As an outdoor leader, it is imperative that you not only know how to use a map and compass to navigate safely, but be able to *teach others* basic concepts and skills. The purpose of this worksheet is to provide you with the opportunity to reinforce basic map and compass skills and examine the area within which we conduct the course outing. Your worksheet is due by the deadline specified on the course schedule - *a late submission is not acceptable*, and a grade of 80% or better is required.

You'll need a compass and the course map. The online map denotes the travel route from the trailhead to general location of Friday night's campsites (tent symbol). Use the black route to estimate travel distance.

- Bearings must be no more than 2° off.
- Distances must be within one-tenth of a mile, and
- Elevations must be within one contour interval.

The resource 'Map and Compass Field Techniques', available on the Backpacking web page will help review and solidify concepts:

1. The letters "ODNRA" represent the title: _____

2. The ONDRA is managed by what Federal land management agency? _____

3. List one interesting fact about the ODNRA (a little research is necessary):

   _____

   _____

4. What is the contour interval of this map?   _____ FEET

5. What are the elevations of the following points?
   A. Point 1 .... ft.   B. Point 2 .... ft.   C. Point 3 .... ft.
   D. Point 4 .... ft.   E. Point 5 .... ft.

6. Define 'declination': _____

   _____

7. Define the term 'bearing': _____

8. Define the term 'agonic line': _____

9. To convert a TN bearing to a MN bearing WEST of the agonic line do you add or subtract declination? _____

   Why? _____

10. What are the MN bearings between the following points?   Note: The red vertical lines on the map's interior are TN lines. DO NOT use the UTM grid lines as north-south references lines. They DO NOT align to true north.

	FROM	TO	MN BEARING
A.	Start (Middle Eel CG)	X1 (where trail enters dunes)	_____°
B.	X1	Friday camp (tent symbol)	_____°
C.	Friday camp (tent symbol)	Peak 1	_____°
D.	Peak 1	Peak 3	_____°

11. What is 'slope error'? _____

12. Do you need to account for slope error when estimating distances on *this* map? (circle your answer)   Y   N

    Why or why not? _____

13. How long is the hiking (black) route from the trailhead (van symbol) to our Friday campsite?   _____ MILES

14. How long is Tenmile Creek, from the point where it enters the map on the east side, to its exit into the Pacific Ocean (center of the channel).   _____ MILES

15. What feature lies 240° MN and .93 linear miles from the "x" at point 2?   _____

16. What feature lies 63° MN and 1.6 linear miles from the "anchor symbol" (near Schooner 1928)?   _____

17. You are on top of a hill on an unimproved dirt road. A MN bearing TO peak 4 reads 307°. You estimate that peak 4 is about a mile and a half away.   What is the elevation of the hill you are standing on?   _____ FEET

18. What is the MN bearing from the peak you identified in Question 17 to the summit of peak 3?   _____ °

19. You see Peak 4 at a MN bearing of 138°, North Eel Campground (use tent symbol) at 86°TN? Where are you? _____

20. You see Peak 3 at a MN bearing of 82° and Peak 2 at 28°TN? Where are you?   _____