

“Miles and Meals”: A Pre-Visit Math & Money Activity for Wagon’s Ho

Topics that could be explored:

1. Growth factors of money, and rates of increase
2. Discount and mark-up prices with examples
3. Optimization problems
4. Compound interest problems
5. How these concepts are applied in our modern economy.
6. Using good judgment with spending money

Standards addressed with this activity:

(CCSS standards)

[CCSS.Math.Content.7.RP.A.3](#) Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

(KCCRS Standards)

KCCRS.6-8.1a: Support claims with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.

KCCRS.6-8.6: Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

(Kansas History & Government Standards)

Benchmark 1: The student understands how limited resources require choices.

Ind. 1: The student explains how scarcity of resources requires individuals, communities, states, and nations to make choices about goods and services (e.g., what food to eat, type of housing to live in, how to use land.)

Scenario #1:

Imagine that you have to make a trip of about 700 miles. You will be traveling from Kansas City, Kansas to Santa Fe, New Mexico. The distance between the geographic centers of these cities (by the shortest route) is about 783 miles. During your travels, what are some things that you will have to spend money on? In this activity, you will get to plan out your budget, and determine all of the things you will need for the journey. Please feel free to use Mapquest, Yahoo maps, Google maps, and any other website to assist you in the following exercises.

Questions:

1. When determining your gas expenses, you will first need to know more about your chosen method of transportation. Does your car provide merely style or does it also provide you with good gas mileage?
2. In this activity, there are 3 vehicles you will be able to choose from to take on this journey. You will be making this purchase all at once. Below you will see the cars and their specifications. Consider the differences in the **mileage, engines, and features** of each car.

Miles Per Gallon (MPG) is measured by = Number of miles traveled

Link to calculating MPG: <http://www.fueleconomy.gov/feg/findacar.shtml>



Car #1: Volkswagon Beetle

Mileage: 22 city, 31 highway

Engine: 2.5L in-line 5-cylinder engine

Electronic Stability Control

Multi-function trip computer

Cloth seating surfaces with sport seats

Cost: \$24,795

Resource: <http://www.vw.com/en/models/beetle/trims-specs.html>



Car #2: Nissan Altima (2013)

Engine: 2.5 Sequential-Port F.I.4 Cyl.

Transmission: Automatic

Mileage: 27 city mpg, 38 highway

Drivetrain: FWD

Cost: \$19,898



Car #3: Ferrari F-430

Engine: 4.3L V-8 engine

Takes premium unleaded fuel

Multi-point fuel injection

Mileage: 11 city mpg, 16 highway

Can create up to 343 ft-lbs of torque

Cost: \$250,000+

Resource: <http://www.motortrend.com/cars/2009/ferrari/f430/specifications/#ixzz2jXodVIBj>

3. Once you have found out how many gallons your car's gas tank can hold, and how many miles are on your odometer, you should have a better idea of your transportation needs.

* For each exercise, make sure you are adding item/items to your budget list. Be as accurate as possible about the exact prices of these items. Remember, this is a budget with actual places and actual prices.

4. Your next step is to plan the hotel you will be staying at along the way (or hotels). You will need to at least pay to stay in one hotel in Santa Fe. The total time to make this trip is approximately 12.5 hours. The exact time given by Mapquest is 12 hrs, 32 mins. There are many options along the way, and many factors to consider- cost per night, breakfast options, internet and wi-fi, commodities provided in rooms, pool, other services, etc. Choose wisely!

Hotel Choices:

5. The next big necessity to plan for on the road to Santa Fe? Food, of course! How often will you be stopping to eat? This depends on **if you are making a 2 or a 3 day trip**. Also, will you be eating at restaurants or purchased food from a grocery store? Choose at least 5 places along your route where you will be stopping to eat. For each meal, drink, or food item, you must list it in your budget.

Food Stops:

6. Finally, make sure you know when and where you will need to get gas. First, determine how many miles your car could go on a full tank. However, it's not a great idea to wait until you are almost completely out of gas to refill. Usually, **once you get down to about ¼ of a tank, this is the best time to put gas in your tank**. Keep this in mind when working out your gas station stops.

Gas Station Stops:

