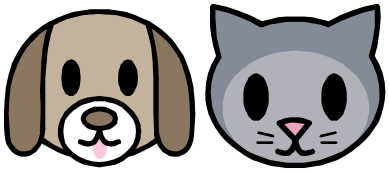
Task: Sammy's Pets	**Kindergarten**
Sammy has 7 pets. Some are dogs and some are cats. How many dogs and how many cats could Sammy have? Use a drawing and a number sentence (equation) to explain your answer. Choose another way to show how Sammy could have 7 pets if some are dogs and some are cats. Use a drawing and a number sentence (equation) to explain your answer.	
Teacher Notes:	
Cubes or other manipulatives should be available for students to use if needed. *Do not give students 7 cubes.* Have cubes available and allow students to count the number of cubes needed. A part-part-whole map may be helpful for some students to recognize that 7 cubes should be decomposed into two groups and that the two groups have a total of 7 pets. The term "number sentence" is used instead of "equation". Teachers may choose to model the term "equation" but students may choose to continue to use the term "number sentence".	
Common Core State Standards for Mathematical Content	**Common Core State Standards for Mathematical Practice**
K.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings[2], sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.A.3** Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). [2] Drawings need not show details, but should show the mathematics in the problem.	1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Essential Understandings	
• A quantity can be decomposed into two parts in more than one way. • A quantity can be decomposed into two parts and the whole quantity remains the same. The decomposition may be recorded as an addition equation.	
Explore Phase	
Possible Solution Paths	**Assessing and Advancing Questions**
Direct modeling with manipulatives: Student counts 7 objects and divides the objects into two groups – one to represent dogs and one to represent cats. (A part-part-	Assessing Questions • Which group of cubes represents the number of dogs and which represents the number of cats? • Why did you start with 7 cubes?

whole map may be helpful for some students.)	• Describe how you found the answer to the problem. Advancing Questions • What are other solutions to this problem? • Is it possible for Sammy to have the same number of cats and dogs? Why or why not?
Counting on from a number less than 7: Student chooses a number less than 7 to represent the number of dogs and then counts on to determine the number of cats needed to make a total of seven pets. Possible representations may include objects or number lines.	Assessing Questions • Describe how you found the answer to the problem. • Why did you start with a number less than 7? Advancing Questions • What are other solutions to this problem? • Is it possible for Sammy to have the same number of cats and dogs? Why or why not?
Known Addition Combinations Student chooses a known combination for seven and recognizes that each addend could represent the number of cats or dogs. Examples could include: 1 + 6 = 7 so Sammy has 1 dog and 6 cats 1 + 6 = 7 so Sammy has 1 cat and 6 dogs 2 + 5 = 7 so Sammy has 2 dogs and 5 cats	Assessing Questions • Describe how you found the answer to the problem. • I notice that you said Sammy could have 1 dog and 6 cats or 6 cats and 1 dog. These use the same numbers. Describe how they are different. Advancing Questions • What are other solutions to this problem? • Is it possible for Sammy to have the same number of cats and dogs? Why or why not?
Possible Student Misconceptions	
Student inaccurately counts the number of cubes in each set or inaccurately counts when adding up to 7.	Do the number of dogs and cats equal 7? How do you know? Do you think it is possible for Sammy to have 8 dogs? Why or why not?
Student decomposes the 7 into more than two parts.	What does each number represent? How could we represent dogs and cats with the cubes? (Perhaps use two colors, etc.)
Entry/Extensions	**Assessing and Advancing Questions**
If students can't get started….	Tell me what you know about Sammy's pets. Show me with cubes the number of pets that Sammy has.
If students finish early….	What is greatest number of dogs or cats that Sammy could have if Sammy has both cats and dogs? How can the equation 5 + 2 = 7 represent two different solutions? What are all of the possible solutions to this problem and how do you know you have found all solutions?

Discuss/Analyze
Whole Group Questions
How can the seven be decomposed into two groups in more than one way? Describe a number sentence (equation) that could be used to show how 7 can be decomposed into 2 parts. Describe the relationship between the number sentence and number of pets Sammy has.



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