



# HOW TO USE A MAP



Canada

Topographical Maps may be purchased from your local map dealer (see "Yellow Pages" under MAPS) or by pre-paid mail order to:

Canada Map Office  
615 Booth Street  
Ottawa, ON  
K1A 0E9

Catalogues, lists of map dealers, and information on maps and aeronautical charts may be obtained from the same address, or by telephone (613) 998-3865.

Roads

hard surface, all weather

hard surface, all weather

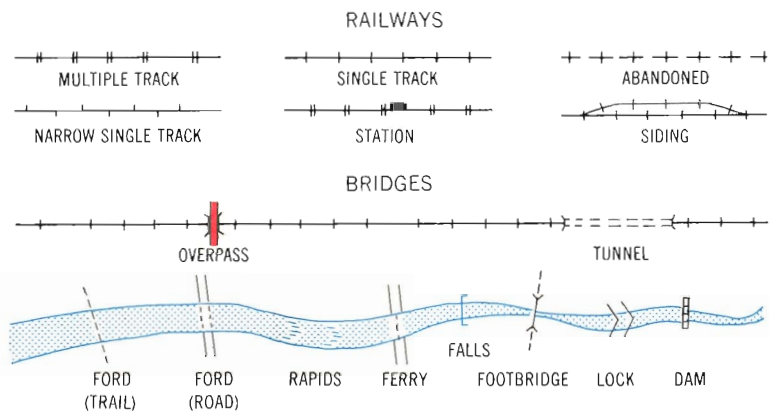
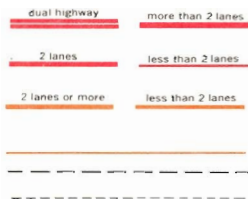
loose or stabilized surface, all weather

loose surface, dry weather and

unclassified streets

cart track

trail or portage



SOME CONVENTIONAL SIGNS FOUND ON A MAP

# MAPS ARE MADE TO SCALE

This means the ratio of a distance on the map to the actual distance on the ground.

FOR EXAMPLE —  
2 CENTIMETRES ON THE MAP



REPRESENTS

1 KILOMETRE ON THE GROUND

















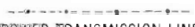
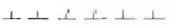








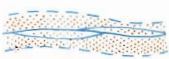


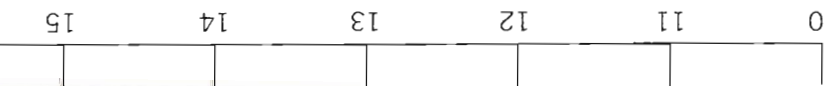
IN THIS CASE THE SCALE

WOULD BE 2 CENTIMETRES = 1 KILOMETRE

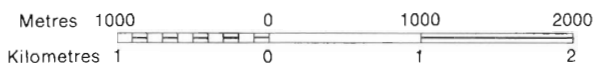
OR

$$\frac{\text{DISTANCE ON MAP}}{\text{DISTANCE ON GROUND}} = \frac{1}{50\,000}$$

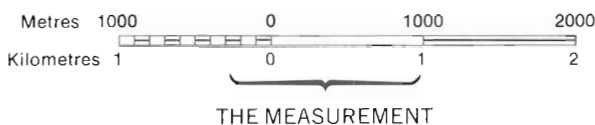
 HORIZONTAL CONTROL POINT	 BOUNDARY MARKER	 BENCH MARK	 PICNIC SITE	 TOWER	
 WELL	 WINDMILL OR WINDPUMP	 LIGHTHOUSE	 HISTORICAL SITE	 MINE OR PIT	 SCHOOL
 CAMPSITE	 CHURCH	 HOUSE, BUILDING	 CEM CEMETERY	 AIRFIELD	
 POWER TRANSMISSION LINE			 TELEPHONE OR TELEGRAPH LINE		
 QUARRY	 SAND OR GRAVEL PIT	 CLIFF	 CUTTING	 EMBANKMENT	
 SPORTS TRACK	 RIVER	 MARSH		 DRY RIVER BED WITH CHANNELS	



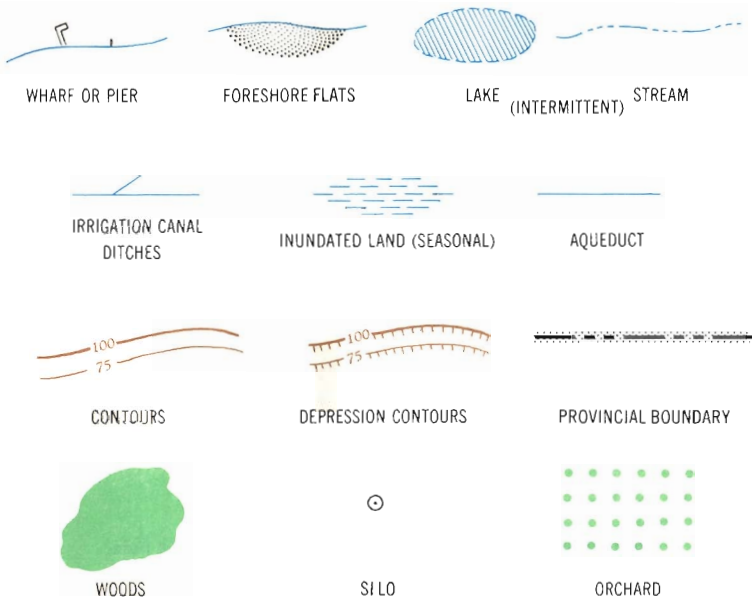
# LEARN TO USE SCALE LINES CORRECTLY AND MEASURE DISTANCES ACCURATELY



Use the secondary division on the left of Scale Line, for measuring fractional parts as shown below.

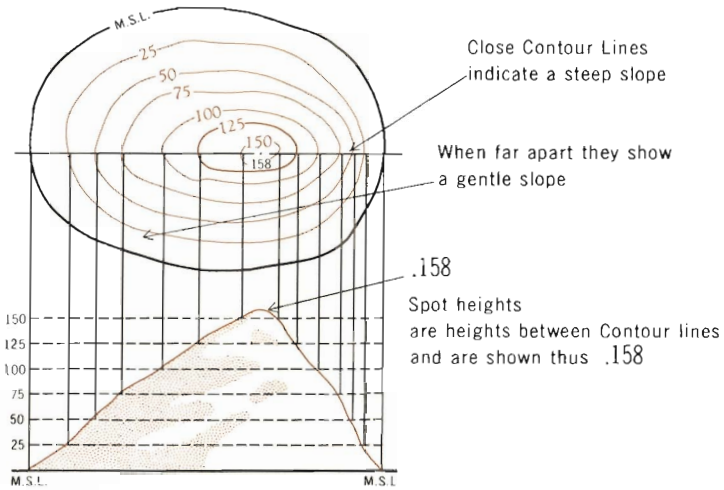


IN THIS EXAMPLE THE LENGTH OF THE MEASUREMENT IS 1300 METRES OR 1.3 KILOMETRES

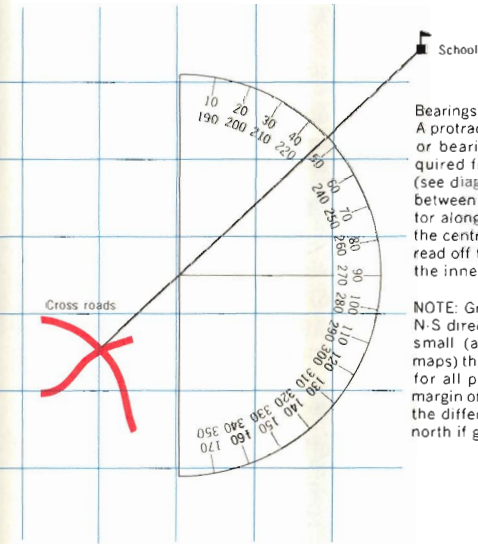


# CONTOUR LINES

These are drawn through points having the same elevation. They show the height of ground above sea level (M.S.L.) in either feet or metres and can be drawn at any desired interval.



# BEARINGS

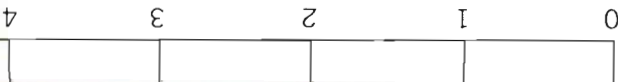


## Bearings

A protractor is used for measuring directions or bearings on a map. If a bearing is required from the cross roads to the school (see diagram) draw a pencil line on the map between these features. Place your protractor along any N-S grid line on the map with the centre on the pencil line. The bearing is read off the outer scale if less than 180°, off the inner scale if between 180° and 360°.

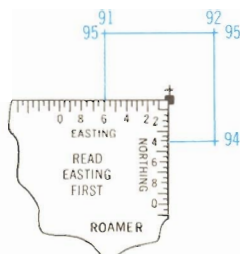
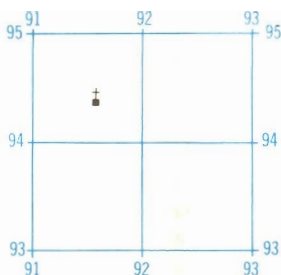
NOTE: Grid lines do not usually run in a true N-S direction, but as the difference is very small (always less than 3° on Canadian maps) they may be considered as North lines for all practical purposes. (A note in the margin of large scale topographic maps gives the difference between grid north and true north if great accuracy is required).

KILOMETRES AT 1:50 000





# ANYONE CAN READ MAP REFERENCES QUICKLY AND ACCURATELY



IF YOU USE A ROAMER USE IT THIS WAY  
THIS EXAMPLE IS NOT DRAWN TO SCALE

SCALE 1:50 000

To find Map reference of  $\dagger$  proceed as follows

1. Find Number of Grid Line West of  $\dagger$  (91)  
Ascertain number of tenths  $\dagger$  is East of (91)  
This is observed to be 6.  
Set it down thus, 916. This is known as EASTING
2. Find Number of Grid Line South of  $\dagger$  (94)  
Ascertain number of tenths  $\dagger$  is North of (94)  
This is observed to be 4.  
Set it down thus, 944. This is known as NORTHING

The Map reference of  $\dagger$  is therefore 916944

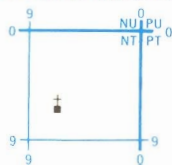
Note: Such map references repeat every 100 Kilometres. You should quote the map name if there is chance of ambiguity.

ALWAYS MEASURE OVER TO THE EAST AND THEN UP TO THE NORTH. IN OTHER WORDS FIND THE EASTING, THEN THE NORTHING.

Note- When using a reference on the 1:250 000 map give the letters of the large square concerned.

Map reference on 1:250 000 scale is NT9393

THIS EXAMPLE IS NOT DRAWN TO SCALE



# A MAP IS ORIENTED

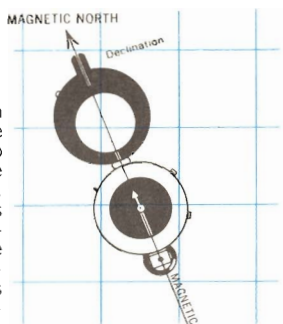
when it is made to

CORRESPOND with the ground it represents.

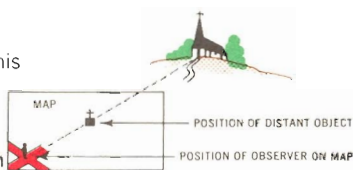
NORTH IS THE TOP OF THE MAP

Here are the four ways to set a map-

BY COMPASS — With your protractor draw a magnetic north line anywhere on your map. The declination diagram in the margin of the map will give you the direction and the size of the angle between grid north and magnetic north. (Note: Don't use the margin diagram itself as the angles are often exaggerated by the cartographer so that the numerical value of the angle can be inserted.) Place the compass on the magnetic north line and turn the map and compass together slowly until the needle points to magnetic north on the map.

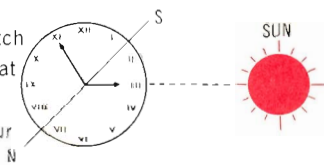


BY OBJECTS- When the observer knows his position on the map and can identify the position of some distant object, he turns the Map so that it corresponds with the ground.



BY WATCH AND SUN-  
FOR NORTHERN HEMISPHERE

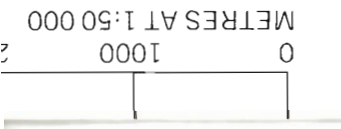
If summer time is in effect first set watch back on Standard Time. Place watch flat with hour hand pointing to the SUN. True South is midway between the hour hand and XII. True North is directly opposite. This method is very rough.



BY THE STARS In latitudes below  $60^{\circ}$  N the bearing of Polaris is never more than  $2^{\circ}$  from True North



These constellations revolve anti-clockwise around the Pole.



## COMPASS BEARINGS

The compass points to magnetic north which may not be the same as grid north. It depends on your locality.

If you live close to the line that runs near Thunder Bay, Savant Lake, Churchill, you're in luck. Here your compass north is approximately the same as grid north. But if you live east of this line, your compass points off to the west, while west of that line it points off to the east. The reason is that the magnetic north pole which attracts the compass needle is situated on Bathurst Island about 1560 km south of the true north pole. Compasses are made in many forms. The simplest is the common needle compass which consists of a magnetic needle held free to rotate over a compass card. Remember, the needle comes to rest pointing at magnetic north. Turn the compass case gently under the needle until North on the card lies under the north end of the needle. Magnetic directions are then indicated by the card. (More expensive compasses, such as prismatic compasses and orienteering compasses, have additional features which facilitate the reading of directions. Instructional booklets for these compasses may be obtained free from the dealer.)

## FINDING COMPASS BEARINGS AND GRID BEARINGS

To find grid bearings you must know how much off grid north the compass points in your locality. Look in the margin of your topographic map for the compass "declination". The rhyme is:

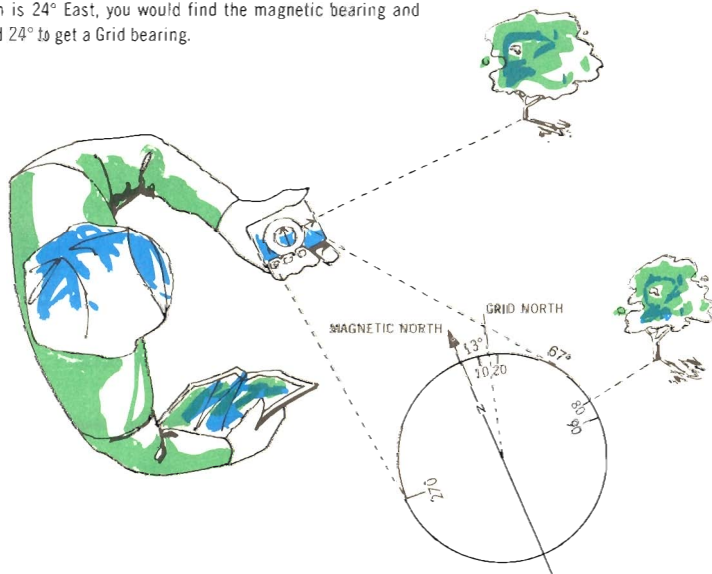
Declination East—Magnetic least (i.e. Magnetic less than grid)

Declination West—Magnetic best.

As an example, in Ottawa the compass points off to the west (declination west) about  $13^\circ$ . So according to the rhyme a magnetic bearing is greater than a grid bearing.

Bearing of tree is  $80^\circ$  magnetic (by compass) but is  $67^\circ$  grid.

To find Grid bearings, near Ottawa, find Magnetic bearing and subtract  $13^\circ$ . In Vancouver, where the declination is  $24^\circ$  East, you would find the magnetic bearing and add  $24^\circ$  to get a Grid bearing.



## FOLLOWING A COMPASS BEARING

With your compass oriented (i.e. with North on the card under the north end of the needle) look along the compass bearing you want to follow. Pick a landmark in this direction. Walk forward to this landmark, then sight with the compass to the next landmark along the route. Continue to destination.