Tools and Topics

Inspiring Connections Course 1, Chapter 5

Spotlight On: Active Learning

Can you imagine learning how to play the flute by going to a concert? Or watching a basketball game and then going home and thinking you will make every shot you attempt? Being an expert takes more than watching an expert. In the same way, students need to actively engage with mathematics in order to learn to think like a mathematician. In class, students are actively engaging with mathematics together for the majority of class time. It is valuable to have conversations at home about what your student is learning in math class and to show interest and curiosity towards what they are learning about.

The Big Picture

Growing From

Fractions, decimals, and percents;
Measures of center

Working On

Fractions;
Area;
Statistical questions and data

Growing To

Decimals and fractions;
Surface area;
Mean absolute deviation

Need Help?

Methods & Meanings boxes are included in the Mathematician's Notebook as reference.

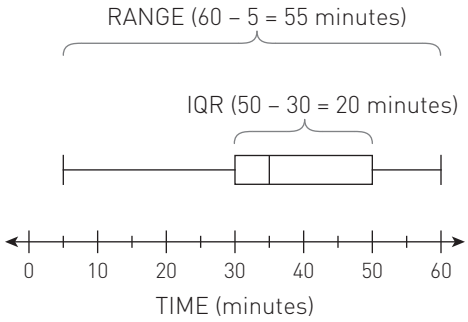
5.1.3: Box Plots
5.1.4: Quartiles and Interquartile Range (IQR)
5.2.1: The Shape of Distributions
5.2.2: Parallelogram Vocabulary
5.2.4: Area of a Parallelogram
5.2.5: Area of a Triangle
5.2.7: Area of a Trapezoid
5.3.3: Multiplying Fractions

Current Topics

In Chapter 3, students described data distributions by calculating measures of center. This chapter extends descriptions of data to include variation of the data, called "spread." Students will revisit statistics in Chapter 10 with an introduction to mean absolute deviation. In addition to learning more about data, students continue to learn about area, with the formal introduction of methods to calculate the area of triangles and various quadrilaterals. A model based on calculating the area of a rectangle is used in the final section of this chapter to help students understand the multiplication of fractions and mixed numbers, as well as preparing them to divide fractions in Chapter 7.

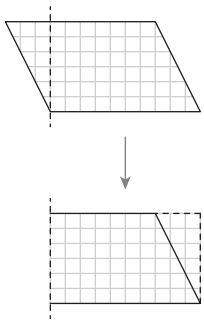
Variation in Data (Section 5.1)

This section introduces students to box plots. A box plot separates data into four quartiles. In addition to calculating the range of the data (from the lowest value to the highest), students will learn how to calculate the range of the middle 50% of the data, called the "interquartile range" (IQR).



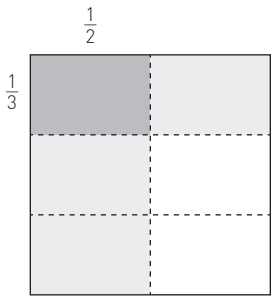
Area (Section 5.2)

In this section, students will use the dissection techniques introduced in Chapter 1 to study the area of triangles, parallelograms, and trapezoids. While the base and height of rectangles are fairly straightforward to identify, determining the base and height of other shapes requires some mental flexibility. The focus is less on recalling area formulas and more on rearranging shapes into more familiar shapes. For example, students will turn a parallelogram into a rectangle using the technique shown at right.



Fractions (Section 5.3)

In this section, students will use the familiar area of a rectangle model as a structure for multiplying fractions. In the example shown, the large rectangle represents one whole. The side of the rectangle is divided into three equal parts and the top of the rectangle is divided into two equal parts. The top left portion of the rectangle represents the product of $\frac{1}{3}$ and $\frac{1}{2}$.



$\frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$

Try This at Home!

Think about a time when you need to know a fraction of a fraction. For example, if you need half an hour to clean the basement, and are only one third of the way finished, you still need 20 minutes to finish cleaning.