

Dear Family,

The next unit in your child's mathematics class this year is ***Frogs, Fleas, and Painted Cubes: Quadratic Relationships***. In an earlier unit, *Thinking With Mathematical Models*, students studied the use of linear models and investigated examples of inverse variation. In the *Growing, Growing, Growing* unit, students explored exponential models. In *Frogs, Fleas, and Painted Cubes*, the focus switches to a nonlinear polynomial relationship: the second-degree polynomial or the quadratic function.

UNIT GOALS

Students will learn to recognize quadratic patterns of change in tables and graphs, and they will learn to write equations to represent those patterns. They will compare and contrast quadratic patterns of change with those of linear and exponential patterns of change, which they have already studied in depth.

Quadratic relationships are encountered in such fields as business, sports, engineering, and economics. We are dealing with quadratic relationships, for example, when we study how the height of a ball—or jumping flea—changes over time. A quadratic graph, called a *parabola*, is shaped like either a U or an upside-down U.

HELPING WITH HOMEWORK

You can help with your child's homework and encourage sound mathematical habits as your child studies this unit by asking questions such as:

- How can I recognize if the relationship among variables in a situation is a quadratic function?
- What equation would represent a quadratic relationship in the table, graph, or problem context relating the variables?
- How could I answer the questions of the situations by studying a table, graph, or equation of the quadratic relationship?

In your child's notebook, you can find worked-out examples from problems done in class, notes on the mathematics of the unit, and descriptions of the vocabulary words.

HAVING CONVERSATIONS ABOUT THE MATHEMATICS IN ***FROGS, FLEAS, AND PAINTED CUBES***

You can help your child with his or her work for this unit in several ways:

- Talk with your child about the situations that are presented in the unit.
- Look over your child's homework and make sure that all questions are answered and that explanations are clear.
- Have your child pick a question that was interesting to him or her and explain it to you.

A few important mathematical ideas that your child will learn in *Frogs, Fleas, and Painted Cubes* are given on the back. As always, if you have any questions or concerns about this unit or your child's progress in class, please feel free to call.

Sincerely,