Sixth Grade

Problem Solving Tasks – Real World Projects

Teacher Materials

Summer Dreamers
By the end of this project each student should have real-world knowledge of what is required to increase the size of a recipe to accommodate a larger group of people using what they know about equivalent fractions, ratios, and proportions. This project will focus on the following concepts previously learned:

- Operations involving Fractions
- Equivalent Fractions
- Proportional Relationships

**MATERIALS:**

*For each student:*

- Project Worksheet: “Adjusting a Recipe”
- Computer/Internet Access
- Poster Paper/Chart Paper (Optional)
- Markers
- Calculators

Each student will display his/her poster of all of the necessary information. Students can work with a partner or individually. It is suggested that students present results to the class.
Adjusting a Recipe


2. Rewrite the recipe for twice as many people. Show your work and explain your strategies.

3. Rewrite the recipe for half as many people. Show your work and explain your strategies.

4. Rewrite the recipe to accommodate the number of students in your class and your teacher. Show your work and explain your strategies.

5. Explain how you would adjust your recipe to feed everyone in your class and don’t forget your teacher!

Be certain to use correct spelling! Present your information on chart paper in a CREATIVE way. Make certain that all information is included.
<table>
<thead>
<tr>
<th></th>
<th>Kitchen Assistant</th>
<th>Line Cook</th>
<th>Sous Chef</th>
<th>Executive Chef</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show your work</td>
<td>Work is not shown or calculations include more than 3 mathematical errors.</td>
<td>Some work is shown or calculations include 2-3 mathematical errors.</td>
<td>All calculations are shown but include 1-2 mathematical errors.</td>
<td>All calculations are shown and completed accurately.</td>
</tr>
<tr>
<td>Strategy</td>
<td>Inappropriate strategy used.</td>
<td>Used strategy that was partially useful, but did not lead to full solution.</td>
<td>Problem solved using appropriate strategy.</td>
<td>Problem solved using efficient strategy.</td>
</tr>
<tr>
<td>Explanation</td>
<td>Explanation is unclear.</td>
<td>Some parts of explanation are clear.</td>
<td>Explanation is reasonably clear.</td>
<td>Explanation is very clear.</td>
</tr>
<tr>
<td>Spelling</td>
<td>Project contains more than 5 spelling errors.</td>
<td>Project contains 4-5 spelling errors.</td>
<td>Project contains 1-3 spelling errors.</td>
<td>Project contains no spelling errors.</td>
</tr>
<tr>
<td>Presentation</td>
<td>Project is not presented in a creative or effective way.</td>
<td>Some parts of the project are presented in a creative or effective way.</td>
<td>Project is presented in a creative and effective way.</td>
<td>Project is presented in a very creative and effective way.</td>
</tr>
</tbody>
</table>
By the end of this project each student should have real-world knowledge of what is required to buy a car in the state of Pennsylvania. This project will focus on the following concepts previously learned:

- Rate
- Unit Rate
- Proportions
- Fractions/Decimals/Percents

MATERIALS:

For each student:

- Project Worksheet: “Buying a Car”
- Computer/Internet Access
- Vehicle Advertisements (Newspapers/Magazines)
- Poster Paper/Chart Paper
- Markers
- Calculators
- Glue/Glue Sticks

Each student will display his/her poster of all of the necessary information, including a picture of the new car. A gallery walk of all completed projects is suggested.
BUYING A CAR

Congratulations! You are about to buy the car of your dreams. What will you choose? How much will it cost? Where will you find a loan to pay for the car? How about gas mileage? What will the state of Pennsylvania require you to do before you can drive it?

The Car: Browse through newspaper advertisements and/or vehicle magazines to find prospective vehicles that you would like to purchase. You may also use the internet to browse vehicles. Here are a few vehicle website to help you with your purchase:

- www.edmunds.com
- www.carmax.com

Once you have located the car of your dreams, you must provide the following information in your project:

- Dealership Information
- Make/Model/Year
- Standard Features
- Options (if you are requesting any)
- Extra Cost for all additional Options
- Total Cost of your car

Gas Mileage

You may use www.fueleconomy.gov to assist in finding out useful information regarding gas mileage of your vehicle.

- Find the gas mileage for your new car (miles per gallon / mpg). There will be two numbers; the “in town” mpg and the “highway” mpg (Ex: 20/27 mpg).
- Find the cost of gas for your car for one year.
Bank Loan

You may use www.bankrate.com to assist in finding lenders and lending information for your new car.

- Name of Lending Company
- Interest Rate
- Monthly payment for a 60 month (5 year) loan
- Total cost of the loan (monthly payment x 60 months = total cost)
- Amount of interest paid (total loan cost – cost of car = interest)

Pennsylvania Motor Vehicle Commission

Visit www.dmv.state.pa.us to assist you with PA state laws required for vehicle purchases.

List the amounts that you will pay for the following:

- PA State taxes
- Title
- Registration

Vehicle Insurance

Find an insurance company to insure your new vehicle. You may look at any or all of the suggested sites to get the best rate:

- www.geico.com
- www.statefarm.com
- www.progressive.com

Once you have found an insurance company, provide the following:

- Company Name
- Payment Plan (Monthly, Quarterly, Biannually, Annually)
- Cost of car insurance for one year