

Foliage Trip

It's Fall in New England; a great time for a Foliage Trip by car!

Your (imaginary) trip into the foliage areas of New Hampshire will be on a single route with no other traffic (remember, it's an *imaginary* trip), and you'll turn around at some point and come home on the same route. [Work in small 2-4 student groups; be prepared to share your results with the class.]

1. Using only straight-line segments, graph your car's distance from home versus time. Use graph paper and good graphing techniques; e.g., use a straight edge, label the axes, include titles and units.
2. Write a simple but good English story about what each segment means. E.g., you left home and drove quickly, but safely and legally, north into New Hampshire until you got to forests that had changing leaves. Then you slowed down so you could look at the multicolored leaves, until you stopped for lunch. After lunch you ...
3. How can you determine your speed at any time by looking at your distance-time graph? If you were to write the slope-intercept form of the equation of the line containing one of your trip segments, is there a number in that equation that represents your speed? If so, which one? Pick one of your decreasing segments and write the slope-intercept form of the equation of the line containing it, and identify your speed in the equation. Interpret the sign (+/-) of the speed. What are its units?
4. Underneath your distance-time graph, and with the same time scale, graph your speed versus time graph for the trip.
5. How does your speed at a particular time on your speed-time graph relate to your distance-time graph?
6. What is the area, with units, between your speed-time graph and the time axis during your first segment? Is it related to your distance-time graph? If so, how? What about the second segment? Third?
7. How can you determine your distance from home at any particular time just by using the speed-time graph?
8. Below is my Foliage Trip speed-time graph. Construct an appropriate and accurate distance-time graph to based on it. Write a good English story for my trip.

