



Hythe (Southampton) Sailing Club

Notes for sail training

Source: <http://www.cautionwater.com/category.aspx?categoryid=1>

NAME:

Hythe Sailing Club: Log Card

Date:

Rigging, launching & Recovery

- Can rig, launch & recover dinghy in any wind direction
- Can reef a dinghy ashore according to weather conditions
- Can set up a dinghy according to weather conditions using sail & rig controls

Knots

- Bowline
- Clove Hitch
- Rolling Hitch
- Figure of Eight
- Round Turn & 2 Half Hitches
- Sheet Bend
- Can cleat off a rope

Sailing Techniques & Manoeuvres

- Can demonstrate the 5 essentials
- Can sail on all points of sailing round a triangular course
- Can tack upwind
- Can gybe from training run to training run
- Can right a small capsized dinghy as helm & crew
- Can come alongside a moored boat
- Can prepare for/ take up a tow from a power boat
- Can pick up a mooring
- Can recover a man-overboard
- Can return safely to a beach or jetty in any wind direction

Racing (This is not important but may prove interesting)

- Understands the course & starting procedure

Sailing Theory

- Understands the points of sailing & 5 essentials

Sailing Theory (Contd.)

- Understands the importance of clear communication between helm & crew
- Understands lee shore dangers & sailing in close company with other water users
- Understands advice to inland sailors for coastal sailing
- Knows the importance of personal safety & telling someone ashore
- Understands the dangers of hypothermia & the importance of 1st aid training

Has knowledge of:

- How a sail works
- Basic terminology for use afloat (eg. Windward, leeward, bear away, luff up)
- IRPCS (Col Regs - International Regulations for the Prevention of Collision at Sea)
- Beaufort Scale
- Synoptic Charts
- Tidal Ebb & Flow
- Spring & Neap Tides
- How to recover from a total inversion (turning turtle)

Meteorology

- Knows how to obtain a weather forecast
- Knows when to reef

Clothing & Equipment

- Personal safety equipment
- Boat buoyancy
- Basic safety equipment (eg. Anchor, paddle, bailer)

Hythe Sailing Club Specific

- Is aware of dangers on the slipway (cruisers launching, weed on the slipway)
- Knows how to book out a boat for personal use
- Knows where to find all safety equipment & dinghy gear and where to return them, securely
- Knows about summer afternoon sea breezes

The Sailing Five Essentials

Do you know the five essentials points of sailing? These are just five basic points that are useful to remember when learning to sail.

1. **Sail Trim:** Keeping the sail nice and taught, without allowing it to flap, but not too tight. If you let the mainsheet out slowly, the first part of the sail to start flapping is the luff. Bringing the mainsheet back in until the luff stops flapping gives you the best position for the sail and a trim sail.
2. **Boat Trim:** Keeping the boat, fore and aft, level. With some smaller dinghies you have to sit in different positions depending on the point of sail (sit forward on a beat, in the middle on a reach and at the stern on a run).
3. **Boat Balance:** Keeping the boat, starboard and port, level. This means hiking out on a gust and keeping in with low wind (and while on a run).
4. **Centreboard Position:** The correct position taking sideways drift into account.
5. **Course made good;** aiming the boat in a direction to take account of wind and tide to arrive at your destination

You will begin to act on them instinctively without thinking after a bit of experience.

Boat balance –

- If a yacht is allowed to heel away from the wind, it will tend to turn into the wind or luff up.
- If the boat is allowed to heel towards the wind, it will tend to turn downwind or bear away.

In either case some rudder movement will be needed to keep it on course, which will slow the boat down. Turn the boat using the tiller to the desired course to steer. This may be a definite bearing or towards a landmark, or at a desired angle to the apparent wind direction.

Trim fore and aft - The distribution of crew weight fore and aft is just as important as balancing the boat. The best way to learn the techniques is to practice them, but the idea of shifting your weight towards the wind will help. In other words, that means moving forward in the boat when sailing to windward and moving aft when sailing downwind.

The aim is to adjust the position of the crew forwards or backwards to achieve an 'even keel'. On an upwind course in a small boat, the crew typically sit forward, when 'running' it is more efficient for the crew to sit to the rear of the boat.

Sail setting - A sail should be pulled in until it fills with wind, but no further than the point where the front edge of the sail (the luff) is exactly in line with the wind. As a guide, you will find that any sail, whether jib, mainsail or spinnaker, will set best by letting out until it starts to flap gently along the leading edge, then pulled in just enough to stop that flapping.

Centreboard - As well as driving a yacht forward, the action of the wind on the sails will push it sideways across the water - this is known as making leeway. To prevent this, the dinghy needs more grip on the water, which is provided by a centreboard or daggerboard.

A centreboard pivots around a bolt in its case; a daggerboard is moved vertically up and down. The centreboard should be lowered when sailing "close to the wind" and raised up, on downwind courses to reduce drag. The centreboard prevents lateral motion and allows the boat to sail upwind.

Course made good - This is exactly what it sounds like - the shortest, or quickest, distance between two points.

Together, these points are known as 'The Five Essentials'.

Boat Trim

Boat trim is the balance of the boat, fore and aft. Get it wrong, and you won't sail as fast as you could.

Boat trim is the balance of the boat, fore and aft (ie running along the length of the boat). In light winds, boats should usually be balanced with more weight slightly towards the front of the boat, dropping the nose; the bow of the boat is usually more pointed than the back, and cuts through the water easier, whilst raising the big flat surface area of the back of the boat out of the water, reducing drag, as seen in Diagram 1.



Diagram 1: Sitting too far forward in a boat

In stronger winds, the crew weight needs to be moved slightly towards the back of the boat, between the middle and back of the boat. If the wake of the boat is too rough, you are sitting too far back, as in Diagram 2.



Diagram 2: Sitting too far back in a boat

When the weight balance is correct, the nose of the boat is raised slightly out of the water, and the stern drops into the water more; the large flat area of the stern makes it easier for the boat to plane, or skip over the top of the waves, if there is sufficient wind.



Diagram 3: Sitting in the correct position in a boat

Centreboard Settings

How much centreboard should you use?

- The centreboard on a boat is used to resist sideways forces of the wind trying to push the boat off course. The amount of centreboard required differs depending on the angle of the boat to the wind. Also, the centreboard acts as a pivot (turning point) around which the boat can turn, when tacking, and also helps with steering the boat.
- Daggerboards perform a similar function, the difference between a daggerboard and a centreboard is that daggerboards move vertically inside their cases or slots within the boat, but centreboards rotate around a pivot point, and pivot up into the boat lengthwise.
- Centreboards pivot around a fixed point within its case, up into the boat. This helps it kick back upwards into the boat if it hits anything underneath, preventing serious damage. In comparison, daggerboards on some dinghies only move vertically up and down within their casing, and while cheaper to build, are damaged more easily.
- When sailing closer to the wind, if there was no resistance on the hull to the wind, the boat would be sucked sideways by the wind. The centreboard provides resistance against this pulling or sucking motion, and helps the helm maintain a relatively true course, although there will still be some drift.
- However, the more centreboard that extends underneath the boat, the more the drag (resistance) is increased, which will slow the boat down; therefore, there is a compromise between amount of centreboard to slow sideways drift versus amount of drag slowing the forward speed of the boat.

- When close hauled (sailing close to the edge of the wind), the centreboard or daggerboard needs to be pushed all the way down, to stop windward drift. At this point, the centreboard is also providing resistance to the heeling effect, where the boat wants to tip over away from the direction of the wind

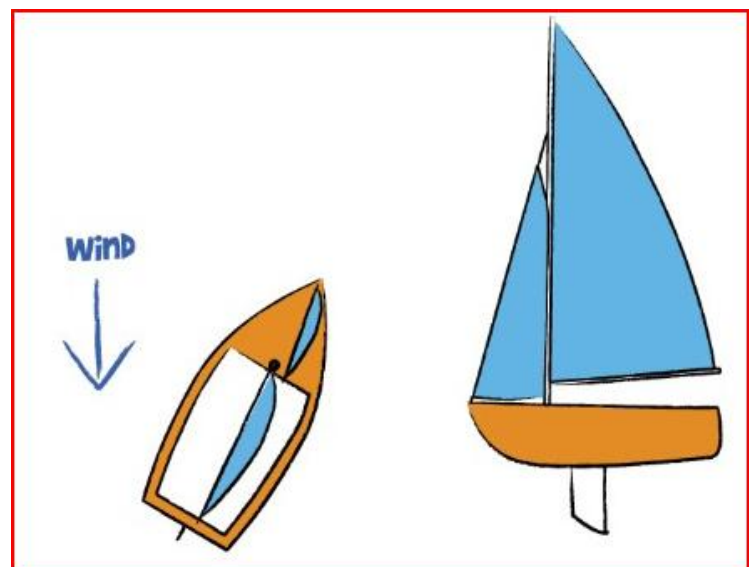


Diagram 1: Centreboard settings for Close Hauled

When on a beam reach, the centreboard should be half-way down, giving a balance of windward resistance to drag (see Diagram 2).

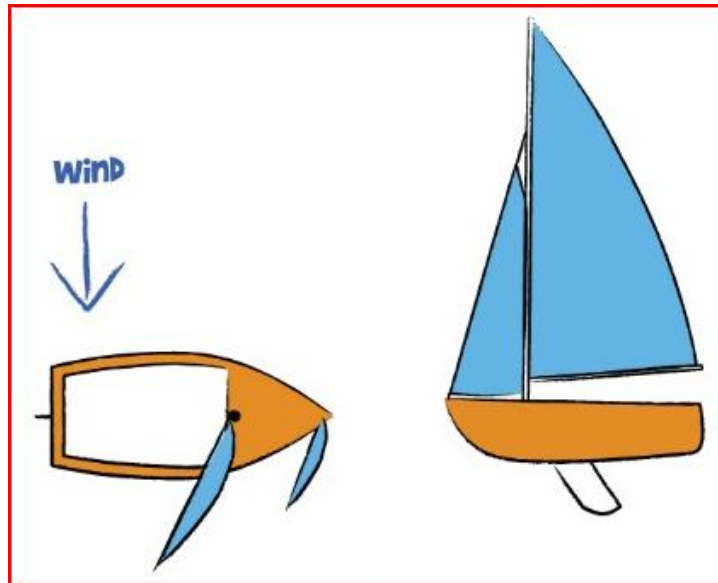


Diagram 2: Centreboard settings for sailing on a Beam Reach

On a dead run, the centreboard should be almost all the way up, with just a few inches extending through the bottom of the boat, so there is little drag (see Diagram 3). With little centreboard in use, there is no resistance to sideways motion, so there will be a rocking effect; if the boat is unbalanced, this effect amplifies, and the boat can eventually death roll if not handled properly, resulting in a death roll.

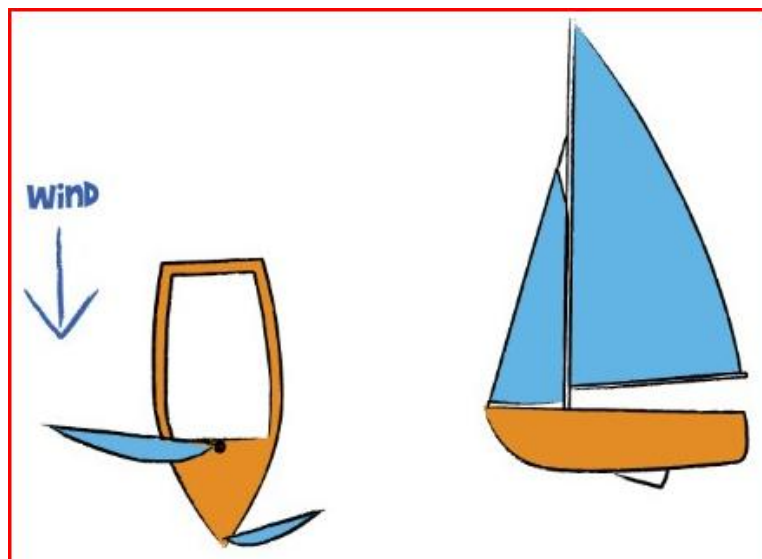


Diagram 3: Centreboard settings for sailing on a Run

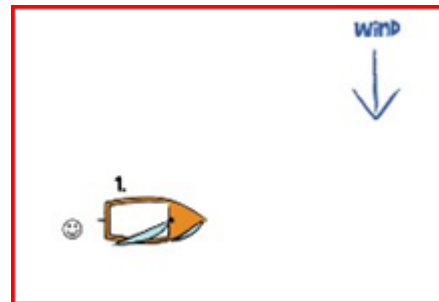
Between these points of sailing mentioned, the centreboard should be adjusted accordingly. If you don't know the [Points Of Sail](#), read the section on this!

Man Overboard

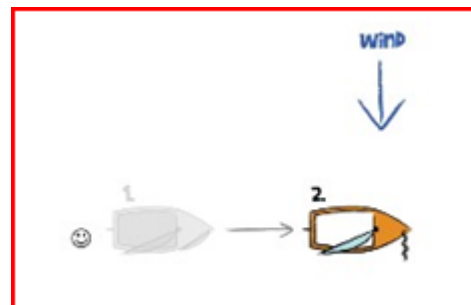
How to save your crew (or helm) when they fall in!

When someone falls out of a boat it's technically known as man overboard, even if it's a woman. Unfortunately, boats don't have brakes, so it's not just a case of stopping the boat and pulling them back in - there's a certain way to do it, without resorting to total panic and devastation!

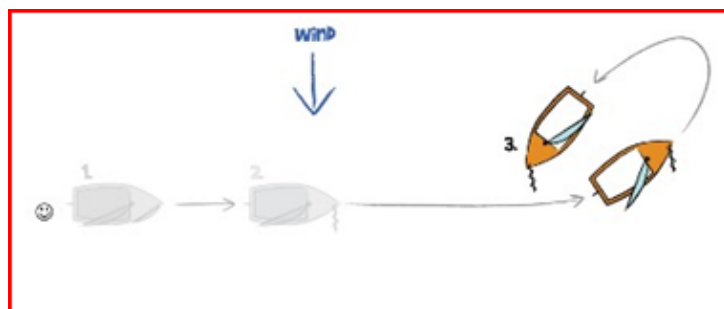
1. Take control of the helm of the boat (if you're not already helming), and check where the person overboard is. If you have any other crew on board, make sure one of them keeps an eye on the person in the water at all times.



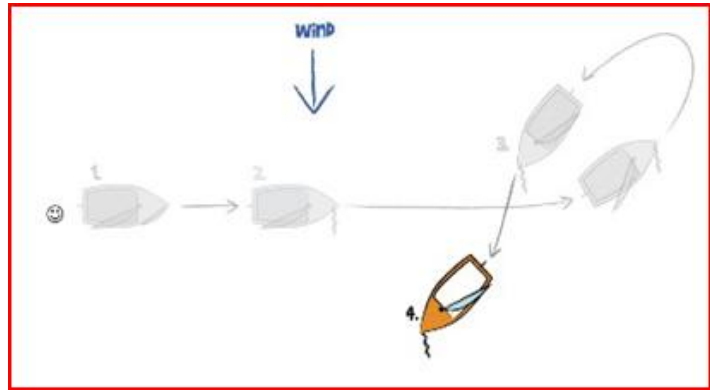
2. Let the jib go free, lower the centre board, and steer onto a beam reach.



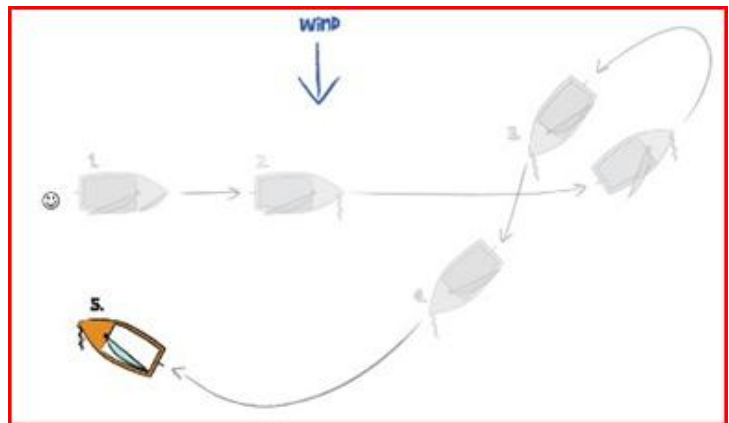
3. Tack from one beam reach onto the opposite beam reach (do not gybe - tacking slows down the boat by depowering the sails) and keep checking where the person in the water is.



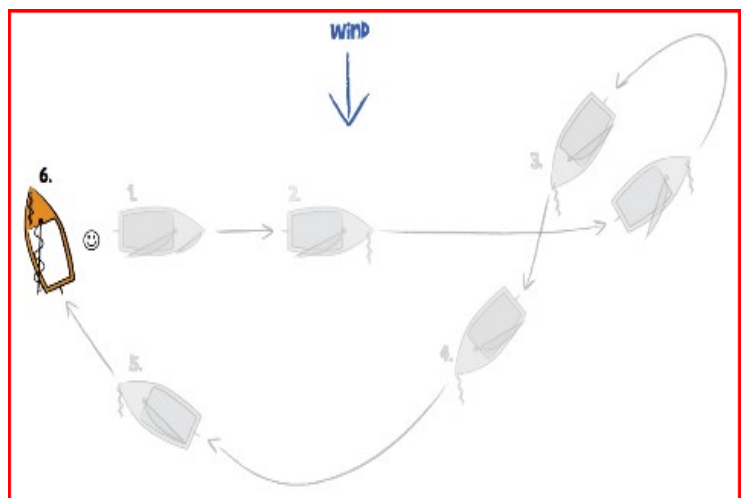
4. As you approach the escapee, bear away (steer away from the wind) onto a broad reach.



5. Luff up onto a close reach (turn closer into the wind), but leave the sails flapping to slow down.



6. When near the evacuee, let the sails go and luff up onto head to wind, so that you stop with the person on the windward side of the boat (the side the wind is coming from). This is important - if you stop with them on the leeward side, the wind can blow the boat on top of them.
7. Grab them by the buoyancy aid and help them climb in. If they're really cold, unless they're wearing the proper gear you should think about going ashore to get them warm.



Sailing Rules and Right of Way

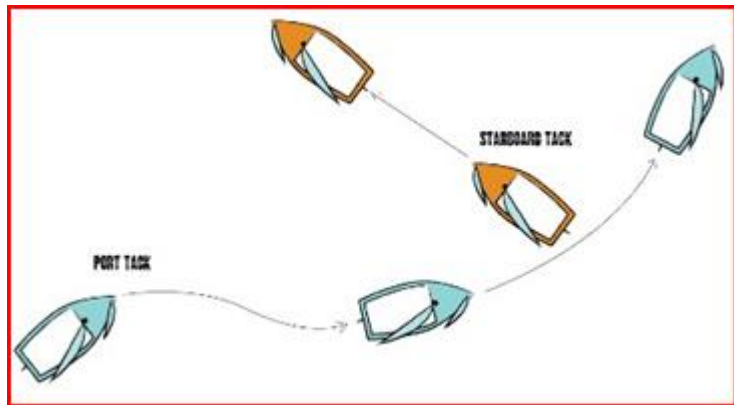
Going sailing is just like going driving - there are certain rules you have to sail by.

Once you get into racing - there are literally hundreds of rules to pay attention to, and if you start venturing into shipping channels and the open sea you have many hazards and things to watch out for - but for general club sailing or cruising, there are four main rules.

Port Gives Way, Starboard OK

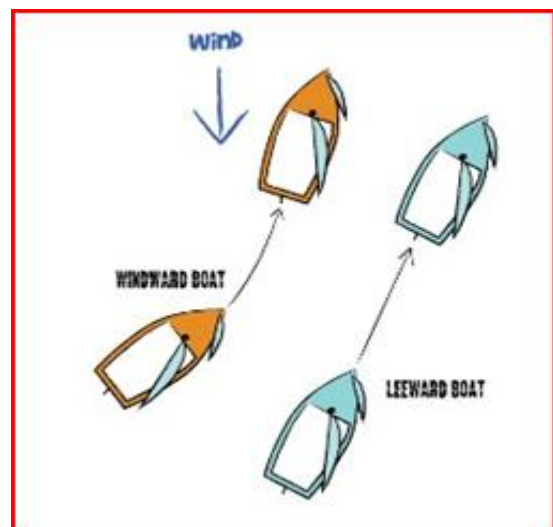
This is where a boat on port tack gives way to a boat on starboard tack. The easy way to tell which "tack" you are on depends upon which side of the boat the helm is (or should be) sat on.

So, if the helm is on the port, or left side of the boat (and the mainsail is on the right side), you are on port tack; similarly, if the helm is on the right (starboard) side of the boat and the sail is on the left side, you are on starboard tack. If a boat is headed towards you, and they shout "starboard", it is generally a warning that you are expected to keep clear.



Windward Boat Keeps Clear

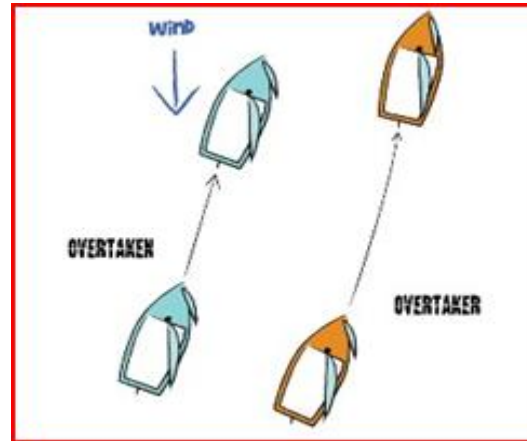
The windward boat (the boat nearest to the wind, or upwind of the other boat), must keep clear and head behind the leeward boat to pass them. There are many racing rules based around this rule and various manipulations of it, but this is the basic rule.



Overtaking Boat Keeps Clear

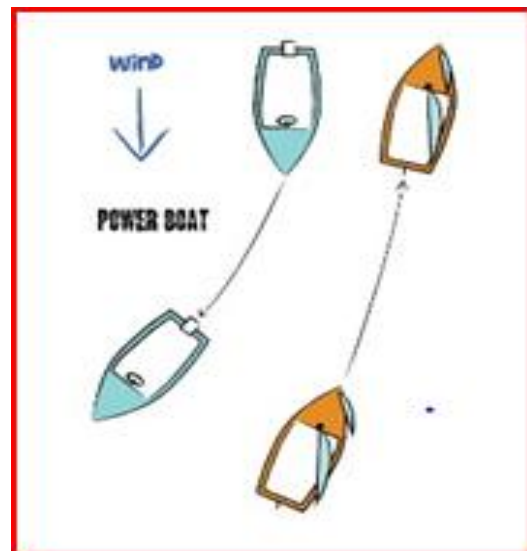
When one boat is overtaking another, they should do it to the leeward side, and the overtaking boat must make every attempt to keep clear.

However, the windward rule also comes into play; the boat being overtaken must not bear away from the wind, towards the overtaking boat, unless the wind shifts accordingly, and if the wind heads (moves as shown in the diagram), the overtaken boat must keep clear.



Power Gives Way to Sail

Whether it is hand power (oars) or motor powered (motor boat), powered boats must keep clear of sail boats. However, this does not override the overtaking rule or starboard rule. This rule does overrule the windward boat keeps clear rule.



Finally...

Although these are the universal rules, it is not to say that everyone will know them or be able to do what you think. So be prepared for some exceptions such as large boats who are not able to change direction because of the depth of water. For example, although power gives way to sail, you can move easier than a 500ft long supertanker, so don't expect it to move. If the other boat is clearly not going to move - you should, to prevent an accident, even if you're in the right.

Recovering a capsize in a double handed boat

This is the capsize recovery technique for a boat such as a Wayfarer or if you have more modern boats, a Laser 2000, RS400 etc.

Unjam sheets - as soon as you realise the boat is about to capsize, unjam all the sheets. This will save you messing with them in the water (see Photo 1).



1. Realising you are about to capsize



2. Check everyone is ok



3. Check everything is still attached

Check crew - when entering water, check everyone is ok and no-one is trapped, check no-one is hanging on to the boat which could make it invert/turn turtle, and check the daggerboard still attached. Ideally it should be all the way down (see Photo 2).

Grab Mainsheet and Swim - the helm grabs the mainsheet and swims around the back of the boat, checking the rudder is still attached. Ideally it should be all the way down. (See photo 2)

Grab main sheet and swim: the helm grabs the mainsheet and swims around the back of the boat checking the rudder is still attached on the way (Photo 3)



4. Pull down on the centreboard



5. lean backwards and pull



6. Scoop in the crew

Grab Centreboard - the helm swims round to centreboard/daggerboard making sure it is fully down (watch the teeth); with a centreboard you can see through the slot to the crew the other side.

Talk to Each Other - the helm asks the crew for the jib sheet if they haven't already thrown it over, (or if the boat has a righting line stand on the centreboard and grab it), and keep communicating with each other to make sure you are both are still ok.

Walking The Hull - the crew throws the jibsheet over, which the helm catches. The helm should lie down in the water, holding the jibsheet, with their feet on the hull, and walk up the hull. The boat will come up slowly at first, as it drags the sail and mast clear of the water (it's surprising the amount of downforce the water can put on the sail), then more quickly as the mast and sail clear the water (see Photo 4, 5 and 7).

Crew lies in boat - the crew should be lying in the water alongside the boat, holding onto the toestraps (but not putting weight on the boat) (see Photo 6).



7. Walk up the hull



8. The boat comes upright



9. The crew is in



10. Crew checks everything over



11. Crew helps the helm in



12. Both back in the boat

Crew scooped in - as the boat comes up, the crew should be scooped inside the hull.

Crew pulls in helm - the crew helps pull the helm into the boat, either over the side or over the transom, by grabbing their bouyancy aid and helping them in (see Photos 8, 9, 10, 11 and 12).

Summary

- | | | |
|---------------------------|----------------------|-------------------------------|
| - Unjam sheets | - Grab Centreboard | - Crew lies alongside/in boat |
| - Check crew | - Talk to Each Other | - Crew scooped in |
| - Grab Mainsheet and Swim | - Walking the hull | - Crew pulls in helm |

Bowline

A **bowline** is one of the most useful knots used for sailing.

It is commonly used for attaching ropes to items such as beackets (a small bar to attach a rope to) on pulley blocks, sails through eyeholes, and other fittings. It can also be put in the end of a piece of rope to create a handle.

Start with a length of rope, as in picture 1. Make a loop in it (picture 2), with the working end on top or in front of the standing end of the rope.



Picture 1



Picture 2

Pass the working end back around and underneath through the loop (picture 3), forming the main loop of the knot. Then, pass the working end around the back of the standing end, from bottom to top (picture 4), and back through the first loop (picture 5).



Picture 3



Picture 4

Pull on the working end and loop and the standing end, to close the first loop up into the knot (picture 6).



Picture 5



Picture 6

Round Turn and 2 Half Hitches

A round turn and two half hitches is one of the most common knots used for tying a boat up securely so it doesn't float off while you're on your lunch break!

To tie a round turn and two half hitches, you will need a length of rope, and something secure to tie it around (not to mention something worth tying up!)

As in picture 1, start by taking the working end around the object to tie to, and then a second turn (picture 2).



Picture 1



Picture 2

Next, take the working end over the top of the standing end (picture 3), then back through the loop that is formed (picture 4), forming a half hitch.



Picture 3



Picture 4

Pull this tight, then repeat, taking the working end over the top of the standing end, underneath, and through the loop (picture 5). If you want to make it even more secure, then just do some more half hitches.



Picture 5

Figure of 8

A figure of eight knot is used mostly as a stopper knot in sailing, for example to stop a rope end coming through a fairlead or eyehole.

The figure eight is the RYA approved stopper knot.

Starting with a length of rope, make a loop (picture 1), then pass the working end over the top of the front of the loop, then around the back/underneath (picture 2).



Picture 1



Picture 2

Bring the working end back around the front and pass it through the loop (picture 3). Pull both ends tight (picture 4) to form the knot (picture 5).



Picture 3



Picture 4

An easy way of remembering this is make a head (picture 1), strangle it (picture 2 and 3), and poke it in the eye (picture 4).



Picture 5

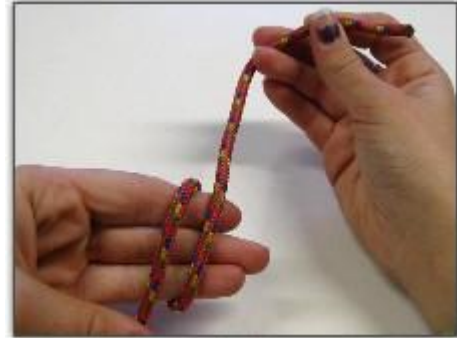
Stopper Knot

A stopper knot is another form of stop knot, useful for stopping ropes passing through eyeholes or fairleads.

This one has benefits over the figure eight knot in that it's easier to make a bigger knot by introducing more turns, and is easy to do.



Picture 1



Picture 2

Start by taking a length of rope, and wrapping it around your hand or fingers loosely (picture 1). Wrap it around your hand a second time (picture 2), then on the third time around, bring the working end of the rope across the front of the coils, and then underneath (picture 3).



Picture 3



Picture 4

Pull on the two ends of the length of rope (picture 4) and off your fingers; when pulled tight, the knot will form (picture 5).



Picture 5

Clove Hitch

A clove hitch is another type of knot used for mooring a dinghy for short periods of time.

There are two ways to tie the clove hitch.



Picture 1



Picture 2

Method One - No free ends

The first method is used when tying up to something that you can't access an end, for example if both ends are embedded in concrete. Take the working end of a length of rope around the object (picture 1), bringing it back over the top of the standing end (picture 2).



Picture 3



Picture 4

Then, make a second turn over the object in the other direction (picture 3), then bring the working end around and back up under turn just made around the object (picture 4).



Picture 5 Pull it tight to form the knot (picture 5)

Method Two - One free end

The second method can be used when you have access to an end of the object, to drop loops over it. First, make a loop in the rope (picture 6), with the working end on the back of the loop, then make a second loop in the same direction as the first (picture 7).



Picture 6



Picture 7



Picture 8



Picture 9

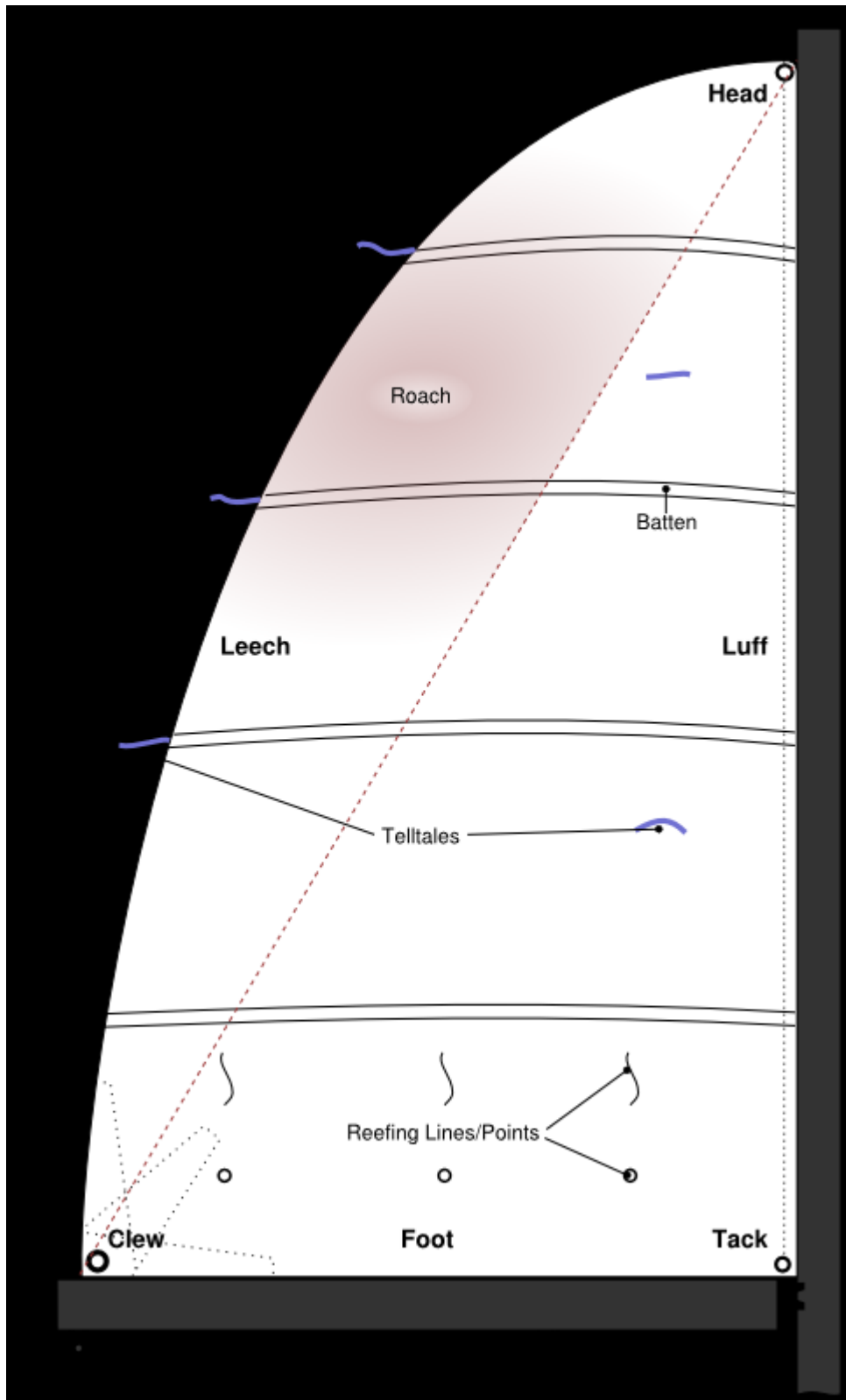
Next, bring the second loop forward and place it in front of and on top of the first loop (picture 8). Now, drop the two coils together over the object (picture 9) and tighten to form the knot (picture 10).



Picture 10

To make a clove hitch more secure, use a longer working end, so there is more rope that will have to slip through before the knot is lost and the boat drifts off, and a call to the coastguard is in order.

Names of parts of the sail



Glossary

Confused about some sailing terms? Check out the glossary below.

A

Aft - The back of the boat

Astern - Behind the boat

B

Battens - Thin flexible strips of wood or plastic inserted into slots in the mainsheet to help it form its shape

Beam - The greatest width of the boat

Boat - That thing you sail in

Boom - The spar section running horizontally out from the gooseneck on the mast to which the bottom edge of the mainsail is attached. Also, the noise it makes off your head when you don't duck quick enough.

Bow - The front of the boat

Buoy - A float, usually anchored, used for marking a position on the water, or an underwater hazard.

C

Capsize - To tip the boat in the water until it is on its side

Catamaran - A two or even three-hulled boat (technically a trimaran). Catamarans are typically faster than dinghies.

Centreboard - A pivoted foil that extends underneath the boat to counteract sideways push of the wind and prevent leeway (the boat slipping sideways)

Cleat - A deck fitting which a line or sheet passes through, and can be secured in. There are a number of types, including clam cleats or jammers.

Clew - On a triangular sail (such as a main or jib), the aftmost corner. On a symmetrical spinnaker, there are two clews, left and right.

Course - The direction in which the boat is steered

Cunningham - A rope or rigging system used to pull down the luff (front most edge where it meets the mast) of the mainsail, to flatten the sail. Also called a downhaul.

D

Daggerboard - Similar function to centreboard, but raised directly up and down rather than on a pivot. The Daggerboard counteracts sideways push of the wind and prevent leeway

Downhaul - A rope or rigging system used to pull down the luff (front most edge where it meets the mast) of the mainsail, to flatten the sail. Also called a Cunningham.

F

Fairlead - A deck fitting used to alter the direction of a line (rope), such as a turning block.

Foot - Bottom edge of the sail

Fore - Towards the front of the boat

Forestay - This is the wire at the front of the boat attached to the mast, helping to hold the mast up

G

Gaff - A spar attached to the top edge of a sail, such as on a mirror, giving rise to the term "gaff-rigged"

Gooseneck - The fitting on the mast onto which the end of the boom slots. It always can move side to side, and sometimes up and down.

Gunwale - The upper edges of the sides of the boat

Gybe - The act of turning the stern of the boat through the wind, this can be a quick action manoeuvre in strong winds

H

Halyard - A line used to hoist a sail, usually running up the inside of the mast

Head - On a triangular sail, the top corner

Header - When the wind moves forward, forcing you to bear away to stay on a beat

Helm - Generally, the person in charge of the direction and steering of the boat

Hiking - After securing your feet in toe straps or similar devices, leaning out of the boat backwards in an attempt to keep it flat.

J

Jammer - A deck fitting which a line or sheet passes through, and can be secured in. There are a number of types, including clam cleats or jammers.

Jib - Small sail in front of the mast, usually controlled by the crew

L

Leech - The back edge of the sail

Leeward - The direction away from the wind. On a dinghy, typically the side of the sail the wind is not coming from, opposite to windward.

Leeway - Sideways drift of a boat caused by either wind or current

Lines - Ropes used for various purposes on a boat. When attached to sails, they are called sheets.

Luff - The forward edge of a triangular sail, on a mainsail or jib typically the side closest to the mast.

Luff Up - To turn the boat more into the wind, or closer to the edge of the wind.

M

Mainsail - The sail aft of the mast, also attached to the boom. Usually the largest unless a spinnaker is in use.

Mast - Made from metal or wood, the spar the sails are hoisted up

Mast Step - The fitting on which the bottom of the mast sits.

Mechanical Advantage - Using blocks or pulleys and a longer line, a method of increasing a force, for example if sufficient blocks are used to pass the working end of a rope back and forth around and between them 4 times, it is said to be four to one, or 4:1. The person using the line only has to exert the same amount of previous force to now get roughly 4 times that amount of resulting force.

O

Outhaul - A line or rigging system used to pull the clew (bottom aft corner) of the mainsail towards the end of the boom, tightening the foot of the sail and controlling its shape.

P

Planing - If a boat is planing, it is moving across the top of the water rather than through it - this causes less friction, but requires speed to start.

Port - The lefthand side of the boat

R

Rake - The amount the mast is angled forwards or backwards. The rake can be altered by adjusting the position of the shrouds and the tension of the forestay, depending upon wind conditions. It should usually be slightly aft.

Reach - A mode of sailing

Reef / Reefing - Reducing the size of the sail maybe due to strong winds

Rigging - The lines that hold up the masts, such as the forestay and shrouds. Also known as standing rigging.

Roach - The curved part of a sail, or the curve of the sail

Rudder - Attached to the back of the boat, The thing that turns the boat and controls the direction in which the boat is sailing

Run - sailing with the wind behind the boat

Running Rigging - Any lines that control in some way the sails, be it halyards, outhauls, downhauls or sheets. They are not typically fixed.

S

Sail - A piece of cloth or canvas, used to power a boat.

Sheet - Rope that controls a sail

Shroud - Wires which are attached to the mast from the sides of the boat, helping to hold it up.

Spar - A pole or length, such as a mast, boom or bowsprit.

Spinnaker - A usually large sail, symmetrically or assymmetrically shaped, that is hoisted on the front of the boat when running downwind or almost downwind.

Spinnaker Pole - A less permanent, smaller version of a bowsprit, which the crew uses to set the spinnaker sail.

Spreaders - Horizontal struts extending out from the mast to the sides of the boat, usually supporting the shrouds, changing their direction as they go upwards.

Starboard - (Facing fore/forward) the right side of the boat

Stern - The back of the boat

T

Tack - The method of turning a boat through the wind from one reach to another

Tack (Sail) - The bottom forward corner on a triangular sail. Not to be confused with tack, turning the boat through the wind.

Tiller - The stick attached to rudder, which in turn steers the boat

Tiller extension - the tiller extension is attached to the tiller which helps steer the boat

Toe straps - Straps to tuck you feet under when you hike or lean out to balance the boat, also come in handy to hold on to when pulling yourself in the boat after a capsize

Transom - The flat or sometimes curved back of the boat

Trapeze - A wire extending out from high up the mast, down the side of the boat, to allow the crew or helm to clip onto using a harness, and lean out, putting more weight outside of the boat than would usually be possible.

Traveller - A fitting on the boat through which usually the main sheet is attached to or passes, to allow it to be moved from side to side to help adjust the sail

Trim - Keeping the boat level fore and aft

W

Windward - The direction the wind is blowing from