

## HUMAN COORDINATES AND FLOOR TILES

To the casual observer, it is just a dusty classroom floor. As for me, I see the square-foot tiles forming the coordinate system on which human geometric models will be constructed!

I created the axes for my coordinate system by sticking three-inch-wide masking tape to the floor. I also used tape to label the  $x$ - and  $y$ -axes. I used a marker to write the coordinates, coinciding with the intersecting vertical and horizontal lines of the tiles, on the tape.

I recommend beginning this activity with some basic mathematical illustrations. For example, students can stand at assigned coordinates in each of the four quadrants, representing the four vertices of a square. The onlooking students can be asked to describe the shape and give the distances between each of the consecutive vertices. Then comes the more challenging question, What is the length of each diagonal? Students can verify answers with a tape measure. Areas can also be discussed.

How about some transformations? Instruct the human points to translate three units to the right, rotate 90 degrees, or reflect about an axis. Transformations could also include dilations with “double just your  $x$ -coordinate” or “double both coordinates.” Having the students hold string to connect them to adjacent “points” might help them decide where to move, although they may become entangled. Consider splitting the class into teams and asking each group to make up and demonstrate two or three transformations.

The arts can also be incorporated into this activity. When I introduced the appropriate music, some brave students agreed to perform a popular line

dance for the class, using the coordinate grid to space themselves. Afterward, the onlookers described what they saw in terms of transformational geometry. As a follow-up project, I suggest that students be given the option of choreographing their own transformational dance.

The students thoroughly enjoyed this activity. It gave them a chance to see mathematical connections where they least expected to see them. I think it also inspired them to look for ways to become more creatively involved in the mathematics classroom.

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*Is it just a dusty floor, or is it a coordinate system for human geometric models?*

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*“Sharing Teaching Ideas” offers practical tips on teaching topics related to the secondary school mathematics curriculum. We hope to include classroom-tested approaches that offer new slants on familiar subjects for the beginning and the experienced teacher. Of particular interest are alternative forms of classroom assessment. See the masthead page for details on submitting manuscripts for review.*