important. The further the distance between them, the less revenue was gained.

The scientists observed that to gain enough revenue from woodchips, more woodchip facilities will be needed close to forested areas. They noted, however, that as small trees are removed from western forests, forest health is improved. As forest health improves, fewer small trees will grow. This will reduce the future supply of small trees for woodchip facilities.

Reflection Section

- The scientists pointed out a dilemma that could be faced in the future. What is that dilemma?

Adapted from: Silverstein, R. P., Loeffler, D., Jones, J. G., Calkin, D. E., Zuuring, H. R., and Twer, M. (2006). Biomass utlization modeling on the Bitterroot National Forest, In: Andrews, P. L. and Butler, B. W., compilers. *Fuels management–How to measure success*. Conference Proceedings, 28-30 March 2006; Portland, Oregon, Proceedings RMRS-P-41. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. http://www.fs.fed.us/rm/pubs/rmrs_p041/rmrs_p041_673_688.pdf

FACTivity

In this FACTivity, you will answer the question: "Do rising fuel prices affect the choices we make?"

The method you will use to answer this question is:

Divide your class into groups of four students. Each group is given an imaginary $100 to spend on a Saturday, or $25 per student. If your group overspends, the money has to come out of your pockets equally. If your group under-spends, you can evenly split and keep the left-over money. All expenses are shared equally.

One of your options is to go to an amusement park. The amusement park is 60 miles away one way, and your group is riding in a vehicle that gets 30 miles to the gallon. The group must pay for the fuel. The admission price per student is $15. You will have to eat lunch and buy whatever drinks and snacks you want once you get into the park. You estimate that this will cost each of you $10. On the day you plan to go, a nationally famous hip-hop band will be giving a concert, and your admission price includes admission to the concert. This is a concert that everyone you know will be at.

An alternative activity for your group on that same day is a concert featuring a local college rock band. This is not one of your group's favorite bands, but the music is okay. The band is playing just 15 miles away one way, and the admission price is $5 per student. You would be riding in the same vehicle as before, and you have to pay for the fuel. Lunch will be available at a cost of $8 each.

Now, you will consider all of your options and make a decision about which activity you will do as a group. You will consider the options under four different situations. In these situations, everything is the same except the price of fuel.

Calculate your group's fixed costs first. Those are the costs that will not change, such as the price of admission and of lunch. You can complete the chart on the next page.

	Admission price per student	Admission price for group	Lunch price per student	Lunch price for group	Subtotal cost for group	Number of gallons of fuel for round trip
Amusement park and hip-hop concert						
Rock concert						

Now, complete the next two charts.

	Fuel: $2.00/gal	Fuel: $2.75/gal	Fuel: $4.20/gal	Fuel: $4.50/gal
Cost of fuel for round trip to amusement park and hip-hop concert				
Cost of fuel for round trip to rock concert				

	Fuel: $2.00/gal	Fuel: $2.75/gal	Fuel: $4.20/gal	Fuel: $4.50/gal
Subtotal cost for group—Amusement park (from first chart, same value for all columns)				
Cost of fuel for round trip to amusement park (from second chart)				
Total cost for amusement park trip				
Subtotal cost for group—Rock concert (from first chart, same value for all columns)				
Cost of fuel for round trip to rock concert (from second chart)				
Total cost for rock concert trip				

As a group, decide which activity you would choose under the four different prices of fuel. If the amusement park was 20 miles away, would your decision change? What if it were 100 miles away?

How has your discussion changed as a result of increasing fuel prices? Has your decision changed as a result of increasing fuel prices? If so, why? If not, why not?

Hold a class discussion about your group's decisions. Now discuss whether you or and your family are making any changes as a result of changing fuel prices. What changes are being made, if any? What are some advantages and disadvantages of having to make these changes?

How were your options like the simulated options presented in this article? How were they different?

Additional information for your classroom:

The title of this article is "Chip and Truck." This title is a take-off on the phrase "Nip and Tuck." The phrase, "Nip and Tuck" was first used in the 19th century. It means "a close result in a race or contest." You might ask your students to compare and contrast the phrase "Nip and Tuck" with the results of the article, "Chip and Truck" (http://www.phrases.org.uk/).

If you are a Project Learning Tree-trained educator, you may use Activity # 53: "On the Move" or Activity #82: "Resource-Go-Round" or Activity #51: "Make Your Own Paper."