

Interactive Math Applet

(free computer site where students may change or build objects)

Do you have a favorite **Interactive Math Applet** to share? Jot it down and send to Donna Buck, PO Box 170, Joyce, WA 98343 (electronic information can be sent to buckdj@olympen.com).

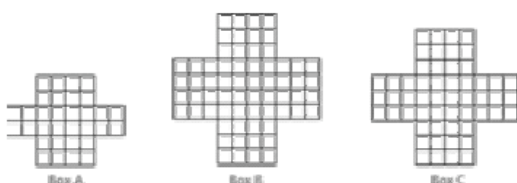


Annenberg/CPB uses media and telecommunications to advance excellent teaching in American schools. It includes videos, lessons, and homework. Here is an example on the subject of volume: <http://www.learner.org/channel/courses/learningmath/measurement/session8/index.html>

How Many Cubes?

A net is the two-dimensional representation of a three-dimensional object. For example, you can cut the net of a cube out of paper and then fold it into a cube.

Here are the nets of some "open" boxes -- boxes without lids.



Problem A1

- If you were to cut out each net, fold it into a box, and fill the box with cubes, how many cubes would it take to fill the box? Make a quick prediction and then use two different approaches to find the number of cubes. You may want to cut out the actual nets, fold them up, and tape them into boxes to help with your predictions
- What strategies did you use to determine the number of cubes that filled each box?

Problem A2

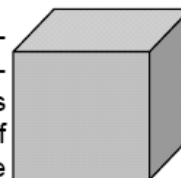
Given a net, generalize an approach for finding the number of cubes that will fill the box created by the net. How is your generalization related to the volume formula for a rectangular prism (length \cdot width \cdot height)?

Problem A3

- Imagine another box that holds twice as many cubes finding the number of cubes that will fill the box created by the net. How is your generalization related to the volume formula for a rectangular prism (length \cdot width \cdot height)? as Box A. What are the possible dimensions of this new box with the doubled volume?
- What if the box held four times as many cubes as Box A? What are the possible dimensions of this new box with quadrupled volume?
- What if the box held eight times as many cubes as Box A? What are the possible dimensions of the new box with an eight-fold increase in volume?

Problem A4

If you took Box B and tripled each of the dimensions, how many times greater would the volume of the larger box be than the original box? Explain why.



Problem A5

What is the ratio of the volume of a new box to the volume of the original box when all three dimensions of the original box are multiplied by k ? Give an example.