Spatial thinking is a core disciplinary practice in many STEM fields, but is challenging for many students. Correlation studies have demonstrated that students with high spatial ability are more successful in STEM courses and are more likely to pursue STEM careers. These studies have fueled deficit models of who can succeed in STEM fields and motivated educational interventions that attempt to train general spatial ability. Using the domain of chemistry as a context, this talk will explore the fallacy of the deficit model and demonstrate how spatial thinking in a STEM discipline is nuanced and reflects disciplinary knowledge. This talk will also review two educational interventions inspired by disciplinary-based education research that both improve spatial thinking in chemistry and performance on course achievements.