

TEACHING READING
TO MAKE SENSE OF MATHEMATICS

PART OF THE JOB

Mary K. Bouck
Superintendent, Farwell Area Schools

CMP Conference
March 15, 2003
Michigan State University

Reading in the content area is not about teaching de-coding or phonic skills.

It is about teaching **reading comprehension** in a specific content area (mathematics).

“Ultimately, we want (need) teachers in all content areas to understand that teaching reading in their discipline is teaching the content, that the texts and ways of talking about and interpreting those texts are at the heart of their discipline.”

Cynthia Greenleaf

QUESTION for all of us is:

- How do we teach reading comprehension in mathematics classes?
- More specifically, how do we teach reading comprehension in mathematics classes using **CMP**?

ANSWER:

- It is **not** about teaching some strategies
- It is about creating **strategic readers**
- It is a teacher who is **purposeful and consistent** in their effort to do this work
- It takes **TIME**

What is a strategic reader?

- Someone who is always working actively to construct meaning of what they read.
- Someone who **understands** reading strategies and **knows when** and **why** they would use a specific strategy.
- It is not someone who waits or had the teacher explain what the problem (words) are about and tell what one is suppose to do.

Give one reading strategy you use to help you comprehend the reading of mathematics.

a.)

b.)

c.)

d.)

e.)

f.)

Explain when you use your particular strategy?

a.)

b.)

c.)

d.)

e.)

f.)

Strategies you use and your reasons for selecting a strategy seem to be based on:

- knowing your own learning needs
- knowing the task you are asked to do and what it takes to make sense of the task

So, How can each of us help our students to develop these skills?

It means:

- We need to provide students with instruction in thinking about thinking (metacognition).
- We need to be deliberate in helping to enable learners to take responsibility for both their own learning and their own comprehension.
- We need to stop assuming that this just happens for most students because we want it to.
- We need to be **purposeful and consistent**
- We need to **deliberately plan** for this to happen

Read the title of the book and ask the students the following:

- What is this book about?
- Why do you think this is important to learn?
- What do you think you will be able to do, use, and/or understand after you complete this unit?

What I am doing when I take students through this process is helping them to:

- understand the **text features** of CMP.
- asking the questions
 - sets a **purpose** for doing the mathematics and thus for the reading within the text
 - helps students to **predict** what the reading in the book will be about
 - helps to set in their mind questions to **look for answers** to as they read and work through the text.

These are all components of being a strategic reader.

Experience is repeated when we do the **Introduction** to the unit (always **page 3**) and the **Framing Questions** for the unit (**page 2**).

The teacher, a good reader, or a practiced reader reads the Introduction and then the Framing Questions.

The Introduction and the Framing Questions help:

- set a **purpose** for the units mathematics / reading
- further **predict** what the unit is about
- **set questions in their minds** to look for answers to as they work through the mathematics and do the reading

Modeling:

- the reading of page 3 and then page 2,
- and asking questions that help students to notice that all the units are designed this way,

This helps students to understand the **text features** of CMP.

Investigation 1; Problem 1:1

- Teacher tells story in own words and reads the problem out-loud
- Teacher tells story in own words and volunteer reader or practiced reader—reads the problem out-loud
- Teacher, good reader, or practiced reader—reads the story and the problem out-loud.

NOTE:

Models good reading (flow, fluency)

Investigation 1; Problem 1.1

- put the students into groups and ask them to talk among themselves about the task and what it is asking them to do (maximum: 5 minutes)
- have the groups share what they think the question is asking them to do
- ask—how do you know that is what the problem is about
- might ask—where in the problem does it make you think that that is what it is about.

Why would I do this problem this way?

- Groups help create a **risk-free environment** in which to make sense of print.
- Start of the unit. Learning how to make sense of words that are describing fraction situations (**the context**) may be new and therefore **discussing ones understandings of a section with peers**, in order to better understand the meaning, is a reading strategy that has just been practiced.
- Groups share their understandings of the problem; a way of **summarizing what one has just read in their own words**.
(another reading strategy)

Allows for the teacher to monitor students understanding of the words and begin to make instructional decisions about how they might address problems or misunderstandings of the students' interpretations of the words and the mathematical concepts.

Decisions regarding reading and comprehension:

The story could be:

- Teacher told
- Teacher read
- Volunteer or practiced student read

The problem could be:

- Teacher read
- Volunteer or practiced student read
- Read individually

Comprehension check could be:

- Whole class discussion
- Group discussion / class sharing
- Group discussion only and then work on problem
- Pair discussion / class sharing
- Pair discussion and then work on problem
- ? Individuals work on problem ?

Each of these decisions gives different opportunities to work on reading strategies, gives teachers different information about what students understand and can do.

Investigation 4; Problem 4.1

With someone near you:

- Talk about the problem
- Think about the mathematics and how students might deal with this problem
- Talk about how you would plan for reading instruction:
 - How will the story be told?
 - Who will read the problem?
 - How will comprehension be checked?

Teachers need to analyze problems and think about their decisions regarding:

- Story telling / reading
- Reading of the problem
- Opportunities for reading strategies to be used and understanding for a strategy developed.

Strategies that can be used and developed include:

- Previewing
- Predicting
- Setting the purpose
- Asking questions and using the reading to look for answers
- Trying to figure out the meaning of unfamiliar words
- Re-readings, if necessary, to monitor understanding
- Summarizing in words what one has read
- Discussing with a peer(s) ones understanding of the reading to better understand and develop meaning

Teaching reading in the content (mathematics) area requires that teachers be “strategic teachers of reading”. They need to:

- incorporate strategies of reading into their lessons
- know when and why they used a strategy
- work persistently to help students to construct meaning of what is read

The results of the National Assessment of Educational Progress (NAEP) 1998 results show:

- Students who were asked to explain their understandings and discuss interpretations tended to have higher reading scores than students not asked to share through discussion.
- Students who had more opportunities to write demonstrated the highest reading performance

NAEP Results Show Heartening Gains,
Reading Today, International Reading
Association Newspaper.