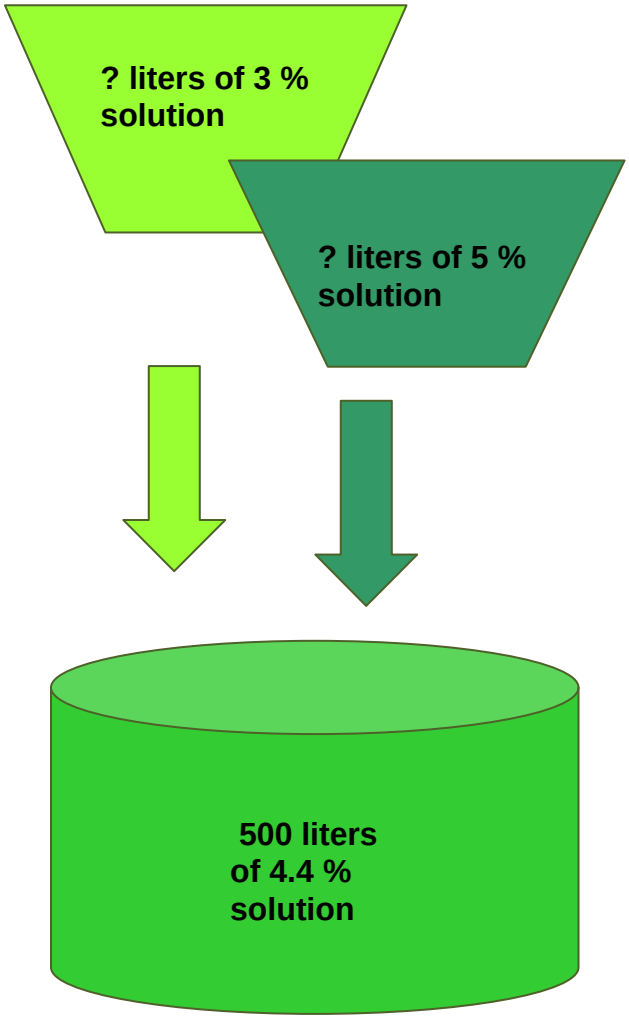
Instructions	Example
1. Carefully read the problem, note what numerical data is given, and what is being asked for.	A water treatment plant uses batch deliveries of two levels of chlorine concentrations to mix in order to create the level of concentration needed on any given day. Determine how many liters of a **3%** chlorine solution should be mixed with a **5%** chlorine solution to produce **500** liters of a **4.4%** chlorine solution.
2. Make a sketch, drawing, or picture of the described situation, and put all the given data from the problem on the drawing. Look for what the problem's question is. In other words, what do they want to know? In this example, they want to know how many liters of 3% solution and how many liters of 5% solution are required. Let x and y = that which they are asking for. Let x = the liters of 3%, and y = the liters of 5%.	

3. Look for other information (numbers, formula, etc.) that you can use to relate all the items. Note that this problem has two unknowns, x and y; so look for two relationships.	One relationship you see is that the two amounts added must equal 500 liters (the final quantity). Secondly, the 3 % added to the 5 % must yield a 4.4 % solution.
4. Write the two relationships in equation form using the givens and unknowns.	$x+y=500$ $(0.03)x+(0.05)y=(0.044)(500)$
5. Solve for x and y: One method of solving two equations in two unknowns is ***elimination***: Multiply top equation by negative 0.05, add the two equations, and solve for x. Then ***substitute*** the value found for x to get y.	$x+y=500$ $(0.03)x+(0.05)y=(0.044)(500)$ First, use elimination: $(-0.05)x+(-0.05)y=(-0.05)(500)$ plus $(0.03)x+(0.05)y=(0.044)(500)$ $(-0.02)x=-25+22$ $\frac{-0.02}{-0.02}x=\frac{-3}{-0.02}$ $x=150$ Substituting, $x+y=500$ $150+y=500$ $y=350$ So, x = 150 liters and y = 350 liters
Answer: **You need 150 liters of 3% chlorine solution and 350 liters of 5% chlorine solution to make 500 liters of 4.4% chlorine solution.**	