

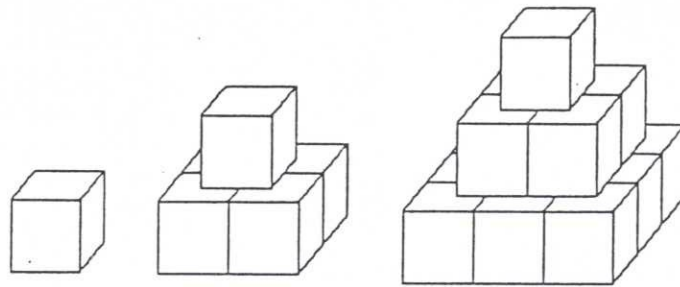


A Tale of Two Functions:
Exploring Cubic Functions

Dr. Anne Papakonstantinou
apapa@rice.edu
rusmp.rice.edu

NCTM Regional Conference
Houston, Texas
November 30, 2007

Pyramid Functions



You can use blocks to build pyramids such as those shown above. Complete the table showing the number of layers in each pyramid and the number of blocks needed to build it. All pyramids are solid with no empty space inside.

a.

Layers (n)	1	2	3	4	5	8	50
Blocks (b)							

- b. Use finite differences to find the degree of the relationship.
- c. Write an equation for this relationship.
- d. Use your model to predict the number of blocks needed to build a pyramid 8 layers high.
- e. Graph and trace the curve to find the number of layers in a pyramid built with 650 blocks.

Paper Folding & a Triangle's Maximum Area

Take an 8.5 (height) x 11 (base) sheet of paper. Fold the upper left-hand corner so that it touches some point on the base of the same sheet.

Find the area of triangle A that is formed in the lower left-hand corner of the paper.

Find the distance along the base (x) that produces the triangle with the greatest area.

Does the length of the base matter?

Try this activity with paper of different dimensions.

