

Identify, compare,
and analyze
attributes of [two-
dimensional] ... shapes and
develop vocabulary to describe
the attributes



Classify [two-
dimensional] ...
shapes according to
their properties



Make and test
conjectures about
geometric properties
and relationships and develop
logical arguments to justify
conclusions



pp. 101, 102, 103

The definitions of *trapezoid* differ in commercial textbooks. Most elementary-level textbooks define it as a quadrilateral with at least one pair of parallel sides. Others refer to a trapezoid as a quadrilateral with only one pair of parallel sides. The Navigations books use the latter definition.

Roping In Quadrilaterals

Grades 4–5

Goals

- Sort quadrilaterals on the basis of specific attributes
- Use Venn diagrams to classify quadrilaterals
- Determine the common attributes of a set of quadrilaterals

Prior Knowledge

Students should be familiar with the characteristics of quadrilaterals including parallelograms, trapezoids, rectangles, rhombuses, and squares. They do not need to have examined the relationships among these figures. The relationships will be developed during the activity.

Materials and Equipment

- Three pieces of yarn or string or three plastic hoops for each group of students
- A set of quadrilateral pieces for the teacher from the blackline master “Quadrilateral Pieces”
- A set of quadrilateral pieces from “Quadrilateral Pieces” for each group of students
- Ring labels for each group of students from the blackline master “Ring Labels”
- A set of mystery rings from the blackline master “Mystery Rings”
- Blank index cards and markers for each group of students
- Measuring tools, including rulers and index cards, for each group of students to test for right angles

Learning Environment

Students work in groups of three or four for the game “Questions, please!” and the “Explore” tasks.

Important Geometric Terms

Quadrilateral, parallelogram, rectangle, rhombus, square, trapezoid (see the note in the margin), *right angle, acute angle, obtuse angle, parallel lines, adjacent*

Kite: A convex quadrilateral with two pairs of adjacent sides that are equal in length

Activity

Engage

In order to familiarize students with the shapes used in this activity, play the guessing game “Questions, please!” Each group of students

Parts of this activity have been adapted from “Shape Up!” (Oberdorf and Taylor-Cox 1999).