

Identifying and Describing Polygons: A Geometry Lesson

Lesson Plan

Overview

In this lesson, students learn to identify and describe polygons and compare and contrast them with figures that are not polygons.

Prior to the lesson, students are introduced to vocabulary words that they will need to use as they learn about polygons. Students are taught various sentence frames and use the vocabulary introduced to describe everyday objects in the room.

During the geometry lesson, students use the vocabulary and the sentence frames to describe and compare and contrast shapes. They sort cards containing illustrations of shapes into two groups, polygons and nonpolygons. Finally, each student draws a picture of a polygon and describes what he knows about polygons in writing.

Math Goal: Students will identify and describe the features of polygons and figures that are not polygons.

Language Goal: Students will develop the academic language necessary to describe polygons and figures that are not polygons.

Key Vocabulary: closed, connect, curved, intersect, line segment, open, polygon, sides, straight, vertex, and vertices

Materials

- ◆ 12 word cards for key vocabulary terms
- ◆ 6 sentence strips or pieces of construction paper for sentence frames
- ◆ large two-column chart with drawings of figures that are polygons and figures that are not polygons

- ◆ *Identifying and Describing Polygons* cards, 1 set of 16 per pair of students (see Blackline Masters)
- ◆ envelopes for holding cards, 1 per pair of students
- ◆ 1 set of enlarged *Identifying and Describing Polygons* cards
- ◆ optional: pocket chart

Sentence Frames That Help Students Describe Polygons and Nonpolygons

Beginning

This is a _____. It is/has _____.

This is not a _____. It is/has _____.

Intermediate

This is a _____ because _____.

This is not a _____ because _____.

Advanced

This shape has _____, _____, and _____.

*This shape has _____, _____, and _____;
therefore, it is a polygon.*

Class Profile

Of the thirty students in Ms. Handel's class, half are native English speakers, and the other half of the class is made up of beginning, intermediate, and advanced English speakers.



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Minilesson Introducing Academic Language

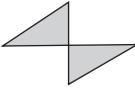
1. Using all of the vocabulary words except *polygon*, introduce the word cards, one at a time, and either place them in a pocket chart or tape them to the board. Present an item in the classroom to define and provide a model for each word. For example, show how a circle has curved sides or a table has straight sides. Have the students do hand movements to represent the meaning of the words as well. After modeling each word, direct students to find examples of the word in the classroom (e.g., a clock has curves) and share them with the class.
2. After you have presented all the vocabulary words, introduce the sentence frames, one at a time, using the vocabulary as meaningful practice. Examples:
 - ◆ This is a ruler. It is straight.
 - ◆ This is a book. It is a closed shape.
 - ◆ This is a circle. It is a closed shape.
 - ◆ This is a rectangle because it has two sets of equal sides.
 - ◆ This shape has a curve, no vertices, and it is closed.

Model first, have the students repeat, and then have students practice in pairs. The partner practice is designed to allow students to use the sentence frames that are most comfortable for them. Each partner should produce three to four sentences before moving on to the next part of the lesson.

The Polygon Lesson

This is the part of the lesson where students are introduced to the math concept of polygons. They will be required to demonstrate their understanding of polygons using the vocabulary and sentence structures provided. This does not preclude students from using other language to express their ability to describe polygons; rather, the frames are intended as a scaffold for students to increase their language production.

1. Present a two-column chart to the students similar to this one:

Polygons	Not polygons
	
	
	
	

Remind students of the vocabulary words in the pocket chart that have been introduced and ask them what they notice about the figures underneath the word *Polygons* on your two-column chart. Prompt them to use the vocabulary and sentence frames as support. Practice using the sentence frames to express what the students are describing about polygons. Model, then have the students repeat.

2. Repeat the same procedure with the figures that are not polygons.
3. Draw some figures on the board and ask students whether the figures are polygons or not. Elicit nonverbal responses from students (a thumbs-up or a thumbs-down). Ask students in pairs to explain why a figure is or is not a polygon using the sentence frames. Refer to the word chart and sentence frames for language support. Have a few students share their responses orally with the entire class.
4. Distribute an envelope with a set of *Identifying and Describing Polygons* cards to each pair of students. Ask partners to sort the cards into two groups: polygons and not polygons. Direct partners to describe the

- figures as they sort the cards. Encourage the use of the sentence frames and vocabulary to practice academic language.
5. Show the class an enlarged set of cards. Hold up one card at a time and have students explain whether the figure on the card is or is not a polygon.
 6. Direct students to draw a polygon on a piece of paper. Have them explain in writing their understanding of polygons. The word chart and sentence frames will support students in their ability to express their understanding. Have students share their work with a partner.

Identifying and Describing Polygons Cards

