Welcome to MIT Sailing

Mission Statement
The Sailing Pavilion exists to provide all members of the MIT community – of any age, status, prior experience, and ability – with opportunities to sail and to improve their nautical skills. Sailing is an enjoyable sport that offers intellectual and physical release from the intense pressures of the Institute. Sailing is a sport at which MIT people excel; as mentally as it is physically demanding, sailing promotes not only physical fitness but also precision of mind, and teaches leadership, teamwork, responsibility and perseverance. The large mental component of sailing allows enthusiast of all ages to learn and compete together: The MIT Sailing Pavilion is a rare environment where undergraduate and graduate students, faculty, staff, alumni, and family mingle on an equal and friendly footing. The Pavilion accomplishes its mission through classes, programs, and the MIT Nautical Association, the largest recreational club on campus.

Website
Please visit the MIT Sailing website for sailing information, event schedules, contact information and much more: http://sailing.mit.edu/

MIT Nautical Association & Sailing Cards
The MIT Sailing Pavilion is the oldest – and arguably still the finest – university sailing facility in the country. Its fleet is available to any member of the MIT Community who holds a current membership in the MIT Nautical Association. Once you have obtained your MIT Athletic privileges you may obtain a Sailing Card at no additional charge.

Membership cards are NOT transferable. Both portions of your card remain at the desk. Please remember the **number** on your card; the small portion will be filed accordingly. The larger portion will be filed alphabetically, by your **last name**.

Sailing Pavilion Season & Hours of Operation
The Sailing Pavilion is open seven days a week – including all holidays-from April 1st to November 15th. Hours are 12 noon until sunset, except on Mondays which is 3pm until sunset. Particularly inclement weather promising to last all day may result in early closing.

Swim Tests
Each cardholder who is under 21 and wishes to sail must take the Small Boat Swim Test. Ask for information about this at the Z center. All others may take the Small Boat Swim Test or sign a statement swearing that they have the ability to swim 100 yards and tread water for 10 minutes. Each member is responsible for his/her guests being proficient swimmers.

Classes
- Learn to Sail the Tech Dinghy
  Our basic sailboat is the tech Dinghy – a sturdy, 1-3 person cat rigged sailboat. It is wonderfully suitable for beginners, but also enthusiastically raced by experts. Learn to Sail classes are held on Wednesday evenings from 5:15 to 7 and Sundays from 9 until 2.

- Physical Education Classes
  The Pavilion offers classes to students and staff through MIT Physical Education. If you are interested please check out the MIT Athletics web site for more details:
  www.mit.edu/athletics/www/physed.html.

Taking out the Boats
Any member, who feels able to handle a boat, may sign out a Tech Dinghy – wind restrictions permitting. We have a series of check offs that each sailor will want to complete as soon as they are able. The Pavilion desk has sheets further describing the ratings outlined below.

- The responsibility for a boat remains with the member as long as it is checked out in his/her name. Upon returning to the dock, check the disposition of your boat at the desk. Quite frequently you may be able to transfer it to another member. Be sure that your card is filed in the box before you leave.

- Make sure that your boat does not hit any other boat while at the dock. Do NOT leave boats unattended at the dock, nor should sails be left luffing in a strong wind. A boat banging against the dock and a sail whipping around in the wind significantly shortens the lifespan of the equipment.

- Land your boat where there is sufficient dock space or tack back out and try again. Always land with the front of the boat pointing into the wind.

- Before hauling any boat onto the dock, the sail must be lowered, the rudder removed, and the centerboard raised with its bungee leash attached. Do not raise the sail or install the rudder until the boat is in the water.

- Do not allow the sails to touch or drag on the dock. Keep the sails clean. If you get the mast stuck in the mud, wash off the sails. Check the mast for mud as well.

- After leaving the dock, do not leave your boat for any reason. If you capsize, right the boat by swimming around and getting on the centerboard.

- Bail the inside of your boat before stowing.

- Sailing area:
    - Stay away from restricted sailing areas and stay visible!
        - Charles River Yacht Club Marina
        - Harvard Boathouse
        - Community Boating area (MDC Boathouse) and the nearby island
    - Sail only in the area between the Harvard and Longfellow bridges
    - Land only at the Sailing Pavilion dock

- Right of Way:
    - Keep clear of human-powered boats
    - Learn the Rules of the Road
    - All skippers must be alert for and stay clear of crew shells at all times.

- In the event that you run aground:
    - Pull out the rudder to keep it from banging on the rocks
    - Lower the sail halfway to summon the launch.
    - Raise your centerboard to keep it from getting damaged on the rocks.
    - If possible, get out of the boat and hold the boat away from the rocks.

- Capsizing

  If you capsize, stay with your boat! All of the boats float when full of water or even if upside down. A safety launch will be out to help you soon. Please stay with your boat at all times, it is easier to find the boat in the water than it is to find your little head.

Lifejackets
Everyone must wear a lifejacket at all times when in a boat.

Broken boats & equipment
Please tell the dock staff about broken equipment. They will either take the equipment from you or will tell you where to put it so that it may be noted and repaired.

Ratings
- The Provisional Rating

involves performing basic sailing maneuvers, demonstrating rigging and unrigging, and showing an understanding of safety precautions and right-of-way rules. This test may be administered by the staff or by any other member with a Helmsman rating. Aside from the obvious personal safety rationale for our check-off requirement, the proper care and protection of our boats is an important consideration. Members with a Swim rating may find their sailing privileges curtailed – at the discretion of the staff – if the wind is too strong or conditions otherwise warrant caution. The Provisional Rating also allows light-wind use of our Lasers (single person planing catboats) and Lynx Catboats.

- The Helmsman Rating

is our expert, heavy-air sailing qualification. The test requires sailing solo in a strong wind of 20 knots. It includes: sailing a Tech upwind – flat and close-hauled – showing good hiking technique, proper use of the tiller extension, and sharp tacks; sailing downwind showing the ability to comfortably carry off a series of controlled jibes; and expertly carrying out the woman-overboard procedure. The Helmsman rating is a prerequisite for heavier-air use of our Lasers and Lynxes, and for checking out the Flying Junios, 420s (2 person planing sloops) and our Hobie 20 catamaran.

- Lynx Rating

allows you to sail the Lynx Catboats in medium-strong winds, as well as during moonlight sails. You need the Lynx rating, plus experience, to lead a Harbor trip

- Boardsailing

is independent of the Provisional/Crew/Helmsman hierarchy. Start by discussing your previous experience with the staff. For novices, classes in rigging, board care, and windsurfing technique are occasionally offered during the warmer months. Wetsuits (not supplied) must be worn when the water temperature is low. If you are capable of sailing close hauled for extended periods of time, you are not required to wear a lifejacket.

Recall Signals
The dock lights turn on at sunset, signaling all skippers to return to the dock. Please be attentive to this sign, as sunset occurs well before it gets dark. In the event of approaching storms, our staff will notify you by turning on the dock lights, lowering the MIT Burgee (the flag flying atop the Pavilion) and possibly by motorboat. Please pay attention to these signals as they are for everyone's safety.

Events & Programs
- Moonlight Sails & BBQ's

Sail on the river after dark. Bring something warm to wear, a flashlight, and food for the BBQ. The boats you'll sail are the Lynx Catboats. If you don't have experience sailing the Lynxes then hop on board with a more experienced skipper.

- Racing program

Through August, the Pavilion offers racing three nights per week. Monday nights, the coaches teach an Introduction to Racing class. Tuesday night is when our VERY COMPETITIVE Tech series is held. Thursday night is Advanced/Intermediate night (all skill levels except novices). All three evenings are raced in Tech Dinghies, solo. You are welcome to sail with crew if you would like. Starting time is 5:30.

- Ocean Cruising

MIT owns a 43-foot, six berth, deep-water sailing yacht, *X-Dimension*, which sails out of Boston Harbor. Please see the sailing website for information on "bluewater" sailing for information on how to sail on *X-Dimension*: http://sailing.mit.edu/bluewater/

Valuables & Lockers

Due to the danger of theft and the possibility of water-immersion, valuable property is most safely left at home. Small items such as wallets, keys and watches may be placed in an envelope, labeled and locked up at the Pavilion desk. Most eyeglasses sink rapidly and should be tied on with cord available at the desk. A limited number of lockers are available during the sailing season only in the men's and women's locker rooms for a rental fee of $5 per year. You must supply your own lock. Locks left on lockers not assigned will be removed after suitable warning.

Foot Injuries

Full coverage, soft-soled, washable footwear is highly recommended for sailing. Please bring a change of shoes, as ones that soak up Charles River water are never the same!

Showers & Bathrooms

There is an outdoor shower located outside on the dock to the right of the lobby. Locker rooms for changing are also located to the right of the lobby. There are two single bathrooms on either side of the main door, before going down the stairs to the lobby.

First Aid items

There is a first aid kit behind the desk for minor cuts and abrasions. For serious emergencies, all MIT Campus Police are trained EMTs capable of handling any situation.

Lost & Found

The lost and found for clothing is located outside of the locker rooms. If possible, we will try to put aside items of value, such as wallets, keys and glasses. MIT is not responsible for lost or stolen items.

Parking

There is no designated parking for the Pavilion. Members may park in metered spots on Massachusetts Avenue, as well as in designated parking spots along Memorial Drive. Please do not park in no-parking zones, especially in crosswalks. The State Police enforce these two zones very enthusiastically.

Reserve the Pavilion

If you are an MIT Nautical Association member and you want to have an event at the Pavilion please call and speak to Fran Charles, 617-253-4884 – fcharles@mit.edu, or sign up on the sailing website: http://sailing.mit.edu/GeneralInfo/reserve.php The Pavilion often hosts parties and BBQ's with or without sailing. The view is the best in Cambridge.

Phone Calls

There is no phone for public to use at the Pavilion. The closest public phone is located across the street, in the basement of Walker Memorial.

Smoking

SMOKING IS NOT PERMITTED in the building, on the dock or in the boats.

Volunteering at the Pavilion

We love our volunteers! The Pavilion can always use help with sailing instruction for our Learn to Sail classes, running evening racing and regattas. Please contact Fran Charles if you are interested: fcharles@mit.edu or 617-253-4884.

Learn to Sail at MIT

Please read this before the next class and practice your knots: the bowline and the stunsail tack bend.

Rigging
Check with the dock staff to see if there are any restrictions. Grab the appropriate sail, check the number and put your sailing card up on the board. Find a lifejacket and get a rudder – now you are ready to rig your boat.

- Place the rudder in the bottom of the boat
- Find a life jacket your size, don it and zip it up
- Attach the sail to the mast:
    - Head of sail in the mast slot, tie on the halyard (stunsail tack bend)
    - Foot of sail in boom slot, slug in track and attach the outhaul S-hook
- Check that all three plugs are in
- Wet the dock before sliding the boat
- Hold onto the bow line (painter)
- Lift the bow and push – slide the boat into the water
- Tie the boat to the dock (bowline knot)
- Get into the boat
- Take the bungee cord off and put the centerboard down
- Attach the rudder, with the tiller under the traveler line; tighten the traveler line
- Raise the sail up to proper height (all the way for large sails)
- Tighten the downhaul and adjust the outhaul, & boom vang

Unrigging

- Untie downhaul
- Drop the sail in the boat (leave the head and foot attached)
- Remove Rudder (pop cam cleat and loosen traveler)
- Raise centerboard, put bungee cord on handle
- Bailout the boat if it has taken on water
- Pull the boat out of the water
- Roll up sail
- Coil the mainsheet
- Put rudder & lifejacket away
- Remove sailing card from board

Getting Into and Out of the Boat

- Grab on to the shroud (the side steel wire) and pull the boat up against the dock.
- Step into the middle of the boat assertively, close to the centerboard, with one foot and follow up with the other foot.
- Avoid standing with one foot on the dock and one in the boat!
- Crawl out of the boat near the shrouds.

How to Shove Off from the Dock
With two people: the skipper should crouch down in the back and middle of the boat to balance the boat. The crew unties the boat, grabs the shroud, checks for traffic, steps in with one foot and pushes off with the other foot, aiming the boat forward and away from the dock.

With one person: Push off, just as the crew would do (see above). Once you are in the boat, move toward the stern and immediately grab the tiller. Sit on the opposite side as the sail, pick up the sheet and start trimming the sail while also steering the boat.

Position of Skipper & Crew
The person steering (the skipper) sits on the upwind side of the boat, opposite the sail, on the side edge of the boat (the gunwale), or on the seat (the thwart), with both of her feet on the floor behind the seat, facing the sail

and looking forward. The crew sits on the seat facing forward. The crew must move his body weight from one side of the boat to the other to keep the boat balanced. In strong winds, the crew will need to sit on the upwind side of the boat. In light winds, the crew will need to sit on the downwind side of the boat to counterbalance the weight of the skipper.

Landing
Check the wind direction. Always land into the wind. Be sure you have sufficient space at the dock – preferably two or more boat-lengths for beginners. As you approach the dock let the sail out completely. To slow down, head up into the wind. Nudge the side of the boat up against the dock and grab one of the ropes tied to the dock.

Steering
In the beginning you will have a lot of demands on your attention. Steering the boat and adjusting (trimming) the sail are best practiced separately at first.

The skipper will steer the boat with the tiller; the crew will trim the sail (pulling it in or letting it out) with the sheet. Trade tasks and positions in the boat frequently. Pick an objective, some point on the shore or a buoy on the water, and try to sail directly towards it. When you feel comfortable steering, try steering and trimming the sail at the same time.

Whenever your boat turns, the wind direction relative to your boat will change. While steering, keep track of the direction of the wind relative to your boat at all times and never let go of the tiller.

In the beginning the skipper may want to use the wood tiller only, with the white tiller extension folded back and tucked under the loop of bungee cord. As you become a more experienced sailor or sail in more wind, you'll want to try steering with the tiller extension. Hold the extension near the base (where it attaches to the tiller) for best control and keep it pointed up to avoid getting it stuck under the lip of the boat.

Tacking
A *tack* is a maneuver where the boat is turned upwind so far that the bow of the boat crosses the eye of the wind and the wind then blows over the opposite side of the boat. Start with some speed as your momentum will need to carry you through the maneuver. Before starting the tack, shout “Ready about!” to let your crew know you are about to tack. Turn the boat into the wind by pushing the tiller towards the sail as far as it will go. As the bow of the boat turns into the wind, your sail will luff and you will lose speed. As the boat continues to turn, the sail will move from one side to the other; remember to duck under the boom. While facing forward and continuing to steer the boat, stand up, face the front of the boat, switch the tiller from one hand to the other behind your back, then sit down on the opposite side. Straighten the tiller when you are on your desired course.

In strong winds, if you perform your tack too slowly, you will get stuck *in irons*, pointed into the wind, halfway through the maneuver. Start your tack with plenty of speed, push the tiller all the way over, continue to steer the boat and keep it turning until you have come around and the wind has filled the sail on the opposite side.

Jibing
A *jibe* is a maneuver where the sail flips from one side of the boat to the other while sailing downwind. Jibing is potentially more hazardous than tacking because the boom can move across the boat with more force, especially in strong winds. An unintentional jibe made through inattention or carelessness can result in loss of control of the boat or injury. Let your crew know you are about to jibe by shouting “Prepare to jibe!” To start a jibe, pull the tiller away from the sail to turn downwind. Move to the opposite side of the boat and switch hands with the tiller behind your back *before* the sail switches sides. The sail will not jibe across until after you have turned past directly downwind (when you are *by-the-lee*). As the sail begins to move across, shout “Jibe-Ho!” duck your head and straighten out the tiller. The crew should be ready to adjust their weight throughout the maneuver to keep the boat level and not let it heel too far one way or the other.

In a moderate to strong breeze, the wind can sweep the sail and boom across the boat with high speed and severe force. There will be a danger of getting hit in the head by the fast-moving boom or to capsize or death roll due to the wind's strong force on the sail. Watch the tell-tales to determine if and when you are sailing by-the-lee and to predict when the sail will jibe. Expect that the boat may tip drastically during a jibe and prepare to adjust your balance. At all times, stay in control and don't drop the tiller!

The Wind
The wind on the Charles River is shifty, changing often both in direction and in strength. This can cause difficulty for the beginner, as well as for the experienced sailor. Being aware of the wind's direction relative to your boat is of primary importance. Keep an eye on the tell-tales on your boat, as well as other indicators, such as flags on the shore, waves on the water, and the sail trim of nearby boats to give yourself an idea of what the wind is doing.

Balance
Try to keep the boat flat – heeling just slightly away from the direction of the wind. If the wind increases suddenly, let the sail out quickly to lessen the pressure on the sail and keep the boat from capsizing. Also allow the boat to turn towards the wind, pushing the tiller into the sail. With experience, you will also learn to shift your weight to assist in keeping the boat flat.

Sail Trim
Once you have your boat pointing in the desired direction, trim the sail. The sail should be out as far as possible, without any *luffing*. Look at the front edge of the sail where it feeds into the mast. If it is flapping or bubbling (luffing) even gently, pull it in until the luffing stops. If the sail is not luffing, let it out until it luffs a bit, then pull it back in a little. When the wind direction changes, or when you change the heading of the boat, you should re-adjust the sail to compensate. Proper sail trim is essential. Expert sailors alter and experiment with their sail's trim almost continuously.

The Course
The course that we are going to start with is the easiest possible: a *reaching* course. Take a look at the picture of the course in Figure 1. Two buoys will be set up perpendicularly to the wind. You will sail a figure-eight course, tacking around each buoy. Concentrate on steering a straight line between the buoys and get comfortable using the tiller. As you approach each buoy, think about which way you will turn around it. Look before you tack! Remember to continue steering the boat during the entire maneuver. Straighten out the tiller when you have come around and your boat is on course pointing at the next buoy. During the tack, the crew can trim the sail in slightly as the boat moves through the eye of the wind and loosen it once the boat is on its new tack.

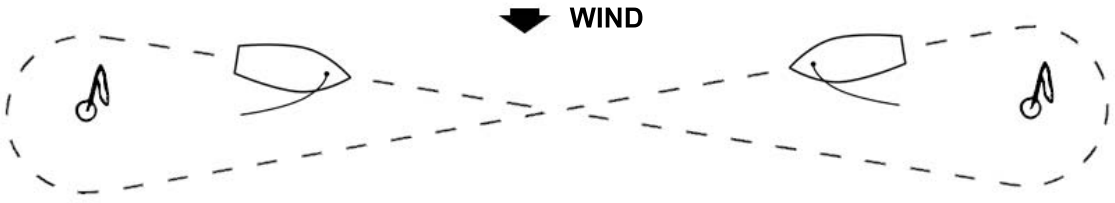


Figure 1. Reaching Course with Two Tacks

Other people will be sailing on this course so you must watch out for other boats. Look before you tack – make sure there will be no boats in your path when you make your turn. If you feel you might hit another boat, remember to point the tiller at the other boat to turn your boat away from it. However, it is better to avoid other boats by making small changes in your course when you are far away from them, rather than waiting until you are too close and in danger of having a collision.

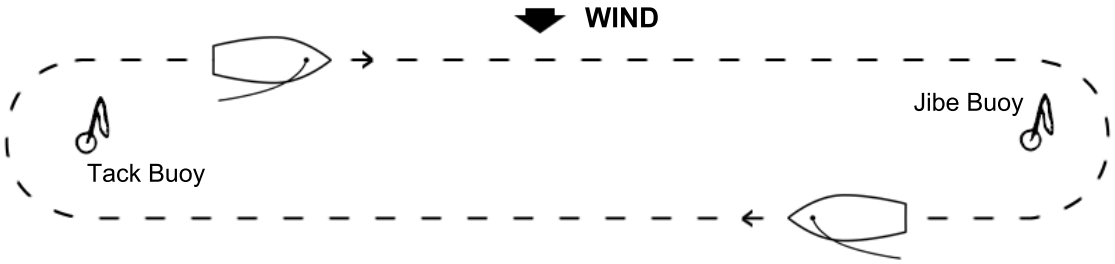


Figure 2. Reaching Course with Tack and Jibe

The second course you will sail will also have two buoys set perpendicularly to the wind. As shown in Figure 2, this course will require one tack and one jibe. You will sail around this course in an oval. As you approach the jibe buoy, think about which way you'll turn. As you start to turn downwind, stand up, switch hands behind your back, sit back down on the opposite side of the boat before you get directly downwind. Watch the wind direction on the tell-tales. After the stern of the boat crosses the eye of the wind (when you are *by-the-lee*), be prepared to duck as the sail jibes over. Then straighten out the tiller and steer towards the next buoy.

Be extra careful jibing around buoys, especially on windy days. Please don't jibe close to other boats as it is possible for one or both boats to lose control.

A third course may be used in the 3rd class. This course has three buoys and will require you to practice sailing *close-hauled*.

Sailing Close-Hauled

Sailing close-hauled means sailing as close to the direction of the wind as possible. For most sailboats, this is about 45 degrees into the wind. When sailing close-hauled, pull the sail in as far as it will go – it should be over the back corner of the boat. Keep the sail hauled in close (unless you need to let it out in a strong gust of wind to keep the boat from tipping). Steering while close hauled requires concentration. You will control the luffing of the sail by changing the direction of the boat. If your sail luffs, turn a bit more downwind. If your sail is not luffing, try turning a bit more upwind. The wind may shift, so you may need to continually make adjustments to your boat's direction.

When you tack, keep the sail hauled in all the way, and try to make a sharp 90-degree turn. You should turn just far enough to fill the sail on the other side.

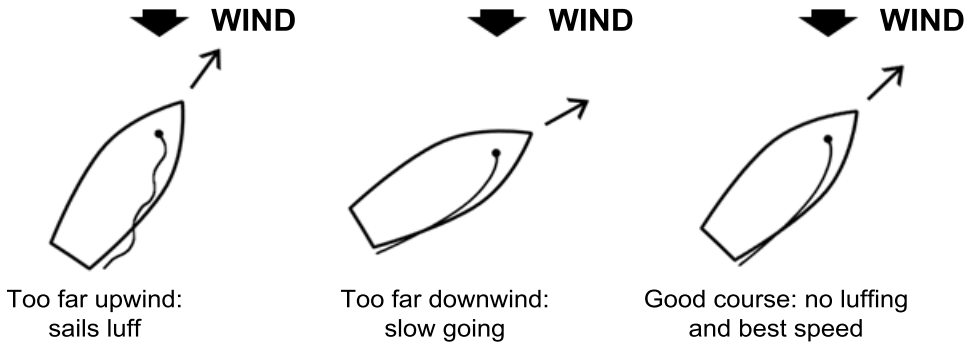


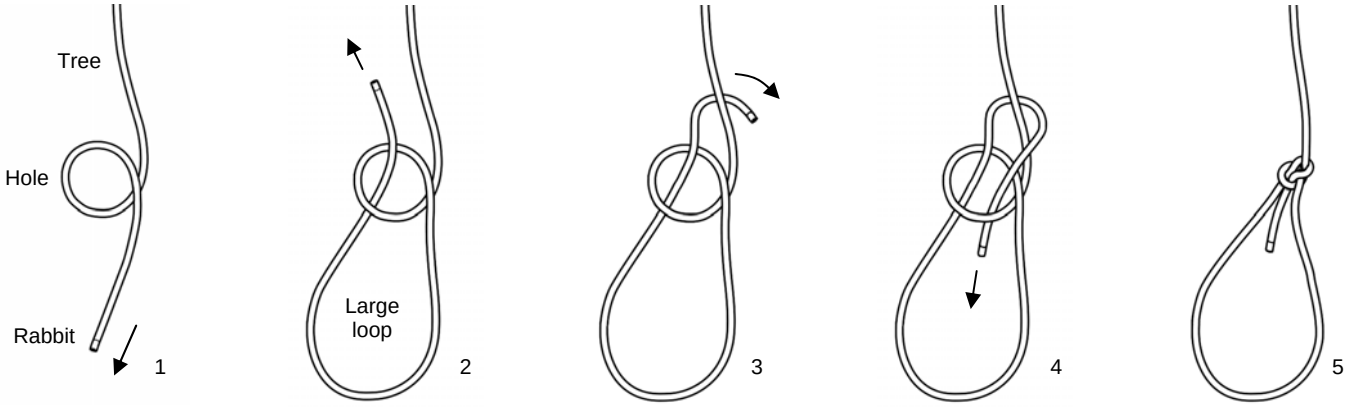
Figure 3. Sailing Close-Hauled

Useful Nautical Terms

- ***port*** – The left side of the boat (as you face forward)
- ***starboard*** – The right side of the boat (as you face forward)
- ***windward*** – The direction the wind is coming from; or, the side of the boat opposite the boom
- ***leeward*** – (pronounced "loo-word") Opposite of windward
- ***bow*** – The front of the boat
- ***stern*** – The back of the boat
- ***forward*** – Toward the bow
- ***aft*** – Toward the stern
- ***close-hauled*** – Sailing upwind as close to the direction of the wind as possible
- ***reach*** – Sailing with the wind blowing over the side of the boat (but not close-hauled)
- ***run*** – Sailing with the wind blowing over the stern of the boat
- ***by-the-lee*** – Running with the wind blowing over the leeward side of the boat (boat is in danger of accidentally jibing)
- ***head up*** – To turn the boat toward the wind
- ***bear off*** – To turn the boat away from the wind (also called falling off)
- ***tack*** – A maneuver where the boat is turned upwind until the bow crosses the eye of the wind, which causes the sail to change sides
- ***jibe*** – A maneuver where the boat is turned to leeward until the sail changes sides
- ***ready about*** – Command issued before commencing a tack
- ***prepare to jibe*** – Command issued before commencing a jibe
- ***jibe ho*** -Warning issued as the sail jibes from one side to the other
- ***in irons*** – Stuck in the water (making no headway) with the bow pointed into the wind
- ***trim*** (of sails) – (n.) The adjustment of the position of a sail to improve its efficiency; (v.) To pull a sail in closer to the middle of the boat.
- ***ease*** – To let the sail out
- ***sheet*** – The rope used to trim in or ease out the sail
- ***luffing*** – Shaking and flapping of the sail due to the sail being eased too far out and/or the boat pointing too close to the direction of the wind
- ***pinching*** – Sailing too close to the wind, causing the sail to luff
- ***trim*** (of boats) – The adjustment of the heeling of the boat by moving weight from side to side
- ***heeling*** – Tipping of the boat to windward or leeward
- ***hiking*** – Leaning your body out to windward in order to hold the boat in proper trim
- ***weather helm*** – The tendency of a boat to turn to windward when heeled by the wind
- ***lee helm*** – Opposite of weather helm
- ***tell-tale*** – Yarn or other wind direction indicator tied to the sail or the rigging
- ***skipper*** – In a small boat, the person steering the boat
- ***crew*** – Everyone in the boat, except the skipper
- ***dinghy*** – A small boat

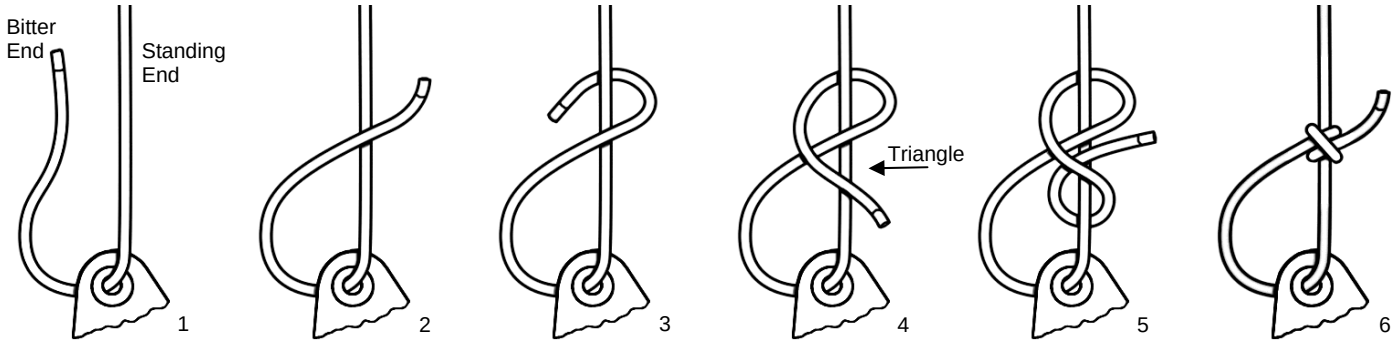
More sailing terms and information at http://sailing.mit.edu/LearntoSail/SailingBooklet/

How To Tie a Bowline



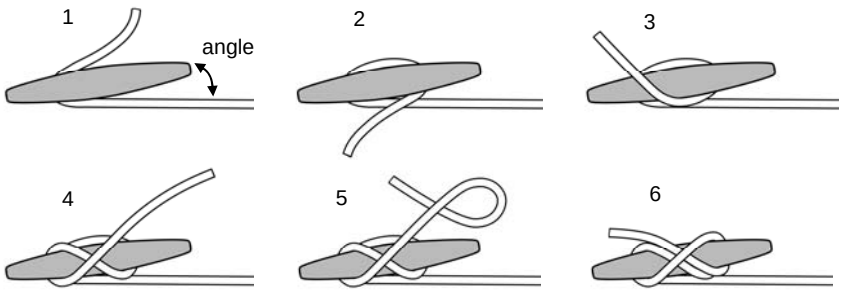
1). Pull the end of the line (the "rabbit") toward you and make a small loop (the "hole") in the middle. The section of line closest to you (the "rabbit" end) must be on the top of the loop.
2). Make a second larger loop by bringing the rabbit up through the hole from the bottom.
3). The rabbit goes around the back side of the tree (it doesn't matter which way it goes around the tree).
4). Then the rabbit goes back down into the hole.
5). Pull the rabbit and tree away from each other to tighten up the knot. Be sure the knot keeps its shape and doesn't turn inside out.

How To Tie a Stunsail Tack Bend



1). Pull the bitter end of the line through the grommet at the top of the sail.
2). Cross the bitter end over and in front of the other line (the standing end).
3). Now cross the bitter end behind the standing end.
4). Spiral the end back down and let it cross both lines coming from the sail to make a pretzel shape with a small triangle.
5). Bring the bitter end around and up through the triangle.
6). Tighten up the knot. Be careful not to turn it inside out. The knot should slide down towards the sail.

How To Use a Mooring Cleat



1). Slip the line under one horn of the cleat. If possible, the line should make a sharp (acute) angle with the cleat.
2). Wrap the line 360 degrees around the cleat. Keep tension on the line so it doesn't slip.
3). After one full turn, cross the line diagonally over the top of the cleat.
4). Wrap the line under the horn and cross diagonally again over the top.
5). Make a small loop in the end of the line. The bitter end of the loop needs to be underneath the standing end. You may need to twist the loop to get it to the right shape
6. Place the loop over the horn of the cleat and snug it up tight.

More useful knots can be found at http://sailing.mit.edu/LearntoSail/SailingBooklet/