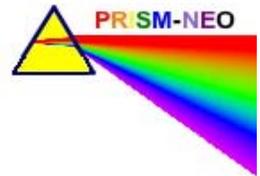


Ratio Relationships

<---Sketch Title



Sketch Filename:

Movie Filename:

Math Concept(s)

Suggested Grades

Sketchpad Level

7
 8
 9 Applied

- drag points and click buttons

*Beginner
Intermediate
Experienced*

Learning Goals:

- demonstrate an understanding of proportional relationships
- visualize ratios in contexts of scale diagrams and similar rectangles
- determine equivalent unit ratios

“Sketchy” Description:

This 9-page sketch includes

- the use of a Frayer model for building vocabulary
- an exploration of the ratio of side lengths in similar rectangles
- visualization activities for ratios as scales
- links to websites for extension activities on “The Golden Ratio” and connections with music
- a self-checking practice page for calculating unit ratios

Lesson Plan Suggestions

- description of how the sketch might be used in each of the three lesson parts - *Minds On, Action!, Consolidate.*
- includes student groupings, instructional strategies, and connections to manipulatives or other technologies.

Minds On - students work in pairs to complete the Frayer model for “ratio” (this can be done with a printed version or directly onscreen)

- use the similar rectangles or bug sketch with the whole class for discussion and observational assessment of prior learning

Action! - photocopy any rectangular picture in three different sizes, measure side lengths and calculate their ratio, collect the data in a chart - use the GSP version to explore an infinite number of examples of similar rectangles
- preview the sketchbook with students then have students work in pairs through Activity 1 and 2
- go to the library and search for scales in diagrams and maps prior to exploring the Similar Rectangle and Bugs sketches

Consolidate - use the “Bugs” page as a whole class kinesthetic activity - let the width of the classroom represent the width of the sketch, let one student represent the stationary bug, then other students can stand along a horizontal line to represent their estimates of the required ratio

Extensions:

Explore ratios in these contexts:

recipes, the golden ratio, music, body measurements, sports

This sketch contains links to websites for some of these contexts.

Do a web search and make a report on your findings.

Questions or activities for students/parents to explore together:

1. What is a “ratio”?
2. If two numbers have a ratio of 2:3 what does it tell you about the two numbers?
3. How might a map scale of 200 000:1 be interpreted?
4. How many practice ratios can you get correct in a row? (practice page)
5. If the ratio of the side lengths in two rectangles is the same, is the ratio of their areas the same?