Contour Training At Woodland Park

November 20, 2004 by Mike Schuh

Background

Orienteering is the sport of using a map to find one's way from one place to another. O' maps contain a large amount of detail - big stuff like buildings and roads, but also fine detail like individual boulders and faint trails. The maps also show the shape of the ground, using contour lines to do so. These are the brown squiggly lines on the map...

It has been observed that some WIOL participants who have competed in past US Interscholastic Championships have had difficulty working with contours. In areas with few roads and trails, a competitor's performance can depend on their ability to navigate by contours. Today's exercise is an attempt to help WIOL participants improve their skills interpreting and using contours.

Contour Basics

Contours are lines of equal elevation - every point on a given contour line is the same height (the shoreline of a lake is a good example). Where contour lines are close together, the terrain is steep; where they are farther apart, the ground is flatter. Following a contour is to stay level; crossing a contour is to go either uphill or down. Knowing which side of a contour line is up can be difficult but remember that water features (in particular streams) are usually at the bottom of slopes. Hills are shown as closed contours - circles or rings - around the summit. Generally these two principles are enough to tell up from down. On some contour lines, the mapmaker will add little tick marks (known as slope tags) to point downhill. A large depression (kind of like a pond or a lake without the water) will be shown as a closed contour (*e.g.* the shoreline of the nonexistent lake) with slope tags pointing into the depression. The Tenalquot map, south of Lacey, has dozens of these depressions. Sometimes the mapmaker will add form lines (dashed contour lines between the regular ones) to show extra detail that the "real" contours would miss.

Training Exercises

To help focus on contours, the training map shows contours and nothing else. Yes, it is possible to navigate using just contours! Here are some exercises to try:

- **follow a feature** - Between two controls, identify some topographic feature that connects them (e.g., a ridge, a reentrant/ravine, or perhaps the base of a slope) and follow that feature from one to the next. A linear feature that connects controls is a *handrail*.
- **contouring** - Find two controls that are on (or very nearly on) the same contour, meaning that they are the same elevation. Go from one control to the other by staying at the same elevation while traversing the hillside.
- **catching feature** - A *catching feature* is a linear feature (e.g., road, trail, edge of a clearing, or, in the context of today's exercise, a ridge, reentrant/ravine, or the edge of flat area) that is beyond the destination - it "catches" anyone who misses!

- **relocation** - Working with a partner taking turns leading each other (at a run!) to another location on the map, and then try to quickly figure out where this new place is.

(Suggested controls for these exercises will be provided at the meet - please ask me for details.)

Today's Procedure

After students have completed their competition course, they may get a contour-only map and return to the map area. Using the skills and techniques described above, travel to selected controls relying on just contours for navigation (and a compass to keep the map oriented). There is no need to hurry - this is a training exercise, not a competition! - but instead take time to see how the contour lines on the map portray the shape of the ground. Practice using the map and compass together, reading the contours along the way.

Future

At future WIOL meets, consider using contours as another navigational technique. Any map area that is not flat will have contours lines on the map, and these can be used as aids to navigation. Also, knowing whether one route is up a steep hill while another goes around it can be instrumental in making route choices.

Fairness

Assisting other students who are still competing is, of course, disallowed. Anyone helping a competitor will subject both to disqualification. In particular, students taking part in the training exercise should not loiter near controls. As there is no need to punch at a control for the purposes of this exercise, approaching to within sight of the control should suffice.

Acknowledgments

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