Spatial intelligence, operationalized for this study as the ability to make spatial judgment and visualize, has been shown to be significantly correlated with achievement and retention in STEM. Yet despite the role spatial skills play in STEM success, it is an area that receives little precise instructional focus in K-12 contexts. Spatial intelligence has also been shown to be one of the only areas in which males outperform females, with noticeable differences emerging in the middle school years. This difference has been suggested to be a contributing factor to the underrepresentation of women in engineering. However, research has also shown that targeted training can significantly improve student spatial ability. And in some cases, even relatively brief interventions, some as short as three hours, have been shown to result in positive growth in spatial skills. Thus, a portable and scalable technology-based spatial training system that can be easily deployed in middle grades can have a considerable impact in improving STEM achievement of all learners.