

The following is an excerpt from a group investigation of the strengths of columns made from paper. Each student made a column with a different number of sides (e.g., a triangular column, a square column, etc.) with one student making a circular column, and then paperback books were stacked on top of the columns to see which held the most.

Bill: [Making a] circle is going to be extremely hard.

Sue: Don't you think the octagon will hold more Joe?

Bill: Mine will hold the least. (circular)

OC: All are focused on Sue as she tests her triangle- then John's square-

Bill: You're not going to count the one [book] that makes it crumble.

Karen: You know as they get more circular they hold more

Bill: This one is going down right here (2 books on square)

Karen: See, I told you it would hold the most (circular).

The students worked on a problem involving a rectangular garden with a 30-meter perimeter. They first determined the various sizes it could be (e.g., 5 by 10, 2 by 13, etc.) and then which of those would have the largest area. They had moved on to the next part

of the problem involving an algebraic representation of the dimensions and area.

OC: Jamie begins reading ahead.

Ann: Hang on, let Diane catch up.

Diane: (reads) part c. Let  $x$  represent the width of a garden whose perimeter is 30. Write an expression for the length of the garden.

Kurt: It would be like  $x + b = \dots$  or  $x + 1 = 14$ .

Jamie: Wait, what?

Diane:  $x + 1$ ?

Kurt: or  $x$  times  $1 = 14$

Jamie: Yeah, but it says it's got to equal 30 though...so it would be  $2x$ ... it's  $2x$  cause there's 2  $x$ 's.

Kurt: All the perimeters are 30 already.

Jamie: Right, so it's got to be something...something = 30 and there's 2  $x$ 's cause there's 2 sides- you get what I'm saying

Kurt?

Diane: you have 2 widths and 2 lengths to make 30 so  $2x$ ...