

## FT4.0 D03 Small Group Instr SCN Notes

### Seattle Wilderness Navigation

#### (06:30 – 07:50) Scenario 1 Prep

- o Students signed in, Blue bags stowed
- o Grade Cards > Students (folded for notes)
- o PreTrip Plan > instructor – know weather, sunset, keep CalTopo maps

#### Navigation Tools/Gear set up

- o CalTopo local and area maps, bagged handy
- o Baring Quad, bagged in backpack
- o Altimeter calibrated 880' at Muncer Parking
- o Compass 15 E declination, attached to pack
- o GPS with Gaia Topo, student GPX, battery full, airplane mode, low battery mode, weatherproof
- o GPS set waypoint near briefing spot
- o Backup battery stowed, protected
- o Watch time correct, secure, visible
- o Emergency communication, whistle
- o If have -- InReach, SPOT, PLB secured
- o Rite in Rain Grade Card: time, temp, sky, wind, precipitation; secure pencil(s)
- o Student Problem Set bagged, stowed

#### General briefing before leaving briefing

Group introductions

Assign first aid person, clarify role

Check gear (above), clothing, expectations

Party separation, blue bags

Summarize the day ahead route (30 seconds)

Set turnaround time to beat sunset

Pair students with partner(s) for the FT to enhance learning and safety.

#### (07:00 - 07:30) SCN1: Rehearse Workflow

*You're some distance from the TH and need to navigate safely and efficiently.*

**Targets:** Demonstrate fundamental navigation workflow.  $\hat{W}$ Hbrook TH

- o Bearing to TH (map first, then GPS goto/guideme)
- o Demo, then set compass bearing
- o Identify handrail to TH (US HWY2)
- o Identify catchline (parking area)
- o Check students have all – nothing left behind

#### (07:30 – 08:45) SCN2: Along trail to the Lookout

**Tower.** Lead folks on a day hike to the lookout tower. Stop frequently to demonstrate your navigation tool set. **Targets:** Demonstrate situational awareness by repeatedly determining point position using the full navigation tool set. Workflow becomes more fluent. [Stops are recommendations & need not be at exact positions.]

**Stop 1 - Escape highway noise**  $\hat{W}$ Stp1

#### 5 Steps to remember at every stop

1. Where are you?

2. Where do you want to go to?
3. What route will you take to get there?
4. How long will it take?
5. What do you expect to see along the way?

- o Analyze route together (use pairs first)
- o Bearing uphill to tower
- o Number of switchbacks?
- o Catchline – power transmission line
- o Bearing downhill = bailout bearing
- o Catchline HWY2, seek TH parking area

**Stop 2 - After a little hike, elev ~1000'  $\hat{W}$ Stp2**

- o Clothing adjustment, Same side off trail
- o 5 Steps – use Gaia last
- o What is a switchback, vs. a curve?
- o How many switchbacks GPX/CalTopo?
- o How to use GPS, bearing to switchback 3
- o Dial in compass bearing and sight – trail OK?

**Stop 3 - 2nd switchback elev ~1220'  $\hat{W}$ Stp3**

- o Set 90 or 270 degrees on bezel
- o Estimate slope using compass clinometer
- o Set clinometer on trek pole
- o Discuss avy danger 30 to 50 degrees
- o Match map and compass hash marks (MC2)
- o Take bearing on fall line. Why?

**Stop 4 - 3rd switchback rock face  $\hat{W}$ FricSlab &  $\hat{W}$ Stp4**

- o Find on map(elev ~1340' hides in 40 ft contour)
- o Photo linked to waypoint for return
- o 5 Steps to remember at every stop...

**Stop 4a - just after 3rd switchback, trail turns east, grade eases**

- o 5 Steps to remember...
- o Take a bearing on trail, compare to map
- o Verify with GPS

**Stop 5 - gain ridgeline, blowdown elev~1540  $\hat{W}$ Stp5**

- o How do you know you've gained ridgeline?
- o Bailout bearing? Where is US HWY2?
- o Spot cultural (human-made) feature (power line)
- o How to use power line? (offset handrail)
- o What should the trail do up to lookout tower? (follow ridge line)
- o 5 steps routine
- o Catch line feature? (lookout tower & clearing)
- o What if you go too far? (ridge line will descend)

**Stop 5a - trail leaves ridge to South just before tower elev ~1700  $\hat{W}$ Stp6**

- o What is happening to the trail? (diverging from ridge line)
- o Is this ok? (yes -- should regain ridge line)

## Stop 6 - clearing below lookout tower (secret)

### W<sup>Stp6</sup>

- o What summit is that? (Philadelphia)
- o What's the bearing? (200°)
- o Where are we on Heybrook? (line position on Caltopo D15A or D15B)
- o How much further to lookout tower?
- o Verify with GPS?

### ~08:45 Lookout Tower [15+ min stop] W<sup>LKTower</sup>

- o Record time, battery level in RR notebook
- o Any issues, inform Group Lead
- o Party Separation. FS toilet may be accessible
- o Altimeter check (reset if needed, 1720')
- o Snack
- o Verify position with GPS
- o 10 essentials discussion (do not empty pack)
- o 3+ practice bearings, distant if possible

### (~9:15) SCN3: > West Stump Field W<sup>LCrk</sup>,

#### W<sup>WStump</sup> Entrance, W<sup>WestStumps</sup>

Find a route to the West Stump Field entrance. What direction will you head on FR 6022 and how long will it take at a casual, conversational pace? [Instructor indicates W Stump field is shortly before crossing under high-tension power lines.] **Targets:** Overall readiness, relationship of likely trail conditions to clothing and travel time, tools calibration check.

- o Find west stump area on your digital map.
- o Find bearing by goto/guideme (about 90 east)
- o Set bearing on compass. Which way? (road)
- o Is there a handrail? (road, power lines & towers, which tower marks W Stumps?)
- o What effort level? steep? (no; adjust clothing)
- o Distance? (1/2 mile)
- o Time at easy pace? (2 mph or <, 15 to 20 min)
- o Gone too far? (elev rise, power line over road)
- o Set waypoint to road and power line crossing.
- o GPS battery level?

**Discussion Point** - At the intersection with forest road from Index and to south (see instructor GPS track). Discuss which direction, other topics.

### (~09:45) SCN4 W stump >E stump W<sup>Entrnce</sup> &

#### W<sup>ESTumps</sup>

You encounter 2 hikers headed for East Stumps. They're not sure if they're on the right track, and how to get back to the trailhead.

**Targets:** Students improve accuracy with hand-bearing compass. 5 Steps practice improves the use of combinations of navigation tools.

- 1) Orient with CalTopo D17 (for giveaway)
- 2 & 3) Show location & direction to east stumps
- 4 & 5) Walk to power line/road cross, location ck

- o Set GPS waypoint
- o Elevation check (1760')
- o Direction of power lines (277° or reciprocal)
- o Continued direction of power lines?
- o Provide point position, direction/time to TH

### (~10:00) SCN5 Take accurate stump area bearings

Discuss dominant eye, compass etiquette, best places to stand. If a consistent error – metal, adjust decl. Seek help. **Targets:** Student speed and confidence in the accuracy of taking bearings improves.

- o Take 9 instructor-choice bearings, 3 to 4 degrees +/-

### (~10:30) SCN6 Short Landfall

You must follow a bearing overland as visibility has dropped and distant natural features are obscured. Navigate first by leapfrog to the tree line. Then navigate by tree-to-tree to our lunch spot. Turn on your headlamps. **Targets:** Accurately follow bearing using two techniques.

#### Instructor:

- o Demonstrate leapfrog, then independent but together methods to rocky, open catch line downhill about 200m (650').
- o Select start letter and bearings so student pairs arrive near same point @ catch (see preferred **Bold\*** OR **Bold<sup>s</sup>** examples in chart below)
- o Set bearing at the letter, check student compasses.
- o Repeat 1-2-3-4-5 things to remember
  - o Mark star on map. Given bearing and distance, mark lunch target
  - o Expect to see — (rise, then drop <100' to elev ~1800')
  - o Note start/stop times in RR grade card

START	HEADING	FINISH
A	148°	129 ft
<b>B*</b>	<b>158°</b>	<b>32 ft</b>
<b>C<sup>s</sup></b>	154°	<b>86 ft</b>
D	152°	118 ft
<b>E*</b>	<b>160°</b>	<b>40 ft</b>
<b>F<sup>s</sup></b>	158°	<b>72 ft</b>
G	154°	126 ft
H	152°	158 ft
<b>I<sup>s</sup></b>	160°	<b>80 ft Flag</b>
J	158°	112 ft
<b>K<sup>s</sup></b>	162°	<b>77 ft</b>
L	154°	176 ft
M	160°	120 ft
N	158°	152 ft
O	162°	117 ft
<b>P*</b>	<b>171°</b>	<b>21 ft</b>
Q	160°	160 ft
R	158°	192 ft
S	162°	157 ft
T	171°	61 ft
<b>U*</b>	<b>175°</b>	<b>23 ft</b>

- o Plot bearings on map or just look at them if wet
- o Finally, GPS to confirm.
- o Set lunch place waypoint and mark on map.
- o Discuss Emergency Response Plan (p.2) for dealing with injury on descent from final launch
- o PLB discussion.

**(~11:45 Depart) SCN 8 Plan and Follow A, B, & C routes to W9Start.** You're leading a Heybrook scramble but need to find a route to start up the spine of Heybrook Ridge. **Targets:** Party decision making, route selection, route following, terrain awareness to stay oriented.

- o **(A)** Quartets select initial leader & pairs draft initial route to Target #1, East Stumps
  - o Each quartet selects common route, 5 Steps, time to target
  - o Instructors keep time on decision making & shadow pairs during route following
  - o First navigate back to East Stump area W<sup>EastStumps</sup>.
  - o **(B)** Debrief. Rotate leaders & repeat route selection, 5 Steps, time to Target #2, "Y" intersection
  - o Where would you leave the road past the stump areas? Why? Elev ~1880', mark a waypoint
  - o Enroute if GPS fails, how do you know if you've gone past a "Y"? (road would descend, would pass south turning Power Line tower)
  - o **(C1, 2 Ridge)** Debrief. Rotate leaders & repeat route selection, 5 Steps, time to Target #3, W<sup>9Start</sup>,
  - o What is the elevation gain to the waypoint W<sup>9Start</sup> (2040' - ~1800' = 240')
- OR**
- o **(C3 Expedited)** Debrief. Rotate leaders & repeat route selection 5 steps to Expedited Target 3 in two stages:
    - o Given UTM coordinates, set waypoint and extract bearing from waypoint. Follow that bearing to waypoint.
    - o At waypoint follow compass bearing 180 to Forest Road 6022.

**(~11:00 – 11:45) SCN7 Working Lunch Problem**  
**Where are you ?** Using situational awareness first, locate your position. Last, verify this using GPS. Mark this on your map. **Targets:** Students figure out their location using all possible sources of information. Instructors demonstrate the use of Emergency Communication devices and discuss procedure for any emergency that may occur during final problem. Note that time is limited. This is a working lunch!

**Position finding:**

- o Orient CalTopo D15B on ground or rock
- o Plot bearing from estimated launch point
- o Situational awareness- bearing of fall line, elevation, slope, tower, etc.
- o Peaks: Persis (255), Index N (241), Baring (121) Philadelphia (217) Merchant 6113' (099)

**(~12:15) SCN9 Options Find Final Problem launch. Plan, follow route (D) from W9Start to W10A**

You are heading off trail, looking for your launch point. How will you select a route? **Targets:** Altimeter use with terrain attention using Heybrook Ridge spine as a handrail and altitude as an instrument catchline.

- o **(D)** Debrief. Rotate leaders & repeat route selection, 5 Steps, time to Target #4 W<sup>10A</sup>
- o Hint: Scramble up ridgeline NE for 100m, then find your launch point using altimeter.

**(~1:00pm) SCN10 Follow a Bearing**

Your finish line lies about a kilometer distant through broken ground, heavy timber, slash piles and major blow down. Work independently but keep your partner within sight and sound distance. **Turn on your headlamps.** [Use “split the difference” protocol]

**Targets:** Follow bearing in broken ground with confidence using map & compass. Determine optimal mix of navigation tools given terrain realities.

**Instructors:**

1. Current location? [Different methods]
2. Targets: a) Overgrown road [halt, check in], b) then FR6022
3. Route Follow 180 unless assigned other
4. How long? Current time vs. turn around time?
5. Expect to see? [Not follow fall line]
  - o Stay with partner then wait for instructor

**OR**

**Shorter Option 2: Start at overgrown middle road elev ~2320' exit forest**

- o check position on Caltopo map #3
  - o easting confirms gpx ridge launch pt
  - o bearing downhill
  - o elevation
- o If see blow down, how use GPS to avoid it? How leapfrog with partner to avoid it?
- o If an injury what group tools might be useful?
- o Where cross final forest road? Make waypoint.
- o What is the elevation? (1720' to 1750')
- o Follow bearing tree>tree > (drivable) forest-rd
- o May leapfrog if quicker -- open or dense brush
- o Speed is good, errors tend to average out
- o Which way will you head? (SOUTH)
- o Stay with partner, look out for instructors too!
- o Set Gaia to record. At finish record arrival sign # and distance east/west (signs 115 ft apart).

<b>Launch</b>	<b>A 2245 A- &amp; A+</b>	<b>B 2300 B - &amp; B+</b>	<b>C 2340 C+ &amp; C-</b>
<b>Bearing</b>	<b>180</b>	<b>180</b>	<b>180</b>
<b>Target</b>	<b>Sign 11 + or -</b>	<b>Sign 9 + or -</b>	<b>Sign 7 + or -</b>

**Good result is arrival within 2 signs of target ( $\pm 2^\circ$ ).  $\pm 4^\circ$  is acceptable.**

- o Drop a waypoint at your actual arrival point
- o What is the distance between expected and actual?
- o Compare your actual track to set bearing.
- o What's the time and travel time out to TH?

**(~1:45) SCN11 How will you keep learning, warm and dry, if waiting for instructor or others?**

**Targets:** Determine length of pace. Understand “Lost Behavior.” Reflect on performance this day.

**Lost Behavior**

- o Confused? Lost folks speed up but good navigators slow down.
- o Lost? Skip panic, work on shelter, being seen
- o Leading? Know the route ahead & observe group. Can this group do that route?

**Determine Pace.** You know how to follow a bearing but how will you measure the distance without a tape?

**Instructor:** Ask students to self-evaluate their performance using their grade card. And to continue same on return to TH.

**(~2:00) SCN12 Return to TH**

Stop a few times along the trail back to practice get-back-to-the-TH skills. Keep your HC map handy. Other tools in your navigation toolset will be needed depending on the instructor prompt. While you may be wet and weary, conversation and/or fatigue may erode your situational awareness. **Target:** Maintain situational awareness with fluent (quick/accurate) tool use.

- o How? (follow road)
- o Stay as group –
- o 5 steps...

**Instructors:** some possibilities, six or more please

- o at turning tower before Y -- observation
- o at trail from lunch area -- GPS
- o at intersection with Lewis Crk Rd -- observation
- o at lookout tower -- observation
- o at flat spot, blowdown area – photo?
- o at first switchback -- elevation
- o at final switchback – trail feature, altimeter
- o at TH – cultural features, elevation

**Instructor:** Hold group chat on grade card performance before exiting to road (private conversation, if necessary). On roster, instructor notes Pass/More Work status. Also note any students keen or ready to be assistant instructors. Instructor collects grade cards. Safe, off pavement, lights on travel to parking follows.

**(~3:00) After Hike Considerations -- RR notes**

- o Time and % battery on phone (% per day)
- o Altimeter elev (how far from actual?)
- o Equipment and skills issues to address
- o Names and contact info of new friends