



Exploring Geometric Isometry and Disproportionality with Allometry

Guide for Curriculum Unit 26.06.01, published September 2026

by Marissa J. Brown

This curriculum unit will explore the use of geometric isometry to describe symmetry and proportionality, and allometry to describe disproportionality of figures. Developing content knowledge around isometry will teach students about rigid transformations that preserve the shape and size of geometric figures, such as reflection, translation, and rotation. Students will also learn about non-rigid motion that creates proportional figures using scale factor, such as the use of dilation. Students will then engage in exploration of allometry; to critically think about and explore how proportions of figures change as the size of an organism and overall shape changes. Students have been reluctant to ask questions during instructional time, so this unit builds in time for students to engage with questioning strategies that turns their curiosity into questions and exploration. Students will engage with instructional strategies that include independent think time to develop questions, collaborative study groups to revise and expand on questions, and whole class discussions to further analyze and prioritize questions related to isometry and allometry. The intended audience for this curriculum unit is students taking a year-long high school geometry course and can be adapted to use with integrated mathematics 2 during the geometry unit.

(Developed for Geometry, grade 9; recommended for Mathematics, grades 9-12; and Geometry, grades 9-10)

<https://teachers.yale.edu>

©2026 by the Yale-New Haven Teachers Institute, Yale University, All Rights Reserved. Yale National Initiative®, Yale-New Haven Teachers Institute®, On Common Ground®, and League of Teachers Institutes® are registered trademarks of Yale University.

For terms of use visit https://teachers.yale.edu/terms_of_use