

Title: Solving Problems Using Strategies



Standards: 2.OA.2

Standards of Mathematical Practice: MP5 Use Appropriate Tools Strategically
MP1 Make Sense of Problems
MP6 Attend to Precision

Task Summary

- Flexibly solve addition and subtraction word problems through the use of multiple strategies. (All levels)
- Demonstrate using a math tool or by making a drawing the strategy used used to solve an addition or subtraction problem (All levels)
- Explain how a word problem was solved using a math tool. (All levels)

Materials Needed

Open number line, five and ten frames, and a number track, different colored counters



range of single digit and two digit numbers up to 15



range of single digit and two digit numbers up to 20



range of single digit and two digit numbers up to 50

Task Directions

This task may be completed in small guided groups, whole group, or one-to-one.

There are symbols to help guide students towards the demonstration of the Standards for Mathematical Practice:



Students will use a math tool to solve the problem.



Students will talk to the teacher and explain their thinking. This can be an interview. Teachers will want to take notes based on student response.



Some students are ready to solve problems mentally. Using a mental strategy that is explained to a teacher can be used by students who are beyond the stage of “drawing” and “showing”. Note that students need to be able to use a strategy and not just demonstrate a memorization of facts.

Directions

Part 1

1. Hand student problem and make available math tools for student use. Let a student choose the appropriate tool to complete the task. The tools that are available might include the following: pencils for drawing, blank or open number line, five and ten frames, and a number track. It is important to let a student choose the tools that he/she uses. You might have the tools available in an area of the classroom and students can go over to the materials and select the appropriate tool when they are ready for that part of the assessment
2. Have students work on problem. There are multiple levels for this problem. Choose the number range that best fits the learning needs of your students.

Part 2 Personal Interview (Could be on the Second Day)

After students have completed the problems, you will want to get a deeper understanding of their work. It is time for the interview. Just like a reading conference, an interview can be conducted while other students are working. You might need to move closer to the student (kneel by desk, use a low voice and train students to also use a low voice when responding). Like a reading conference, an math interview will yield valuable information about student learning and thinking. Student should explain his/her thinking. Teacher will take notes on response

Ask students to explain their thinking about one of the math problems. (All Levels)

1. Choose one problem you would like to discuss with students.
2. Interview student. Why did you pick that tool? Can you tell me how that tool helped to solve the problem?
3. Record student responses



Name _____

There are 9 students on the bus. The bus can hold 12 students.

How many more students can fit on the bus?



Use a math tool to solve the problem



_____ students can fit on the bus.



Name _____

Bill ordered 10 cupcakes for the party. The children ate 6 cupcakes.

How many cupcakes are left?



Use a math tool to solve the problem



_____ cupcakes are left.



Name _____

There are 7 students on the bus. The bus can hold 20 students.

How many more students can fit on the bus?



Use a math tool to solve the problem



_____ students can fit on the bus.



Name _____

Bill ordered 15 cupcakes for the party. The children ate 6 cupcakes.

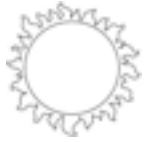
How many cupcakes are left?



Use a math tool to solve the problem



_____ cupcakes are left.



Name _____

There are 22 students on the bus. The bus can hold 40 students.

How many more students can fit on the bus?



Use a math tool to solve the problem



_____ students can fit on the bus.



Name _____

Bill ordered 36 cupcakes for the party. The children ate 14 cupcakes.

How many cupcakes are left?



Use a math tool to solve the problem



_____ cupcakes are left.

Scoring Guide

The Standards for Mathematical Practices are being assessed together with the grade level Common Core State Standards for these Performance Tasks.

Including the Standards for Mathematical Practice as part of the assessment of student learning helps the teacher to assess if a student has a deep understanding rather than a procedural understanding of the math concepts for the grade level.

For these Performance Task assessments, the Standards for Mathematical Practices are only connected to the grade level standards in the Common Core State Standards that use the word “understand” in the language of the standard.

Each part of the problem is connected to the Standards for Mathematical Practice (SMP).

Teachers will determine whether a student does (YES) demonstrate or does not (NO) demonstrate the SMP for that part of the problem/question.

Together, looking at student work in collaboration, teachers will discuss and come to a common understanding of what it looks like when a student does (YES) demonstrate or does not (NO) demonstrate the SMP for that part of the problem.

Teachers will record the YES and NO for each student on a spread sheet provided.

After filling out the spreadsheet, the teacher will be able to see the unique pattern of understanding (based on the answers Yes and No) for the student and the class.

This information will guide instruction and help teachers to use the data to plan targeted lessons at the class, small group, and individual level.

Scoring Guide
Solve Problems



Use a math tool to solve a problem.

MP5: Tool
MP1: Make Sense



Explain thinking

MP6: Precision