Generate Problem Situations

Objective Write and solve addition and subtraction word problems within 1,000 to match equations with two steps	**Materials Bar Models**

Previously, students have solved "add to," "take from," "put together," and "take apart" word problems. They used concrete models, pictures, and equations to represent the problem situations and created their own word problems related to these situations. In this activity, students create word problems to match multi-step addition or subtraction equations. They use bar models to represent and solve their word problems. This activity will prepare students for future work representing and solving multi-step problems involving all four operations.

Step by Step

10–15 minutes

1 Write and solve addition word problems.

- Display the following equation: 235 + 421 + 317 = ?
- Ask: *How would you describe this problem to a friend?* (an addition problem with three numbers, 235, 421, and 317)
- Explain to the student that they are going to make up a story problem for these numbers. Guide the student to write an addition story problem that makes sense for the given numbers. To support the student, ask them what the numbers could represent in a word problem. Ask the student what words you could use to represent addition or finding the sum in a word problem.
- Provide the student with **Bar Models** (page 4).
- Remind the student that using a model can help make a plan for solving the problem. Explain that the number that goes in the top box represents the whole and the bottom two boxes represent the parts. Ask: *How could you use two bar models to help solve your problem?* (I can think of the problem as two addition problems. I can write the first two numbers as the parts in the bar model and add to find the whole. Then I can use the whole and the last number in the equation as the parts of a second bar model and add to find the whole.)
- Observe and guide the student as they use bar models to solve. (235 + 421 = 656; 656 + 317 = 973)

2 Write and solve subtraction word problems.

- Display the following equation: 893 – 508 – 317 = ?
- Ask: *How would you describe this problem to a friend?* (a subtraction problem with three numbers, 894, 508, and 317)
- Explain to the student that they are going to make up a story problem for these numbers. Guide the student to write a subtraction story problem that makes sense for the given numbers. Ask the student what the numbers could represent in a word problem. Ask the student what words you could use to represent subtraction or finding the difference in a word problem.
- Direct the student to use **Bar Models** (page 4).
- Ask: *How could you use two bar models to help solve your problem?* (I can think of the problem as two subtraction problems. I can write the first number as the whole and the second number as a part and subtract to find the other part. Then I can use the answer to the first bar model as the whole and the last number in the equation as one of the parts of a second bar model and subtract to find the final difference.)
- Observe and guide the student as they use bar models to solve. (893 – 508 = 385; 385 – 317 = 68)

3 Repeat with other equations.

- Have the student write and solve word problems for the following equations:
  409 + 264 + 75 = ? (409 + 264 = 673; 673 + 75 = 748)
  129 + 388 + 241 = ? (129 + 388 = 517; 517 + 241 = 758)
  526 – 225 – 98 = ? (526 – 225 = 301; 301 – 98 = 203)
  737 – 489 – 201 = ? (737 – 489 = 248; 248 – 201 = 47)
- As the student works through the problems, check that their word problems involve adding twice or subtracting twice, using the given numbers.

Check for Understanding

Have the student write and solve a word problem for the following equation: 673 – 145 – 98 = ?
(Check that student's word problem involves subtracting 145 and 98 from 673. 673 – 145 = 528; 528 – 98 = 430)

For the student who struggles, use the chart below to help pinpoint where extra help may be needed.

If you observe…	the student may…	Then try…
the student writes an addition word problem,	not understand how to write subtraction word problem when there are two numbers to subtract.	using simpler numbers to write a sample word problem for a double subtraction situation, such as for 9 – 5 – 3 = ?. *There are 9 birds. 5 birds fly away, then 3 more birds fly away. How many birds are left?*
the student writes and solves a subtraction word problem using only two of the numbers in the equation,	not understand that they need to model the entire equation.	reminding the student to represent the whole equation, and have them describe the equation and show where each part is represented in their word problem.

Name _____

Bar Models