Grade 3	Lesson: 4-5 Problem Solving: Writing to Explain	Reference to English

Math Standard(s): 3.OA.1 also 3.OA.3, 3.OA.5, 3.OA.9 **Domain: Operations and Algebraic Thinking**

Content objective(s):	Language Objective(s):
Students will use objects, words, pictures, numbers, and technology to provide a written explanation reflecting their understanding. *I can use many different things to explain my understanding.*	Students will read their explanation of understanding to a partner. *I can read my explanation of understanding to my partner.*
Essential Understanding: Mathematical explanations can be given using words, pictures, numbers or symbols. A good explanation should be correct, simple, complete, and easy to understand.	**Required Academic Vocabulary for Word Wall:** **Listen:** **Read:** **Write:** **Speak:** **Sentence Frame:**
Materials: • **Whiteboards, erasers, markers.** • **Guided Practice Independent Practice** • **Picture of a bicycle helmet** • **Picture of a car**	**Additional Lesson Vocabulary:** Bicycle helmet, money, car kits, baseball cards, oranges

Lesson: **Instructional Time:**

Opening: (3 minutes)

T: "You have learned how to explain your thinking about a problem. Today, you will learn how to write an explanation of how you solve a problem."

T: "What is an explanation?"

S: *will answer (answers will vary)*

- An explanation in math is the reasoning behind how someone solved a problem.

T: "Think to yourself when you have heard a helpful explanation."

T: "Tell you neighbor."

S: *will turn to their neighbor and share one helpful explanation they have been given.*

- Examples of explanations: when asking a questions (checking for understanding), getting directions, …)

T: "Explanations are very important in our every day life. They are also an important part to math."

Introduction to New Material (Direct Instruction): (5 minutes)

T: "Let me tell you a story. Kay needs $25 to buy a bicycle helmet. She ears $9 each week babysitting. How long will it take Kay to earn the money she needs? How am I going to solve this problem? Well, let's see. She needs $25. I am going to write 25 on the board. Each week she ears $9. I will write that on the board too. Each week she ears $9, that is week 1. Then week 2 she earns another $9. That is $18. I will write that on the board too. Week 1 she has $9 on week 2 she now has $18. She still hasn't made her $25. So, if she make $9 on week 3 as well. She now has $27. I will write that on the board next to week 3. How long id it take Kay to ear the money she needs?"

S: *will respond, "3 weeks."*

T: "Yes, it took her 3 weeks to earn the money she needs. On the board I used numbers and words and pictures to solve the problem. That is my explanation."

T: "Now I am going to tell you another story and I need you to Decide in your head how to solve the problem. Use your whiteboard to show your explanation. You can use words, pictures, numbers, or symbols to explain."

T: "Ben bought 3 model car kits. Each kit costs $6. Ben gave the clerk $20. What was Ben's change? Solve the problem and write the explanation. You have 4 minutes."

Independent Practice: (10 minutes)

S: *will solve the problem and write the explanation of the problem on their whiteboard.*

- Teacher will walk around making sure the students stay on task.

T: "Time is up. Please turn to your neighbor and share with them your explanation. You will have 2 minutes."

S: *will turn to their neighbor and share their explanation. "I solved this problem by first subtraction $6 from $20. That equals $14. So, Ben received $14 change."*

T: "I need two people to share their explanations with the class."

- Teacher will choose 2 students to share their explanation with the class.

T: "Good job. Please erase your boards. We are going to do 2 more story problems."

T: "Brian bought 3 packs of baseball cars. There are 4 cards in each pack. How many baseball cards did he buy? You have 3

minutes to solve the problem and write down your explanation."
S: *will solve the problem and write down the explanation.*
T: "Time is up. Please turn to your neighbor and share with them your explanation."
S: *will turn to their neighbor and share their explanation.*
T: "I need two people to share their explanations with the class."
- Teacher will choose 2 students to share their explanation with the class.

Closing: (6 minutes)
T: "Good job! Let's do one more."
T: "Alexandra bought 5 bags of oranges. There were 6 oranges in each bag. Then she gave 4 oranges away. How many oranges did Alexandra buy and how many does she have left? You have 4 minutes to answer both questions and write down your explanation."
S: *will solve the problem and write down their explanation.*
T: "Time is up. Please turn to your neighbor and explain how you got your answers."
S: *will turn to their neighbor and share their explanations.*
- Teacher will walk around the room listening to the explanations.

T: "Let's solve this problem together. How many bags of oranges did Alexandra buy?"
S: *will respond, "she bought 5 bags of oranges."*
T: "I will write 5 on the board. How many oranges are in each bag? Show me with your fingers."
S: *will show 6 fingers.*
T: "I will write that on the board. So, how many oranges did Alexandra buy in all? Will it be faster to add or multiply?"
S: *will respond, "it will be faster to multiply."*
T: "What is 5 times 6? Write it on your whiteboard."
S: *will write 5 X 6 = 30.*
T: "Show me your boards. Yes, 5 times 6 equals 30. So Alexandra bought 30 oranges. But then she gave 4 away. How many does she have now?"
S: *will subtract and say, "she has 26 oranges left" or "30 take away 4 is 26, so she has 26 oranges left."*
T: "Good job. Look at our explanation on the board. You guys did a great job explaining how you got the answer to this problem to me."

Assessment:

Whiteboard answers.