

# Math: Sometimes a **NOT** so Universal Language

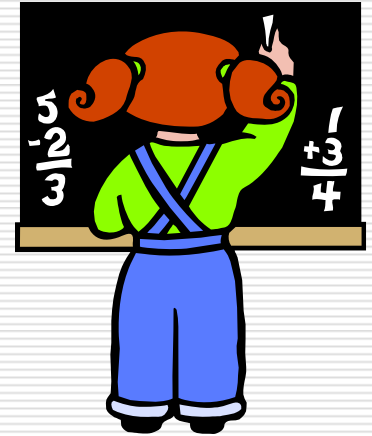
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# Language and the Teaching of Math

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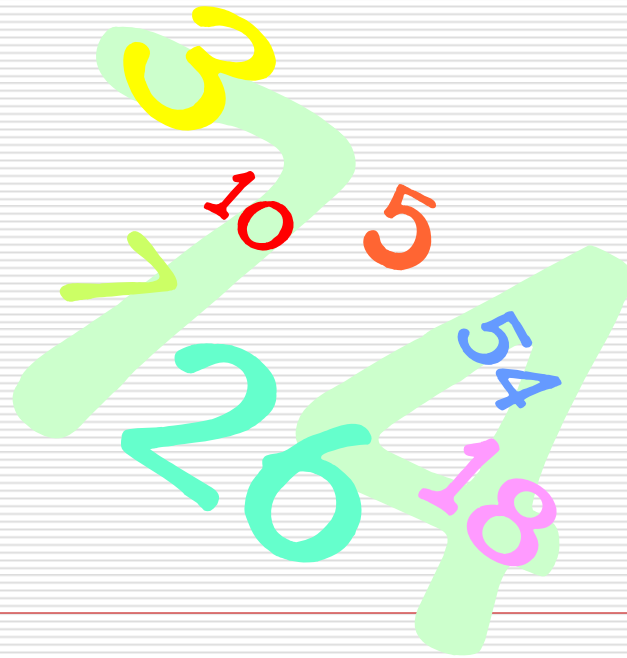


**When we teach math we must remember that the children we teach will have thoughts that arise from our words, and their experience.**

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**A learner's difficulties in numeracy may be due in part to a lack of proficiency in English.**



## Help with Skills: Objective 1

**TIP:**

✓ Some words have more than one meaning. Clues can help you pick the right one.

**Multiple-Meaning Words**

Since some words have more than one meaning, you have to consider which meaning the author intends. Keep in mind the context in which you read the word. The context will tell you which meaning to choose.

What does the word *contain* mean in the sentence below?

The cowboy tried to contain the wild horses in the wooden corral, but it wasn't big enough to hold them all.

If you look up the word *contain* in a dictionary, you might see something like this:

**contain** \kən-'tān\ v 1. to include as part of 2. to fit or accommodate 3. to restrain oneself 4. to encircle or enclose

In this sentence the words "to hold them" help you know that *contain* means "to encircle or enclose."



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- The crowd was small in number.**
  - The opening number was the pinnacle of the show.**
  - The South had leaders, the North numbers.**
  - The suspects will do their usual number — protesting innocence — and then confess.**
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- How long is the movie?**
  - How long is the table?**
  - Find a newspaper article that involves large numbers.**
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Although mathematical concepts may be generalizable to many languages and cultures, these concepts must be learned and expressed through particular languages.



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- What's the difference between 9 and 6?**
  
  - Consider 358 and 9284. Which 3 figure number is larger?**
  
  - 10**
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# “Twenty divided by five”

$20 \div 5$

$5 \overline{)20}$

$20/5$

$\underline{20}$   
5

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**" $2 + 2 = 4$ " may be widely understood, the English expression "two plus two equals four" is not.**

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# Vocabulary Challenges: Multiple Meanings

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<b>Math</b>	<b>Science</b>	<b>Social Studies</b>	<b>Other</b>
Base 10 number system	Chemical base	Military installation	Sports: Base as in baseball
Factor to be multiplied when working with exponents			Home based business
The length of a two dimensional may also be referred to as the base			
The base of a solid is the face that is perpendicular to the height			



**It is also important to be aware of differences in the use of mathematical symbols in learners' native languages and differences in methods of computation that result from their previous schooling.**

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**If a postal carrier earns \$32,578.50 in Canada or the United States, most persons from non-English-speaking countries would write the salary as \$32.578,50--i.e., with the point and comma reversed.**

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# **GUIDELINES FOR TEACHING NUMERACY**

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**To facilitate numeracy learning in an ESL literacy program, Ciancone and Jay (1991), Kallenbach (1994), Leonelli and Schwendeman (1994), and Lucas, Dondertman, and Ciancone (1991) offer the following suggestions:**

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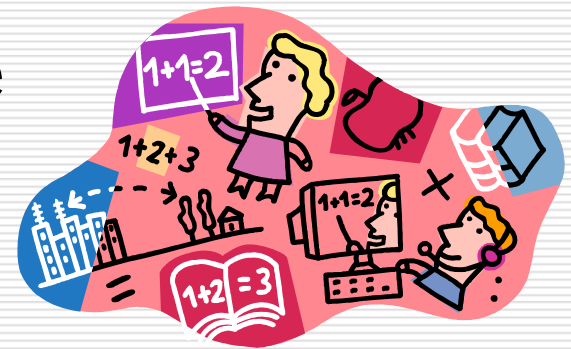
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**1. Encourage looking for patterns rather than finding the right answer.**

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**2. Stress the possibility that there may be many ways to solve the same problem.**



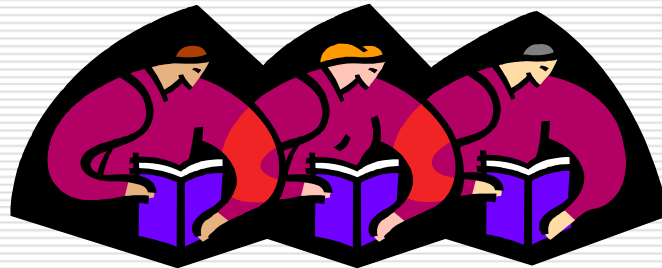
*Because there are often multiple ways to solve problems, it is usually best to observe how learners approach problems and then to build on that.*

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**3. Encourage peer-group collaboration. The best way to clarify one's own understanding of a concept is to explain it to someone else.**





**4. Encourage learners to write journals about the math skills they are learning and their feelings about learning math. Using the language of mathematics reinforces both the mathematical concepts and proficiency in English.**

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**5. Although numeracy is an everyday coping skill, mathematical concepts can be quite abstract; the more concrete and visual the explanation, the more easily understood the abstract concept.**

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- 6. Each numeracy lesson should provide a balance between skill building and functional needs.**
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**A lesson may begin with a problem (e.g., a mistake on a paycheck) that provides a context for learning new skills (such as subtracting decimals),**

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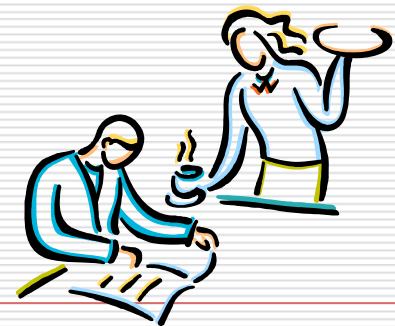
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**or the lesson may start with a skill (e.g., adding decimals) followed by practical applications (such as adding sales tax to a fast food bill).**

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**7. Include math in literacy instruction from the beginning. Even learners who have almost no proficiency in English need to learn numbers for such basic activities as shopping and transportation.**



# Sample Activity...

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**The Childress family went on a camping trip. They paid \$28.00 for a 2-night stay at a campground that allows a maximum stay of 30 nights. Which equation can they use to find  $c$ , the cost of camping at this campground for the maximum number of nights?**

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**Compare the equation you wrote to the following equations. Which best matches your equation?**

■ A  $c = 60 \cdot 56$

■ B  $c = 30 \cdot 28$

■ C  $c = 28 \cdot 28$

■ D  $c = 30 \cdot 14$

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**Numeracy includes a range of skills that are necessary for initial survival in a new country and for functioning as a fully literate person.**



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**In programs for English language learners, both the mathematical skills and the language for these skills need to be integrated into the curriculum in order to prepare the learners to be successful.**

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**We are trying to communicate our thoughts, hoping that what is in our minds will cross over to the minds of those we teach, without any important errors or omissions.**



*It's up to us to be mindful of this.*

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*Mathematics- a sometimes **not** so  
universal language!*

