

Over the Edge!

Place a block on a table. Have the edge of the block right at the edge of the table. Now place another block of the same type on top of the first. Then another. As you pile more and more of them on, see how much "overhang" you can create. See the drawing **on the right?** How far over the edge can your top block be? Is there a theoretical limit?

There are many types of blocks you can use in this problem: dominoes, 100-squares, playing cards, etc. Bring some in from home to share with your friends!

- 1) Is there a certain arrangement that creates the most overhang?
- 2) How can you measure your overhang? Do you need a way of determining a vertical line?
- 3) Try to express your answer not just in inches or centimeters, but in comparison to the length of your block. Can you achieve an overhang of half a block? Of a full block? More? How many blocks did you use?
- 4) How can you document your work? Drawings? Photos? Dave and Richard have digital cameras that you can use.
- 5) Remember to write up your work in a neat and attractive manner. Prepare a report that will look great on a bulletin board or on our website!
- 6) Can you do research on this problem? Some important math ideas are related to this problem. Can you find out what they are?
- 7) Can you create a variation on this problem? Can you relate it to constructing an arch?
- 8) Have fun! If you'd like to work on an alternative problem, see the other side.

The Return of Doublets!

You may remember doublets is a word game invented by Lewis Carroll. If you have a block about working with blocks, you might enjoy this instead. The idea is to change one word to another by changing only one letter at a time. Each word along the way must be a word in the dictionary. For example, here's one way to change WORK to PLAY:

WORK
WORD
WOOD
GOOD
GOAD
GRAD
GRAY
PRAY
PLAY

Can you find a shorter way? Can you change SUMMER to WINTER? Can you make up some of your own? Can you find a pair of words of the same length that can't be changed into each other? Can you prove it's impossible?

Have fun!