Orienteering Notes

What is Orienteering?

- Orienteering is the sport of __________________________ with __________________ and ____________________________.

Finding the Way

- Since the early days of time we have been concerned with finding our way. Life depended on how good we were at navigation.
  - ___________________________/gatherers (returning back to cave)
  - __________________________ (sheppard) find way to good pastures
  - Merchant/Trader (navigate across the sea to sell goods).

Compass Rose Points

![Compass Rose Points Diagram]
Nature Shows the Way

1. At ______________ the sun is due ________________.

2. The moss on stones and tree stumps is more fertile on the ________________ side since it generally stays damper there.

3. Isolated trees in areas with little wind often have thicker foliage on the ________________ side, since the ________________ shines more on this part.

4. ________________.
   - At night the pointer stars of the big dipper, show where the Pole Star shines. Extend the line of the pointers for five times the distance between the two stars – there you will find the Pole star (______________________).

5. Churches
   - usually built on an ________________ to ________________ line, with the bell tower on the west end.

Compass Parts

Although compasses come in many different forms, the most familiar is probably the Silva compass also known as the orienteering compass.

• ________________:
  – Thin, flat steel that floats in the housing. The North end is painted red and white.

• ________________.
  – Made of non-magnetic metal, rim is divided into two degree increments.

• ________________:
  – Printed on the housing, does not move unless you turn the housing.

• ________________:
  – Arrow located on the base plate. Always points in the same direction that you are traveling. Acts as an indicator where it comes in to contact with the housing.

• ________________.
  – Lines located inside the housing, used when taking a bearing from a map.

• ________________.
  – Holds the housing and the scales
Label the Compass

Steps to Taking a Bearing

1. Hold the base plate in the palm of your hand.
2. Point the direction of travel arrow at your destination.
3. Turn the housing until North end of the needle lines up with the arrow.
   (Put “Red” to Bed).
4. Read the bearing where the direction of travel arrow comes in contact with the needle.
5. Follow this bearing until your destination is reached.

https://www.atlantickayaktours.com/images/drawings/Navigation/Bearing-XL.gif
Steps to Following a Bearing
Ex. walk 20 paces on a bearing of 42 degrees

1. Hold the compass level in the palm of your hand.
2. Turn the housing until the desired bearing (in this case 42°) is indicated beside the direction of travel arrow.
3. Rotate your body until the magnetic needle and the orienteering needle line up in the housing. (Put “Red” to Bed)
4. Choose a visible landmark and walk in the direction (for this example 20 paces) indicated by the direction of the travel arrow.

Return to your Starting Position
To retrace your route, simply adjust your compass ______________________° degrees:
- if your original bearing was between 0° and 180° degrees,________________________°
- if your original bearing was between 180° and 360° degrees,________________________°

Pace Length
- Sometimes in the sport of orienteering, you are asked to follow a bearing for a particular distance (ie. 34° for 168 metres). In order to do this, you need to have some idea of your individual pace length (how long each step it).
- To calculate your own pace length, pace out the playing field, which is 100 m, 3 times and find your average pace rate. This will tell you how many steps you take per 100 metres.

Ex.Trial 1 60 steps
Trial 2 59 steps
Trial 3 61 steps
180/3 = 60
• This information can be used to calculate distance:

\textbf{Ex.} If you have taken 27 paces, how many metres is this?
\[27 \text{ paces} \times 100 \text{ metres} = 45 \text{ metres}\]

60 paces

• You can also use this information to figure out how many steps you need to cover specific distances:

\textbf{Ex.} If you are required to walk 73 metres, how many steps should you take?
\[73 \text{ metres} \times 60 \text{ paces} = 43.8 \text{ paces}\]

\[100 \text{ metres}\]

\textbf{Contour Lines}

• These lines tell you the _______________ of the land. The _______________ (usually printed in between these lines, ex. 25 m) allows you to calculate the height of the hill.

• They are concentric (one inside the other) _______________ with the centre circle representing the _______________ of the hill. The _______________ together the lines are, the _______________ apart they are, the _______________ the land.

\textbf{Orienting the Map}

• A map is oriented when it is held so that all the details on the _______________ correspond with the features on the _______________.

• With your _______________ map it is very simple to find your way through a strange town or countryside.

• With the map held in this way you will also know where _______________ is situated. It will be directly beyond the ‘_______________’ edge of the map.
**Map Symbols**

- Maps give information by using symbols. Symbols can be ____________, ____________, ____________, ____________, and ____________ that show where places and things are on a map. A map's ____________ tells you what the symbols mean.

![Map Symbols Diagram]

http://people.uwec.edu/ivogeler/w188/tosymb.gif

**Taking a Bearing from a Map**

1. Place the compass on the map with the ____________ ____________ touching your ____________ of travel. Be sure your direction of travel arrow is pointing in the right direction.

2. Turn the compass housing until the ____________ arrows are parallel with the meridian lines (Eastings) on the map.

3. Check to make sure that ____________ on the dial is pointed to ____________ on the map.

4. Read your ____________ where the direction of travel arrow comes in contact with the housing.
Map Scales

- __________ scale maps show the most detail but only cover a small area e.g. road maps, town plans.
- __________ scale maps show less detail but cover a larger area e.g. maps of the whole of the UK.

How is a Scale Written on a Map?

- As a __________________ statement 4 cm = 1 km
- As a __________________ or fraction 1 : 25 000
- Using a ___________ line.

Ordnance Survey Maps

- On an OS map the blue grid lines (eastings and northing) make up 1km grid squares.
- The metric scale will generally be 1:25000, or 1:50000.
- The scales mean the ratio of the distance on the map with the actual distance in real life.
- In a 1:25000 scale map, 1 cm on the map = 25000 cm in real life.

- A 1cm line on a 1:25000 map will be:
  - 25 000 cm
  - 250 m
  - 0.25 km

- What about a line on a 1:50000 map?
  - __________ cm
  - __________ m
  - __________ km
**How to measure distances on a map**

1. **Straight line distances**
   - The ______________________ distance between two points is sometimes known as the distance ‘______’.
   - This can be measured with a ruler then converted to the correct scale with reference to the scale bar given on the map.

2. **Curved Distances**
   - You may need to measure the distance along a road or river that does not travel in a straight line.
   - To do this you ideally need a piece of ______________________.
   - Lay the string down to follow the shape, then ______________________ the total length before converting back using the scale.

**Magnetic Declination**
- When using a compass, the magnetized compass needle always points towards a deposit of iron ore called ________________ as opposed to ________________ (the North Pole).
- The difference between these two is called ________________. For PEI, the magnetic declination is approximately __________ degrees. This measurement differs all over the world so each map you use should be checked for the correct magnetic declination.
- This means that whatever bearing you take from a map, you need to ______________________ the correct declination before starting out.

**Grid Lines (UTM Coordinates)**
- System used universally (especially by the military) to describe an exact location on a map.
- ________________ lines run up and down the page increasing from left to right. The Easting coordinate is reported first and consists of _______ digits. On PEI, they begin with _______ or _______ which is omitted from the map but it is understood that it **must** be included.
- ________________ lines run across your page and will increase in value as you move toward the North of your map.
  “Go into the house (easting), and up the stairs (northing)”
- The Northing coordinate is reported in seconds and consists of _______ digits. On PEI, they mostly begin with _______ or _______.

**Example:**

![Map Image]

**Easting:** 464600 mE  
**Northing:** 5456400 mN
GPS (Global Positioning System)

- Uses the signal from at least _______________ satellites orbiting the earth to pinpoint locations using the ____________ grid coordinates.
  - Usually accurate to within __________ meters.

- ________________ are the digital UTM coordinates that can be set by the user to mark a particular location.

Parts of a GPS

1.
2.
3.
4.
5.
6.
7.
8.

Geocaching

- ________________ is a real-world, outdoor ________________ hunting game using ________________-enabled devices. Participants navigate to a specific set of GPS coordinates and then attempt to find the geocache (container) hidden at that location.