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Grade Level/Subject: Pre-Algebra/Algebra I

Topic: Translating words into Algebraic Expressions and Equations

Objectives (P.A.S.S.): Standard 1.1. Translate word phrases and sentences into expressions and equations and vice versa.

Introduction: Students were having many problems changing word expressions and equations into word notation. A word problem is completely overwhelming to the student who cannot even write "the product of 4 and a number", "five less than a number" and so forth. The included set of cards is a very good way to let students be a little more relaxed and motivated to try to figure out such problems. Since it includes a mixture of expressions and equations, it also lends the opportunity to help the see the wording that makes the difference in the two. This seems especially helpful with our limited language speakers. I usually give out the entire set of cards to each group of two or three persons with the instructions to decide as a group the best way to find the matching cards. Many different ideas result. Some seem equally successful, but some groups may need further guidance. A good first step for those needing help is to separate the words & symbols cards. A second separation of the expression and equation cards will reduce them to a more manageable number. (Some students will find a successful way to match their cards without going through those steps.) Limited speakers can first key in on the number words and symbols to start their matching and narrow down their choices. With a little encouragement, they usually become very involved and excited to be finding the correct matches.

Instructional process: The cards do not require extensive directions to be given to the class as a whole. The main thing to tell and demonstrate is the fact that each card with words on it has a matching math expression of those words on another card. Then you can divide into groups of two or three with instructions to decide as a group the best way to complete the task of matching all cards. Have students stack their matches on top of each other so that you can circulate to the various groups to check on their accuracy and give hints to those who seem overwhelmed. If you catch the mistakes of those rushing through in the early stages, they become much more careful with the rest of their matches. This activity will take most all of a class period for most students. Grouping will help equalize time, but a filler activity might be needed for a few students. I would not take a second day for those who do not get every card matched since they have probably learned as much or more with the cards they did carefully study and match.

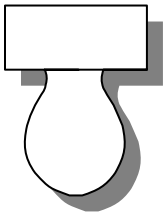
Closure: I try to encourage each group as they work and offer praise for their hard work. As individual groups finish their task or as the time for the bell approaches I discuss what things they have learned to watch for and which words present a problem. I usually try to have them remix their cards and put desks back in rows and such near the bell time, but the wrap-up (closure) is more easily handled in the small groups than trying to do it with the whole class because of the different work rates of the individual groups.

Assessment: Warm up problems or a short quiz the next day or soon after can give some of the same word situations or ones very similar to those they faced on the cards, but this time the students do the translation into symbols instead of matching.

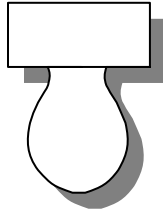
Modifications/Accommodations: Students with very low English language abilities should be grouped with a bilingual student so that with a translation of the words they could still help find the correct matching cards. If you prefer to group by abilities, those very low level students could be given smaller sets of cards already subdivided for them to some extent.

Reflection: I was very encouraged by the response of some of my students who always skip the "word" problems (even when they were only a few words to change to symbols) or say they can't understand English who began to hunt for matching numbers and other clues and took great pride in their matches. One kept coming up to me wherever I was in the room saying only "right or wrong?" showing his matches each time he thought he had one and they were almost always right. This has been one of the best class periods I have had with this particular group of students. Even those who were a little better at the language issues took pride in what they were doing and being able to complete the entire task in the class period with little or no help and time to spare.

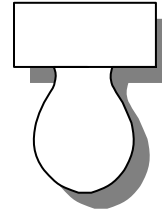
**Twelve  
decreased by 5  
times the sum of  
a number and 7**



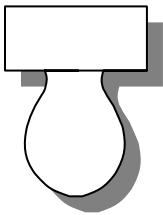
**Three less than 6  
times a number  
is 15**



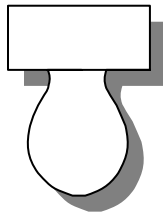
**The product of  
six and a number**



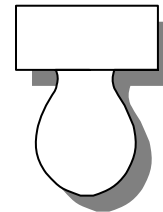
**A number  
decreased by 7**



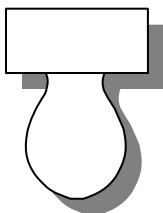
**Four less than 6  
times a number  
is 44**



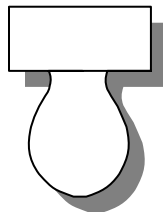
**A number  
increased by 5  
times the number  
-30**



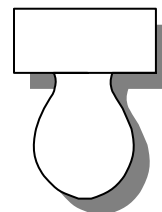
**Six decreased by  
3 times a number  
equals -9**



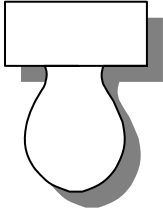
**Nine decreased  
by twice a  
number is 1**



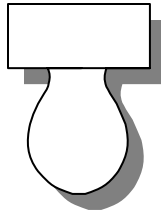
**Seven less than a  
number is twice  
the number**



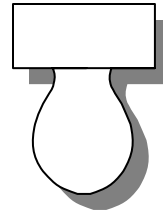
**Five times a number is the same as 6 more than twice the number**



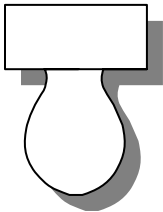
**Eight more than twice a number is 14**



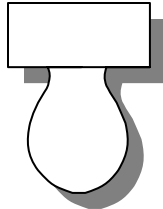
**The product of 7 and a number**



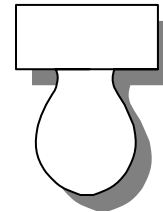
**Four less than a number**



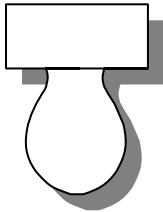
**Fourteen more than a number is 3 times the number**



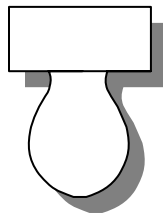
**A number decreased by 6**



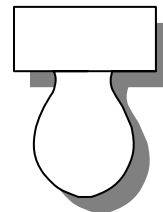
**Five increased by 3 less than twice a number**



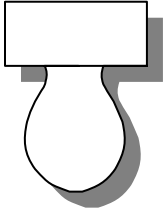
**Nine increased by a number**



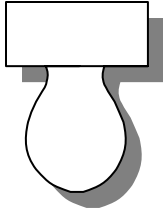
**Eight less than 3 times a number**



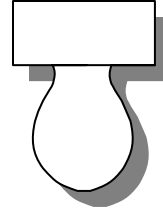
**The sum of a number and 3**



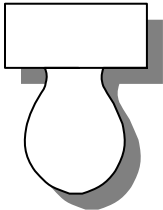
**Four times the sum of a number and 10 is 8**



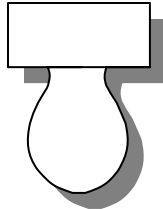
**Seven times a number is 35**



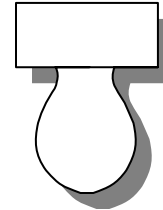
**Six times the sum of 3 and a number**



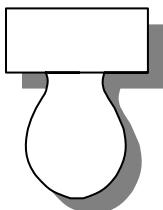
**A number increased by 20 is 8 decreased by 3 times the number**



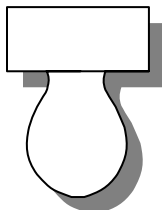
**One more than the sum of x and 6**



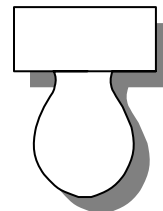
**Four more than 5 times a number is the same as 3 times the number**



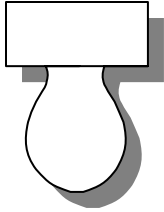
**Seven more than 6 times the sum of a number and 4**



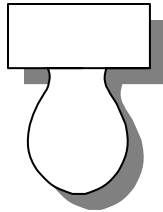
**Eight more than 3 times a number is 2**



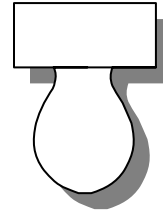
**Two less than a number**



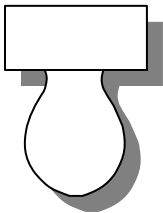
**Three times the sum of a number and -2 is 15**



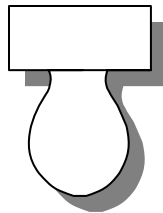
**A number increased by 16 is the same as 4 decreased by 3 times the number**



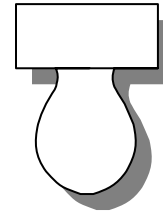
**Five less than 6 times a number is 7**



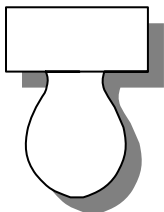
**Nine less than 4 times a number**



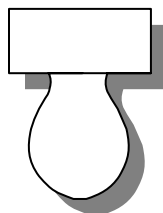
**Nine less than 5 times a number is the same as the number decreased by 1**



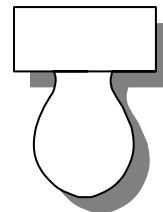
**Seven less than twice the sum of a number and 5**



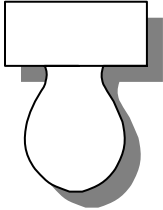
**Seven increased by a number**



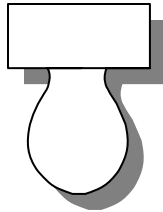
**Nine more than 8 times a number is the same as 7 times the number**



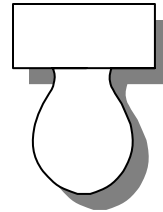
**Ten less than 8  
times the sum of  
twice a number  
and -4**



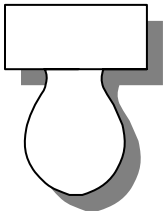
**Four increased  
by a number is  
20**



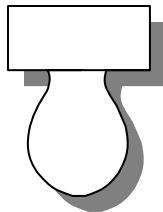
$$12 - 5(x + 7)$$



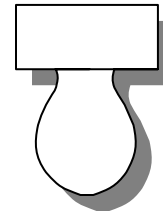
**Ten more than  
twice a number**



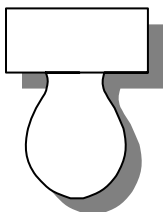
**Twelve increased  
by 4 times a  
number is 20**



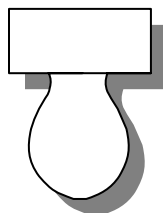
$$x - 7$$



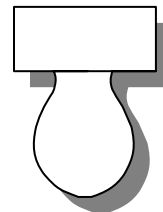
**Seven less than  
twice a number  
is the same as the  
number  
decreased by 8**



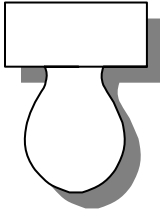
**5 increased by  
twice a number**



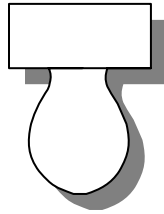
$$6 - 3x = -9$$



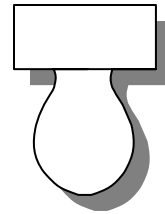
$$6x - 3 = 15$$



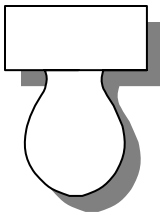
$$6x$$



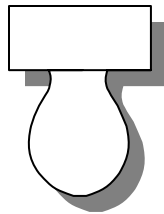
$$5x = 2x + 6$$



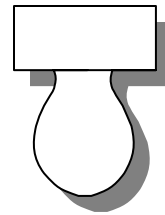
$$6x - 4 = 44$$



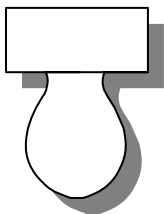
$$x + 5x = -30$$



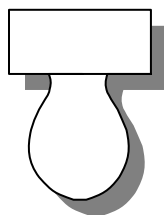
$$x - 4$$



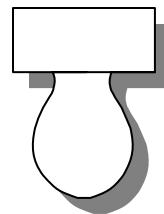
$$9 - 2x = 1$$



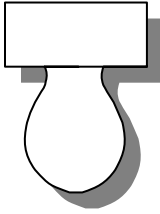
$$x - 7 = 2x$$



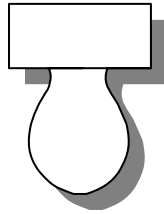
$$5 + 2x - 3$$



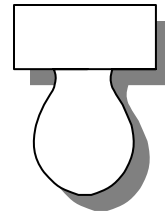
$$2x + 8 = 14$$



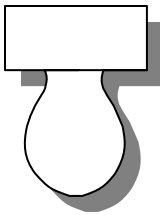
$$7x$$



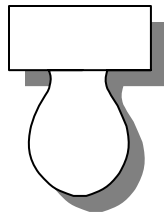
$$x + 3$$



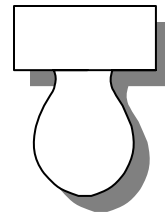
$$x + 14 = 3x$$



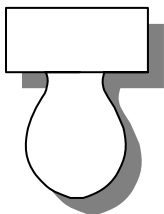
$$x - 6$$



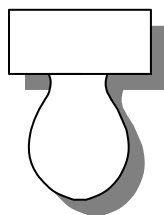
$$6(3 + x)$$



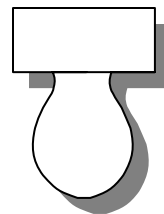
$$9 + x$$



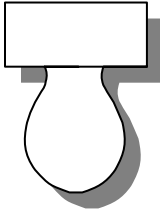
$$3x - 8$$



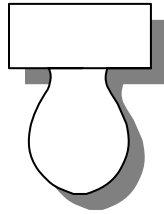
$$5x + 4 = 3x$$



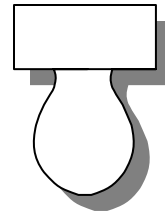
$$4(x + 10) = 8$$



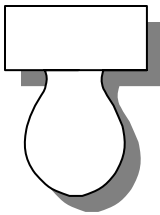
$$7x = 35$$



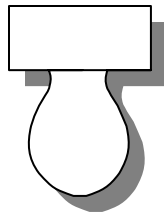
$$x - 2$$



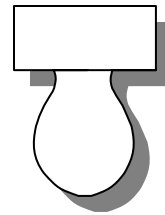
$$x + 20 = 8 - 3x$$



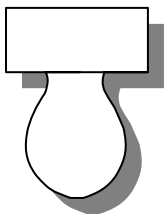
$$(x + 6) + 1$$



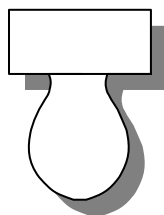
$$6x - 5 = 7$$



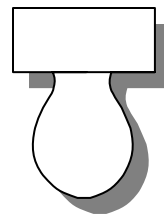
$$7 + 6(x + 4)$$



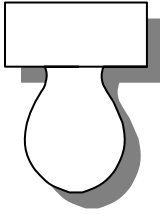
$$8 + 3x = 2$$



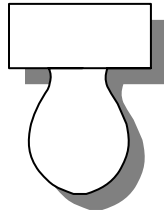
$$2(x + 5) - 7$$



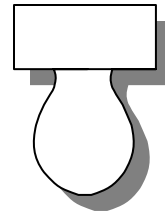
$$3(x + -2) = 15$$



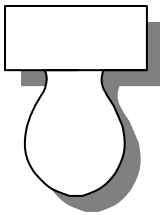
$$x + 16 = 4 - 3x$$



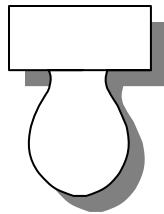
$$8(2x + -4) - 10$$



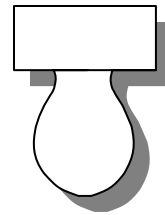
$$4x - 9$$



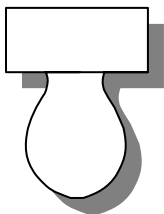
$$5x - 9 = x - 1$$



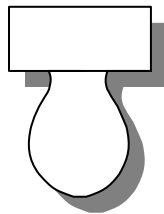
$$2x + 10$$



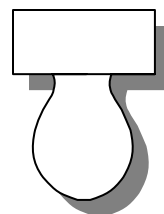
$$7 + x$$



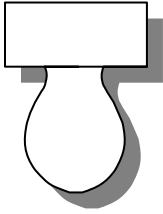
$$8x + 9 = 7x$$



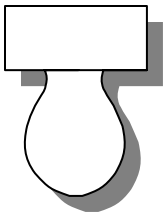
$$2x - 7 = x - 8$$



$$4 + x = 20$$



$$12 + 4x = 20$$



$$5 + 2x$$

