

Addition and Subtraction Problem Situations

ACTIVE SITUATIONS				
	Result Unknown	Change Addend Unknown	Start Addend Unknown	
Add-To	<p>Paulo counted out 75 crayons and put them in the basket. Then he found 23 more crayons under the table. He added them to the basket. How many crayons are now in the basket?</p> $75 + 23 = x$ $23 = x - 75$	<p>Paulo counted out 75 crayons and put them in the basket. Then he found some more crayons under the table. He added them to the basket and now there are 98 crayons in the basket. How many crayons were under the table?</p> $75 + x = 98$ $x = 98 - 75$	<p>Paulo was organizing the crayons at his table. He found 23 crayons under the table and added them to the basket. When he counted, there were 98 crayons in the basket. How many crayons were in the basket before Paulo looked under the table for crayons?</p> $x + 23 = 98$ $98 - 23 = x$	
Take-From	<p>There are 26 students in Mrs. Amadi's class. After lunch, 15 left to get ready to play in the band at the assembly. How many students are not in the band?</p> $26 - 15 = x$ $26 = 15 + x$	<p>There are 26 students in Mrs. Amadi's class. After the band students left the classroom for the assembly, there were 11 students still in the classroom. How many students are in the band?</p> $26 - x = 11$ $x + 11 = 26$	<p>After lunch, 15 band students left Mrs. Amadi's class to get ready to play in the assembly. There were 11 students still in the classroom. How many students are in Mrs. Amadi's class?</p> $x - 15 = 11$ $15 + 11 = x$	
RELATIONSHIP (NONACTIVE) SITUATIONS				
	Total Unknown	One Part Unknown	Both Parts Unknown	
Part-Part-Whole	<p>The 4th grade held a vote to decide where to go for the annual field trip. 32 students voted to go to the ice skating rink. 63 voted to go to the local park. How many students are in the 4th grade?</p> $32 + 63 = x$ $x - 63 = 32$	<p>The 4th grade held a vote to decide where the 95 students in the grade should go for their annual field trip. 32 students voted to go to the ice skating rink. The rest chose the local park. How many voted to go to the park?</p> $32 + x = 95$ $x = 95 - 32$	<p>The 4th grade held a vote to decide where the 95 students in the grade should go for their annual field trip. Some students voted to go to the ice skating rink and others voted to go to the local park. What are some possible combinations of votes?</p> $x + y = 95$ $95 - x = y$	
	Difference Unknown	Greater Quantity Unknown	Lesser Quantity Unknown	
Additive Comparison	<p>Jessie and Roberto both collect baseball cards. Roberto has 53 cards and Jessie has 71 cards. How many fewer cards does Roberto have than Jessie?</p> $53 + x = 71$ $71 - 53 = x$	<p>Jessie and Roberto both collect baseball cards. Roberto has 53 cards and Jessie has 18 more cards than Roberto. How many baseball cards does Jessie have?</p> $53 + 18 = x$ $x - 18 = 53$	<p>Jessie and Roberto both collect baseball cards. Jessie has 71 cards and Roberto has 18 fewer cards than Jessie. How many baseball cards does Roberto have?</p> $71 - 18 = x$ $x + 18 = 71$	

References

Carpenter, T. P., Hiebert, J., & Moser, J. M. (1981). Problem structure and first-grade children's initial solution processes for simple addition and subtraction problems. *Journal for Research in Mathematics Education*, 27–39.

Heller, J. I., & Greeno, J. G. (1979). Information processing analyses of mathematical problem solving. In R. Lesh, M. Mierkiewicz, & M. Kantowski (Eds.), *Applied mathematical problem solving* (pp. 181–206). Columbus, OH: The Ohio State University. Retrieved from ERIC database (ED 180 816).

National Governors Association Center for Best Practices and Council of Chief State School Officers. (2010). *Common Core State Standards for Mathematics*. Washington, DC: Author.

Riley, M. S., Greeno, J. G., & Heller, J. I. (1984). Development of children's ability in arithmetic. In *Development of Children's Problem-Solving Ability in Arithmetic*. No. LRDC-1984/37. (pp. 153–196). Pittsburgh University, PA: Learning Research and Development Center, National Institute of Education.