

1. **DESCRIPTION:** Participants will respond to interpretative questions 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:** Participants must bring a protractor, ruler, and may bring a USGS Map Symbol Sheet, a calculator, notes, reference materials, and other measuring devices. Computers are not permitted. The event supervisor will provide all required maps, question booklets, and response sheets.

3. **THE COMPETITION:** The highway and quad maps may be from one or more states. The event will be presented in a storyline format. Participants will be asked to draw map features in a square representing a 1-mile x 1-mile section using the correct features listed in 3.c. This square will be included on the answer sheet. Participants may not write on the maps.

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
- xix. **Universal Transversal Mercator (UTM)

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
- 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

**Items marked with two asterisks should be written for State and National 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-see store at: www.soinc.org

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

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

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