WRITING IN THE MATH CURRICULUM

TARGET NUMBER: mental math using a deck of playing cards
Primary grades: Each child gets 2 cards from a deck of playing cards. It is best to use only the number cards when you first do this activity. The student can be asked to add them together, or place one card in the tens column and the other in the ones column. The important thing is to ask for some feedback from the child. How did you get your answer? How many tens does the card represent? What is the value of the number you've made? The teacher may write a sentence about the process with input from the class.

Through the year and into the next grades, distribute 4 cards to each child. Write a "target number" on the board. The child must make two 2 digit numbers from the 4 cards. These 2 digit numbers are then added together. Whoever gets a sum closest to the "target number" is the winner. (Students may rearrange the cards as many times as they need to, in order to come as close as possible to the "target number".) After regrouping has been taught, the numbers can be subtracted from each other. The answer must still be as close as possible to the "target number". Next, students are asked to verbalize their reasoning. What made you rearrange your cards the way you did? How many attempts did you make? How did you think this through? It's a great help to students if they hear their teacher reasoning out loud. It teaches them how to think through the process. Use phrases like, "At first I thought I should…but then I realized…so I decided to…" Ask students to write a sentence or 2 summarizing their thought process.

Middle grades: The teacher displays 5 cards from a deck of playing cards. (It is best to start this activity using only the number cards. Later the face cards may be added if you would like.) Use the 5 cards to formulate questions like the following:

- What fraction of the cards is red?
- What is the product of the cards that are black?
- What is the sum of all 5 cards? (Next, round that sum to the nearest ten.)
- What percent of the cards is odd?
- Are there any factors of 24?
- What is the average of the 5 cards?
- What percent of the cards are prime numbers?
- What decimal represents the cards that are hearts (or any suit)?
- What is the ratio of red cards to black ones?
- What is the median (or mean or range) of the cards?
- If the red cards represent negative values and black cards represent positive ones, what is the sum (or the product) of the 5 cards?

After they verbalize their answers, students must write out their reasoning.

Middle grade students can use the "target number" activity above. Distribute 4 cards to each child and follow the directions above. *Remember* to have them write out their reasoning!

Upper grades: Use the "target number" activity above (see primary grades), but distribute 6 cards to each student. They must construct two 3 digit numbers which will be added together to come as close as possible to the "target number". Or challenge

them to use more than one operation to aim for the "target number". For example, if a student has the cards 7, 5, 2, 1 and the "target number" is 18, he/she may construct a sentence like this: 5 x 2 +7 – 1. The numbers and operations may be rearranged, of course, until the child is satisfied that he/she has come as close as possible to 18, whether that be above 18 or below it. The students must write out their reasoning. *Challenge*: As students become more proficient at this skill, introduce the face cards. You can also allow them to use the Joker as a "wild card".

WRITING RIDDLES

Use your current topic and ask the students to write riddles about that topic. This is a good way to check comprehension and/or vocabulary, as well as to have a little fun. They must always double check their answers to be sure there is only one solution. Students can also write their riddles with a partner and then switch with another pair of students to solve each other's riddles. (The authors get clues as to the clarity of their riddles if the other pairs have difficulty understanding or solving---a bit like peer editing in the ILA writing process!)

Examples:

- I am a unit of measure.
  There are 3 of me in one yard.
  There are 5, 280 of me in one mile? What am I?
- I am an angle. I measure greater than 90 degrees, but less than 180 degrees. What am I?
- I am an even number. I am greater than 17 and less than 25. The sum of my digits is 4. Who am I?
- Which 3 consecutive numbers have the same sum and product?

HOMEWORK IDEAS:

- Consider assigning fewer problems, so that time can be devoted to a written explanation for 1 or 2 them.
- If the homework is computation examples, ask the students to write an original word problem for a few of those computations.
- Provide paragraph parameters to guide student writing. For example, "There are _____ chairs in the cafeteria. I found my answer by _____. I know my answer is right because _____. (These boundaries are especially helpful for students who have trouble getting started with their writing.)