

## LOST CAVE

### BACKGROUND:

It is January 5th. and the weather is dry but overcast. The temperature ranges from daytime highs of 40° to nighttime lows in the teens. You are camped on the north side of a stream that is flowing from a NE to SW direction. You canoed down stream to arrive at camp. The camp's location is on a bend in the stream that is as close to a cave, which you want to locate, as you can travel, other than by foot. The terrain is wooded rolling hills that are not too high to walk over. Your rate of travel will probably average +/-2 miles per hour.

### Objective:

You were told that the entrance to a large cave is located in a large rock face on a high mountain that is approximately 7.5 miles away. You are on a preliminary scouting trip to determine if the cave is actually there. If you can find it, you will come back on another trip with other cavers and explore it. On this trip, you only want to find the entrance.

You have determined (using a map and compass) that the mountain is on a bearing of 297° from your camp.

After a large breakfast, you leave camp at 7:30 AM and follow a compass course of 297° until 11:00. You spot a high mountain with a rock face. You reach the rock face by 11:30 and take a half hour break for lunch before looking for the cave entrance. It takes one hour of climbing and searching to find the cave entrance. You have verified that the cave exists and it looks interesting enough to come back to explore. By 1:00 you are ready to return to camp for one more night. Tomorrow you will continue to canoe down stream to a take-out point where transportation is waiting to take you home.

### Problem:

1. ~~What compass course will you follow to reach the rock face, where you will begin to search for the cave entrance?~~
2. Where will you begin searching for the cave, once you reach the rock face.
3. What compass course will you follow to get back to camp?
4. What will you do when you reach the stream if you do not see your camp?

**Notes:** It took you about 4 hours to travel from your camp to the mountain so it will probably take about that long to get back. You are leaving the mountain at 1:00 PM so that should get you back about 5:00 PM or just as it is getting dark (remember it's early January).

The temperature should be dropping quickly by the time you reach the stream. You did not break camp when you left because you planned to return, so you only carried a day pack ... no tent, sleeping bag, extra food, etc.

You did not cross any other streams all day, so you are low on water.

#### LOST CAVE QUIZ ANSWERS:

- #1 Follow a compass heading of  $296^{\circ}$ . You will reach the mountain approximately 750 feet west of the rock face.
- 2# Turn east and search for the cave.
- #3 Follow a compass heading of  $116^{\circ}$  ( $297-180=117$ ) from the cave entrance. This will put you 750 feet (250 yards) up stream from your camp. Up stream is better than down stream because you canoed past this area the day before. You may be able to recognize some of it.
- #4 Turn down stream to find camp.

You will not be able to follow a true bearing through the woods. Try to pick a course that will allow you to reach a recognizable landmark. Once you reach the landmark, know which way to turn.

#### GENERAL MAP/COMPASS INFO:

A *compass* will show you a *direction*.

A *map* will show you *where to go*.

The compass will help you travel in that direction.

You need to *learn to read a map* before a compass will do you much good. Its also a good idea to be able to measure distance.

A compass points to *magnetic north*; maps point to *true north*.

*Declination* is the difference between magnetic and true north.

*Topographic maps* will give you the declination for that map.

Use *magnetic north* (both map and compass). If you stay on a single map, you don't worry about *declination*, much. True north becomes more important when your trip goes from map to map and the declination changes.

The simplest way to use a map is to *orient it to magnetic north*, then always use magnetic north for both map and compass work.

To *orient a map*, turn it so that magnetic North on the map is pointing to magnetic north.

Compasses are attracted to *ferrous metals* (iron/steel/etc).

There are *360 degrees* in a circle and a compass. (Degrees are divided into *60 minutes* and each minute has *60 seconds*.)

Maps have *longitude [north-south]* lines and *latitude [east-west]* lines. Locations of longitude and latitude are given in degrees, minutes and seconds.)

*One degree equals about 100 feet/per mile*. If you are off by one degree, you will be about 100 feet/mile from your destination.

Handy equipment for navigating off the road:

Topographic map

Compass

Protractor or Compass rose for the map

Pencil, sharp

Parallel rule

Ruler / Dividers