Ratios, Proportions, and Similarity

Students who study ratios, proportions, and similarity are learning to answer the questions

Can this situation be rephrased into a form that is more familiar?

Exactly what changes to this object would produce that object?

What can be learned about that object by studying this object?

This unit of study addresses Indiana College & Career Ready Standards as follows:

8.GM.3: Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines.

8.GM.4: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations. Describe a sequence that exhibits the congruence between two given congruent figures.

8.GM.5: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations. Describe a sequence that exhibits the similarity between two given similar figures.

8.GM.6: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

Gaining skills in this unit will enable students to do everyday tasks like estimating the height of a tree, resizing digital photos, or comparing the prices of different-sized cereal boxes. The specific skills in this unit of study include

- writing ratios and proportions
- calculating unit rates
- performing dimensional analysis
- solving proportions
- using similar figures
- using indirect measurement
- designing scale drawings
- performing transformations