



**State Finals
Golden, Colorado
April 13, 2002**

**Map Reading
B Division**

● Tie Breaker Question

Mercator and the Projections 2002 World Tour:

The Colorado Leg Continues:

Colorado State Road Map

1. *Mercator and the Projections* are a rock band traveling through Colorado on their 2002 World Tour. When we last left our heroes, Mick Mercator - lead vocalist; Rod Geo – bassist; Britney Scales – keyboards; Ringo Topo – percussion; and Eric Carto - lead guitarist had just concluded a triumphant concert tour through eastern, northern, and central-western Colorado ending in Grand Junction. After a series of sold out gigs, Britney turns to the boys and says, “Hey, Dudes, time to blow this scene!” With that most profound thought, the band scrambles onto their tour bus and heads out on another road trip. The bus departs southern Grand Junction, and soon arrives in the small town of Whitewater. Peering at the map index, Eric informs the band that a town of only 400 people is much too small for a successful gig. Upon what year’s national census is this population based?
2. The driver turns southwest onto State Highway 141, and, almost immediately, crosses a bridge. Over what river does this bridge cross?
3. About 12 miles outside Whitewater, the group spotted a road to the right. Britany yelled out, “Hey, let’s take that road. It looks like fun!” “No way,” replied the bus driver. “I’m not taking a chance driving on that kind of road.” What concern did the driver have about that particular road?
4. The tour bus continues onward to the small town of Gateway located near the Utah border. What is the total distance from Whitewater to Gateway?
5. What is the approximate over land distance in whole miles (due west ‘as the crow flies’) to the Utah border from this town?
6. After a brief pit stop, the bus continues southeasterly along State Highway 141 into a small town at the intersection with State Highway 97. Ever the klutz, Eric Carto slashes his finger on the edge of his guitar pick while jamming in the back of the bus. The wound requires rapid medical treatment. I hope this town is large enough to have its own medical facility,” moaned Britany in a rather somber, doubtful tone of voice. What is the name of this small town?

7. After successfully stitching up Eric's finger, the bus continues easterly on State Highway 141 for a few miles before continuing on State Highway 145. As the bus approaches the small town of Norward, Rod Geo peers northeastward and mutters, "Gnarly trees." What is the name of the forest to which Rod Geo is referring?
8. From the small town of Norward onward, a series of green dots lies adjacent to State Highway 145. What does this series of dots indicate?
9. The bus rolls in an easterly direction along State Highway 145 to the towns of Placerville and Telluride when Mick comments, "This is the largest town we've seen since leaving the Junction." What local level of governmental hierarchy does the City of Telluride host?
10. What place of interest is represented by the small red-colored square located near the City of Telluride?
11. What is the elevation of Mount Wilson lying to the southwest of Telluride?

USGS 1:24,000-Scale topographic map of Telluride

12. The band exits the bus and Britney spies a river running along the southern edge of town. What is the name of the river?

13. Britney says, "I wonder if the slope of the river is too steep and the water too fast to go dipping?" What is the percent slope of the river?

14. If Britney dropped a rubber ducky into the water, what general direction would it float down the river?

15. What is the Latitude of Telluride to the nearest minute?

16. What is the Longitude of Telluride to the nearest minute?

17. What is the azimuth in whole degrees (left to right) of the main street through Telluride?

18. What is the bearing in whole degrees (bottom to top) of the streets in central Telluride?

19. After launching her keyboard in the river Britney looks upwards at the mountains south of town and says "OH WOW, DUDES!" "Look at those cool needle-shaped rocks up there!" "I wonder how high it is on top of those rocks?" What is the elevation in feet on top of Needle Rock?

20. From your previous answer to question #10, what is the vertical height gain in meters from the official elevation of Telluride to the top of Needle Rock?

21. What is the vertical change in feet?

USGS 1:100,000-scale topographic map of Silverton

22. Rod also looks at the mountains south of town and seeing several ski lifts says “My old lady rides double black diamond runs on her snowboard? How many ski lifts did the Telluride ski area have when the Silverton 1:100,000-scale topographic map was published?
23. In what year was the Silverton 1:100,000-scale topographic map published?
24. The band decides to jump in the tour bus and do some four-wheel driving on the roads and jeep trails to the east and south of town. The bus heads through Liberty Bell and then onto the switchbacks above the town of Pandora? At the top of the road switchbacks along Bridal Veil Creek Mick exclaims, “Look at those totally awesome water falls!” In what Township are the falls located?
25. In what Range are the falls located?
26. After enjoying the falls the bus continues up the jeep trail along Bridal Veil Creek and onto Lewis Mine. Eric the klutz trips over a survey marker while exiting the bus. The marker is symbolized by a solid triangle on the map. What specific type of surveying marker does this triangle represent?
27. From Lewis Mine the band hikes to the end of the jeep trail at the county boundary line. The band continues to hike southwesterly along a ridgeline and then southerly to reach the top of a mountain peak. What is the name of this peak?
28. What is the height of this peak in whole feet?
29. What is the vertical rise in feet from the end of the jeep trail to the top of the mountain peak?
30. From the top of the peak Mick takes in the 360° view and says, “I’ll bet that I can see all of the counties for a thousand miles!” Although Mick is probably exaggerating a bit, name all of the counties shown on this map in alphabetical order.

31. Just below and to the east Mick sees a lake. Perennial lakes have water all year round while intermittent lakes have water only part of the time. Is this lake perennial or intermittent?
32. From the peak Ringo looks towards the southeast down the Mineral Creek valley and sees the intersection of State Highway 110 and Interstate Highway 550. What is the name of the town just east of this road intersection?
33. What is the straight line “as the crow flies” distance in kilometers between Telluride and this town?

Colorado State Road Map

34. The band decides to visit the town of Silverton and they board the bus for the return to Telluride. From Telluride the bus backtracks to Placerville, then northeasterly on State Highway 62, and then turns southerly on United States and State Highway 550 to the town of Ouray. Near Ouray Britany spots a sign pointing to a perfect location for an impromptu concert. What facility is in the vicinity that would provide a perfect opportunity for an impromptu concert?
35. After an evening’s gig near Ouray, the group continues on to Silverton. Midway between Ouray and Silverton, Mick notes what appears to be a reversed set of parentheses –) (– along U.S. Route 550. What feature is represented by this symbol?
36. What distance, based on summertime travel, in whole kilometers did the bus travel from Telluride to Silverton?
37. In the town of Silverton Rod turns to his fellow band members and says, “Colorado’s been awesome dudes, but it’s time to get back on our world tour and make some real bucks!” Reluctantly the band jumps onto the bus and hits the road. What is the summertime distance in whole miles the bus will need to travel from Silverton to the road trip’s starting point at Colorado Springs?

End – Road Scholar B Division Event – 2002 Colorado State Finals - Science Olympiad. You survived!