

INSTRUCTION CENTER PAGES (Basic Information)

The Instruction Center includes six (6) pages of instructions, which include the following:

1. Introduction
2. Compass Skills and Orienteering Course Overview
3. Compass and Map Basics – What is Declination
4. Orienting a Map – Finding your Location on a Map
5. Understanding Topographic Maps – Map Symbols
6. Orienteering Course Tools and Templates

Barker Park Compass Skills and Orienteering Course

Dedicated to the residents of Pleasant View

Purpose

This orienteering course and accompanying basic compass skills instruction is meant to combine recreation with the building of useful skills. Mastering the basics of map reading and compass use combined with the knowledge of how to use them together can be fun!

The instructions presented here are geared toward adult understanding, with the intent that once mastered they can be taught to children in a fun and exciting fashion. The material and illustrations can be used as tools while teaching the basics.

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Compass Skills and Orienteering Course Overview

Pace Line

100 Foot pace line to calibrate your stride (meter conversion: 100 feet = 30.48 meters)

Three Point Compass Course

Facilitate Basic Compass Instruction

Map Orienteering Table

Rotating Table for Orienting a Topographic Map of the Local Landscape

Instruction Center

Introduction

Compass and Map Basics

Orienting a Map

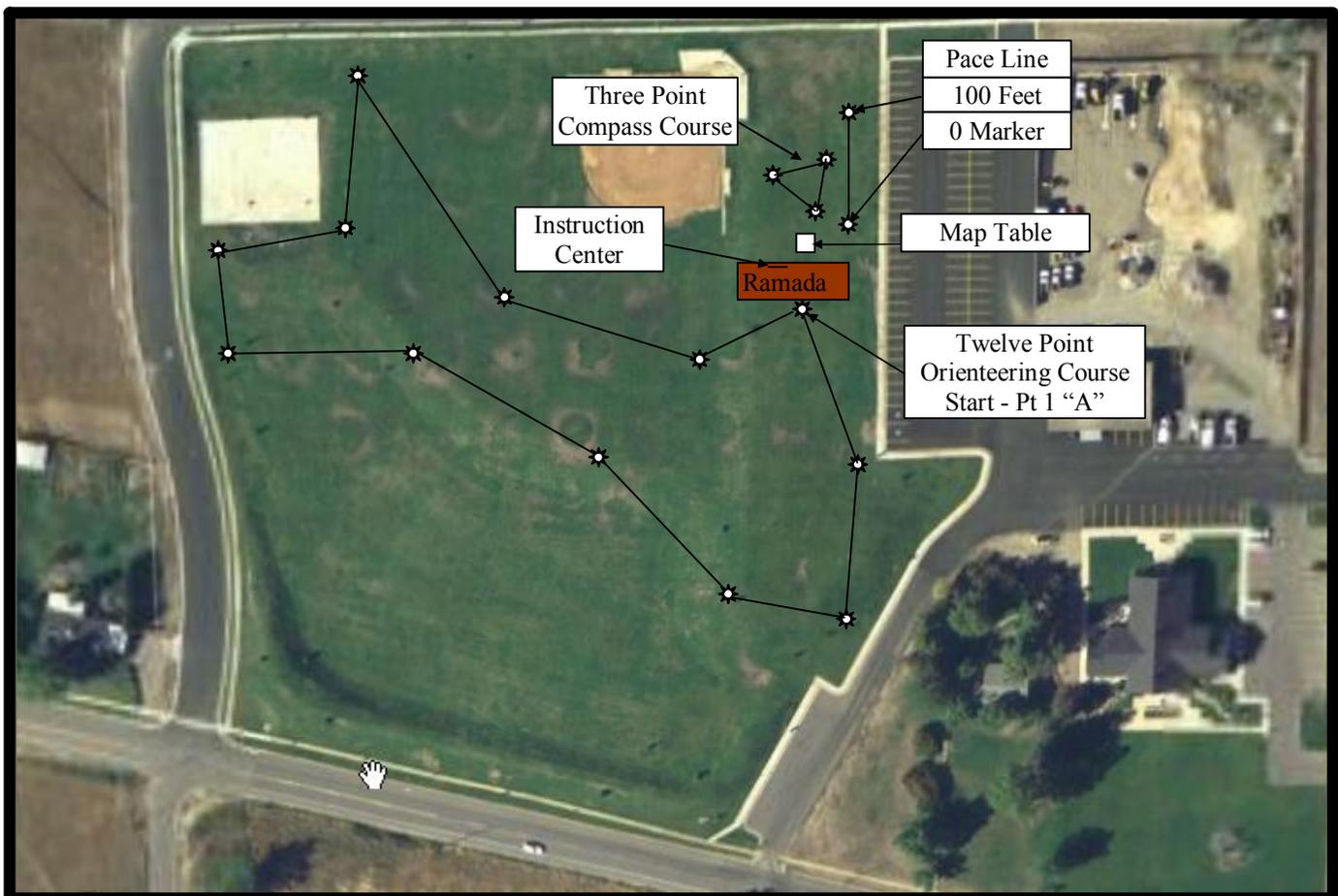
Understanding Topographic Maps

Orienteering Course, Bearing and Direction charts (3 published routes available)

Twelve Point Orienteering Course

The course provides testing of concepts learned. Print out route cards that can be found on the Pleasant View web site, www.pleasantviewcity.com. Provide each participant a copy and a pencil. The routes will all start at PT 1, Marker "A" (just south of the Ramada). Follow the bearing and distances on the card, write down the marker "ID" each time you reach a destination. After the route is completed you can check the participants results with the master templates that can also be found on the web site.

WARNING: The course does not cross any streets. DO NOT cross a street in search for markers. If it appears that your bearing and distance is directing you to cross a street, return to your last marker and try again, you are off course!!



Compass and Map Basics

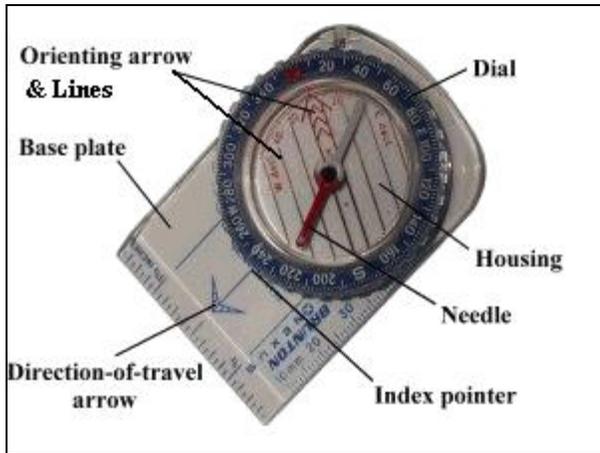


Figure 1. Compass Terminology

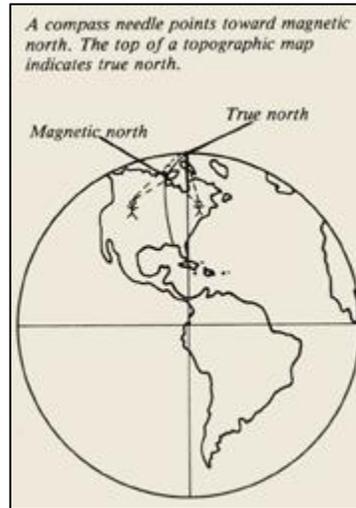


Figure 2. True North vs. Magnetic North

Compass Basics?

Compass components are shown in figure 1. Memorize the parts of the compass. If you'll remember that the direction-of-travel arrow is always pointing to your destination, and the orienteering arrow is used to align with the magnetic needle as you rotate your compass dial, you will be well on your way to understanding setting bearings and finding directions. (Remember that ferrous metals, iron, will affect your compass, if things aren't making sense make sure you aren't near something that is affecting your compass. Key's in your hands will do it every time! Laying a map on a concrete slab with embedded rebar is also a common problem, the map table is stainless steel and will not affect the compass).

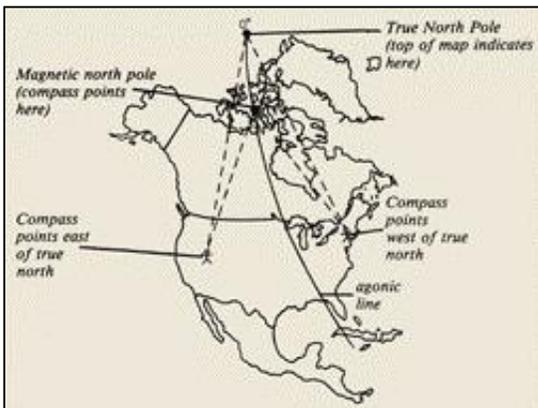


Figure 3. Declination East and West

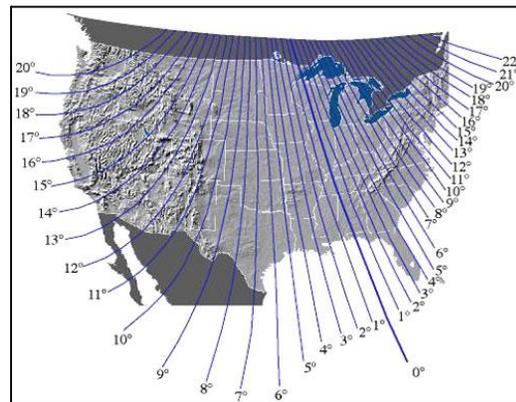


Figure 4. Declination Across the United States

What is Declination?

The earth acts like a giant magnet. There is a magnetic pole in northern Canada; one end of every compass is drawn toward it (the red end). Most maps are drawn so that the top of the map points towards true north, which is in a different location than the magnetic pole, they are about 1000 miles apart (see figure 2). Declination is the difference between magnetic North, as reported by the compass, and true North. Declination varies based upon your location on the Earth. Anywhere west of the zero line (agonic line), the compass needle points east of true north. Anywhere east of the zero line, the compass needle points west of true north (see Figure 3). Declination is expressed as a degree of angle. For the purposes of our discussion we will use a declination of 14 degrees for Pleasant View, Utah (see figure 4).

You will come to realize it is always a good idea to mark your topographic maps with declination lines. Using the map is much easier if the lines are pre-marked prior to use. See "Handling Declination, 3 Methods", instructions on the Map Table.

Orienting a Map

Orienting a map is the process of rotating the map so that the map matches the landscape. Why would you want to know how to orient a map properly? Sometime in your life you may be on an adventure. You may be camping; fishing, hiking, hunting or searching for someone else that is lost. You may find yourself disoriented. If you are prepared, have a topographic map of the area and a compass, you can get to any destination you choose that is marked on the map. See specific instructions on the Map Table, practice and test your understanding.

Caution: If you aren't prepared with a map and compass, and you have no idea where you are, stay put! People will start looking for you when they realize that you are missing. Find shelter, hang a hat or piece of clothing near by, so rescuers can find you if you're sleeping. Don't panic, you can survive several days without water and several weeks without food. Stay put and stay calm, You will be found!

Finding your Location on a Map

After orienting a map you can pinpoint your physical location using the map and a compass.

- Holding the compass in your hand aim the direction-of-travel arrow at an obvious landmark on the map. Turn the compass housing until the needle lines up over the orienteering arrow, the north end of the needle should be pointing at N on the compass housing (see figure 5).
- Place your compass on the map with one edge of the base plate touching your landmark. Keeping one point on the edge on your landmark, rotate the entire compass around until the meridian lines in the compass housing (lines parallel to the orienteering arrow) are lined up with the magnetic north lines that are drawn on the map. Extend a line along the edge of the compass (see figure 7).
- Repeat the same exercise with the compass pointing at a different landmark. If you line up the map and compass correctly, a line extended along the edge of the compass would intersect with the first line, at your physical location (see figures 6 & 7). Knowing your location, and with some basic compass skills you could navigate yourself to any desired location on the map.



Figure 5. Pointing to a Landmark

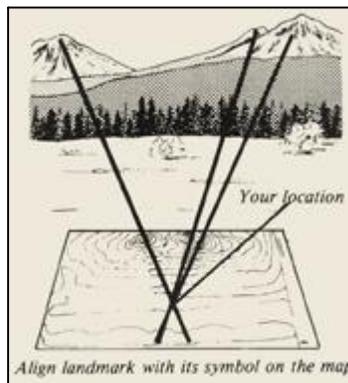


Figure 6. Locate Multiple Landmarks

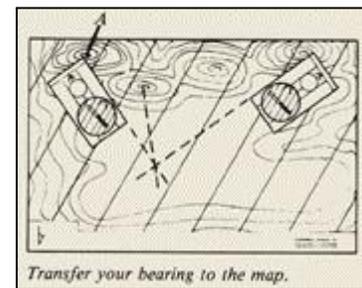


Figure 7. Pinpointing Your Location

Resources

There are endless resources in Libraries and on the Internet. Pictures with the tan backgrounds are used with permission, see the copyright notice Item #2. Check out the information on these informative websites:

www.mdc.mo.gov/howto/compass

www.scoutorama.com/orienteer_game



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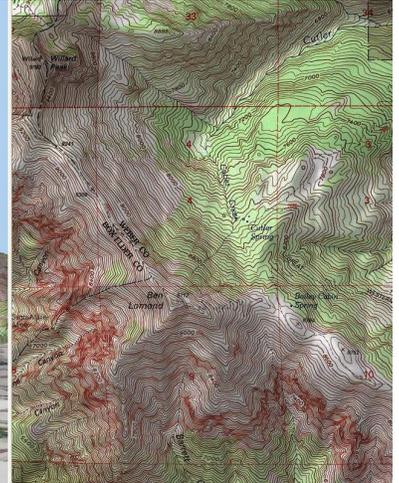
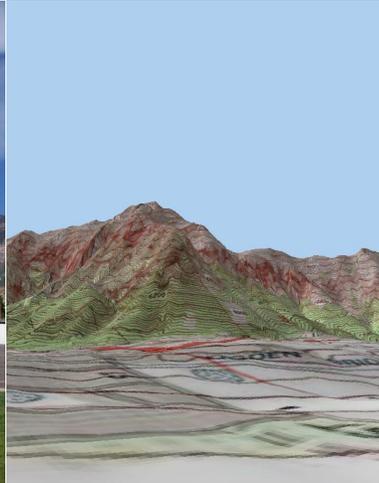
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Understanding Topographic Maps

Topographic Maps are graphical representations of terrain. Contour lines help you visualize the landscape. Small circles are the tops of hills. Where the lines are close together, a hillside is steep. Where the lines are far apart, the slope of the ground is gentler.

A note at the bottom of the map will tell you how far apart the lines are spaced. For example; if the contour interval is 100 feet, the vertical distance (difference in height) between each line is 100 feet. The pictures of Ben Lomond Mountain shown below illustrate the use of contour lines.



Rendering of Ben Lomond Mt

2D Topographic Map of Ben Lomond Mt

Photo of Ben Lomond peak from Barker Park

3D

Map Symbols

Looking down from an airplane you can see roads, rivers, forests, cities, and towns. A map is like a painting of the land. Mapmakers would have a difficult time showing all the details. In order to make the maps more informative they include symbols that represent items that they think would interest most people. Each map has a legend where they show the symbols and their meaning. Shown below are some of the more common symbols used. There are many Internet sites that contain complete lists and descriptions of symbols.

RIVERS, LAKES, AND CANALS – continued

Perennial lake/pond	
Intermittent lake/pond	
Dry lake/pond	
Narrow wash	
Wide wash	
Canal, flume, or aqueduct with lock	
Elevated aqueduct, flume, or conduit	
Aqueduct tunnel	
Water well, geyser, fumarole, or mud pot	
Spring or seep	

BOUNDARIES

National	
State or territorial	
County or equivalent	
Civil township or equivalent	
Incorporated city or equivalent	
Federally administered park, reservation, or monument (external)	
Federally administered park, reservation, or monument (internal)	
State forest, park, reservation, or monument and large county park	
Forest Service administrative area*	
Forest Service ranger district*	
National Forest System land status, Forest Service lands*	

BUILDINGS AND RELATED FEATURES

Building	
School; house of worship	
Athletic field	
Built-up area	
Forest headquarters*	
Ranger district office*	
Guard station or work center*	
Racetrack or raceway	
Airport, paved landing strip, runway, taxiway, or apron	
Unpaved landing strip	
Well (other than water), windmill or wind generator	
Tanks	
Covered reservoir	
Gaging station	
Located or landmark object (feature as labeled)	
Boat ramp or boat access*	
Roadside park or rest area	
Picnic area	
Campground	
Winter recreation area*	
Cemetery	

ROADS AND RELATED FEATURES

Please note: Roads on Provisional-edition maps are not classified as primary, secondary, or light duty. These roads are all classified as improved roads and are symbolized the same as light duty roads.

Primary highway	
Secondary highway	
Light duty road	
Light duty road, paved*	
Light duty road, gravel*	
Light duty road, dirt*	
Light duty road, unspecified*	
Unimproved road	
Unimproved road*	
4WD road	
4WD road*	
Trail	
Highway or road with median strip	
Highway or road under construction	
Highway or road underpass; overpass	
Highway or road bridge; drawbridge	
Highway or road tunnel	
Road block, berm, or barrier*	
Gate on road*	
Trailhead*	

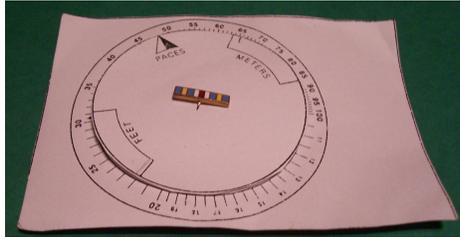
VEGETATION

Woodland	
Shrubland	
Orchard	
Vineyard	
Mangrove	

Orienteering Course Tools and Templates

The tools and templates shown here can be downloaded from the Pleasant view web site, www.pleasantviewcity.com

Pace Conversion Tool



A pattern for this tool can be downloaded from the web site, printed, cut and assembled. This can help as a guide, converting from paces to feet or meters. Instructions for use are included. This is a nice aid to help teach a person how to estimate distance.

Three Point Course

Name:			
Pt	Bearing (degrees)	Distance (feet & meters)	Marker (letter)
1	360	50 ft	
		15 m	
2	120	50 ft	
		15 m	
3	240	50 ft	
		15 m	

These course templates can be downloaded from the website. Print, cut out, and provide a card to each participant. There are master templates available that have the marker column filled in to aid in checking an individuals route results for accuracy. The twelve-point course has three (3) different preplanned routes. Blank route cards are provided so you can make up your own routes if you choose to provide more variation. Also available is a downloadable file of GPS coordinates.

Twelve Point Courses (1, 2, & 3)

Name:			
Course #1			
Pt	Bearing (degrees)	Distance (feet & meters)	Marker (ID)
1	0	0 ft	
		0 m	
2	142	110 ft	
		34 m	
3	178	161 ft	
		49 m	
4	292	104 ft	
		32 m	
5	312	127 ft	
		39 m	
6	284	194 ft	
		59 m	
7	263	178 ft	
		54 m	
8	336	83 ft	
		25 m	
9	68	106 ft	
		32 m	
10	10	122 ft	
		37 m	
11	138	221 ft	
		67 m	
12	90	163 ft	
		50 m	
13	60	101 ft	
		31 m	

Name:			
Course #2			
Pt	Bearing (degrees)	Distance (feet & meters)	Marker (ID)
1	0	0 ft	
		0 m	
2	240	101 ft	
		31 m	
3	278	163 ft	
		50 m	
4	320	221 ft	
		67 m	
5	180	122 ft	
		37 m	
6	240	106 ft	
		32 m	
7	170	83 ft	
		25 m	
8	70	178 ft	
		54 m	
9	104	194 ft	
		59 m	
10	130	127 ft	
		39 m	
11	116	104 ft	
		32 m	
12	358	161 ft	
		49 m	
13	320	105 ft	
		32 m	

Name:			
Course #3			
Pt	Bearing (degrees)	Distance (feet & meters)	Marker (ID)
1	0	0 ft	
		0 m	
2	240	101 ft	
		31 m	
3	152	177 ft	
		54 m	
4	306	284 ft	
		87 m	
5	120	162 ft	
		49 m	
6	276	194 ft	
		59 m	
7	314	138 ft	
		42 m	
8	240	106 ft	
		32 m	
9	160	83 ft	
		25 m	
10	18	251 ft	
		77 m	
11	126	605 ft	
		184 m	
12	18	161 ft	
		49 m	
13	320	110 ft	
		34 m	