

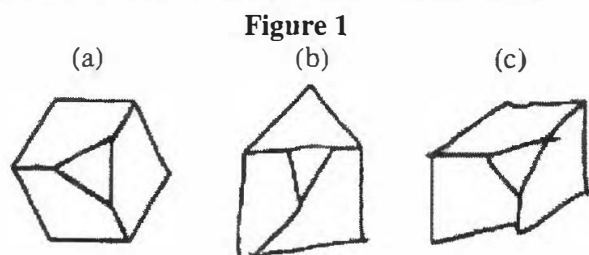
Quick! Draw!

Adele Hanlon

Spatial reasoning plays a significant role in mathematics learning; we use mental images to see patterns and relationships between concepts. Quick Draw (Wheatley 2007) sharpens spatial and geometric reasoning as well as develops flexible thinking. The process is simple: Show a geometric figure for three seconds, then remove it from sight; students draw the figure from memory.

Initiate student discourse by asking, What did you see? and How did you draw it? Students' drawings and interpretations of the figures will vary greatly. Descriptions from a fifth-grade class for Figure 1a ranged from "a triangle within a hexagon" to "a square prism with a corner removed." Sharing diverse descriptions and drawing strategies will allow students to see other perspectives. Repeated exposure to the activity will help students develop and talk about spatial reasoning, as one student's initial representation (see Figure 1b) of the Quick Draw figure shows weeks later (see Figure 1c).

Adapt to the learning needs of students in K–6 by choosing figures of appropriate complexity (for example, individual shapes, overlapping shapes, two-dimensional shapes, three-dimensional shapes) as well as by increasing or decreasing the amount of time for the activity and the number of times the figure is shown (see the table of tasks). Make the task more challenging by asking students to transform the image mentally (for example, to mentally turn the original image 90 degrees counter-clockwise) before drawing it. Include concepts of number area, perimeter, volume and coordinate geometry by drawing figures on graph paper.



Quick! Draw! Tasks

Grade level	Quick Draw	Geometric Reasoning Focus	Extensions
K		Identify and describe shapes.	Turn the figure upside down. Is the shape inside still a triangle?
1–3		Analyze and compare shapes and their attributes.	How many triangles do you see? What types of triangles do you see?
4–5		Classify shapes by properties. Infer relationships among shapes.	Can rhombuses be classified as squares? Can squares be classified as rhombuses?
6		Represent 3-D figures using nets.	Create a net of this figure and use the net to calculate the surface area.

Reference

Wheatley, G H. 2007. *Quick Draw: Developing Spatial Sense in Mathematics*. Bethany Beach, Del: Mathematics Learning.

Adele Hanlon, ahanlon@ju.edu, is an assistant professor of mathematics education in the School of Education at Jacksonville University in Jacksonville, Florida. Edited by Martha Hildebrandt, mhildebrandt@chatham.edu, who teaches undergraduate and

graduate math education and math courses at Chatham University in Pittsburgh, Pennsylvania; and Cathery Yeh, catheryy@uci.edu, a graduate student in the School of Education at the University of California, Irvine.

Reprinted with permission from Teaching Children Mathematics, Volume 21, Number 2, ©2014 by the National Council of Teachers of Mathematics. All rights reserved. Minor changes have been made to conform to ATA style.