**Abstract:** Geometry is intuitively associated with spatial ability. Consequently, ongoing efforts to explain why US students are less likely to do well in geometry compared to other areas of mathematics draw attention to how spatial ability differentially influences problem solving performance. Research on spatial cognition suggests that differences in how individuals construct and use visual images determine the likelihood for successful solution attempts. That is, some individuals are prone to visualizing holistic images (e.g., pictures of objects) that depict overall shape and size. In contrast, other individuals tend to construct images part by part to arrange and analyze the components in relation to what a problem requires. In this presentation, we will discuss a recent study that examined geometric problem solving by high school students with different spatial orientations. In short, students with strong spatial visualization skills, compared to those identified as average or low, earned higher grades in geometry and scored significantly higher on a geometry test developed for the purpose of this study. We will also discuss the implications of this work for improving student geometric problem solving. Our approach incorporates teaching strategies that encourage students to focus on relevant spatial information in geometric problems.

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The objectives of the ThinkSpatial brown-bag presentations are to exchange ideas about spatial perspectives in research and teaching, to broaden communication and cooperation across disciplines among faculty and graduate students, and to encourage the sharing of tools and concepts. Please contact Don Janelle (ext 5267, janelle@spatial.ucsb.edu) to review and schedule possible discussion topics or presentations that share your disciplinary interest in spatial thinking.