**Integrated Mathematics 2**

**Transfor-motion!**

Mathematics Learning Objectives:

1. Students will be able to identify translations, rotations, reflections, and dilations.
2. Students will be able to create physical representations of transformations.

Language Objectives:

Define the four transformations: translations, rotations, reflections, and dilations.

Classify different transformations as a translation, rotation, reflection, or dilation.

Essential Question:

How can you use your prior knowledge of triangles and the Pythagorean Theorem to determine the height of an object without actually measuring it?

Common Core State Mathematics Standards:

**8.GA.3** Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates

**8.GA.4** Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations: given two similar two-dimensional figures, describe a sequence that exhibits similarity between them.

Common Core State Mathematical Practice Standards:

MP3: Construct viable arguments and critique the reasoning of others.

MP4: Model with mathematics.

MP6: Attend to precision.

MP7: Look for and make use of structure.

Provision for Individual Differences:

For any students with mobility difficulties, I will adapt the task as needed to allow them to participate as much as possible. Additionally, if students are extremely shy they may film their dance.

Materials:

* Tape for a coordinate plane on the floor
* Music and other audio equipment for students
* Rubrics for student use to rate other students

Notes to the reader:

Students have learned about transformations in class the day before and had some practice with the new knowledge. They are now expected to apply the definitions and concepts to create a dance routine or marching band formation using transformations that others can identify.

Dance Floor Layout

X

X

LINES: One line should be BLUE; the other line SILVER. Use Blue painter’s

tape. For the silver line, use duct tape

OVER the blue painter’s tape

(painter’s tape will not damage floor, duct tape might).

CIRCLE should be “dashed” with 3 or

4 short pieces (6-8 inches long) of the blue painter’s tape per quarter arc. Suggested diameter: 7-8 feet

X

X

Big X’s mark the starting locations for the “tranfor-motion” dance routine.

Note: X’s and Circle are optional depending upon the skill level of students.

Classroom Bonus:

This activity can be presented at the beginning of the week and many math, drama, or dance teachers can be invited to judge the competition. It would be a cool task to have multiple math classes compete.