Variables, Expressions and Equations

Big picture: Variables are symbols that take the place of numbers or ranges of numbers. They have different meanings depending on whether they are being used as representations of quantities that vary or change representations of specific unknown values, or placeholders in a generalized expression of formula.

Objective: The learner will be able to identify a variable and give a definition.

Language objectives:

- ✓ The student will read both fiction (Mad lib) and non-fiction passages (Science Text).
- ✓ The student will write ideas, comparisons, contrasts and simple expressions and equations.
- ✓ The student will listen to the literal difference between expressions and equations.
- ✓ The student will speak aloud reading from Mad libs and Science text, identifying variables and how they relate to expressions and equations.

Standards: Standard 3: Concepts and Language of Algebra and Functions

- ✓ 7.M.3.1.1: Use variables in simple expressions and equations.
- ✓ 7.M.3.1.2: Translate simple word statements into algebraic expressions and equations.

Material: Mad Lib magazine

Paper and pencil

Lesson sequence (1ˢᵗ day):

1) Pass out Mad Lib sheet
2) Have students fill them out (pairs is optional)
3) Read aloud the stories after they are finished
4) Compare and contrast the stories what makes them similar? What makes them different?
5) Define a variable: Why are the blanks variables?
6) Number story Mad Lib passed out (nonsense)
7) Have students fill them out

Nonsense without value

- Expressions

Unlimited values/stories

Mad Libs

Lesson sequence (2ⁿᵈ day):

1) Pass out Science text with key vocabulary missing (Yesterday's reading in Science)
2) Have student fill it out

3) Read aloud the text: Does it make sense?
4) Compare and contrast are there rules?
5) Define a variable: Why are the blanks a variable? Are there rules to picking the "right" variable?
6) Give out equations with variables in then, how are they similar to the Science text?
7) Have students fill them out

Context with value

- Equations

Limited value and meaning

Textbooks/Equations

Assessments: Ticket out: define a variable, give an example.

Flow chart: fill in a blank flow chart

Verbal check: differences between expressions and equations.

The learner will be able to identify variables and give examples of expressions and equations (80% accuracy).

LIMSST Project Literacy Lesson Reflection Form

Date of Lesson: 10/7/07

Lesson Title/Topic Areas: Variables, Expressions and Equations

Literacy Strategies Used:
(Please discuss what literacy strategies you embedded in this lesson. What were your goals in using these strategies?)

First, they had to predict the difference between fiction (mad-lib) and non-fiction (Science text). They had to visualize the difference between literature and mathematical form. Then, they explored, monitored and adjusted their answers to correspond to the text. Finally, they summarized the relationship between expression and fiction as well as, equation and non-fiction.

This lesson's goal was to make connections between literature and math more authentic. They had a better understanding of expressions and equations.

Student Response to the Lesson:
(Was the strategy effective? Were students able to read/write as needed in this lesson? What attitudes were displayed? How did specific Students and/or the class do? How did the literacy strategy aid in developing student understanding of the topic? Cite specific evidence from the samples of student work)

Yes, this strategy was effective and provided students with a deeper understanding. The students were able to write and revise expressions and equations. They enjoyed the lesson, they had no trouble sharing and critiquing each others work. This is an inclusion group with five identified IEP students a long with two identified GT students. The strategy was successful and was easily modified for my IEP and GT students. The work samples I submitted show that the students are able to write an expression, change it to an equation and then find a solution. This assignment was to write 25 expressions, then change then to equations. The students on their on solved the equations, without prompting. I have enclosed a random sampling of student's work.

Lesson Reflection:
(What worked well with this lesson? What challenges did you encounter in this lesson? Would you change certain aspects of the lesson or the questions that you asked? How does this influence future lesson planning?)

This lesson was cross curricular; I had assistance from the Science teacher in providing current text. Reading teacher provided review of common terms that they would have to use in the Mad-Lib. I believe the next time I teach this lesson I will tie it in better with the Science and Reading lessons. This lesson would be great to team teach with, I have to give it a try.
I believe that this lesson could be an entire unit; to only give it two days was an oversight.

Relationship to Previous Instruction:
(Have you taught this lesson/topic prior to the LIMSST project? If so, how did your teaching of this lesson differ from what you taught before? How did students' reactions to this lesson differ?)

I have never taught this lesson prior to the LIMSST project. I actually created this lesson while attending the project this summer. Before the summer institute I taught this concept out of the book, taking notes and giving assignments. My students enjoyed and benefited from the unique lesson. I was really satisfied with this lesson; it provided a different way to introduce expressions, equations and variables.