

Learning to Sail the Tech Dinghy - Sunday Morning Class Notes

Developing Sailing Skills

Sailing is fun and easy to learn! Today we'll jump-start your sailing skills by giving you **basic** instruction and time on the water in a **Tech Dinghy**. You cannot learn to sail by reading a book or watching someone else - you have to try it yourself and get the immediate feedback of seeing and **feeling the boat respond to your actions**. The more you sail, the more expertise you'll acquire until the technical aspects have developed into an innate skill.

Swimming

Everyone must know how to swim sufficiently (100 yards, and tread water for 10 minutes - the MIT Boating Test) before going out in a boat. This is non-negotiable!

Three Critical Things You'll Need To Learn

- **Balancing** - Keeping the boat from tipping over too much
- **Steering** - Pointing the boat in the direction you want to go
- **Using the Wind** - Putting the sail in the right spot to make the boat move

Balance

Most of you will want to keep your boat from tipping over while you are sailing. The best way to do this is to use your weight to balance the boat. The **Skipper** (the one steering) should be on the opposite side from the sail, sitting on the seat, facing the sail. Both feet should be in the back part of the boat. If the wind picks up, you will need to sit up on the edge of the boat and hook one or both feet under the seat (to avoid falling out).

The **Crew** (anyone in the boat who is not steering) sits in the front of the boat, typically under the sail to counter the skipper's weight on the other side of the boat. The crew assists, only when the skipper needs help to keep the boat flat, by moving to one side or the other as appropriate.

Steering

Look where you are going and keep the **tiller** (wooden stick attached to the rudder) in the **center** of the boat. You will need to experiment by pushing the tiller off-center in each direction until you develop a feel for how the boat responds. It helps to practice by aiming for a specific target (a buoy or building) and see how small adjustments each way change your course.

We encourage you to use the **extension** attached to the tiller as soon as possible as this will help you sail better (you can't balance the boat and still steer effectively without it). Initially it will make things more complicated, but remember that to steer straight it's the wooden part that needs to be centered. **Don't let go of the tiller and always look forward!**

Wind (and Sail Trim)

Always know where the wind is coming from. In order to steer the boat, it needs to be moving. In order for the boat to move, the wind needs to be acting on the sail. Going downwind (wind behind you), you want to let the sail all the way out to capture as much wind as possible pushing against the sail.

As you head upwind, you'll need to pull in the **rope that controls the sail**, generally lining up the sail parallel with the wind. If the sail is flapping loosely (**luffing**), pull it in more until it is smoothly curved. If it is not luffing, try letting it out a bit (as long as it doesn't begin to flap). Keep it as close to the luffing point as possible. The wind often switches direction on the Charles River - when this happens, you will have to make adjustments to your sail and sometimes the steering too.

You can't sail directly into the wind, or within about 45 degrees on either side of it. If you end up pointing too close, try to steer away from the wind until the sail can be pulled in to the point where it is no longer flapping. If you get completely stuck heading into the wind, paddle with the rudder until you have enough forward motion to turn one way or the other.

If it is windy and the boat tips more than you can control, let the sail out (**let the rope out**) until you can balance it again.

Tacks and Jibes

Today you will mostly be turning by pointing the front of the boat into the wind (**tacking**). Once you have some speed, **push the tiller towards the sail**. The boat should start to turn and eventually the sail should move from one side of the boat to the other. As the sail passes the center of the boat, the skipper and crew switch sides. The skipper should **stand up facing toward the front of the boat and switch the tiller hand behind the back**. Sit down appropriately across from the sail. Keep turning (now the tiller will be closer to you and away from the sail) until the boat is aiming in the opposite direction. Now **center the tiller so you stop turning. Adjust the sail** as necessary. If you face forward as you turn you will be able to better keep track how far you have turned. It helps to pull in the sail as you tack, letting it out again after the sail crosses to the opposite side.

You may also wish to try turning with the wind behind you (**jibing or gybing**). This tends to be much more difficult than tacking in heavy wind, so start off practicing in light wind. **Pull the tiller away from the sail** (closer to you) and **let the sail out almost all the way**. The boat will turn downwind. Once the wind crosses directly behind you, pull the sail across (**duck!**) and **let the sail all the way out** on the other side. Move as the sail crosses over to make sure you end up across from the sail and can balance the boat. Keep turning until you are aiming for an appropriate spot again. Then **stop turning** (put the tiller in the center of the boat). **Adjust the sail** as necessary.

Sailing Around

There are two general methods of sailing: Set your direction and then adjust the sail, or set your sail and then adjust your direction to match it.

Today we will mostly be doing the first as we go back and forth between two buoys. But if you need to work your way upwind, the most effective method is to pull the sail in all the way and steer to head upwind as much as possible, keeping the sail full (sailing **close-hauled**). Periodically, you will need to **tack** so you can zig-zag your way upwind.

Rigging The Tech Dinghy

Though we will quickly show you how to **rig** (put together) and un-rig the Tech Dinghy, we will expect you to follow-up on your own in learning the details. On your next visit to the Pavilion (or even better, before), learn the **Figure Eight, Bowline, and Stunsail Tack Bend** knots. Don't be afraid to **ask for help** from the **dock staff** or **anyone hanging around** who looks reasonably knowledgeable. The Tech Dinghy is a relatively simple boat, but similar features and equipment will show up on just about any boat you will ever sail, so it is useful to understand how the boat is rigged.

References and Follow-up

We won't cover even as much of the basics as we would like to today, so we encourage you to use your own initiative in learning more – most importantly, go out on your own **as soon as possible** to burn in and enhance the skills you learn today. The *Sailing & the Tech Dinghy* booklet, available on the MIT Sailing web-site (<http://sailing.mit.edu/LearnToSail/SailingBooklet/>), is a useful source of information including knots, names of parts of the boat, and other terminology. You can also find a link to the latest OpenCourseWare from the Sailing PE class (including lecture notes and videos) at <http://sailing.mit.edu/LearnToSail/OCW.php>. The dock staff and other experienced sailors are generally quite helpful and supportive of new sailors (everyone was a beginner once!) So go sailing and have fun – see you on the water!