

FT Instructor Scenario Notes

Seattle Wilderness Navigation 3.5

(06:45 – 07:15) Scenario 1 Prep

- o Students signed in, Blue bags stowed
- o Porta Potty visit
- o Grade Cards > instructor (plastic bag)
- o PreTrip Plan > instructor – know weather, sunset, keep CalTopo map

Navigation Tools/Gear set up -- ¼ Cheat Sheet

- o Index Quad displays area, bagged, handy
- o Baring Quad, bagged in backpack
- o CalTopo area map, bagged with Index
- o Altimeter calibrate 935' at check in, 820' at TH
- o Compass 15 E declination, attached to you
- o GPS with Gaia Topo, student GPX, battery full, airplane mode, low battery mode, weatherproof
- o GPS set waypoint near Porta Potty
- 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 notebook: time, temp, sky, wind, precip; secure pencil
- o Student Problem set bagged, handy

Where are we?

Methods & tools to use today. Hard copy (HC) maps first – verify with altimeter, compass & Gaia.

1. Dead Reckoning – map, watch, pace (speed)
2. Landmarks – map
3. Landforms – map
4. Bearings – compass, GPS
5. Elevation – altimeter
6. GPS – map, GPX waypoints, position
7. Brain – reasoning with available information & experience

Use all your tools. You are betting your life!

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?**

General briefing before leaving check in

Group introductions

Assign first aid person, clarify role

Check gear (above), clothing, expectations

Party separation, blue bags

Summarize the day ahead route

Set turnaround time to beat sunset

Headlamps on (for HWY 2 safety)

Consider pairing students with partner(s) for sections of the FT to enhance learning.

(07:15 - 07:30) SCN1: Navigating to trailhead (TH)

You've parked some distance from the TH and need to navigate there safely and efficiently.

Targets: Demonstrate fundamental navigation workflow. **W**Muncer Driveway & **W**Hbrook TH

- o Bearing to TH (map first, then GPS goto/guideme)
- o Set compass bearing
- o Identify handrail to TH (US HWY2)
- o Identify catchline (parking area)
- o Check students have all – nothing left behind
- o At gate turn around, memorize view, photo?
- o Safety **BARELY ON PAVEMENT**. Headlamp on. Single file. Don't stop at TH parking area, move on to quieter spot on the trail

(07:45 – 09:00) SCN2: Along trail to the Fire Tower.

Lead folks on a day hike to the fire tower. Stop frequently to show them 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 **W**Stp1

- o 5 steps to remember at every stop 1,2 ...
- 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, then turn left to car

Stop 2 - After a little hike, elev ~1000' **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 switch backs GPX/USGS (old)?
- o How to use GPS, bearing to switchback 3
- o Dial in compass bearing and sight – trail OK?

Stop 3 - 2nd switchback elev ~1220' **W**Stp3

- o Estimate slope using compass clinometer
- o Set clinometer on trek pole clinometer
- 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 **W**FricSlab & **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 W^{Stp5}

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

Stop 5a - trail leaves ridge to South just before tower elev ~1700 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 fire tower (secret) W^{Stp6}

- o What summit is that? (Philadelphia)
- o What's the bearing? (200)
- o Where are we on Heybrook? (line position on USGS)
- o How much further to fire tower?
- o Is there a linear clearing down to US 2 on the map? (USGS at fire tower)
- o Verify with GPS?

~09:00 arrive Fire Tower [15 minute stop] W^{LKTower}

- o Record time, battery level in RR notebook
- o Any issues, inform Day 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 2-3 practice bearings, distant if possible

(~09:15 - 09:30 latest) SCN3:> To West Stump Field

W^LCrk, W^WStump Entrance, W^WWestStumps

Find a route to the West Stump Field entrance. What direction will you head on FR 6022 and how long will it take you 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 GPS.
- o Find bearing by goto/guideme (about 90 east)

- o Set bearing on compass. Which way? (road)
- o Is there a handrail? (road)
- 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 (see instructor GPS track - not on USGS map). Discuss which direction, other topics.

(~09:30) SCN4 W stump >E stump W^{Entrnce & W^EStmps}

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 or USGS maps
 - 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

(~09:45) SCN5 Take accurate stump 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 bearings (6 is OK), 3 to 4 degrees +/-
- o Students take 3 bearings from 1 stump, record in RR, check with instructor before proceeding.

Western stumps

1	2	3	4	5	6	7	8	9
A 254	A 232	B 191	A 276	C 95	B 272	C 146	U 296	#2 10
E 58	B 179	D 67	D 57	E 06	C 79	D 20	T 345	#3 58
F 03	G 264	G 302	F 336	G 308	E 347	E 314	J 38	-- -

Eastern stumps

1	2	3	4	5	6	7	G	K
A 345	B 96	B 337	A 342	A 10	E 151	A 23	H 33	#4 255
B 89	D 158	C 162	C 114	D 131	F 215	D 141	#5 99	D 230
E 197	Y 271	K 308	G 286	F 237	G 265	G 255	F 168	G 277
							W 128	O 307

(~10:15) 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. **Targets:** Accurately follow bearing using two techniques.

Instructor: See ¼ Sheet Landfall Launch Instructions

- o Demonstrate leapfrog, then independent but together to catch line yellow signs downhill about 200m (650').
- o Select start letter and bearings so your student pairs arrive near same point on finish line (see **Bold*** examples in chart below)
- o Set bearing at the letter, check student compasses.
- o Mark start location on map. Given bearing and distance, mark estimated lunch location
- o What terrain will you see as you go? (rise, then drop <100' to elev ~1800')
- o Note start/stop times in RR notebook

START location (letter)	Heading to be assigned	FINISH: Distance from west boundary
A	148°	129 ft
B*	158°	32 ft
C	154°	86 ft
D	152°	118 ft
E*	160°	40 ft
F*	158°	72 ft
G	154°	126 ft
H	152°	158 ft
I*	160°	80 ft
J	158°	112 ft
K	162°	77 ft
L	154°	176 ft
M	160°	120 ft
N	158°	152 ft
O	162°	117 ft
P	171°	21 ft
Q	160°	160 ft
R	158°	192 ft
S	162°	157 ft
T	171°	61 ft
U	175°	23 ft

(~11:00 – 11:20) SCN7 Working Lunch Problem

Where are you ? Using situational awareness, locate your position. 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 Index Quad on ground or rock
- o Situational awareness- bearing of fall line, elevation, slope, tower, etc.
- o Peaks: Persis (253), Index N (241), Baring (121.5) Philadelphia (216) Merchant 6'113' (99)
- o Plot bearings on map or just look at them if wet
- o GPS to confirm.
- o Set lunch place waypoint and mark on map.
- o Discuss plan for dealing with injury on descent from final launch
- o PLB discussion.

(~11:20 Depart 12 latest) SCN 8 Plan and Create route to W9Start.

You're leading a Heybrook scramble but need to find a route to start up the spine of Heybrook Ridge. **Targets:** Route selection, route following, terrain awareness.

- o First navigate back to East Stump area W^{EastStumps}. 5 Steps...
- 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 What is the elevation gain to the waypoint W^{9Start} (2040' – ~1800' = 440')
- o Best way to reach W^{9Start} ?
- o Plan a route and go!
- o Route may need to change/evolve due to brush, etc. Discuss and go.

(~12:45) SCN9 Find Final Problem launch. Plan a route from W9Start to W10A

You are headed to 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.

Discuss a route, make a plan. GO! Scramble up ridgeline NE for 100m then find your launch point using altimeter.

Sky Wildns Bndry	A	B	C	D	E
2220	2300	2330	2375	2415	2475

(~1:30) SCN10 Follow a Track and Bearing

Rest & reunion await at a maintained forest road. About a kilometer distant through broken ground, heavy timber, slash piles and some significant blow down is your finish line. You will travel with a partner.

Work independently but keep your partner within sight and sound distance. Turn on your headlamps. [Use “split the difference” protocol for the waypoint or compass bearing followed.] **Targets:** Follow bearing in broken ground with confidence using GPS track and/or hand bearing compass. Determine optimal mix of navigation tools given terrain realities.

Instructors: Consult ¼ sheet SCN10 Final Problem Launch Instructions. Use **Tracks** 10A thru 10CD to **Track** Old Road.

- o What's the time, what's your turn around time?
- o Verify and record position info:
 - o Bearing along ridge
 - o Elevation
 - o UTM coords & horizontal datum
- o Have instructor check these, the location and track you are going to follow by GPS
- o You will follow track to an abandoned (overgrown) middle forest road
- o Stop at that road to check in and change method to
- o Confirm that you are on track (compare Easting?)
- o Stay with partner then wait for instructor

At overgrown middle road elev ~2320

- o check position on Baring Quad
 - o bearing on road
 - 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 Speed is good, errors tend to average out
- o Which way are you going to 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).

Headlamps on, go!

Final Problem Launch Points & Bearings					
	Target Arrival Signs Noted				
Launch	A 2300	B 2330	C 2375	D 2415	E 2475
>					
Bearing	180	180	180	180	180
Target	Sign 11	Sign 9	Sign 7	Sign 5	Sign 3

Good result is arrival within 2 signs of target (±2°). ±4° 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?

(~2:15) SCN11 How will you keep learning, warm and dry, while waiting for other groups?

Instructors finish filling out grade cards.

Targets: Determine length of pace. Understand “Lost Behavior.”

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?

Optional. Practice emergency communication protocol. Or Talk about emergency shelters. Or “war stories” in group.

(2:45 - leave no later than) 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 fire 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 left to Muncer? Remember...Notebook?

>>At TH—**BARELY ON PAVEMENT**, Headlamps On

>>Check out with grade card at blocked gate

(~3:45) 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