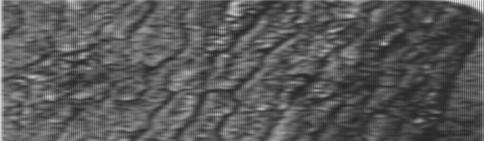


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LETTERS

Students as Human Chromosomes, in 3

Cell processes are dynamic in space and time. Students readily grasp these dynamic processes. Textbook portrayals of cell processes to everyday life can really help students understand important concepts.

Therefore I wholeheartedly support the essence of the exercise on role-playing of chromosomes in mitosis and meiosis (Chinnici et al., 2004). In my opinion, however, the exercise misses an opportunity to change a two-dimensional textbook convention to something closer to three-dimensional reality. In the student exercise, a chromatid and its sister chromatid are joined at the centromere. In reality, when two sister chromatids are joined at the centromere, the question is how they represent a tetrad during meiosis. Figure 3 in the article shows students imitating the standard textbook drawing in suggesting that crossing over involves one chromatid from each chromosome with the other chromatid from the other chromosome. In reality, one chromatid is in direct contact with one chromatid from the homologous chromosome, and crossing over can occur on either chromosome. For the role-playing exercise, I suggest that the students in each chromosome stand facing the two students representing the homologous chromosome.