Turns

2.3.10

Word Wall: *flip, turn, slide, blocks, slide, right, left, triangle, square, pattern, rotation, symmetry*

Introduction

Students will identify transformations of shapes as flips, slides or turns; and experiment with these transformations to establish that flips, slides and turns do not alter the shape's size or features.

Resources

- Pattern Blocks
- Paper
- Digital Camera

Time / Classroom Organisa3on

The activity process may be introduced in a whole or small group format. Allow 20 to 30 minutes for each part of the activity.

Australian Curriculum---Year Two

Investigate the effect of one-step slides and flips with and without digital technologies (ACMMG045)

Proficiency Strand:

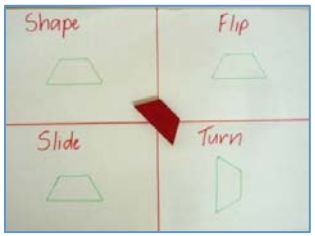
Problem Solving – Matching transformations with their original shape.

Activity Process--- Flip, Slide, Turn – Physical

1. Ask students what they know about flip, slides and turns.
2. Discuss class answers and ask students to demonstrate a flip, slide and turn with a book.
3. Now ask students to lie on the ground on their backs, ask them to demonstrate how they would move if they were sliding. Discuss with students that when they slide their head and feet remain facing the same directions.
4. Then ask students to lie on their backs and 'flip'. Discuss with students the difference with flipping from left and right and from head to feet in regard to the direction of the head and feet.
5. Ask students to stand and demonstrate a turn, discuss where they end up facing. Then ask students to lie down and turn, discuss where their feet and head are facing after the turn.

Activity Process --- Flip, Slide, Turn – Blocks

1. Ask students to divide a piece of paper into four.
2. Label each section with shape, flip, slide and turn.
3. In the section titled shape, ask students to trace around the shape,
4. In the section ,titled flip, ask students to flip the shape and then trace around it.
5. In the section ,titled slide, ask students to slide the shape (from it's original position) and trace around it.
6. Repeat for the section ,titled turn.



7. Display the posters around the room.

Activity Process---Flip, Turn, Slide --- Patterns

1. Ask students to trace around their hand onto a large piece of paper.
2. Each student selects 5 different shapes.
3. Students make a repeating pattern with each shape by flipping, sliding or turning the shape.
4. Students draw each pattern they made for each shape on each fingers of their hand outline.

Source: Andrea Hillbrick, 2005. *Tuning In with Task Cards*. Curriculum Corpora,on:Carlton South, Vic p41

Variations and Extensions

1. Tangrams

Resources: Tangrams

Ask students to create a given figure (rabbit) using the tangrams. Ask students: *Where are the large triangles in each of these pictures? Why do these triangles look different? How could they be made to look the same? Would it change the picture?*

Repeat for other pictures.

2. Floor Grid

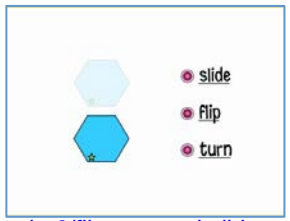
Resources: 5x5 Floor Grid, Arrows, random objects

Place pictures or objects at random on the grid. Place a START and FINISH labels or arrows at various positions on the outside of the grid. Students work in pairs. The partner stands at the START or the IN arrow. The other student gives directions to get his/ her partner to pick up a object. They must use directions such as: *go forward 2*, *quarter turn left, go left 3*, *go backwards 1 space*, *quarter turn right*. When the student reaches the mystery object, they pick it up, and the partner then directs them out of the grid to the FINISH or OUT arrow.

Repeat, changing roles

Digital Resources

https://www.sheppardsoftware.com/mathgames/geometry/shapeshoot/TranslateShapesShoot.swf



http://www.ixl.com/math/grade-2/flip-turn-and-slide

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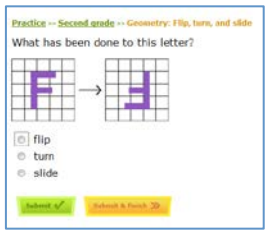

Contexts for Learning

Play:

Paint Stamps: Allow students to use paint stamps to create flip, slide and turn patterns.

Investigation:

In small groups ask students to make a shape with their bodies on the ground. For example a 'L' shape. Take a digital photo of each students shape. Then ask students to slide, flip or turn their shape. Students then rearrange themselves into the position that their shape should be in now. Take another digital photo of the shape. Compare and contrast the two photos and discuss if the students were correct with their repositioning.

Real life experience:

Complete rotational symmetry and geometric art activities with students.

Routines and Transitions:

As students transition, hold up a piece of patterned wrapping paper. Point to a shape on the paper and ask students to tell you if the shape has be turned, flipped or slide along.

Assessment

Ask students to select a pattern block shape. Then ask students to create a pattern for you, using the selected shape that is flip, flip, slide, turn, flip, flip, slide, turn.

Background Reading

- *Translation (slide)*: To translate a point means to move it in a straight line. When a figure or object is translated, the whole thing 'slides' a specified distance in a specified direction. Objects passing by on a straight conveyor belt give a good model of a translation.
- *Rotation (turn):* To rotate a point means to move it as though around the circumference of a circle. When a figure is rotated, the whole thing turns around a specified point by a specified amount, and when an object is rotated, the whole thing turns around a specified line by a specified amount. A windmill or objects on a pottery wheel give good models of a rotation.
- *Reflection (flip):* To reflect a point means to move it as if it were seen in a mirror. When a figure is reflected, the whole thing flips over a line so that every point of the image is as far from the line as was the matching point of the original figure. When an object is reflected, however, the idea of 'flipping' does not really work. A shoe, for example, looks different in a mirror compared to what would happen to the shoe if you 'flipped' it over a line. A left and right shoe give a good model of a reflection (but you could not get a right shoe from a left shoe by flipping).

Source: *First steps in Mathematics – Space,* 2009. Rigby: Port Melbourne. p114

Year three NAPLAN Numeracy test links

2D shapes --- symmetry, flips, turns

Links to Related MAGs

1.1.9 – 2D Shapes
2.2.10 – Flips and Slides
3.4.8 --- Symmetry