

Ups and Downs of the ADT in Delaware

Category : Classroom Activities

Published by [Scott](#) on 2006/3/7

Students will create a profile of the ADT hike Randy and Sheri took across Delaware.

Topic – The Ups and Downs of Creating a Profile

Objectives:

1. Students will be able to construct a profile from a topographic map.
2. Students will be able to construct a profile from a data table showing horizontal distance traveled and elevation.
3. Students will be able to relate steepness of slope to spacing of contour lines.

Lesson Introduction:

This lesson can be completed for any given trail section, any state, or the entire ADT. Once [treckusa.com](#) is complete, or as our hikers complete a state, the [actual distances traveled and GPS elevations](#) can be used. In our classroom we also are constructing a [profile of the entire ADT](#) as Randy and Sheri take their hike.

Activity One: Setting Up the Grid.

Determine the length of the ADT in the particular state of interest (easily found on the ADT's website, or using the actual hike distances above). This needs to be the horizontal length for the bottom of the profile grid. Determine an appropriate scale for the profile to fit on the paper (how many map millimeters will equal an actual trail mile).

The vertical axis of the profile grid will definitely depend upon the relief present in your particular state. It is not necessary to use the same vertical and horizontal scales. In order to show changes in elevation of relatively flat trail areas, the horizontal scale is likely to be smaller. To get an accurate profile, the distance between divisions on the vertical axis needs to be the same and measured carefully. Be sure to go a little beyond the highest and lowest points you are plotting and label elevations on the side of the profile grid.

Activity Two: Plotting the Points.

If plotting points using distance and elevation data from the website or a data table, simply move the correct horizontal distance, then up to the correct elevation and plot a point. If plotting points from a map, use a piece of scrap paper (or string if the trail is curved) to first mark all the places the route crosses contour lines. Then place the paper or string at the bottom of the profile grid and move up to the correct elevation to plot the point.

Activity Three: Connecting the Dots.

Once all the points are plotted, connect them with a smooth curve, being careful at high points, low points, and end points. Compare the steepness of the profile to the map location it covers to get students to understand that steep slopes are represented by closely spaced contour lines.

Activity Four: Review Quiz.

Show topographic map on overhead and check for students' understanding by asking them to choose correct profile choice to correspond with highlighted paths on map.