

PRETZEL POWER



Background

Petroleum and natural gas are widely used as transportation fuels. Most of our personal vehicles run on petroleum products like gasoline and diesel. Some vehicles are more efficient than others and allow us to go farther with less fuel while being kind to the environment.

● Question

What is 'gas mileage' and why is it important to getting around?

Materials

- One 3" x 5" card or label
- Bag of 10 pretzels from your teacher

✓ Procedure

1. Think about the kind of car you would like to drive.
2. Use a computer and look at the fuel efficiency of your choice using www.fueleconomy.gov.
3. On your card, record the name of the car, the year it was made, how many miles per gallon it travels, and how many passengers can fit in the car.
4. Your teacher will give you a bag of pretzels. Each pretzel represents one gallon of gasoline and the bag represents one tank of gas.
5. **For Round One:** You will be "driving" from "Home" to work in "Near Town" and back Home again while using only 5 gallons of gasoline (5 pretzels). You will be marking the distance driven by taking steps heel-to-toe. One step represents one mile driven.
 - Eat one pretzel. Take as many heel-to-toe steps as your car would be able to drive on one gallon of gasoline. Do not take any more steps than your car can drive.
 - Eat another pretzel and again take as many steps as your car can drive on one gallon of gasoline. Continue this until you have used five "gallons of gasoline" (eaten five pretzels).
6. **For Round Two:** In this round you will be traveling to "Far Town" in your car. Decide if you should carpool, and find passengers for your car, or join another person's carpool.
 - If you carpool, all members combine their pretzels. Only one person may eat a pretzel at a time.
 - When your teacher indicates the start of Round Two, begin stepping as a group as you drive to Far Town. Count the steps together for the car you chose to drive.

**** Conclusion**

1. During Round One, were you able to make it to Near Town and back Home? Did you have fuel remaining?

2. During Round Two, were you able to make it to Far Town and back Home? How were you able to travel this greater distance?

3. Describe how this activity compares to driving real cars using real fuels.

4. Explain the benefits of carpooling. Describe the disadvantages, too.

5. If you were to drive a car of your own would you select the car you “drove” today? Explain using observations from this activity.

Research Questions

1. Use the same website (fueleconomy.gov) that you used at the beginning of this activity to research your family’s car(s). Discuss it with your family.
2. Look at some of the cars listed on the website. Which ones are the most fuel efficient? Are they cars you would choose to drive? What are the advantages and disadvantages to owning these cars?
3. What might cause a person to choose a different fuel for his or her vehicle? How can different fuels affect the range, performance, and mileage of a vehicle?