



Community Boating Center

Activity Packet

We've put together this collection of activities to help fill kids' time over the winter. We hope that you enjoy them and that it encourages you to get more involved with one of New Bedford's greatest resources—the ocean!

Page 2	Sailing Term Word Search #1
Page 3	Build Your Own Paper Boat
Page 8	Ocean Hero Mad Lib
Page 11	Measuring Wind
Page 12	Knot Tying
Page 13	Sailing Term Word Search #2
Page 14	Plankton Model
Page 15	The Sandy Beach Coloring Sheet
Page 16	Parts of a Boat
Page 17	Maps
Page 19	Ocean Facts
Page 20	Blue Whale Origami
Page 21	CBC's Summer Youth Sailing Program

Sailing Term Word Search #1

D P P H Q Q C D N B T C S I P
N R S O O K R U G I E K H X I
O W A R R A X M L N E M E I R
J T Z O Y T E L T O W E E G O
T T S L B O E E J N W F T N T
U I A A H R R L C I S A S I Y
J H F E M B A H U L L V J K P
F I K V O O U T H A U L A C V
D E B A Q C D C S I B L P A M
T D R I R E K A N N I P S T O
I D X L N D I A M W B B L K O
M D E P Y G N R E T S O B X B
T E J S T D X H S V J W H M Z
K M M T D T A J T P M H J R S
M N L E A E Y O Q L Y H L K G

BOOM-a long pole that stretches the bottom of a boat's sail and holds it in place

BOW-the front part of a boat

CENTERBOARD-a flat keel that can be raised or lowered for greater stability while the boat is in motion

HALYARD-a rope used for raising or lowering a sail

HULL-the rigid frame and outer shell of a boat

JIBING-to turn the boat with the bow going away from the wind

KEEL-a piece that runs down the length of the bottom of a boat; it makes the boat stable in the water; ours have lead ballast

MAST-a long upright pole that rises from the bottom of a sailboat to support the sails and lines

OUTHHAUL-a line used to control the sail on the boom

PORT-when facing forward, the left side of a boat

SHEETS-ropes used to control the sails

SPINNAKER-a triangular sail set on a long spar and swung out opposite the mainsail when the wind is coming from behind the boat

STARBOARD-when facing forward, the right side of a boat

STERN-the rear of a boat

TACKING-to turn the boat with the bow going towards the wind

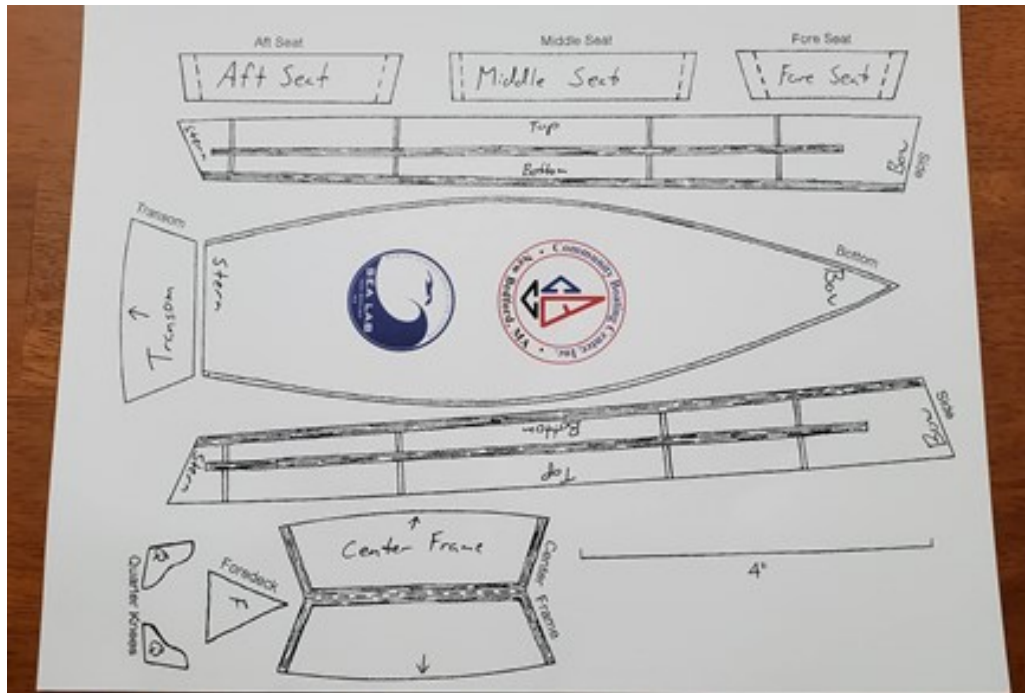
TILLER-a handle that is attached to a rudder and used to steer a boat

Paper Boat

Do you think you can build a boat? We know you can! Building a boat is challenging, but it's just like building anything else—you start at the beginning, follow each step to the next and end up with the finished product. You need the following supplies—a print out of page 7, scissors, tape and a pencil.

Step 1. Label the Parts

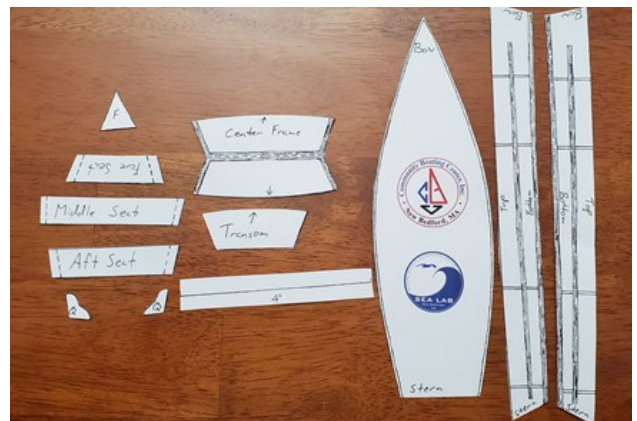
Label your sides, transom and center frame pieces. Sides get labeled "bow" (the big end), "stern" (the small end), and "bottom" (the shorter edge). The bow end of the side panels is next to the pointy end of the bottom. The bottom edge of the side panels is next to the bottom panel. The transom gets labeled bottom (the shorter, straight edge). The center frame also gets labeled bottom (the center dotted line). Make sure to label your seats as well (aft, middle and fore).



Step 2. Cut Out the Parts

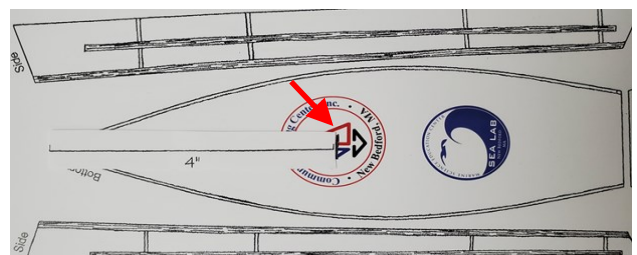
Cut out all the pieces, including the "4 Inch" line. Make sure you don't cut the dotted center line of the center frame.

Once you have all the pieces, you can begin the really fun part -- putting your boat together! This is where we need a pencil and scotch tape.



Step 3. Mark The Center Frame

Using the "4 Inch" line you cut out, measure from the bow on the side with the logo, down the middle of the boat. Make a mark at the end.

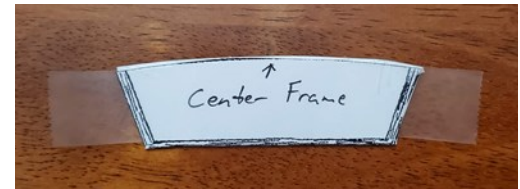
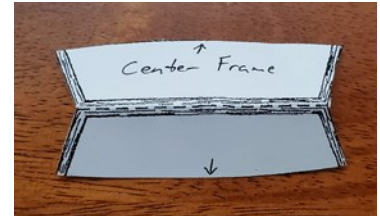


Paper Boat (Page 2)

Step 4. Fold the Center Frame

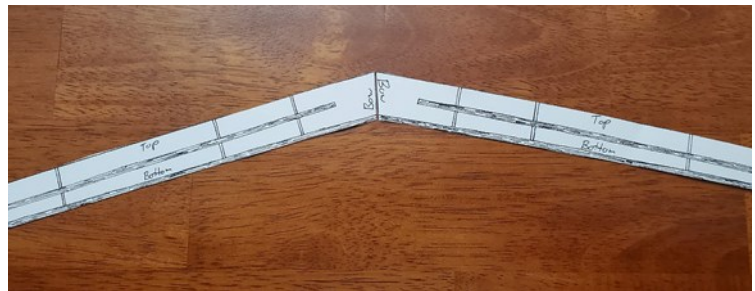
The center frame needs to be strong, which is why it's made of two layers of paper. Fold the center frame along the central, dotted line. This step will use four pieces of tape. On each side of your folded center frame, fold one piece of tape around the edge. After this, attach another piece on each side so that the tape sticks out.

Now we are ready to connect the sides to the bottom and the transom. This part is a little tricky, but just remember to make sure that you have the sides pointing the right way and you will do just fine.



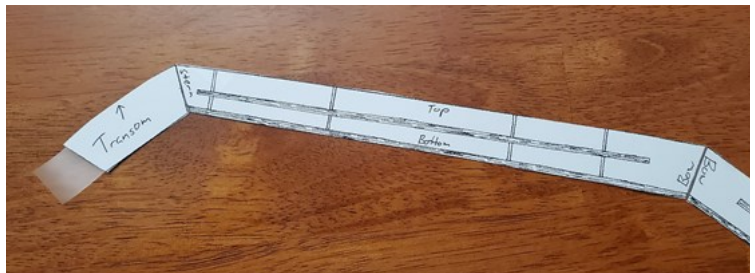
Step 5. Attach the Sides at the Bow

Put the side pieces directly on top of one another. Make sure the insides are "in" and the outsides are "out." You shouldn't see any of the printing. Take a piece of tape and tape the sides together at the bow. It should make a hinge. Remember that the bow is the taller end of the side panel.



Step 6. Attach the transom

On each side, attach one piece of tape so it is half on/half off. Attach the transom to the stern part of your side piece (When attached properly, it should look like a hockey stick.)



Repeat with the other side.



Step 7. Attach the Bottom

Flip the bottom piece over so the logo is face down. Attach six pieces of tape so they look like bug legs.



Paper Boat (Page 3)

Once all six pieces are attached, flip the bottom back over so that the sticky side of the tape is facing up. Place the sides on the bottom so that the "top" label is facing up. Starting from the bow, touch the tape and fold it up onto the side of the boat.



Step 8. Attach the Center Frame

Place the center frame in your boat where you made your mark at the beginning of the build. Tape it in place.



Step 9. Attach the Seats

Take the seats and fold up the ends along the dotted lines. Attach one piece of tape to each side of the seat. Make sure to not get tape on the folded part of the seats. The seats sit on top of the seat riser. The back edge of the Fore seat goes against the first frame. The Middle seat's back goes against the center frame. The Aft seat goes in front of the last frame.



Step 10. Attach the Foredeck

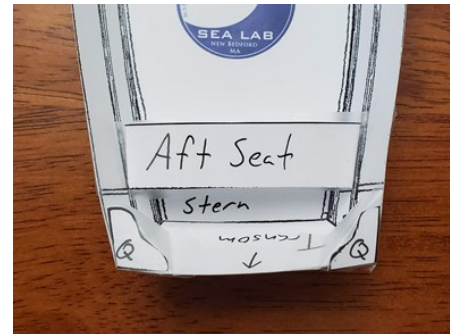
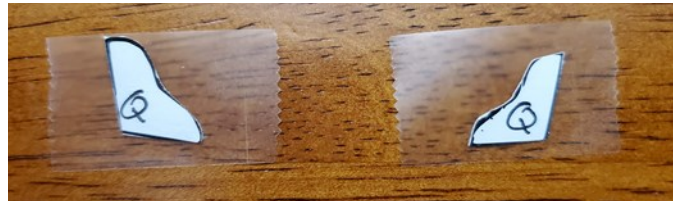
Put a piece of tape over the foredeck and install at the bow of the boat.



Paper Boat (Page 4)

Step 11. Installing Quarter Knees

Place a piece of tape over the quarter knee and attach on the stern corner. Repeat on the opposite side.

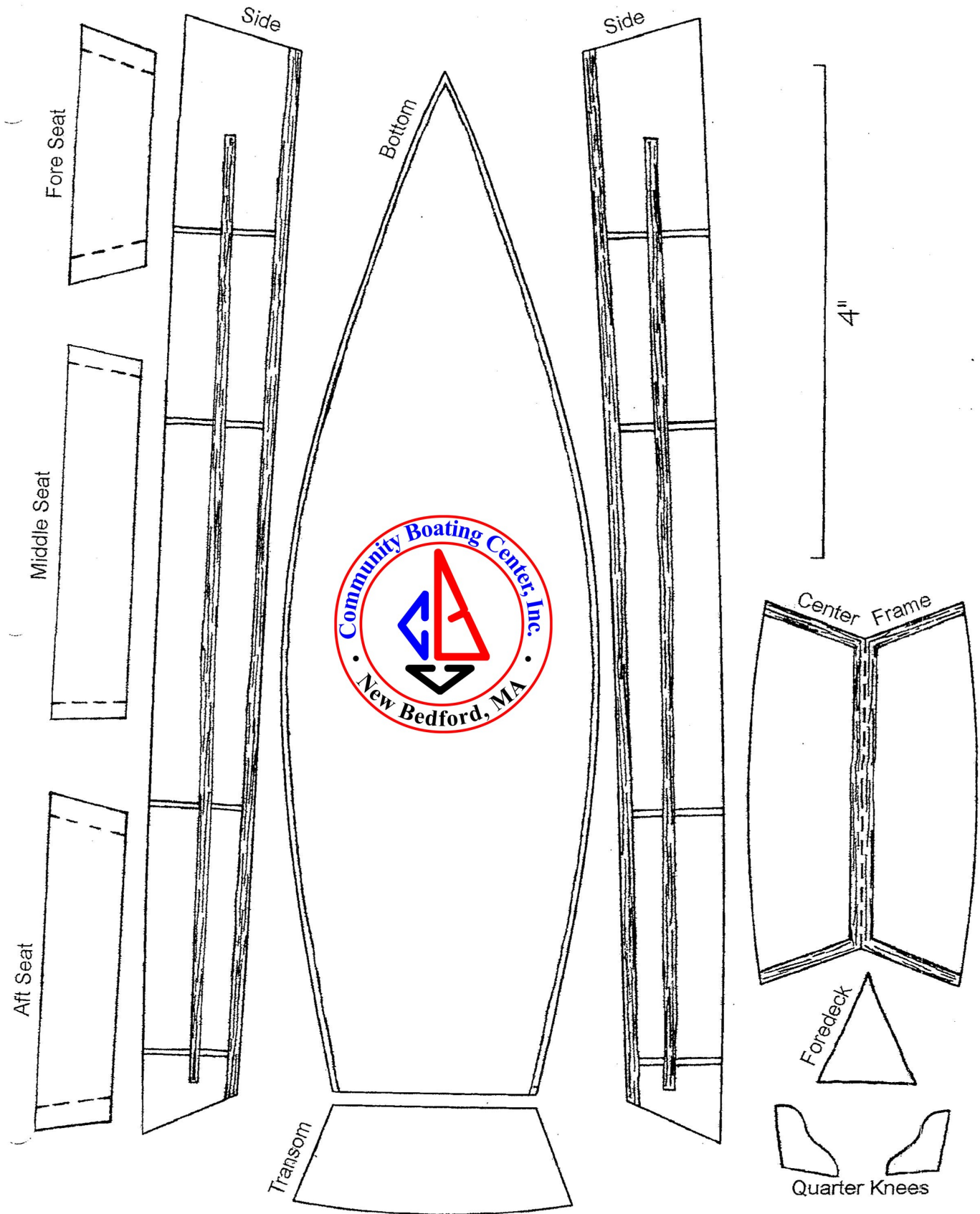


Congratulations! You have just finished building your very own Bevin's Skiff! If you have any gaps, feel free to use extra tape to close those up. All that is left now is to give your vessel her very own name!



Send us a picture of your finished boat!
You can email us at cbc@communityboating.org or tag us on social media, Facebook @CommunityBoatingCenter, Instagram @CBCNB.

Paper Boat (Page 5)



Ocean Hero Mad Lib

Before doing the activity on the next page, let's learn a little about marine debris.

What is Marine Debris?

Marine debris is any man-made, solid material that enters waterways directly through littering or indirectly via rivers, streams and storm drains. Marine debris can be simple items such as a discarded soda can, cigarette butt or plastic bag that ends up in the ocean potentially harming marine life.

Where does it come from?

- Beachgoers
- Improper disposal of trash on land
- Stormwater sewers and combined sewer overflow
- Ships and other vessels
- Industrial facilities
- Waste disposal activities
- Offshore oil and gas platforms

Why is it bad?

- It hurts marine life because they can get caught in it or eat it and it destroys their habitat.
- It looks ugly.
- It is expensive to clean up.
- It's bad for the environment and economy.

What can YOU do to help?

- REDUCE your waste, REUSE products and RECYCLE whatever you can, including plastics, cardboards, glass and metal.
- Use a reusable water bottle, drink cup and bag when you go to the store.
- Pick up trash at your local beach.
- Buy items in bulk.
- Dispose of your trash properly and don't let trash blow into the ocean.
- Skip the straw!
- Become an ocean advocate and educate others about the impact of marine debris on our environment.



Ocean Hero Mad Lib (Page 2)

Instructions:

1. Without reading the story on the next page, write a word that matches the description of each in the list below.
2. In order, fill in each of the blank spaces in the story with the corresponding word from the list.
3. Read the story. Laugh and learn.

1. Adjective _____
2. Scent _____
3. Piece of clothing _____
4. Food _____
5. Adverb _____
6. Animal _____
7. Adjective _____
8. Song title _____
9. Plural noun _____
10. Noun _____
11. Plastic debris often found on a beach _____
12. Another plastic debris often found on a beach _____
13. Another plastic debris often found on a beach _____
14. Food from #4 _____
15. Color _____
16. Adjective _____
17. Name of celebrity _____
18. Name of another celebrity _____
19. Nonsensical word _____
20. Beverage _____
21. Adjective _____

COMPLETE ABOVE BEFORE CONTINUING!

Ocean Hero Mad Lib (Page 3)

It was a/an (*adjective*) _____ June day. Joe woke at dawn to the smell of (*scent*) _____, put on his favorite (*piece of clothing*) _____, grabbed some (*food*) _____ and jumped on his bicycle. He peddled (*adverb*) _____ to get to the Harborwalk just before the sun peaked over the horizon.

Waving to a lady walking her (*animal*) _____, he ran up the ramp to get the best view of the (*adjective*) _____ sunrise. He walked along, humming his favorite song (*song title*) _____. As he looked out over the harbor, he saw several boats, including one full of (*plural noun*) _____.

Continuing down the walkway, he greeted a man carrying a/an (*noun*) _____ and then noticed a large patch of garbage near the rocks below. The birds were picking at the garbage, looking for food, he presumed. There were (*plural item made of plastic*) _____, (*another plural item made of plastic*) _____ and (*another plural item made of plastic*) _____. It was sad to see the beauty of the ocean littered with trash — and the birds trying to eat it.

Throwing some of his (*food from #4*) _____ into the ocean to feed the birds, Joe promised himself that he'd do something to protect the ocean and marine life. He ran down the Harborwalk, stuffed his food wrapper into the (*color*) _____ garbage can, jumped on his (*adjective*) _____ bicycle and headed to the Community Boating Center (CBC).

There, he called (*name of celebrity*) _____ and (*name of another celebrity*) _____, who joined him at the CBC. They went sailing on a boat called (*nonsensical word*) _____ and learned about marine debris. Proud to now be ocean heroes, they drank (*beverage*) _____ from their reusable bottles and enjoyed the (*adjective*) _____ sunset over Clark's Cove.



Measuring Wind

How can we use wind if we can't see it? How can we measure it?

Think about these other questions:

- What is wind?
- Is it important to be aware of the wind's strength in your everyday life? Why?
- Where would you find the strength of the wind for the day?
- Who talks about the wind and what do they say?
- How can you measure something that you can't see?

An anemometer is used to measure wind speed. The more spins per minute, the greater the wind velocity or speed.

Materials needed:

- Pencil with new eraser
- Four paper Dixie cups
- Two plastic drinking straws (non bending)
- Tape
- Straight pin (used for sewing)
- Black permanent marker
- Stopwatch/timer



Make your own anemometer by following these steps:

1. Arrange 4 paper Dixie cups and two drinking straws to form a cross. Tape the straws on the side of the Dixie cups. The open end of all the cups should face the same direction.
2. Push a straight pin through the center of the straws into an eraser on the end of a pencil to provide an axle.
3. Mark one of the cups with a marker; this will be the marker when counting spins (revolutions per minute).
4. Now you can test it! If you have a fan, put your anemometer in front of it and see how many times it goes around. Or you can blow on it. Count how many times the cup with the mark goes by. Take it outside and try some different spots. Where does it seem to be the windiest?



This lesson is adapted from US Sailing's REACH curriculum.

Knot Tying

Knots are a big part of sailing. Below are instructions as to how to make 3 of the most common.

Bowline



Form a small loop leaving enough rope for the desired loop size.



Pass the end of the rope through the loop as though making an overhand knot.



Continue around the standing end



and then back



through the small loop.

Figure 8



Pass the tail over itself to form a loop.



Continue under and around the standing end.



Complete the knot by passing the tail down through the loop.

Clove Hitch



Pass the end of the rope around the pole.



Continue over the standing end



and around the pole a second time.



Thread the end under itself



and pull tight to form the clove hitch.

These images and instructions are courtesy of animatedknots.com.
Visit the website for more!

Sailing Term Word Search #2

N H Y B P R E T E G O O C G W
F O O T X Z A R C J V L U E K
N F F O I H C A E R E D L H D
G V F S I Q W V D A T C A O G
O N P I J A L E T T M C W E P
T A I R K L E L S L E N G Z H
C V F L W E E L M T W Z L Z Q
B C P B T X C E F I A N U F T
Y X L R V R H R N L D Y H F W
U P W I N D U D C G R K S U I
R Z Y O V M W T R W A U H L W
V G R J T T W A K A W L N J J
J C R W S N B Q Y U E Y L I L
D R A W D N I W R K E K P I F
V S Z U W R A Y R N L V R G Y

CAPSIZE-to turn a boat halfway over

CLEAT-a metal or wooden object with two arm like projections to which a rope or line may be secured

CLEW-a corner of the bottom of a sail attached to the outhaul

DOWNWIND-in the direction that the wind is going

FOOT-the bottom of a sail

HEAD-the top of the sail

LEECH-the outer edge of a sail

LEEWARD-the direction or side toward which the wind blows

LUFF-the forward edge of a sail

REACH-a point of sail from about 60 to 160 degrees off the wind

RUN-sailing in the same direction as the wind

STAYS-standing rigging that supports the mast

TRAVELLER-a track and adjustable car system on a sheet

TURLING-when a sailboat capsizes to a point where the mast is pointed straight down and the hull on the surface resembles a turtle shell

UPWIND-in or toward the direction from which the wind is blowing

WINDWARD-to or toward the wind

Plankton Model

Plankton are tiny plants and animals that drift at the mercy of the ocean currents. Whatever their size, they must avoid sinking too deep. Phytoplankton (plant plankton) need to use sunlight for photosynthesis, so they must stay near the surface to be in the sunlight (photic zone). Zooplankton (animal plankton) must also avoid sinking because they depend on phytoplankton and other zooplankton for food. Plankton have an incredible array of unique adaptations that help them avoid sinking.

Check out this 5-minute TED talk to learn more: https://www.ted.com/talks/tierney_thys_and_plankton_chronicles_project_the_secret_life_of_plankton



Now you can build your own plankton. While you're building, think about these features that different types of Plankton share.

- They all need to avoid sinking to the bottom of the ocean, while not staying too close to the surface to avoid predators.
- They are small to help reduce sinking and make them harder for predators to see and/or capture.
- They have spines, which increase drag, decrease sinking and help with defense from predators by making them harder to capture and eat.
- They have a thin shell, to stay light, if they have any shell at all.
- They can swim vertically, up and down in the water, to help counteract sinking, to escape predators and to move to feed.
- They have a high water content in their bodies.
- They have body parts that help them with buoyancy and flotation, like gas-filled chambers.
- They have transparent, jelly-like bodies, which are less dense and harder for predators to see.

Now you're ready to design, build and test a plankton model that should sink as slowly as possible in a large container of water without simply floating on the surface.

Suggested Materials

- | | | |
|---|--|--|
| <ul style="list-style-type: none">• Toothpicks• Popsicle sticks• Clay• Foam pieces | <ul style="list-style-type: none">• Beads• Styrofoam peanuts• Wooden beads• Tape• Small pieces of sponge | <ul style="list-style-type: none">• Any other available building materials• Large water container• Sponge/towels |
|---|--|--|

Step 1. Gather your materials. You don't need to have everything on the above list to do this.

Step 2. Build a model! Use your materials to build something and try it out in your own "ocean." Remember, you want your model to sink slowly, but it shouldn't float on the surface.

Step 3. Get other friends to do this too and race against each other.

Step 4. Think about what about your design worked well and what didn't. How can you make it better?

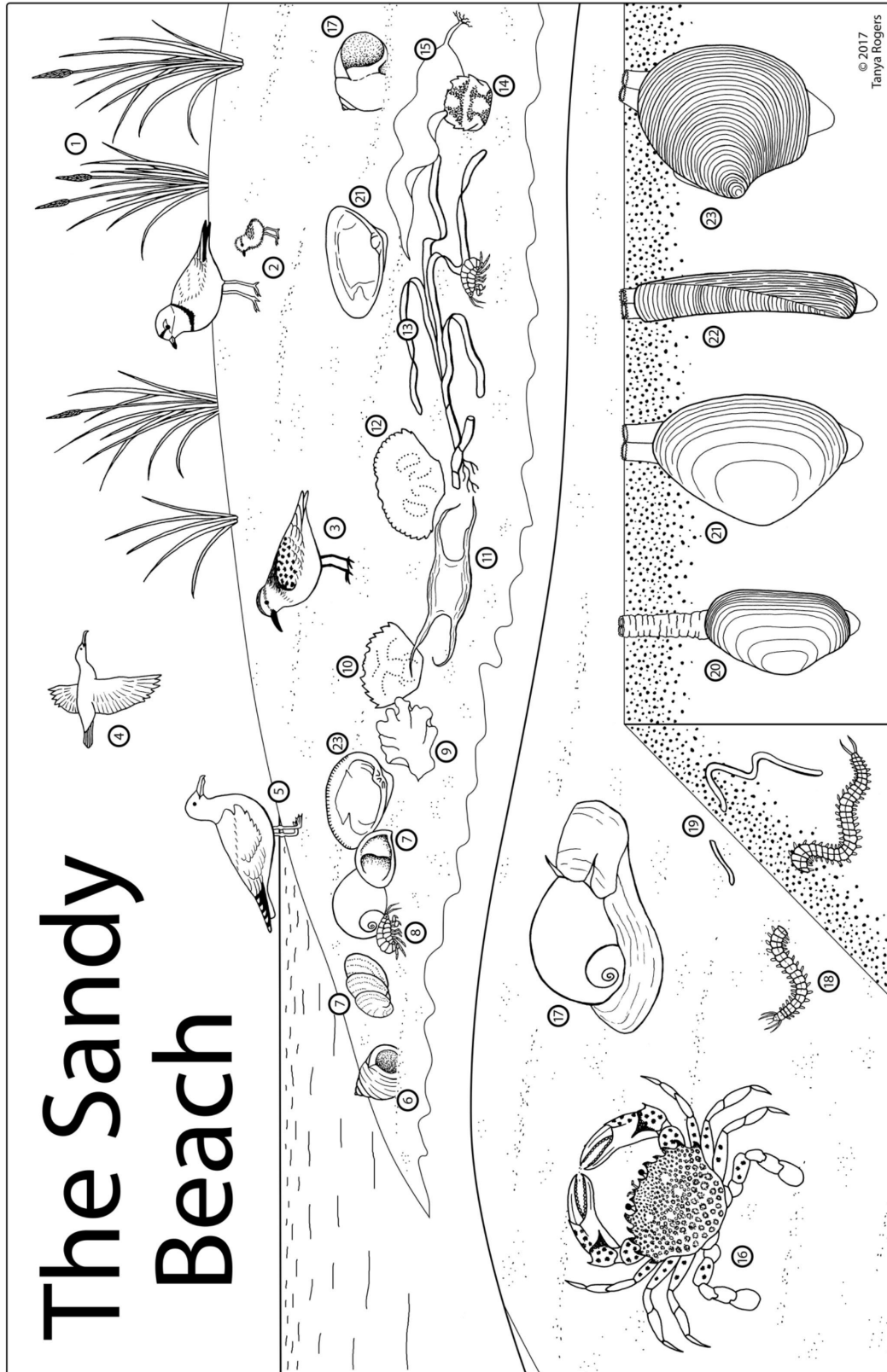
Step 5. Make a detailed drawing of your plankton. Post it to social media and tag CBC.



This lesson is adapted from the National Oceanic and Atmospheric Administration.

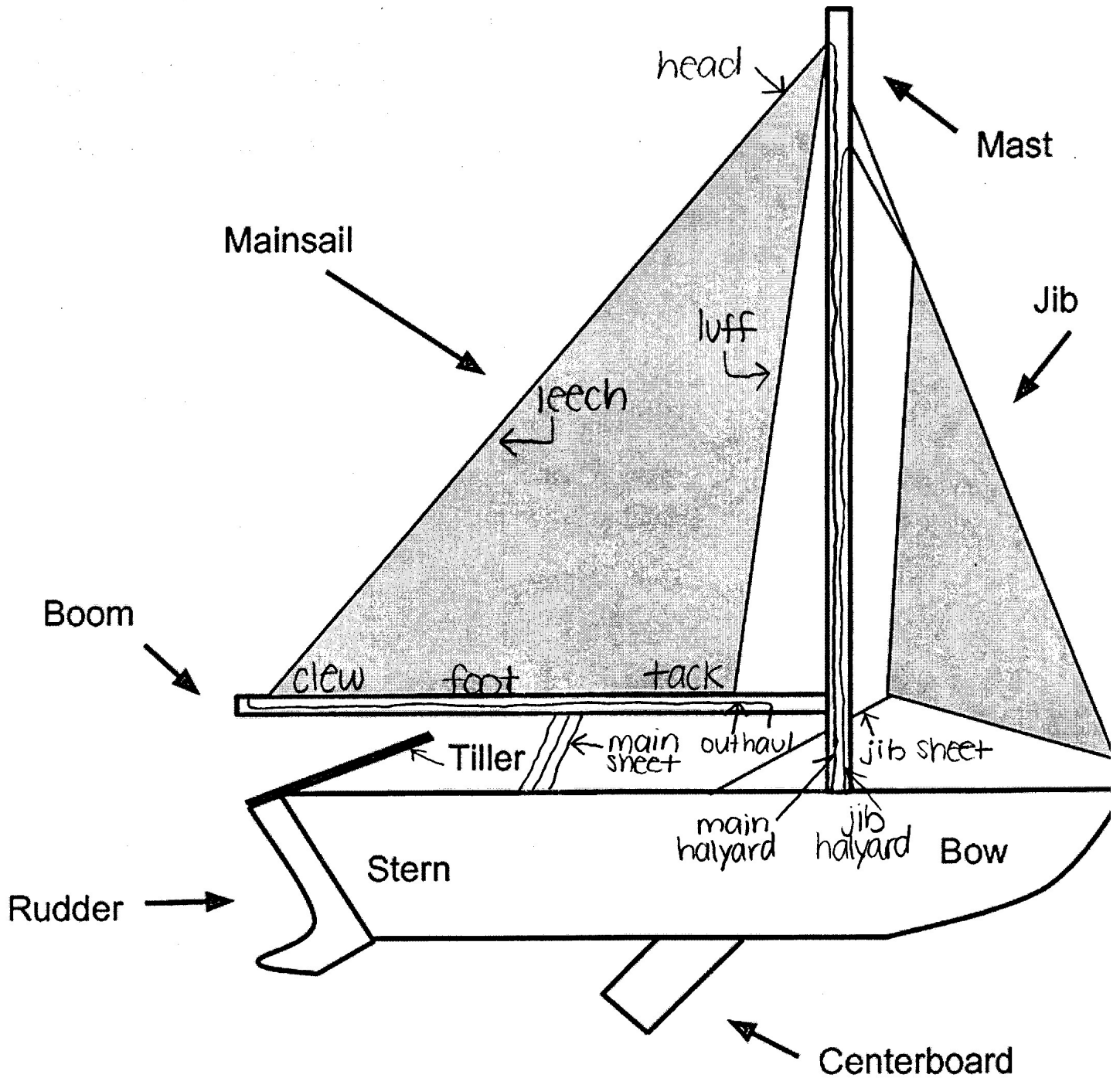
The Sandy Beach

There are lots of different marine habitats. The Sandy Beach is what we have here at CBC. How many of the plants and animals can you name without looking at the numbered list? Be sure to color them in!



- | | | | | |
|-----------------|-----------------------------|--------------------------------|----------------|--------------------|
| 1 Beachgrass | 6 Common periwinkle (shell) | 11 Skate egg case | 15 Sugar kelp | 20 Soft shell clam |
| 2 Piping Plover | 7 Slipper snail (shell) | 12 Rock crab (carapace) | 16 Lady crab | 21 Surf clam |
| 3 Sanderling | 8 Beach hopper | 13 Eelgrass | 17 Moon snail | 22 Razor clam |
| 4 Cormorant | 9 Sea lettuce | 14 Asian shore crab (carapace) | 18 Clam worm | 23 Quahog |
| 5 Herring Gull | 10 Green crab (carapace) | | 19 Ribbon worm | |

Parts of a Boat



Maps

The **nautical chart** is a type of map, which has unique characteristics and a detailed representation of the coastline. It includes lots of information about local tide ranges and geographical features that are critical to the navigator.

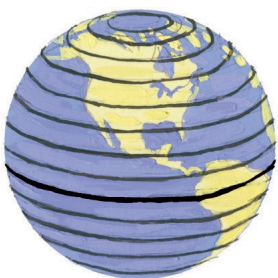
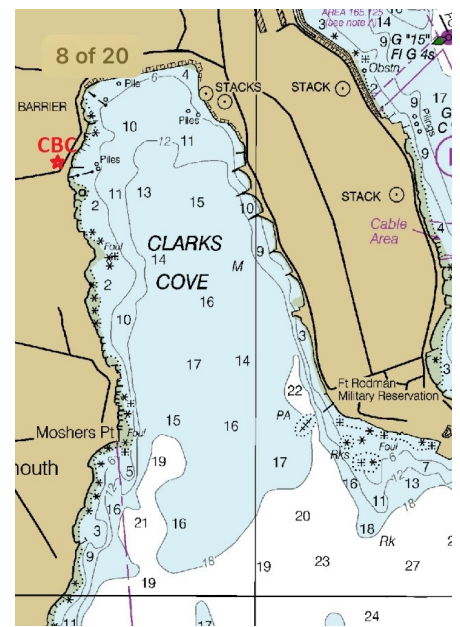
Unlike regular maps that include details about the land and only blue space where there is water, the nautical chart only includes landmarks and features ashore if they might be easy to recognize from seaward, such as a tall building or tower.

Most of the details are in the water, such as depth (or soundings), seafloor characteristics (is it muddy, sandy, rocky?), aids to navigation (buoys and lighthouses), and local information that might be relevant, such as strong currents, protected areas, anchorages, shipping lanes, etc.

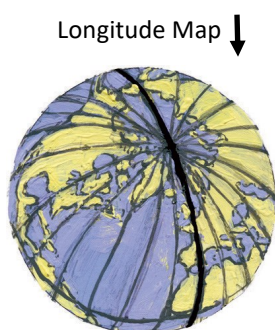
Nautical charts show:

- Shallow areas where ships can be grounded.
- Whether the sea floor is mud, sand or rock. That can help find natural resources, like scallops, or good places to anchor.
- Where unexploded bombs or mines are so that mariners can stay away!
- Where endangered species breed and migrate.

A nautical chart is flat, but it represents a round surface.



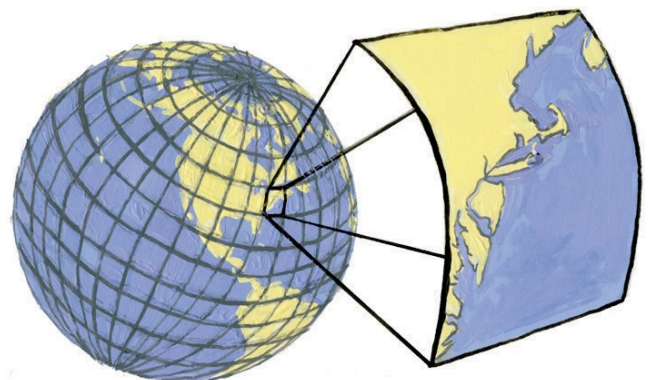
↑ Latitude Map



↓ Longitude Map

Cartographers, or map makers, split the earth into imaginary circles parallel to the equator, which get smaller and smaller as they get closer to the North and South Poles. The circles are called parallels or lines of latitude. Cartographers also divide the earth into imaginary lines radiating out from the poles. These lines are called meridians or lines of longitude.

Meridians and parallels intersect at specific geographic coordinates, or at a specific latitude and longitude, measured in degrees, minutes, and seconds.



Maps, Continued

Use the map below to answer the following questions. Write a letter on each blank. Then use the numbers below the blanks to solve the riddle.

1. Which city is located near 45° N, 108° W?

1 2 3 4 5 6 7 8

2. Which city is located near 40° N, 89° W?

9 10 11 12 13 14 15 16 17 18 19

3. Which city is located near 33° N, 84° W?

20 21 22 23 24 25 26

4. How did the geography teacher say goodbye to his class?

“Have a _____ day!”

14 11 5 19



© 2014 National Geographic Society



NatGeoEd.org

Map activities and information are courtesy of the National Maritime Historical Society, National Geographic and NOAA. Visit their websites for more!

The Ocean

Top ten ocean facts

1. Around **70%** of the planet's surface is covered by oceans. In fact, the oceans hold about **96.5%** of all water on Earth.
2. The largest ocean on Earth is the **Pacific Ocean**, covering around **30%** of the Earth's surface.
3. The name "Pacific Ocean" comes from the Latin name *Tepre Pacificum*, "peaceful sea".
4. The deepest known area of the Earth's oceans is known as the **Mariana Trench**. It's deepest point measures 11km. That's a long dive down!
5. The world's oceans are home to incredible creatures that are masters of disguise!
6. The longest mountain range in the world is found under water. Stretching over **56,000km**, the **Mid-Oceanic Ridge** is a mountain chain that runs along the center of the ocean basins.
7. About **70%** of the oxygen we breathe is produced by the oceans.
8. The sea is home to the world's largest living structure – the **Great Barrier Reef**. Measuring around 2,600km, it can even be seen from the **Moon!**
9. We have only explored about **5%** of the world's oceans. There's a lot more to be discovered!
10. The sea can be described as the planet's mega museum. There are more artefacts and remnants of history in the ocean than in all of the world's museums combined! Pretty amazing, huh?

Facts from: <https://www.natgeokids.com/uk/discover/geography/general-geography/ocean-facts/>.

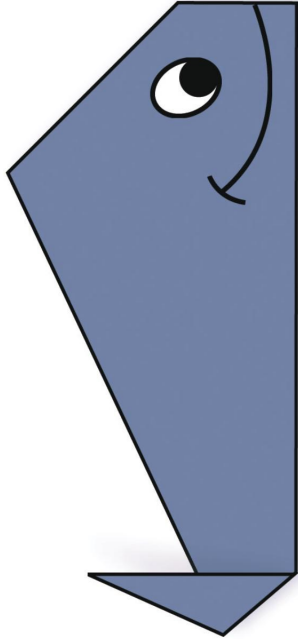


The largest animal ever to live on Earth is an ocean mammal called the blue whale. It's as long as two school buses and bigger than some dinosaurs! The biggest whales eat 4 tons of krill (microscopic floating animals) a day. Man is an adult blue whale's only predator.

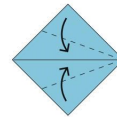
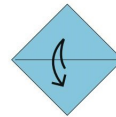
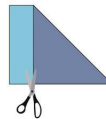
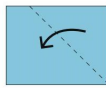
Use the instructions on the next page to make an origami blue whale.

Blue Whale Origami

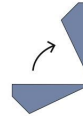
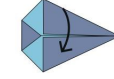
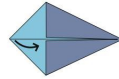
How to Make an Origami Blue Whale



1. Begin by making a square piece of paper. Fold one corner of a piece of paper over to the adjacent side.
2. Like this. Finish making the square by cutting off the small rectangle.
3. Put a square of paper on the table so it looks like a diamond. Fold side to side and unfold.
4. Fold the lower left and right sides to meet the center crease.



5. It looks like an ice-cream cone. Now fold the top point down, as shown.
6. Fold the right side over to meet the left side.
7. Put your finger on the bottom point as you turn the whale sideways.
8. Fold the end point up to make a tail.



9. Like this.



10. Make a short cut through the end of the fold in the tail. Fold the edges of the tail outwards.



11. Like this.



12. Draw eyes, fins and any other patterns you like.



Summer Youth Sailing Program



Join us this Summer at Community Boating Center!



SAFETY



FUN



LEARNING

OPEN TO ALL STUDENTS!

Whether you are a first time or long time sailor, come have fun with us this summer while taking part in exciting on-the-water activities.

Enrollment will open in March and financial aid is available to all students who qualify.

Please visit www.communityboating.org to register. Contact Greg Pimentel at gpimentel@communityboating.org or call us at (508) 992-6219 with any questions.

WE HOPE TO SEE YOU ALL ON THE WATER!