Teacher Notes

Subject: Math

Topic: Geometry and Motion

Title: Translations, Rotations, and Reflections

Grade(s): 4 and 5

PA Academic Standard: Math 2.9.5.K

Intended learning outcomes

- Students recognize translations, rotations, and reflections in 2-D figures.
- Students identify translations, rotations, and reflections in real world objects.
- Students construct their own translations, rotations, and reflections.

Recommended usage: It is recommended that slides 1-14 be used as the introductory lesson, and that the later slides be used either as enrichment or challenge activities.
Translations, Rotations, and Reflections

Windows(R) operating system software.

Submitted by    John Swarts
                 Gr. 4 Kennedy Elem.
ACTIVITY OVERVIEW

Page 4: Converting old vocabulary into new vocabulary
Page 5: Defining Translations
Page 6: Examples
Page 7: Creating Translations
Page 8: Defining Rotations
Page 9: Examples
Page 10: Creating Rotations
Page 11: Defining Reflections
Page 12: Examples
Page 13: Creating Reflections
Page 14: Identify real world translations, rotations, and reflections
Page 15: Some interactive online activities
Transformations
Old words

Slide

Turn

Flip

New words

Translation

Rotation

Reflection
Old Word  New Word
Slide = Translation
* A shape slides over Ex: \( B \to B \)
Turn = Rotation Ex: \( B \to W \)
Flip = Reflects Ex: \( B \to \Xi \)
Translation - when a figure is slid in any direction.
Translations can be close together...

(click and delete to reveal next rule)

(click and delete to reveal next rule)

(click and delete to reveal next rule)

(click and delete to reveal next rule)
Using the Dot boards to help you, drag the shape to a new location to create a Translation.
Rotation - when a figure is turned or rotated around a single point.
Rotations always turn around a single point...

(click and delete to reveal next rule)

(click and delete to reveal next rule)

(click and delete to reveal next rule)
Using the Dot boards to help you, drag the shape and turn using the green handle to create a Rotation.
Reflection - when a figure is flipped over a line.
Reflections can be close to or touch the line...

(click and delete to reveal next rule)

(click and delete to reveal next rule)

(click and delete to reveal next rule)
Using the Dot boards to help you, choose which image would correctly complete the Reflection.
Can you find Translations, Rotations, and Reflections in real life?

1. Windows - Translation
2. Quilt - Rotation
3. Washington Monument - Reflection
4. Pinwheel - Rotation
5. Train Tracks - Translation
6. Comic + Mirror - Reflection

(Click and delete to reveal answers)
Now, use the graph paper to create a Translation, Rotation, and Reflection.

You may choose the shape you use, but you must have one of each type of transformation labeled...also make sure your beginning shape is labeled.
Now, use the online pattern blocks to create a Translation, Rotation, and Reflection.