Algebraic Thinking in Elementary School?

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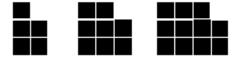
What is Algebraic Thinking?

Topics for Our Session

1. What is Algebraic Thinking
2. Videos
3. Strategies

Types of Algebra

1. Procedural – representing a letter as a single unknown (ex. 7x+4=32).
2. Structural – use symbols such as letters to expose generalities.

What Type of Algebra is it?

Evaluate the following expression for the given values:
$4x+1$ when $x=1$, $x=2$, $x=3$

Describe how the shape is growing. Use x to represent blocks at certain stages?

Principles of Teaching and Learning Algebra

1. Start with generalizations through exploration of pattern tasks.
2. Teach algebra as a problem solving tool.
3. Teach algebra as a sense making experience.
4. Represent algebra in multiple ways.
5. Teach algebra through the mathematical practices.

Where is this in the Standards?

Cluster: Work with addition and subtraction equations.

1.OA.D.7

Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6=6, 7=8-1, 5+2=2+5, 4+1= 5+2.

Videos

Key Vocabulary

Expression:

Equation:

Strategies to Develop Algebraic Thinking

LIST OF RELATED CITATIONS

"Algebraic Thinking in Elementary Schools: All about the Equal Sign"

Andrea Munoz

Blanton, Maria L. *Algebra and the Elementary Classroom: Transforming Thinking, Transforming Practice*. Portsmouth, NH: Heinemann, 2008. Print.

Hazekamp, Jana. *Why before How: Singapore Math Computation Strategies*. Peterborough, NH: Crystal Springs, 2011. Print.

Leinwand, Steve. *Accesible Mathematics: 10 Instructional Shifts That Raise Student Achievement.* Portsmouth, NY: Heinemann, 2009. Print.

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