



# Flip and Slide

2.2.10

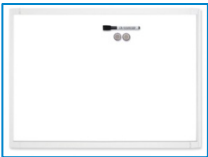
Word Wall: flip, slide, turn, compare, properties, shape, pattern, change, remain the same, features, shape names

## Introduction

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

## Resources

- ✓ 2D shapes or pattern blocks
- Large shape or book for demonstration.
- Large piece of paper
- ✓ Individual whiteboards and pens
- scissors.



## Time / Classroom Organisation

The first part of this activity may be introduced as a whole class 15 minute teaching event, followed by students working in pairs experimenting with slides and flips for 20 minutes.

## Australian Curriculum Year level: Two

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

## Proficiency Strand:

Problem Solving – matching transformations with their original shape

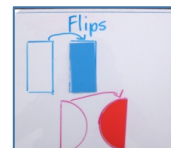


## Activity Process- Flips

1. Hold up a book and trace around the outside of the book on a large piece of paper.
2. Discuss the geometric properties of the book's shape, for example: *It has 4 straight sides. Two sides are long and two sides are short. It is called a rectangle.*
3. **FLIP** the book over and draw around the outside again.
4. Compare the two outline shapes.
5. Ask the students: *Did the shape change size? Did it change shape? Compare the properties : Does the shape still have 4 straight sides? Are there still two long sides and two short sides? Is it still a rectangle? What DID change?* (front and back of the book). Establish that the flip did not alter the shape's size or features.
6. Cut the two shapes out and compare to prove that the flip did not change the size or features of the shape.

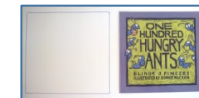


7. Students work in pairs. Place a shape (2D shape or pattern block) on a large piece of paper. Discuss the geometric properties and name of the shape.
8. Students draw around the shape, and then FLIP the shape. Draw around the shape in its new position.
9. Move the shape away from the drawings. Ask the students: *Did the shape change size? Did it change shape? Compare the properties. What DID change?* Establish that the flip did not alter the shape's size or features.



## Activity Process-Slides

1. Hold up the shape and trace around the outside of the shape on a large piece of paper.
2. Discuss the geometric properties of the shape, for example: *It has 4 straight sides. Two sides are long and two sides are short. It is called a rectangle.*
3. **SLIDE** the book to one side and draw around the outside again.
4. Compare the two outline shapes.
5. Ask the students: *Did the shape change size? Did it change shape? Compare the properties: Does the shape still have 4 straight sides? Are there still two long sides and two short sides? Is it still a rectangle? What DID change?* Establish that the slide did not alter the shape's size or features.
6. Cut the two shapes out and compare to prove that the flip did not change the size or features of the shape.



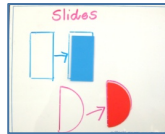
7. Students work in pairs. Place a shape (2D shape or pattern block) on a large piece of paper. Discuss the geometric properties and name of the shape.
8. Students draw around the shape, and then SLIDE the shape. Draw around the shape in its new position.



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9. Move the shape away from the drawings. Ask the students: *Did the shape change size? Did it change shape?* Compare the properties. *What DID change?* Establish that the slide did not alter the shape's size or features.



### Variations & Extensions

#### 1. Letter flips and slides

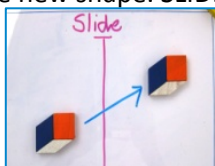
Resources: Cardboard, scissors, pens  
Students draw a large capital letter on a card, and cut out. They use the letter as a template for creating their own flip and slide sequences. Display the students' work and encourage students to identify which transformations have been used.

Source: Williams, G. 2008. *Rigby Maths – Teacher Resource Book*



#### 2. Slide copies

Resources: pattern blocks, individual whiteboards or paper, felt pens  
Working in pairs, one student creates a 3 block shape using pattern blocks on a whiteboard or A3 5x5 grid. Draw around the shape. The student indicates the position on the whiteboard that they would like the shape to SLIDE to. The other student re-creates the 3 block shape in the position indicated. Draw around the new shape. SLIDE the original

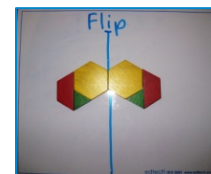


block shape over to the new outline to verify that it is the same. Swap roles. As students Build confidence with this activity, Increase the number of blocks in the pattern.

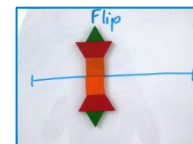
#### 3. Flip copies

Resources: pattern blocks, individual whiteboards, washable pens.

Students draw a line down the middle of an individual whiteboard. Working in pairs, one student creates a 3 block pattern on one side of a line. The other student creates the FLIP Pattern on the other side of the line.



Swap roles. As students build confidence with this activity, increase the number of blocks in the pattern. Include horizontal and vertical flips.



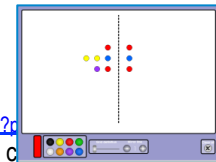
### Digital Resources

<http://www.ideal-resources.com.au/index.php>

#### Reflect:

#### Online Copycat:

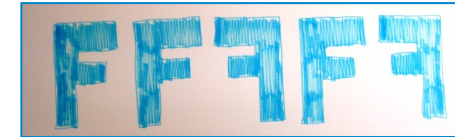
<http://www.learningplace.com.au/deliver/content.asp?c>  
Create a flip or slide pattern for a friend to copy



### ILLUMINATIONS:

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=35>

This tool allows you to create any geometric shape imaginable. Squares, triangles, rhombi, trapezoids and hexagons can be created, coloured, enlarged, shrunk, rotated, reflected, sliced, and glued together



**Achievement Standard:** explain the effects of one-step transformations

### Background Reading

*The ability to imagine the effect of movements should begin to develop as students turn shapes around and over to test whether they will match other shapes (e.g. for posting boxes), fit together (e.g. jigsaws), reproduce an arrangement (e.g. with pattern blocks) or fill or copy a shape (e.g. tangrams). Through such activities, students should learn to disassemble simple shapes from complex patterns and arrangements, mentally compose, decompose and rearrange figures and objects, and visualise the effect on figures and objects of moving them (or the viewer) in particular ways. .... Students should carry out simple changes to the shape, size or position of objects and observe the effects of these changes.*

Source: First Steps. 2005. *First Steps in Mathematics: Space*. Rigby:Port Melbourne..p102

### Year three NAPLAN Numeracy test links

2D shapes – flips, slides and turns

### Links to Related MAGs

1.1.9 2D shapes

2.3.10 Turns



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