

Boat in a Box Manual

Thank you for purchasing our “Boat in the Box” package. **Educational Passages** wants this program to be a memorable, exciting, and worthwhile educational experience. These boats are good sailors, strong and usually cross oceans and survive hurricanes. Our Board of Directors is very knowledgeable about the sea and consists of two captains, a maritime academy professor, a NOAA research oceanographer, educators, and solo-sailor. We want to assist you in any way we can to make this as interesting as possible for your students. Read through this entire manual before you start to build and email us with any questions you may have. We encourage you to take advantage of our friendly staff and hope you’ll communicate with our experienced professionals. We can arrange launching and advise you in recovery and re-launching and supply you with replacement parts as needed.

Important Contacts

Call or email us with any questions or concerns. We are here to help if you need it!

Dick Baldwin

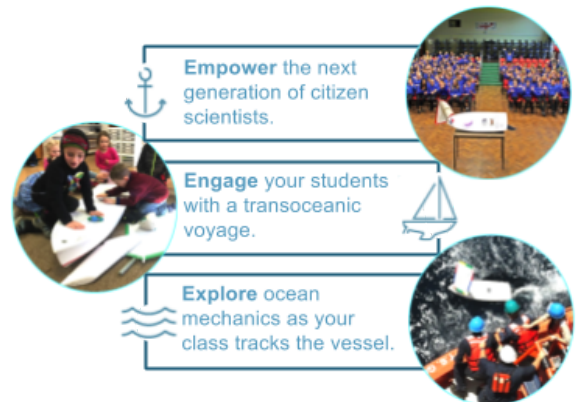
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IMPLEMENTING YOUR PROGRAM

Included in this packet are instructions for assembling, launching, monitoring, and retrieving your boat. Please read through this document before beginning assembly to make sure everything is in order.

Boat Assembly

Along with the materials included in the “Packing List” at the beginning of this booklet, there are a few materials and tools you will need to bring to the assembly stage.

What you’ll need

- 60 or 80 grit sandpaper
- Masking tape
- Duct tape
- Anti-fouling bottom paint (manufacturers like Petti and Seahawk are good)
- Paint brushes
- Rubber gloves(provided)
- Six 10 Epoxy Thickened Adhesive (Provided)

Installing the Keel

1. Thoroughly sand the tab on top of the keel as well as the inside of the keel slot on the bottom of the boat. You need to sand the wax off these parts and remove any loose gel-coat to ensure a solid bond.
2. Place the keel into the slot to check the fit. Hopefully it slides all the way in and the keel is vertical (see picture to the right). If not, you’ll have to do some more sanding or a little grinding.
3. Once you’re happy with the fit turn the boat upside down in a corner of the shop, coat the keel tab and the inside of the keel slot with the Six 10 thickened epoxy that was provided in your kit.
4. Slide the keel in place. Then slide the boat back until the point of the back of the keel is against the wall and brace the boat with weights as shown (see picture to the right) so the keel can’t slide out of place.



5. Check to make sure the keel is vertical. If not, use masking or duct tape from the bottom of the keel to the sides of the boat to hold it vertical while the glue dries.
6. Take your finger (wear a rubber glove) or a popsicle stick and go around the base of the keel spreading the epoxy to make a nice fair smooth joint. This will also fix or hide any chipping of the gel coat around the edge of the keel which is almost always there.
7. Check again to ensure the keel is vertical and properly seated all the way into the slot.
8. Let it cure for at least 12 hours.

Installing the Mast

1. Fit the 1" fiberglass washer around the bottom of the mast. The bottom of the mast is concave and the top is smooth & rounded.
2. Check that the mast fits properly into the hull. The mast should slide in 5 to 6 inches.
3. Sand the bottom 6 inches of the mast and inside the mast slot so the epoxy will form a solid bond. When you are sure it fits properly make sure the 1" washer is around the mast and properly sanded.
4. Liberally squirt an ample amount of Six 10 thickened epoxy deep down into the mast slot, around the bottom 5 inches of the mast and place a glob on the very bottom of the mast to glue it to the bottom of the boat.
5. Slide the mast all the way into the mast slot. Slide the washer down to epoxy it to the deck to ensure you don't get leaks around the mast. Wipe up excess epoxy.
6. Let the epoxy set up for 12-24 hours.



Attaching the Sail

Slide the sail onto the mast with the batten in front of the mast. Lash the lines from the deck eyes to the sail securely. Don't tension them as it would increase wear on the top of the sail. These lines are only primarily to keep the sail from sliding off the mast.

Sealing the Hatch

Boats have a large watertight compartment of approximately 14" X 17" X 4 1/2" that is accessible through a removable deck hatch cover. In here is where you should add the Finders' Instructions (see below) and include your contact information along with any other things you'd like to share with schools across the sea (suggestions below).



Use the sealant provided in the water tight compartment to put a continuous and generous line of sealant all the way around the rim of the compartment as indicated by the black lines in the photo. Go from screw hole to hole and go right over the holes. Then put another continuous line of sealant inboard of the previous line of sealant to ensure watertight integrity. Then replace the hatch cover and fasten down with the screws. Don't overtighten the screws as you don't want to squeeze all the sealant out of the joint. You might want to put another bead of sealant into the recess between the deck and the hatch cover.

Preparing the Hull

These boats are continually wet and barnacles will grow up on the sides, slowing your boat down. To prevent this from happening, you should apply at least two coats of a good marine anti-fouling bottom paint to the hull (a task better suited for the adults). Unfortunately, we can't ship paint through the mail. The water based paints (Petti and Seahawk) seem to work really well and are less messy than the old oil based paints. For best results we recommend you paint the bottom and the sides right up to the deck level. Do this just before launching so students are not exposed to any toxicity in the paint. Don't forget to thoroughly sand the boat before painting.

Installing the GPS

We will need to program, and turn on your GPS at our facility. To ensure it is done properly, tested out, and has a fresh battery we will send you your unit before your launch date. Please notify us one month prior to your launch date and we'll start getting your unit ready. We will program your GPS unit and set it to report your boat's position twice daily. Battery life is for up to 2,000 reports, and the first 1,000 reports are covered in your package for the first voyage. We will mail you installation instructions when we mail the unit.

Finders' Instructions

Instructions to the finders are provided in five languages and suggest the finders take the boat to a nearby school. We suggest you place the paper copy we provided in a Ziploc bag into the watertight compartment. A copy of those instructions is included below for reference. You will probably want to add much more information about your school and where you live for the finders. We've provided more details in the next section.

ENGLISH: This boat is part of an educational program and people around the world are following this mini boat across the ocean on their computers and in their hearts. If found at sea please repair as needed, add a message to the compartment, and send the boat off again. If found on shore take the boat to a nearby school so more students can learn. Please keep the boat upright so the GPS has a clear view of the sky and we can all continue to follow the voyage at http://www.nefsc.noaa.gov/drifter/drift_ep_2017_1.html. Contact us when you can.

Español: Este barco es parte de un programa educativo y la gente de todo el mundo están siguiendo este mini barco de vela a través del océano en sus equipos y en sus corazones . Si se encuentra en el mar, por favor reparar según sea necesario , agregar un mensaje en el compartimiento , y enviar el barco de nuevo. Si se encuentra en la orilla tomar el barco a una escuela cerca para que más estudiantes puedan aprender . Por favor, mantener el bote en posición vertical por lo que el GPS tiene una vista clara del cielo y todos podemos continuar siguiendo el viaje en http://www.nefsc.noaa.gov/drifter/drift_ep_2017_1.html. Póngase en contacto con nosotros cuando puedas.

Français: Ce bateau fait partie d'un programme éducatif. Les gens à travers le monde suivent ce mini voilier à travers l'océan sur leurs ordinateurs et dans leur cœur. Si découvert en mer s'il vous plaît réparez au besoin , ajoutez un message pour le compartiment , et envoyez de nouveau le bateau au large . Si trouvé sur le rivage prendre le bateau à une école voisine pour que plus les élèves peuvent apprendre . S'il vous plaît gardez le bateau à la verticale de sorte que le Gps ait une vue dégagée sur le ciel de sorte que nous puissions tous continuer à suivre le bateau http://www.nefsc.noaa.gov/drifter/drift_ep_2017_1.html. Contactez-nous quand vous le pouvez .

PORTUGUÊS: Este barco é parte dum programa educacional e pessoas ao redor do mundo seguem este mini-barco navegar à vela através do oceano nos computadores e nos corações deles. Se for encontrado no mar favor de reparar conforme necessário, adicionar uma mensagem para o compartimento, e despachar o barco de novo. Se for encontrado na costa favor de levar o barco para uma escola perto, para mais alunos poderem aprender. Favor de manter o barco na posição vertical para o GPS ter uma vista clara do céu e todos podermos continuar a seguir a viagem em http://www.nefsc.noaa.gov/drifter/drift_ep_2017_1.html. Contacte-nos quando poder.

中文: 这艘船是一项教育计划的一部分。这个教育计划旨在让全世界的人们从电脑和心灵上跟着这艘小船穿越大西洋。如果您在海上发现了它, 请根据需要修理它, 留下相关维修信息并再次让它启航。如果发现它搁浅在岸上, 请把它拿到附近的学校, 好让它的学生可以学习了解。请保持船身直立, 这样GPS就可以从天空获得清晰的信号, 我们可以在 http://www.nefsc.noaa.gov/drifter/drift_ep_2018_1.html 全程追踪。当你需要, 请联系我们。

Sharing your Story

As mentioned above, boats have a large watertight compartment that is accessible through a removable deck hatch cover. In here is where you should add the Finders' Instructions and anything you'd like to share. We recommend writing a letter to the "finder" and adding it to the ziploc bag with Finders' Instructions. Please include the following information at a minimum:

- Your school's story
- Your contact information for when it is recovered
- Note to suggest they keep the boat outdoors & right side up so you and everybody else can continue to monitor it where your boat is.

This program is a great opportunity for international collaboration. You can work with your students to include things about your school and your country so that the receiving school can learn more about you. If your boat is successfully recovered and brought to a nearby school, you can invite them to video conference with your classroom and have them share their stories! Be sure to save a copy of your letter and share with us. Here are some prompts for global connections:

- **Culture & the Classroom**
 - What is the primary language spoken in your school?
 - What other languages are spoken in your school and community?
 - What are the most common religions practiced in your community?
- **Environment & Geography**
 - Is your school in the country, in a town, or in a city?
 - What are the main environmental problems that affect your community?
 - What is the closest body of water to your school?
 - Would you swim in that body of water? Why or why not?
- **Government, History & Economics**
 - What currency do you use and what is the exchange rate to the United States Dollar today?
 - What form of governance does your country have?
 - When was your country founded?
 - What are the main sources of employment in your community?
 - What are the primary industries in your country/state?

Other suggestions include:

- | | |
|----------------------------|--|
| ● Flash drive | ● Trinkets, old coins, fool's gold, etc. |
| ● Pictures | ● Notes, messages |
| ● Maps of your town | ● Local recipes |
| ● School flyer or brochure | ● Jewelry |
| ● School tee shirt or cap | ● State flower |
| ● Sea Glass | |

Boat Customization

You can customize your boat as you wish by adding graphics, putting a picture of your school or club on it, painting it and autographing it. Make sure the name of your boat is on there (and make sure to tell us what name you came up with and how). Work with your art teacher and add a design to the sail. Check out the photos of other boats on our website for further ideas. If you make it clear this is a student boat, you'll be more likely to hear from the finders. Add a name and homeport on the stern of your boat, a school decal or anything else you'd like.

Caution: Pastel and light colors fade in the sun so use dark colors.

Launching

You should now be ready for launching, how exciting! Before this point you've hopefully reached out to us to discuss your deployment plans. Are you launching it where it should make a nice long voyage to perhaps contentment? Check with us or some other professional who knows the currents and winds in your area before having your boat launched. We have numerous launching sites off both the east and west coasts of the United States where we know your boat will have a good chance of riding the right winds and currents to sail to faraway lands. If you use our launching service your boats could be launched off a commercial fishing boats, container ship, maritime training vessel, NOAA research vessel or private yacht. It also will most likely be launched with several other boats which makes for more interesting trips and comparisons. There is no charge for pre-arranged launchings but you may want to launch your boat on your own. We do suggest you ask us for advice before you launch.

Pre-launch Checklist

Once you're ready to deploy and have been given the "go-ahead" from us, double check everything by reviewing the following:

- Did you thoroughly sand any parts you glued or epoxyed together? It is OK if you sand the white layer of gel-coat off.
- Did you apply two coats of good antifouling bottom paint?
- Is the deck plate cover screwed down tightly and is the little black rubber washer or O-ring in place to ensure its water tight?
- Did you check with us to ensure her GPS position reports are coming in? Is your boat posted on our website and have you told us about your plans?
- Did you send us photographs and a write up on your boat so we can post your boat to the website?
- Are you confident about your launch site and plans? We recommend you check out your proposed launching site with us to improve your chances for a long voyage. You must get it in the right wind and currents for long ocean passages.

Boat Monitoring/Tracking

After you've launched your boat, visit your boat's page on the Educational Passages website, www.educationalpassages.org! There you will find a map with your boat's track, the story and any pictures you shared, and the latest data coming through the satellites along with links to download the data. You can visit the Active boat map and see what's happening around your boat and check out other boats, too! As your boat sails across the sea (hopefully), check out the resources available for educators to extend the learning. Visit the Educators section of our website for more information.

Boat Retrieval

One of the most enjoyable and exciting aspects of this program is arranging for the recovery of your boat. As your boat approaches shore you should make arrangements so it doesn't crash on the coast. Realize that these boats sail directly downwind so the she will land with the waves directly behind. These boats can get smashed up on the coast if the surf is up and they are not recovered shortly after landing. You might try to get your boat picked up at sea or get students to meet it as it comes ashore. Most of the time however there isn't enough time to make prior arrangements but be prepared by doing the following once you think you know where it's coming ashore:

- Email the Harbor Master and ask him to tell the fishermen about your boat. They like this stuff and might pick it up at sea.
- Use Google Maps to find and contact nearby schools.
- Email media (newspapers & television) and ask them to notify their coastal residents to look for your boat.
- Utilize social media - Facebook and Twitter especially. This has been used with great success as an alternative to email blasts.

We have found the more people you have trying to track down your boat the better. It is amazing how often someone involved in the search says "hey my uncle used to live there", or "my father has a friend in that country". If you copy Info@educationalpassages.com we'll post your recovery efforts on our website for all to follow, and speak up if we have specific contacts or thoughts that can help your recovery efforts. Use the template below as an attachment to your emails to tell them about your project, how to monitor where your boat is, at what time of day it typically updates its position, and what color it is.

Note of interest

In the hunt for the Mount Desert Island boat one of the best pieces of information came from a person in Arizona who learned through the web that we were looking for a boat that landed in the jungles of Panama. A friend of his happened to be sailing in the area and was part of a cruising community and they all joined the hunt!

While you and your students will be primarily responsible for the recovery of your boat, the Educational Passages administrators can send you email addresses of people who have helped in that area of the coast in the past. Since we keep a database of individuals who have helped with previous recoveries (or have shown keen interest in doing so), we appreciate you copying

us on all your communications regarding recoveries so we can see who is most involved and be able to update our list of people.

Recovery Letter Template

Dear [Whom it May Concern],

A miniature unmanned sailboat is either just off your coastline or might have even made landfall by the time you receive this. We are hoping you or anyone else could recover our boat before it gets damaged in the surf. This is part of a hands-on learning program we are doing at [Your school]. We are learning about oceanography, earth science, geography, navigation, and hope to get some meaningful international relations experience as well.

If you click on this link: [Link here from NEFSC website so Google map with satellite layer is shown], you will see the longitude & latitude as of [Date, Time of Day, and Time Zone] which was the last GPS transmission of exactly where this little boat was and we hope will aid in its recovery.

You'll find information about us in the boat's watertight compartment. Please take our boat to a nearby school so your students can learn as well. Let's work together, fix her up as needed, add some messages & trinkets and get her back to sea to continue her voyage. We'd love to see pictures and have a chance to Skype with you.

Thank you very much,

[Signed by]

Follow up and Extensions

Keep Us Posted

Every voyage is unique which makes this all very interesting to follow. If you keep us posted on your voyage, we'll put it on our website and share on social media. This will give you more helpers when it comes time to retrieve your boat and the more helpers you have the better chance you'll have of recovering your boat. It's also a ton of fun and we at Educational Passages will be able to chronicle all the different voyages and interesting experiences that occur.

Relaunch

If your boat is undamaged or only needs a little bit of refurbishment, we can work with you to fix her up and replace parts that need it so she can be relaunched. Please contact us for more information and associated costs.

Integrating Your Boat in the Classroom

There are many things you can do with not only your boat but the boat's track and its story. Be sure to share with us your ideas so we can post them on our website and share with other miniboat enthusiasts. The interdisciplinary nature of ocean exploration will engage students with varying interests. Use our mini-boats to explore the following subjects:

- Oceanography
- Environmental Science
- Geology
- Climatology
- Meteorology
- Biology
- Geography
- International Relations
- Map Reading
- Naval Architecture
- Public Policy

You can visit our website for lesson plans. We are currently piloting the "Ocean Mechanics" unit, which is aligned to the three **Next Generation Science Standards** (NGSS) dimensions: Crosscutting Concepts, Practices, and Disciplinary Core Ideas (DCIs). The twelve lessons included in the Ocean Mechanics unit primarily address the following DCIs: ESS1 | Earth's Place in the Universe; and ESS2 | Earth's Systems. This unit is also aligned to the **Ocean Literacy Principles** (OLPs), guiding resources for global ocean literacy. Ocean Mechanics covers the first three principles: OLP-1 | The Earth has one big ocean with many features; OLP-2 | The ocean and life in the ocean shape the features of Earth; and OLP-3 | The ocean is a major influence on weather and climate. With this unit in its pilot stage, we hope to acquire teacher feedback. After downloading and using our lessons, please submit a review to our Project Manager at projectmanager@educationalpassages.com.

A Note from the Team

Our mission is to provide hands-on marine science educational opportunities for students around the world. We are a 301 (c) (3) non-profit and our board of directors are made up of marine and teaching professionals. We are ready to assist your school/organization in any way we can. We want this to be an educational experience your students will never forget. We therefore encourage you to ask us questions along the way. Our experts will gladly email your school, call, Skype, or do face time with your class to provide you with the best information and assistance we can.

Enjoy the passage!

-Your Educational Passage Team