

## Teaching Practices that Develop Children's Algebraic Thinking Skills

Algebraic Thinking is a “habit of mind that students acquire through instruction that builds regular, sustained opportunities to think about, describe, and justify general relationships in arithmetic, geometry, and so on.” (Blanton, 2008)

Teachers should have four important instructional goals when helping children to think algebraically:

- **Represent:** Provide multiple ways for children to systematically represent algebraic situations.
- **Question:** Ask questions that encourage children to think algebraically.
- **Listen:** Listen to and build on children's thinking.
- **Generalize:** Help children develop and justify their own generalizations.  
(Blanton, 2008)

### **REPRESENT**

A teacher needs to think creatively and flexibly about the types of representations that will make algebra meaningful for students. Students may be at a variety of cognitive levels—some may need to use concrete objects; some, drawings; and some, number sentences. Encourage students to represent, or show, their thinking in a variety of ways:

- Words and written explanation
- Numbers and symbols, variables
- Pictures
- Diagrams
- Tables & Graphs
- Concrete Objects
- Movement and Acting Out a Problem

Allow and help students to:

- Choose the representation method that is most helpful to them.
- Be organized and systematic in how they represent their thinking.
- Use appropriate manipulatives or act out a problem when possible.
- Become flexible with words, symbols, tables, graphs, and other forms of representation. Even though one type of representation may be most useful for a child, s/he should be able to understand and use all types.
- Have enough time to develop their representations fully.
- Share, explain, and critique each other's representations.
- Build connections between concrete and abstract ways of solving problems.