

Geology of the National Parks (GNP) is an introductory-level geology course for non-science majors taught at the University of South Florida. The course capitalizes on student interest in parks where geologic features and histories are so well displayed. We are revamping *GNP* to add a quantitative literacy dimension.

Quantitative Literacy Exercises: Colorado Trip Module

The Colorado PowerPoint module takes students on a circuit through Colorado. Students explore the geology of six Colorado National Parks by clicking on embedded hyperlinks to Park Web sites. As the students progress through the slides, they work through an Excel spreadsheet to track mileages, times and costs and thereby plan such a trip. Other spreadsheets developed in the exercise incorporate foundational math skills such as unit conversion, percent increase, temperature conversion and slope angle calculations.

6 of 25 slides:

SSAC2006.G155.JAH1.1

**Achieve New Heights:
Go to the Rockies!**

A Geological Circuit of National Parks and Other Scenic Places in Colorado

A trip-planning activity to estimate travel distance, duration and expense.

Hyperlinks allow you to explore the geology of each park.

Quantitative concepts and skills
Foundation math

Supporting Quantitative Issues
Data collection Estimation Unit conversion

Prepared for SSAC by
Judy McIlrath – University of South Florida
© The Washington Center for Improving the Quality of Undergraduate Education. All rights reserved. 2006

1

Stop 2: Florissant Fossil Beds National Monument

After driving one hour, you reach **Florissant Fossil Beds**, where the odometer reads 08044. The entrance fee is \$3.00/person. It is a small park, and you stay two hours.

The fossils found here formed 35 million years ago, when volcanic ash covered the landscape trapping plants and insects. Their carbon imprint was left after the ash eventually turned into rock. Florissant fossils that in the world is its richness in insect fossils.

The fossil remains of giant dinosaurs that grew to a height of 300 feet roamed a very different climate in this area of Colorado than what we see today. The stumps of these trees were preserved after lava (volcanic mudflow) swept through this area.

Beetles (Coleoptera)

Enter the given values to the spreadsheet as shown. Be sure to do this for each of the following slides.

Destination	Distance (mi)	Time (hr)	Gas (gal)	Gas Price (\$/gal)	Entrance Fee (\$/person)	Stay (hr)	Food (\$/person)	Total (\$)
Florissant	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Denver	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Golden	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Aspen	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Steamboat	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Winter Park	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Leadville	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Silverton	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Durango	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Montezuma	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Alamosa	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Salida	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Canon City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Black Hills	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
De Smet	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sturgis	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Deadwood	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Sioux Falls	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Rapid City	100	2.0	10.0	3.00	3.00	2.0	10.0	35.00
Hot Springs	100	2.0	10.0	3.00	3.00	2.0		