Lesson Plan

Weekend/Phase 2 (Intermediate)

Learning Outcomes

Over the weekend you are going to learn how to:

Read a Grid Reference P135 — **Friday night Home study**

Correct a Drift P127
Take and Work with Bearings P116
Take Back Bearings P124
Take Back Snaps P141 — **Saturday Day 1**
Transfer bearings from map to compass and *vice a versa* P122
Adjust for Magnetic Declination P128
Triangulate - *see note*

Create Baselines P132
Make Radial arms P146 — **Sunday Day 2**
Aim off P142
Box P143

Friday night

Equipment

- Ultimate Navigation Manual
- 1:25 000 topographic map of the area (*ideally Ordnance survey 1:25 000 or 1:50 000*)
- Baseplate compass
- Grease pencil/Chinagraph
- Plain paper

Tasks

Reading a Grid Reference:

1. This is best first done sitting at a large table and with good light.

2. Have a pencil & paper at hand to note your grid references and when you have recorded a few, reverse the process: in other words from the grid reference find the feature on the map.

3. Check on your map the magnetic declination for the area, you will need this tomorrow. If it is an old map make sure you correct for the change in declination (P128/129) or visit the Resource Centre at www.micronavigation.org where there is a Magnetic Declination Calculator.

Saturday

Equipment

- Ultimate Navigation Manual

- 1:25 000 topographic map of the area (*ideally Ordnance survey 1:25 000 or 1:50 000*)
- Baseplate compass
- Grease pencil/Chinagraph
- Plain paper

Non essential but recommended kit:
- Grid reference tool
- Digital camera

Preparation

To prepare for your second stage of learning, read once over all the techniques you are going to put into practice the following day. Do not worry if you do not immediately grasp them; reading them starts your mind thinking about them and when you come to put them into practice this will start to reinforce your learning; you will gain a clearer understanding of exactly what each technique involves.

Location and conditions
- A safe area of open land, where it would be difficult to get lost, where you can roam freely, such as a common, or stay in the municipal park used in Lesson Plan 1.
- Good visibility, if the weather conditions are rain or drizzle it does not matter, just slightly less enjoyable.
- Wherever you go, make sure that you are confident you can return to your start at any time.
- Tell somebody responsible where you are going and when you expect to be back and exactly what they need to do if you do not return by the stated time. Make this routine forevermore.

Tasks

1. A critical component of safe navigation is to know your own personal **Drift** so that you can compensate for it in poor visibility or where your attack point momentarily disappears. Ideally, this should be undertaken when there are two of you and make sure there are absolutely no obstacles you can trip over!
2. Choose a prominent feature you can both see in the field and on your map and take a direct **Bearing** to using your compass.
3. Mark the location of where you are at, use a stick or small stone and from this location walk towards your feature, stopping occasionally and, using your compass' set bearing, choose an attack point nearer to you, in your journey to the feature. **Pace** the total distance *(Lesson Plan 1. P.109*).
4. When you have reached it walk back on the **Back Bearing** and using the number of paces see how near you can get to the original location.
5. Repeat this with different features and *en route* turn and take **Back Snaps**, either making a mental note or with your digital camera.
6. On your return journey refer to these Back Snaps.
7. Now select a feature on your map that you are going to walk to.
8. **Take the bearing of this feature from your map**.
9. Adjust for **magnetic declination** and repeat steps 3-7
10. When you are comfortable working with direct bearings (*looking at the object*) and from maps to complete the process, take a bearing on an object in the field with your compass and transfer it to your map, allowing for magnetic declination.

Triangulation *(aka cocked-hat) is something I no longer instruct as I have never used this technique in practice and believe that in micronavigation it is redundant. However, for the sake of completeness I have included it here.*

Take direct bearings from 3 features in your landscape, ideally well separated from each other, transfer these to your map. Where these bearings intersect a triangle is created, your location is somewhere inside this triangle.

Reinforcement

• Spend time acquiring these new skills
• Choose different Attack Points and use the techniques in isolation and in different combinations
• Refer to the instructions in the manual at first, but once you become confident try to do without the manual
• Explain/demonstrate to someone else how to carry out these techniques

Sunday Day 2

Equipment
The same items as for Day 1

Location and conditions
As on Day 1.

Preparation
Go over the six fundamental techniques you learnt on Day 1.

Tasks

1. Choose a location you are going to return to, possibly for your lunch break, and create a **Baseline**. At lunchtime, no matter where you are, use the baseline technique to return to this location.
2. Repeat the exercise from Day 1 where you were taking a direct bearing and following this, but this time introduce either an imaginary obstacle, or use a real one, in between you and your feature that you need to box around (**Boxing**).
3. Take a direct bearing on a feature then perform a **Radial Arm**, this technique is initially best learned by actually outstretching your arm both at the beginning and occasionally as your move towards your feature. I still always outstretch my arm at the beginning.
4. **Aiming Off:** The feature you are aiming for must also be on a linear feature, for example a gate in a fence. The most common error in learning this technique is to aim too close to the 'gate', so start using a wide distance from it.
5. For the final part of this day I would mix and match techniques from both days, for learning **Reinforcement**, combining as many as possible for the reason that this is what you will do in practice.