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Teaching geometry to visually impaired students.

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Summary: NCTM [Principles and Standards for School Mathematics. Reston, VA: NCTM (2000)] described geometry as “a means of describing, analyzing, and understanding the world and seeing beauty in its structures”. *J. A. Dossey et al.* [Mathematics methods and modeling for today’s mathematics classroom. A contemporary approach to teaching grades 7–12. Pacific Grove, CA: Brooks/Cole (2002; ME 2002e.04419)] captured the essence of this aspect of visualization by stating that geometry fosters in students an ability to “visualize and mentally manipulate geometric objects”. Clearly, visualization is imperative in understanding geometry. However, not all students have an inherent or physical ability to look at a figure or drawing and make conjectures on the basis of what they see or visualize the figure’s properties. One mathematics teacher was challenged by a cognitively able student who did not have the visual capability to fully “see” the beauty of geometry using her eyes. Although the teacher had some physical tools, she had no instructions on how to teach geometry to a student who could not see. Throughout the school year, as she attempted to teach Jessie, she confronted many impediments. By working toward solutions to these challenges, she began learning new and innovative ways not only to teach this one student but also to improve instruction for all the other students in her classroom. Her experience in teaching Jessie taught her that any student can reach his or her cognitive potential when instruction is tailored to individual needs. (ERIC)

Classification: G13 C43 C93 U63

Keywords: teaching methods; visual impairments; geometry; geometric concepts; visualization; Braille; blindness; tactile adaptation; high school students

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