

# Slides, Flips and Turns

## Summary

This geometry lesson teaches students to slide, turn, and flip shapes.

## Materials

- 3" x 5" cards (two per student)
- Crayons or colored pencils
- Pattern blocks, pentominoes, or tangrams

## Background for Teachers

A *slide* (translation) is the movement of a shape right, left, up, or down without changing sides or rotating. A *flip* (reflection) is the movement of a shape from front to back, top to bottom, or bottom to top without turning. A *turn* (rotation) is the movement of a shape by turning without flipping.

## Intended Learning Outcomes

1. Demonstrate a positive learning attitude toward mathematics
2. Become mathematical problem solvers
3. Reason mathematically

## Instructional Procedures

### Invitation to Learn

How many of you have gone down a slippery slide? Who has ever seen someone do a back flip? Who would like to show the class how you turn around?

### Instructional Procedures

Today we are going to learn how things slide, turn, and flip in geometry.

### Slides (Translation)

Have the children lie on the floor (on their backs or stomachs) and ask them to show you a move by sliding.

"How would you show a slide? If your feet are pointing toward me to start, where are they pointing after a slide?" (same way)

### Flips (Reflection)

Have the students lie on the floor and show you a flip. Students move from their backs to their stomachs, their stomachs to their backs, or feet to head. Suggest that they flip on their left side, flip on their right side.

Is a summersault a flip? (two flips)

If your head is pointing to me when you start, where is it pointing after a flip?

Right or left—the head and feet point in the same direction as before, but what is now right was left and vice-versa

Head or feet flip—the head will be pointing the opposite direction

### Turns (Rotation)

How could you show a turn?

If moving from your back to stomach is a flip and not a turn, what does a turn look like? Are your bodies pointing in the same direction before and after a turn? (no, the direction is different for all turns except a complete turn)

Give each student two 3 x 5 cards. Have them draw a picture of themselves lying face up on one side and face down on the other side. Then repeat the drawings on the other card. Each student should have two cards.

Now use your cards to show a slide. Tell how all slides are alike. (you point the same direction: you stay on your back or stomach)

*Hint:* Use one card for the beginning position and use the other card to show the movement.

Now use your cards to show a flip. Tell how all flips are alike. (You move from stomach to back or back to stomach, but may not always point the same direction.)

Now use your cards to show a turn. Tell how all turns are alike. (You stay either on your back or stomach. You usually point in a different direction.)

Use cards to show one to five moves. Example: If you start on your stomach, would you be on your back or stomach after two flips. (on stomach)

How would you be lying after a slide, a flip, and a slide if you start on your stomach. (back)

### Extensions

Use the card activity with specific directions to access understanding.

Use pentominoes, or pattern blocks pieces, or shapes cut from graph paper.

Trace a shape.

Trace and label a slide with the same shape.

Trace and label a flip with the same shape.

Trace and label a turn with the same shape.

### Authors

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