

Start the Game: Geometry in Sports

by John Perritano

Math Objective

Children recognize plane figures and identify polygons, such as triangles, quadrilaterals, pentagons, hexagons, heptagons, and octagons. Children name attributes of these shapes like number of sides, size of angles, and length of sides. Children also identify quadrilaterals, like trapezoids, parallelograms, kites, rhombuses, squares, and rectangles.

iMath Discover Activity

Children make charts of different plane shapes they find inside and outside of their houses. They provide a description of each shape.

Materials

- paper
- pencil

► Objectives

Children will:

- recognize and identify plane shapes.
- create three-column charts.
- identify features of the shapes.

Lesson Plan

Before Reading

Investigation

pp. 4–5: Ask children to look at the picture on these pages and read the text. Ask: *What is geometry?* Record children's answers on the board. Invite children to look up the word and find out its root word and full meaning.

Ask: *What is your favorite sport? What shapes are found in that sport?* Record children's answers.

Math Concepts

Connecting to what they know helps children engage in the topic.

Access children's attention by linking their interests to the math concept.

In this book, children discover geometric shapes in different sports and learn strategies to identify those shapes and their features.

During Reading

Investigation

pp. 6–9: Have children read these pages silently. Then, reread pp. 6–7 aloud or have a volunteer do so. Distribute graph paper and colored pencils. Let children draw a copy of the chart on p. 7. Reread p. 8 aloud. Have children use a ruler and a chalk on string to draw the triangles and their angles on the board. Reread p. 9 aloud. Draw the different shapes in the chart on the board one at a time. Mix up the order and challenge students to name the shape and give attributes.

Math Concepts

Children understand how to recognize plane figures and identify polygons: triangles, quadrilaterals, pentagons, hexagons, heptagons, and octagons. Children name attributes of these shapes like number of sides, size of angles, and length of sides. Children also identify quadrilaterals: trapezoids, parallelograms, kites, rhombuses, squares, and rectangles.

pp. 12–13: First, have children read these pages silently. Reread p. 12–13 aloud. Have the children answer the questions on these pages. Draw the baseball diamond and the home-plate shape on the board. Ask: *Which are the right angles in these shapes? How do I show a right angle?*

Children identify quadrilaterals: trapezoids, parallelograms, kites, rhombuses, squares, and rectangles. Children understand how to recognize plane figures.

pp. 14–15: Have children read these pages silently. Reread p. 14 aloud. Ask: *How do groundskeepers use geometry?* Write children's answers on the board. Then, invite a volunteer to reread p. 15. Draw the two rays and angle as described in the text on the board. Have children answer the question.

Children name attributes of these shapes like number of sides, size of angles, and length of sides.

pp. 16–17: Have children read pp. 16–17 aloud. Draw the football field diagram on the board. Say: *Let's answer the questions together.* Record children's answers on the board and give them feedback. Have volunteers label line segments and vertices on the diagram.

Children identify quadrilaterals: trapezoids, parallelograms, kites, rhombuses, squares, and rectangles. Children name attributes of these shapes like number of sides, size and kind of angles, vertices, line segments, and length of sides.

During Reading (continued)

Investigation

pp. 18–20: Have children read p. 18 silently. Ask: *Can someone summarize what you just read?* Encourage children to discuss the text. Then, read pp. 19–20 aloud. Have children answer the questions on the bottom of p. 20. Have children refer back to p. 8.

pp. 21–23: Invite a volunteer to read p. 21 aloud. Have children answer the question on the bottom of that page and refer back to p. 8 if necessary. Have another volunteer read pp. 22–23 aloud. Let the children answer the questions on p. 23.

pp. 24–25: Invite a volunteer to read pp. 24–25 aloud. Draw the pool table diagram on the board. Ask: *Did you know that people use geometry when they play pool?* Have children answer the question on the bottom of p. 25 and refer back to p. 8 if necessary. Write children’s answers as labels on the diagram on the board.

pp. 26–28: Invite a volunteer to read pp. 26–27 aloud. Draw the shapes on the board that children see in the ship’s mast. Have children refer back to p. 7 if necessary. Read p. 28 aloud. Pass out construction paper and scissors. Assign a shape to each child. Have them cut that shape out of construction paper and be ready to tell about its attributes. Then, randomly call on children to show and tell about their shape. Then ask children to recap how to identify shapes. Write their answers on the board. Refer back to pp. 6–9 if necessary.

Read p. 29 together. Work with children to help them create their flags. Provide drawing materials, colored paper, colored pens or markers, scissors, glue.

Math Concepts

Children identify kinds of triangles. Children name attributes, such as size and kind of angles, vertices, and line segments.

Children name shapes and identify angles.

Children see real-world uses for geometry. They name triangles and attributes of these shapes like number of sides, size and kind of angles, and vertices.

Children understand how to recognize plane figures and identify polygons: triangles, quadrilaterals, pentagons, hexagons, heptagons, and octagons.

Children plan, design, and create flags with shapes that have special meanings.

After Reading

Ask children to restate the key ideas in the book.

Investigation

Have children create a work of art using shapes from pp. 6–9.

Understanding Math

Children manipulate plane figures and polygons: triangles, quadrilaterals, pentagons, hexagons, heptagons, and octagons. Children use quadrilaterals: trapezoids, parallelograms, kites, rhombuses, squares, and rectangles.

Have children make a flash card game that features all the different shapes in this book. Let children cut shapes out of different kinds of paper, printed and solid colors. Write the kind of shape and its attribute on the back of the shape. Then, laminate the shapes and trim. Have children include different kinds of triangles with their angle types identified.

Children understand how to recognize plane figures and identify polygons: triangles, quadrilaterals, pentagons, hexagons, heptagons, and octagons. Children also identify quadrilaterals: trapezoids, parallelograms, kites, rhombuses, squares, and rectangles. Children identify kinds of triangles. Children name attributes, such as size and kind of angles, vertices, and line segments.