Rate Objectives

The student should be able to

1. Find a rate.
   a. Given two change amounts - using the language "per"
   b. Given two change amounts - using the language "for each" or "for one"
   c. Given two change amounts – find unit rate *(both directions)*
   d. Given two amounts and a time (or other *amount* for "the denominator") (including finding unit rate)
   e. From a graph
   f. From a table
   g. Given two ordered pairs (including finding unit rate)
   h. Find the reciprocal rate, given the rate.

2. Understand the meaning of rates
   a. Interpreting the meaning of a rate (in real world settings).
   b. Comparing rates. (which hot chocolate is more chocolaty?, which is the better buy?) Including comparison shopping (using rates or reciprocal of rates)

3. Multiply a rate times an amount (to get an amount).
   a. Proportion-type problems solved using rates
   b. Converting units.
   c. Scale drawings and map scales.

4. Multiply rates (to get a rate).
   a. Problem solving.
   b. Converting units (which are rates).

5. Solve problems using proportions.
   a. Doubling or halving method
   b. Factor of change and use a simplified form ("equivalent fractions method" – including higher terms and lower terms)
   c. Unit rate method
   d. Cross multiplication

6. Use reciprocals, or divide (to get an amount or rate).
   a. Amount ÷ rate. (I have $5. Gas is $3.09 per gallon. How much gas can I buy?)
   b. Rate ÷ rate

7. Use a combination of the above.
   a. Rate × rate × amount
   b. Rate ÷ rate × amount
   c. Other combinations

8. Weighted average
   a. Average rate of change for two portions of a trip, when the distances and times are given.
   b. Average rate of change for two portions of a trip, when the rates and times are given.
   c. Average rate of change from a graph
   d. Weighted average problems

9. Solve problems involving a starting amount and rates (involving linear functions).
   a. Given a "linear model," answer questions