



CAMT July 2004

Alphabet Number Soup: Mmmm, Mmmm, Good

Topic: Integrating Math and Language Arts Using Headline Stories

Summary: “Tell a story with number 4 in it.” In responding, a child develops number sense and language skills. This session offers ideas for infusing language into math lessons.

Presenters: Sabita Chopra, Stacy Grossman

What are Headline Stories?

Headline Stories prepare children to be creative problem solvers and good deductive thinkers. A headline is an open-ended situation about which it’s possible to make many true statements and in which specific mathematical ideas are embedded. Like a newspaper headline, headlines give clues about what might follow, but they leave out details. Only rarely do they pose a specific problem. It’s up to students to envision a story and ask the right questions. Part of the learning goal is for students to discover what mathematical questions are possible to ask, or answer, about a situation. Headline Stories require only 5–10 minutes a day. They can be connected with a lesson theme to enhance students’ understanding of a concept or allow them to look at it differently. Headline Stories have the following purposes:

- Develop skills at deriving real-world meaning from mathematical statements and deriving mathematical meaning from real-world situations
- Develop skills at using natural language and mathematical language to describe ideas drawn from mathematics or the physical world
- Help students learn to solve word problems by understanding how they are built

Examples of Headline Stories

1. Story about a picture, number, or number sentence.



$$4 + 2 = \underline{\quad}$$

- There are 5 shapes: 3 black and 2 white.
- There are 5 shapes: 3 squares and 2 circles.
- 2 shapes are on top; 3 are on the bottom.
- If I draw a white square in the middle of the top row, then the top and bottom rows will be the same, only different colors.
- My brother is 4 years old. In 2 years, he'll be 6.
- It's 4 o'clock. In 2 hours, it'll be 6.
- I have 4 cats and 2 dogs. That's 6 animals.
- I had 4 books. I got 2 more at the library. Now I have 6 books.

2. What possibilities?

I have coins worth cents.

- I have 3 coins worth 7¢: I have a nickel and two pennies.
- I have 2 coins worth 50¢: I must have two quarters.
- If I know how many coins and the total amount, can I always tell which coins I have?
- If I have 6 coins, I can't have less than 6¢.

There are 6 cookies. children could have cookies each.

- 3 children could have 2 cookies each, or 6 children could have 1 cookie each.
- 4 children could have a cookie each, and 2 cookies would be left over.
- Up to 12 children can have half a cookie each.

3. What can you say?

I have 12 cents.

- It's impossible to tell for sure how many coins you have.
- You have at least two pennies.
- You have at least three coins.
- You have no more than 12 coins.
- You might have 4 coins.
- If you spend 7 cents, then you'll have 5 cents left.
- That's a dime less than 22 cents.

In one of my pockets I have an even number of marbles; in the other pocket I have an odd number of marbles.

- I might have 1 marble in one pocket and 2 marbles in the other.
- I might have 3 marbles in one pocket and 6 marbles in the other.
- What do I know for sure? (I know that if I combine the marbles in both pockets, then I'll have an even number of marbles; I know that if I take one away from the odd number, then I'll have an even number; I know that if I take one away from the even number, then I'll have an odd number.)
- What can't I tell for sure? (I don't know for sure how many marbles I have in each pocket; I don't know for sure which pocket has more marbles.)

Creative Strategies and Types of Responses

A creative strategy is to add information (“If I had one more penny...”) or to invent problems (“If I bought gum for 5¢...”). It takes time for students to become creative in their responses and to develop a good sense of what are relevant responses. However, this time pays off as students develop their language skills, become good deductive thinkers, and begin moving fluently between a real-world situation and its mathematical description.

Not all responses must include numbers. In general, good responses:

- Describe a pattern implied by the given information (“It looks like he doubles each day.”)
- Describe a result that can be derived logically (“By Thursday, he earned \$15.”)
- Pose a question or new problem (“How much will he earn next Monday?” or “Could this pattern continue?”)
- Clarify or extend the situation
- Make a prediction that seems relevant and likely (“I think he’ll earn \$16 on Friday.”)

Tips

- To keep mathematics alive the whole day, use a regular time for *Headline Stories* that isn’t directly before or after the math lesson.
- Read a headline to the class or write it on the board for students to read themselves.
- Ask questions to prompt students to think about the headline and share their ideas: What can you say about the situation? What questions can you ask? What problems can you pose? What can you figure out or predict?
- Record the most mathematically relevant responses so the class can see them (even if they aren’t yet reading well). In doing so, you call special attention to them while accepting a wide range of other responses.
- In the beginning of the year, give students ideas about what kinds of things are relevant to say. For example, give headlines with sentence starters to complete, such as, “My sister is two years older than I am. When I was 4...” When students have more experience, you can present the same headline story more briefly as, “My sister is two years older than I am.”

