Instructional Strategies that Promote Literacy in Mathematics

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Five Literacy Elements

- Thinking
- Listening
- Speaking
- Reading
- Writing
- **?**

What comes first? The chicken or the egg?

- Strategy selection
- Lesson design

The van Hiele instructional cycle

- Information
- Guided Orientation
- Explicitation
- Independent Orientation
- Integration

Practices that support students' mathematics and literacy development (Masingila & Hinchman, 2005)

- Problem of the day
- Modified textbook investigations

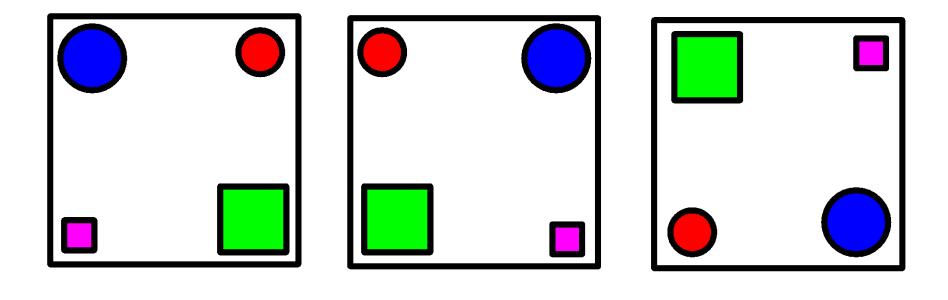
Teachers changed focus on data collection

Problem of the Day

A square sheet of paper is folded vertically. Then it is cut in half along the fold. What is the ratio of the perimeter of each rectangle to the perimeter of the square?

Problem of the Day

Draw the next figure in this pattern.



Investigation: Brenda's Walk

Starting at home, Brenda walked 1 block north, 2 blocks east, 3 blocks south, 4 blocks west, and so on, each time turning 90° to her right and walking one block further.

- 1. After walking a total of 190 blocks, how many blocks is Brenda from home?
- Plot Brenda's walk on a coordinate grid locating Brenda's home at the origin. Describe the endpoints of the segments along the walk. Are there patterns? Find the rules, if possible?
- 3.

References

Hinchman, K., & Masingila, J. (2005). Teachers' evolving practices in supporting students' mathematics and literacy development. In G. M. Lloyd, M. Wilson, J. L. M. Wilkins, & S. L. Behm (Eds.), *Proceedings of the 27th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* Blacksburg, VA.

Problem of the day. (1994). Glenview, IL: Scott, Foresman and Company.

van Hiele, P. M. (1986). Structure and insight. Orlando, FL: Academic Press, Inc.