

Van Hiele Levels of Development in Geometry

Children's ways of thinking about geometrical objects change as they grow and have the appropriate learning opportunities. In this section we will describe the levels of development in geometrical thinking that people go through. It is important to realize that children's thinking in geometry does not automatically become more sophisticated as they grow older. In addition to maturation, instruction plays a major role. When students lack the opportunities to develop their thinking, they may remain at the same level. Many people become adults but they continue to use only basic ways of thinking about geometric objects. It is important that parents understand how children learn, and have examples of activities that can be used with children at various levels. However, the activities in this course will also help parents develop their own geometrical thinking.

According to Van Hiele (1986), there are five levels of development in geometrical thinking, which can be briefly described as follows (Fuys, Geddes, Tischler, 1988). In this course we will only present activities that correspond to the first three levels. Levels 4 and 5 are beyond the scope of this book and are described only for the sake of completeness. Level 4 corresponds to a traditional formal course in high school geometry.

See page 2 with Van Hiele Levels.

References

Fuys, D., Geddes, D., & Tischler, R. (1988). *The Van Hiele Model of thinking in geometry among adolescents*. National Council of Teachers of Mathematics.

Van Hiele, P. M. (1986). *Structure and insight: A theory of mathematics education*. Academic Press.

Note: Some authors (including Van Hiele) number the levels starting at 0. In this course we will use the numbering system as used in the Van Hiele Levels handout.