

ENERGY CHOICES		Student/Class Goal With the increasing cost of natural gas, students want to be informed about their options for heating their homes in a cost effective way.
Outcome <i>(lesson objective)</i> Students will add and multiply decimals to complete gas choice worksheets. By doing so students will discover which gas supplier has the best gas prices.		Time Frame 1-2 hours
Standard <i>Use Math to Solve Problems and Communicate</i>		NRS EFL 3-6
COPS Understand, interpret, and work with pictures, numbers, and symbolic information.	Activity Addresses Components of Performance In order to complete this lesson, students will have to collect and interpret data about local natural gas suppliers and use this information appropriately in an energy choice worksheet.	
Apply knowledge of mathematical concepts and procedures to figure out how to answer a question, solve a problem, make a prediction, or carry out a task that has a mathematical dimension.	Students will use their knowledge of the procedures for adding and multiplying decimals to complete the computations on the energy choice worksheet.	
Define and select data to be used in solving the problem.	In order to properly complete the energy choice worksheet, students will have to identify the necessary information from a gas choice handout.	
Determine the degree of precision required by the situation.	Students are working with decimals to two places.	
Solve problem using appropriate quantitative procedures and verify that the results are reasonable.	Students will add and multiply decimals to arrive at the answers for the energy choice worksheets. They will compare their answers with each other to check for accuracy.	
Communicate results using a variety of mathematical representations, including graphs, chart, tables, and algebraic models.	After calculating their answers, students will discuss their results as a class and construct a chart to show this information graphically. They will also use the information to choose a gas supplier.	
Materials Internet Access <i>Comparing Your Energy Choices</i> Handouts		
Learner Prior Knowledge Addition and multiplication of decimals, working with percentages. Familiarity with their gas bills and billing terms – fixed rate, variable rate, hybrid programs, incentive offers, etc. would also be helpful.		
Instructional Activities Step 1 - Using a KWL chart, record what students know about energy choice programs and what they would like to know. One of the items in the “want to know” column should be how to choose the best gas supplier Step 2 - Since students should have already been introduced to operations with decimals, this lesson will be good practice. Give students the <i>Comparing Your Energy Choices</i> gas rate information and worksheet. Have a class discussion about the handouts and where to find the information needed to complete the different sections of the worksheet. TEACHER NOTE The resource <i>Comparing Your Energy Choices</i> is updated weekly so if your class does not have Internet access, it would be best to print out the information each time this lesson is taught. Once at the site, pick your local energy supplier from the list. This will allow you to print out information about that supplier, a list of other local suppliers, and the <i>Comparing Your Energy Choices</i> worksheet. Step 3 – Students form small groups read and discuss the <i>Comparing Your Energy Choices</i> handouts. Using the information they found in the handouts they complete the energy choice worksheet. Since the worksheets compare two energy suppliers, each group could complete one worksheet for two gas suppliers, or each person in the group could complete a worksheet for a different supplier. Have the students decide the level of accuracy they need to complete the energy choice worksheets before they begin.		

Step 4 - When all students have completed the worksheets they can compare their computations with each other and resolve any discrepancies. Calculators can be used to check answers.

Step 5 - The small groups can report out about their findings and the class can have a discussion about which gas supplier might be best. The class can construct a chart to show this information graphically.

Supplemental reading at [Gas Choice 101](#).

Assessment/Evidence *(based on outcome)*

Comparing Your Energy Choices worksheets

Chart showing the costs for local gas suppliers

Teacher Reflection/Lesson Evaluation

Not yet completed.

Next Steps

Technology Integration

Comparing Your Energy Choices <http://www.pickocc.org/gas/compare.shtml>

Gas Choice 101 <http://www.pickocc.org/gas/gchoice101.shtml>

KWL Teaching Strategy http://literacy.kent.edu/eureka/strategies/k_w_l.pdf

Purposeful/Transparent

Students are using math as a way to discover which natural gas supplier has the better deal.

Contextual

Energy costs and making wise choices about them are a part of many students' lives.

Building Expertise

Students are practicing the addition and multiplication of decimals and learning to be wise consumers.