FUEL RANGE AND CAPACITY: **P.O. 1**
Tank capacity (litres) divided by # of litres the engine burns per hour = range.
Ex: Tank is 99 litres. Engine burns 3 litres per hour at 5 knots.
99 divided by 3 = 33 hours. Range is 33 hours or (33 X 5 knots) 165 nm
Factors affecting an engine under power: # rpms, # of cylinders
Factors affecting the range:
Sea state, pitch of propeller, competence of helmsman, towing a dinghy,
Windage, currents.

WATER CAPACITY **P.O. 2**	
USUAL daily requirements:	8 litres per person
MINIMUM daily requirements:	2 litres per person
METHODS of conserving water:	
Don't let taps run.	
No showers on board.	
Use foot pump.	
Mark thermoses and mugs – re use.	
Plug drain when running water into sink.	
Wash dishes in deep pot.	

SEASICKNESS: P.O. 3
CAUSED BY:
Drinking, Fatigue, Eating heavy greasy meal before leaving dock.
PREVENTED BY:
Not drinking the night before leaving, being well rested, eating a simple meal
before leaving, pre – medicate.
IF CREW MEMBER IS SEA SICK: Stay on deck, if possible. Give them a task.
Look at horizon. Take helm. Keep warm.
IF CREW MEMBER IS STILL SEA SICK AND MUST GO BELOW: Minimize movement. Stay midships.
CLOTHING: P.O. 4
List 6 articles of clothing:
- Boots with soles which grip deck.
- Toque which covers ears.
- Sailing gloves
- Foul weather jacket and pants
- Wool socks.
- Leggings/shirt which wick moisture away from body.
DESCRIBE LAYERS AND PURPOSE OF LAYERS:
Base Layer: Synthetic/ silk/wool. Purpose: Wicks moisture away.
Mid Layer: Fleece or wool. Purpose: Warmth
Outer Layer: Gortex, Oil Skins Purpose: Keeps wind and moisture out.

MENU PLANNING: P.O. 5
Plan easy to eat lunches when underway – wraps and sandwiches.
Plan easy to eat snacks – apples. Granola bars.
Inquire about food allergies and preferences of crew.
Provision in accordance with refrigeration and space limitations.
Be flexible – cold weather – have one hot meal.
Warm weather – have lots of beverages – water, juices etc.

PROVISIONING REQUIREMENTS P.O. 6
1. Buy fresh produce that does not require refrigeration.
2. Pre-freeze what you can: butter, juice.
3. Use a separate cooler for cold drinks.
4. Plan for meals which include left overs.
5. Prepare meals with fresh food first.
6. Remove packaging before stowing.
7. Avoid packages which can not be re sealed.

MINIMUM CONTENTS FOR 1ST AID – 1 WEEK CRUISE	**P.O. 7**
3 TENSOR BANDAGES	1 pkg Laxatives
12 Gauze pads	1 bottle Antihistamine
3 pkg Sterile dressings	3 Triangular Bandages
1 pkg Burn Dressing	Scissors
1 Absorbent Cotton	Pair Tweezers
Pkg Bandages	1 Box safety pins
Antiseptic	1Thermometer
Tylenol, ASA, Benadryl	1 Eye wash cup
Scopolomine	1 Cold pack
1 bottle Anti Emetic	1 Heat pack
1 bottle Anti -Diarrheal	First Aid Manual

SPARE ENGINE PARTS – ONE WEEK CRUISE, LOCAL WATERS **P.O. 8**
- Belts
- Impeller
- Primary fuel filter
- Engine and transmission oil
- Primary fuel filter
- Coolant
- Cotter/Clevis pins

TOOLS FOR A 1 WEEK CRUISE – LOCAL WATERS **P.O. 9**
- Locking vise grips.
- Wrench set. Imperial and metric.
- Socket set. Imperial and metric.
- Hack saw and spare blades.
- Stainless steel hose clamps – various sizes.
- Pliers – assorted types and sizes.

CANADA/ US TRAVEL – DOCUMENTS **P.0. 10**
What documents do you need and what do you need to know or do?
- Registration and insurance papers. Ship's registry papers.
- Charter vessels require letter of authorization from Charter Company
- Confirm what you need before entering a particular US port.
- Find out procedures for entry prior to entering US Port.
- All guests must have proper ID.
- All crew remains on board. Only captain checks into Customs.

SAFETY IN THE GALLEY P.O. 11
- Gimbal the stove. Use pot clamps.
- Pour hot liquids over sink so spills are contained.
- Use safety belt and bar so balance is maintained.
- Wear boots with soles which grip the cabin sole.
- Fill pots to ½ way point only.
- Wear waterproof/fire proof apron or foul weather gear.
- Minimize cooking in heavy seas.

COOKING WITH PROPANE: P.O. 12
- Tank should be secure in an exterior, vented locker.
- Solenoid switch turned off first, before turning burner off after use.
- Propane sniffer installed near the cabin sole.
Alcohol fuel is expensive and has a clear, blue flame which is hard to see.
Alcohol fuel can be doused with water.
Diesel fuel is convenient because only 1 fuel used to heat and cook.
Diesel fuel requires a stove pipe vent.
Kerosene is inexpensive and widely available.

CABIN HEAT P.O. 13
Forced air heat has wide tubing which takes up a lot of space.
Hydronic heat is expensive, with thin tubes which don't require a lot of space.
Diesel heat takes longer to heat the cabin and cannot be regulated easily.

TWELVE VOLT VS ALTERNATING CURRENT P.O. 14
- Twelve volt power is generated by: Solar panels, engine driven
alternator, or generator charging the batteries.
- A/C (120 Volt) power is generated by:
Shore power when tied to dock.
Inverter
Diesel generator with outlets on the generator.

3 WAYS TO KEEP A FRIDGE COLD: P.O. 15
- Keep fridge full. Pre-freeze water bottles. Freeze food first.
- Minimize opening fridge door.
- Run fridge when charging the batteries.
- Put a thermal cover over fridge contents.

WATER TANKS P.O. 16
Most vessels have one or more water tanks.
Water tanks may be rigid or they may be water bladders.
Manual or electric pumps deliver water from the tank to the faucet.
Manual pumps conserve water.
An “accumulator” saves water by using the water in a small tank when a tap is turned on.

USING A MARINE SANITATION DEVICE (MSD) P.O. 17
List order of procedure:
- Open seacock. Turn to wet bowl. Pump water into bowl.
- Turn to dry bowl.
- Sit down – both men & women. Use MSD.
- Pump into holding tank unless you are far out to sea.
- Turn to wet bowl. Pump until lines are clear of effluent.
- Turn to dry bowl.
- Pump out excess water in bowl.
- Close sea cock.

ENVIRONMENTAL ISSUES P.O. 18
Do not empty holding tank unless 3 miles out to sea.
Nothing in the head that does not go in the body.
Only use single ply marine toilet paper.

WINDLASS OPERATION P.0. 19
- Only operate when engine is running.
- Turn windlass breaker off when not in use.
- Always operate windlass when in view of ground tackle.
- Always close deck mounted foot switches when not in use.
- Always wear proper foot wear (no bare feet, or open toes sandals)
- Keep fingers, toes, limbs, clothing clear of windlass when operating.
- When anchor is set, take load off windlass.
- Use engine, not windlass to pull vessel toward the anchor.
- As chain is coming up, and piling up in locker, knock chain down
before it starts to castle.
- Do not use windlass to break out a fouled anchor.
- Always haul in last few feet by hand, or very slowly by windlass.
- Secure anchor by tying on a safety line, or putting a pin through
the bow roller and anchor shank.

DIFFERENT SAIL HANDLING SYSTEMS P.O. 20
Identify the different systems:
- Stack Pack
- In mast furling
- In boom furling
- Dutch man

MAINSAIL FLAKING SYSTEMS:		P.O. 20
LAZY JACK FLAKING	**DUTCHMAN FLAKING**	**INMAST FURLING**
Battens/ leech can catch in the lazy jack legs	Like a Roman Shade. Sail drops down perfectly positioned on vertical line woven through the cringles which extend from the foot of the sail to the topping lift.	Furling line or sail can jam in the mast preventing the sail from being lowered if partly furled.

DESCRIBE CUMULOUS CLOUDS **P.O. 21**
White, fluffy, with flat grey bottoms. Distributed along coast at same
Altitude. Cloud height (base to top) is usually less than the height of the base
of the cloud above the ground. Forms mid to late morning.
SEA BREEZE/LAND BREEZE
SEA BREEZE: Sun warms land. Air over land rises. Rising air creates vacuum.
Breeze flows from the sea to the land (sea breeze) to fill vacuum.
LAND BREEZE: Sun sets, decreasing radiation (decrease in land heating).
Land mass starts to cool. Land cools faster than water. Water becomes warm
relative to the land. Air over water rises. Rising air creates vacuum. Breeze
flows from the land to the sea (land breeze) to fill vacuum.

WEATHER – FOG: ADVECTION/RADIATION **P.O. 22**
ADVECTION FOG: Warm moist air moves over a relatively cold surface.
Advection fog is a thick, heavy fog (sea fog) which can remain for days
until a wind comes up and blows it away. Most common fog at sea.
"Warm moist air meets cold water"
RADIATION FOG:
Land cools on a clear night. Moist air above cool land condenses. Fog is
formed. Fog disappears by mid morning as the land heats up again.
"Moist air meets cold land"

SEAMANSHIP:
21.ACTIONS TAKEN WHEN ENGINE WATER FAILS TO FLOW: **P.O. 23**
Turn off engine. Sail to dock, anchor, or heave to until you can assess
situation and carry out repairs. Check raw water thru-hull.
Check water strainer. Check impeller. Check belts, hoses, thermostat, coolant.
22. ACTIONS TAKEN WHEN STEERING FAILS:
Use emergency tiller. Mount outboard on dinghy and raft alongside and tow.
Use sails to steer: Harden main / Luff jib = head up
Harden jib / Luff main = bear away

CREW OVERBOARD – RETRIEVAL: **P.O. 24**
Partially deflate dinghy and roll crew into dinghy, then winch crew member
on board using halyard.
Use life sling.
If crew member is mobile, throw a bowline around their chest. Winch
on board using halyard.
Drop **head** sail into water – use sail like a sling and raise head sail with crew member in sling, in horizontal position.

THREE METHODS OF RECOVERING A FOULED ANCHOR: **P.O. 25**
1. Trip line & buoy. Fasten line to crown of anchor, allowing for high tide
and tie buoy to line.
1. When stuck in mud, shorten scope 1:1, drive around slowly or
motor slowly in reverse to break its set.
1. Attach a marker with float. Cut anchor free. Return later with diver.

THREE METHODS OF STOWING A DINGHY OVERNIGHT: **P.O. 26**
1. Haul dinghy on deck.
1. Secure dinghy to side or transom, using spring lines.
1. Secure painter to end of spinnaker pole and pole dinghy out.

DINGHYS:		**P.O. 27**
INFLATABLE DINGHY	RIB DINGHY	HARD SHELL DINGHY
Flat, soft bottom	Rigid hull bottom	Fibreglass. V-Shape hull
Cannot be dragged on shore.	Rigid bottom – can be dragged on shore.	Rigid – can be dragged on shore
Poor towing	Good towing	Good towing
Low – medium hp outboard	Medium – high hp	Low hp outboard

SAFE HANDLING OF OUTBOARD DINGY **P.O. 28**
Remove all objects from tender when towing.
Rig a bridle to the tow line.
Let out enough line to tender rides on 2nd wave when towing.

RAFTING at Anchor P.O. 29
- Vessel with heaviest ground tackle anchors 1st, with extra scope.
- Raft vessels with appropriately placed fenders.
- Use breast lines and spring lines to prevent movement.
- Position vessels so that the masts are staggered.
- Have a back up plan if things go wrong – (weather, fire, dragging)
- Ensure mooring lines are easy to cast off.

SWIMMING AT ANCHOR P.O. 30
- Ensure reboarding device is deployed.
- Check for currents and nav hazards.
- Make sure vessel is securely anchored.
- Post a lookout.

LINES USED TO SECURE A VESSEL TO A FIXED DOCK P.O. 31
Be able to draw a diagram and label the lines used to secure a vessel to a fixed dock. (Tide grid, etc.)
- Use 2 sets of long spring lines.
- Attach weights to spring lines to hold lines close to vessel.
- Do not use breast lines.
- Rig a fender board to protect gel coat of vessel.
- Tie a line from mast to the dock to keep vessel up right.

RAFTING AT A FIXED DOCK: P.O. 31
Use breast and spring lines to the boat next to you and spring lines to the dock if possible.

MED MOOR (STERN TIE TO DOCK OR SHORE) P.O. 32
Tie float to anchor before dropping anchor.
Cleat dock lines to aft cleats and cross over to opposite cleat on dock.
- Sufficient scope – 5:1 Tie a float and a line to the anchor.
- Lower anchor and reverse slowly until anchor is set.
- Continue backing to dock slowly, paying out anchor line.
- Protect stern with fenders.
- Cleat dock lines to aft cleats and cross over to opposite cleat on dock.

PREPARE A BOAT FOR 1 WEEK DEPARTURE P.O. 33
- Close through hulls
- Close hatches and port holes
- Battery charger on and power to dock
- Check auto bilge pump is operational

ETIQUETTE, COURTESY AND CUSTOMS P.O. 34
Request permission to board, before boarding.
Rafting on a public dock is a “right”. Permission may not be denied.
Cross in front of the mast on the vessel you are crossing to reach the dock.
First boat to anchor in an anchorage has rights over later vessels anchoring.
Racing boats are not “stand on”, however common courtesy dictates that cruising vessels would keep clear.
When visiting a foreign country, fly their national ensign on your Starboard Spreader.

DIFFERENT TYPES OF LINES: P.O. 35
POLYPROPYLENE: Inexpensive, buoyant, weak: Dinghy painter.
DACRON (POLYESTER): Inexpensive, sinks, strong: Halyards, sheets.
NYON: Stretches, inexpensive, sinks, strong: Anchor, dock lines.
HMDPE: High Molecular Density Polyethylene. Expensive, buoyant, strong: Halyard, Spinnaker sheets.

CONVERT TRUE TO COMPASS AND COMPASS TO TRUE **P.O. 36**
West Coast of BC: “Compass Add East for True” (CADET)
True Virgins Make Dull Company Saturday Evening so Add Whisky
True +/- Variation = Magnetic +/- Deviation = Compass
Can Dead Men Vote Twice At Easter
Compass +/- Deviation = Magnetic +/- Variation = True

CALCULATING ESTIMATED TIME OF ARRIVAL: **P.O.’s 37, 38**
Time = Distance X 60 divided by Speed
.**CALCULATING SPEED**:
Speed = Distance X 60 divided by Time
CALCULATING DISTANCE:
Distance = Speed X Time divided by 60