 + 8 = 16\)
   - \(9 + 9 = 18\)
   - \(10 + 10 = 20\)

5. **Doubles Plus One**
   - \(5 + 6 = 11\)
   - \(6 + 7 = 13\)
   - \(8 + 7 = 15\)
   - \(9 + 8 = 17\)

**Advanced Learners**

- Have children collect and record information about the class by asking a question such as, *How many pencils do you have at your desk?* Children should record each name and the information.
- Have children take turns creating addition problems with the information they recorded.
- The child who makes up the problem should point out when it can be solved using count on, doubles, doubles plus one, or doubles minus one. Children solve the problem.

**Quick Check**

If a child misses the checked exercises, then differentiate instruction with:
- Reteach 3.6
- Personal Math Trainer 1.OA.C.6
- RtI Tier 1 Activity (online)

**Common Errors**

- **Error** Children may count on by saying the starting number as the first number they count on.
- **Example** For Exercise 3, children count on for \(6 + 3\) and get a sum of 8 by counting 6, 7, 8.

**Springboard to Learning** Have children write the greater addend in a counting on fact and then model with counters the addend that is counted on. In this example, they would say “6,” and then count on as they touch each counter to say “7, 8, 9.”
On Your Own

**MP3 Construct viable arguments and critique the reasoning of others.** If children answered Exercises 3 and 5 correctly, assign Exercises 6–17. Guide children to find the sum and then color the fact immediately after they solve the problem. Doing so will help them connect the strategy to the problem.

**THINK SMARTER**

For Exercise 18, children use higher order thinking skills as they choose relevant numbers to make a counting on problem. Remind children that in a counting on problem, one addend must be 1, 2, or 3.

**Math on the Spot Video Tutor**

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

**MP7 Look for and make use of structure.**

- In the problems that you write what will one of the missing numbers be? Possible answers: 1, 2, or 3. Why? I am making a story that can be solved using counting on and the numbers I can use for counting on are 1, 2, or 3.

**EVALUATE Formative Assessment**

**Essential Question**

**Reflect Using the Language Objective**

Children work in teams to brainstorm and share addition strategies.

What strategies can you use to solve addition fact problems? I can use doubles; doubles plus one; doubles minus one; add in any order; or count on 1, 2, or 3.

**Math Journal**

Use pictures or words to explain a strategy you would use to find 8 + 9.

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### On Your Own

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<td>6.</td>
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<td>8.</td>
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<td>9.</td>
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<td>17.</td>
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Answers will vary, but one addend should be 1, 2, or 3.

**THINK SMARTER**

Make a counting on problem. Write the missing numbers.

18. **8** birds were in a tree. 
   **2** more birds flew there. 
   How many birds are in the tree now? 
   **10** birds

**TAKE HOME ACTIVITY** Have your child pick out a doubles fact, a doubles plus one fact, a doubles minus one fact, and a fact he or she solved by counting on. Have him or her describe how each strategy works.
Add. Change the order of the addends. Add again. (1.OA.B.3)

1. 8 + 4 = 12
   4 + 8 = 12

2. 7 + 9 = 16
   9 + 7 = 16

Circle the greater addend. Count on to find the sum. (1.OA.C.5)

3. 1 + 8 = 9
4. 3 + 7 = 10
5. 9 + 2 = 11
6. 6 + 3 = 9
7. 7 + 1 = 8
8. 2 + 8 = 10

Use doubles to help you add. (1.OA.C.6)

9. 7 + 8 = 15
10. 6 + 7 = 13
11. 9 + 8 = 17

Write a count on 1 fact to show a sum of 8. Then write a doubles fact to show a sum of 8.

7 + 1 = 8; 4 + 4 = 8

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

Item | Lesson | Standards | Common Error |
--- | --- | --- | --- |
1–2 | 3.1 | 1.OA.B.3 | May have difficulty changing the order of the addends |
3–8 | 3.2 | 1.OA.C.5 | May not identify the greater addend or may count on incorrectly |
9–11 | 3.4 | 1.OA.C.6 | May use an incorrect doubles fact |
12 | 3.5 | 1.OA.C.6 | May have difficulty recognizing doubles plus one or doubles minus one facts |

Key: R—Reteach (in the Chapter Resources)
Practice and Homework

Use the Practice and Homework pages to provide children with more practice of the concepts and skills presented in this lesson. Children master their understanding as they complete practice items and then challenge their critical thinking skills with Problem Solving. Use the Write Math section to determine children’s understanding of content for this lesson. Encourage children to use their Math Journals to record their answers.

Practice the Strategies


1. \(8 + 8 = 16\)
   - red
2. \(8 + 1 = 9\)
   - blue
3. \(1 + 7 = 8\)
   - blue
4. \(8 + 3 = 11\)
   - blue
5. \(5 + 5 = 10\)
   - red
6. \(8 + 7 = 15\)
   - yellow
7. \(8 + 9 = 17\)
   - yellow
8. \(6 + 3 = 9\)
   - blue
9. \(6 + 6 = 12\)
   - red

Problem Solving

Make a counting on problem. Write the missing numbers.

10. \(_7\) apples are in a bag. \(_3\) more apples are put in the bag. How many apples are in the bag now? \(_{10}\) apples

II. Use pictures or words to explain a strategy you would use to find \(8 + 9\).

Check children’s work.
Lesson Check (1.OA.C6)

1. Which strategy would you use to find 2 + 8? Explain how you decided.

   Count on. Possible explanation: When I add 2 to 8, I can count on, 9, 10.

2. What is the sum of 9 + 9?
   Write the number.
   18

Spiral Review (1.OA.A.1, 1.OA.B.3)

3. What is the sum of 5 + 2 or 2 + 5?
   Why is the sum the same?
   7; Possible explanation: The addends are the same.
   Only the order is different.

4. How many flowers are there?
   Write the number.
   3 flowers and 3 more flowers 6 flowers

Continue concepts and skills practice with Lesson Check. Use Spiral Review to engage children in previously taught concepts and to promote content retention. Common Core standards are correlated to each section.

Maintaining Focus on the Major Work

Part of the major work in Grade 1 is addition within 20 (1.OA.C). In Lessons 3.1–3.6, children are introduced to a variety of strategies for addition (1.OA.C.6). In Lesson 3.1, children extend their knowledge of the Commutative Property to sums of 20. Lesson 3.2 focuses on the strategy of counting on from the greater addend. Lessons 3.3–3.5 have children recognize the usefulness of doubles when finding sums. They practice these strategies in Lesson 3.6 when children apply them to addition facts within 20.

Connecting Content Across Domains and Clusters

In Lessons 3.1-3.6, children work in two different clusters within the Domain of Operations and Algebraic Thinking. Children first work in Cluster 1.OA.B where they apply the Commutative Property of Addition for sums within 20. They connect their knowledge of the Commutative Property to 1.OA.C. In 1.OA.C, children use different strategies to solve addition problems. Children will be able to use fluency within 10 and apply the "count on" strategy for sums within 20.

Building Fluency

In Lessons 3.1–3.6, children learn strategies to help them add within 20. The strategies are presented as ways to bridge gaps between known addition facts and unknown addition facts and to learn new addition facts. In all cases, children recall known addition facts, helping them work towards fluency in addition up to 20.