

1. **DESCRIPTION:** Participants will respond to interpretative map questions based on one or more state highway maps, internet-generated maps, or a road atlas, and one or more USGS topographic maps.

A TEAM OF UP TO: 2

APPROXIMATE TIME: 50 Minutes

2. **EVENT PARAMETERS:** The highway and quad maps may be from one or more states. The event will be presented in a storyline format. Participants must bring a protractor, ruler, and a USGS Map Symbol Sheet to the event. Students may bring a calculator, notes, reference materials, and other measuring devices. Participants will be asked to draw map features in a square representing a 1-mile x 1-mile section using the symbol sheet and concepts listed in 3.c. This square will be included on the answer sheet. Computers are not permitted. Participants may not write on the maps.
3. **THE COMPETITION:** The event supervisor will provide all required maps, question booklets, and response sheets. The event supervisor will inform participants when they may begin.

a. **Topographic Map Testing Areas**

- i. Map location/series/scale/index/legend
- ii. Marginal information
- iii. Contours
- iv. Magnetic declination
- v. Map symbols
- vi. Map features
- vii. Survey control marks (control stations and spot elevations)
- viii. Azimuths and bearings
- ix. *Stream gradient (feet per 1000 feet)



- x. Distance values between features (both English and metric units)
- xi. Geographic coordinate system features and symbols (degrees, minutes, seconds)
- xii. Public Land Survey System (PLSS)
- xiii. Elevation of features and symbols
- xiv. *Slope (feet per 100 feet)
- xv. Sector Reference System
- xvi. Direction of stream flow
- xvii. *Profiles
- xviii. Graticule tick marks

b. **Highway Map Testing Areas**

- i. Distances between features
- ii. Map legend/tables/index
- iii. Map grid system
- iv. Map symbols
- v. City/Regional inserts on the highway map

c. **Student-Created Map Design**

- i. Map scales
- ii. USGS topographic map symbol sheet
- iii. Distances
- iv. Azimuths and bearings
- v. Public Land Survey System

* Items marked with an asterisk should be written at an introductory level for regional exams.

4. **SCORING:** Teams will be ranked according to their point total. Values of questions may be weighted. Ties will be broken by the accuracy and/or quality of answers to pre-selected questions.

RECOMMENDED RESOURCES:

Road Scholar/Map Reading Coaches Guide: www.soinc.org

Topographic Maps: <http://education.usgs.gov/common/secondary.htm#topographic>

The USGS and Science education: <http://education.usgs.gov/>

Sample Tests: http://www.tufts.edu/as/wright_center/products/sci_olympiad/sci_olympiad.html

NATIONAL SCIENCE EDUCATION STANDARDS: Science as Inquiry, Content Standard A: Use appropriate tools and techniques to gather, analyze, and interpret data.