

BRIDGES
Mathematical Connections
in Art, Music, and Science

Connecting Mathematics and the Arts in the Elementary Classroom through Movement

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In several documents published by the National Council of Teachers of Mathematics (NCTM), teachers are encouraged to include activities during mathematics instruction which enabled students to make “mathematical connections.” Several types of connections are presented, including (a) connections between and among mathematical ideas, (b) connections between mathematics and “real world” contexts, and (c) connections among different representation formats. Within these documents, when examples of potential connections are provided, rarely are connections between mathematics and the arts furnished. If any are provided, they typically focus on the use of geometry in art, specifically shapes and symmetry.

The growing interest among mathematics educators in connections between mathematics and the arts is evidenced by the increased number of sessions at the NCTM’s national conference over the past few years. Sessions typically present connections between mathematics and music or the visual arts such as painting and drawing. However, there is a flicker of interest in the relationship between dance (movement) and mathematics. The sparkle exists not just in the field of mathematics education, but also in medical literature. There is a growing body of medical literature identifying the importance of movement in brain development, especially in the process of myelination, the laying down of “gray matter” in the brain. There is a belief that this process is very active until the body is about 10-years-old. Applying this to education, it seems that movement should be an integral part of the elementary grades, especially during the primary years. However, due to budget constraints, many school districts have reduced their physical education programs (dance is typically housed within physical education programs). Some school administrators, in an attempt to extend the time spent in the classroom, have even eliminated recesses.

If there is a connection among movement, brain development, and mathematical learning, the elimination of recess and physical education programs (including dance) in favor of more classroom time may be contrary to the districts’ desires. It then becomes the responsibility of classroom teachers to provide movement experiences which enable students to make connections between mathematics and movement (dance). Participants in this workshop (designed for elementary teachers) will experience movement (dance) activities developed by Schaffer, Stern, and Kim [1]. Topics in both geometry and number sense will be investigated.

References

- [1] Karl Schaffer, Erik Stern, and Scott Kim, *Math Dance with Dr. Schaffer and Mr. Stern*, available from <<http://www.mathdance.org>>.