Salty's Board Game
Crafting Activity

Make your own board game and help Salty, the Salt Marsh Harvest Mouse, traverse through different habitats and make it back home to its natural habitat, the Salt Marsh!

San Francisco Bay Wildlife Society

Santa Clara Valley *Urban Runoff* Pollution Prevention Program

Who is Salty?

The Salt Marsh Harvest Mouse

Reithrodontomys raviventris

Photo credit: Rachel Tertes, USFWS

The Salt Marsh Harvest Mouse, also known as Salty, is found along the edges of San Francisco, San Pablo, and Suisan Bays and no where else in the world. Salty is an endangered species, meaning that there aren't many Saltys around. Why is Salty endangered? Salty only lives in the Salt Marsh habitat. The marsh habitat has decreased over 80% within the past 100 years. With less space, it is difficult for Salty to find food, water, and shelter. Salty only lives for 9 months, which makes it more difficult to find a partner and make a family.

Due to living in a salty environment, Salty can swim and drink salt water. Salty is the only mouse species that can survive in salt water. Salty has a special salt gland that allows it to drink salt water. Salty is nocturnal which means that it is only awake at night. Salty is only about the size of your thumb, with a tail. Salty's main diet is pickleweed; it also makes its home out of pickleweed and uses pickleweed to hide from predators. Salty is a unique mammal that we can protect by keeping our marshes and watersheds free from pollution.

The Game Rules

<u>WATCH</u> "A Home for Salty" as an introduction:
https://www.youtube.com/watch?v=szw7bty3WAc

The goal of the game is to get Salty through 5 habitats (Open Bay, Slough, Mudflats, Upland, and Salt Pond) and back to its natural habitat the Salt Marsh.

Each player gets their own Salty character and starts at the Open Bay Habitat.

Role the dice once each turn. Move forward based on the number you roll.

Some squares will be numbered. Follow the special instructions to move forward or move back.

If you land on a square where Salty gets in serious danger, you'll miss your next turn to roll the dice.

There are also action squares. If you land on an action square follow the instructions for that numbered action. You can not move forward until you complete the action

The first player to get Salty to the Salt Marsh first wins! The following players still need to get Salty back to its natural habitat so they can get Salty back to safety.

Making Your Board Game

Step 1: Find a solid board to build your game

Your board game can be any size. I choose a small cardboard box for my board game that I can close and store when I'm done playing. You can also use a poster board, thick construction paper, or even an another board game that you no longer use. If you are using a previously used box, poster, or board game you can paint over it or cover it with paper. You want to make sure that your board can fit all 6 different habitats.

Step 2: Sketch out Salty's path and spaces for the habitats

Make a rough sketch of Salty's path, which will be a path of about 30 squares — 5 square for each habitat. You can add more squares if there is space. Also, sketch where the 6 different habitats will be. See the order of the habitats in Step 3

Step 3: Draw or construct the 6 different habitats using materials you have at home (clay, markers, crayons, paper, etc.)

Use the pictures and descriptions on the next pages to create the 6 habitats. Each habitat is different in some way and contains different critters.

For each habitat I used a combination of paint, paper (old flashcards), cardboard, and pipe cleaner (fuzzy sticks). I made the animals and characters out of clay and painted over them. To make clay at home see the instructions on page 15.

Making Your Board Game

#1 Open Bay

The San Francisco Bay is an estuary — an area where rivers and the ocean met, ocean water flows into the Bay at the Golden Gate in San Francisco. Inland, fresh water from the Central Valley and the Sacramento and San Joaquin rivers come together at the Delta and flow into the Bay. An area of land with rivers and streams that flow into a large body of water is called a watershed. We live in the San Francisco Bay watershed. (Learn more about watersheds on page 19). The Bay is home to over 500 species of fish and wildlife including sharks, seals, oysters, and whales.

Harbor Seal

Photo credit: The Sea Doc Society website

Pacific Salmon

Photo credit: Kyu Oh, Getty images

Making Your Board Game

#2 Slough

The Slough is a natural waterway where tidal water from the Open Bay flows in and out of the Salt Marsh Habitat. If you imagine that the palm of your hand is the Open Bay, your fingers would be the Sloughs. The Slough supports a wide variety of aquatic life. Plankton - small plants, and zooplankton - small animals drift in the water. Larger aquatic animals such as Salmon are also found in the Slough habitat. Tule is a plant that lines the Slough; it has a light-green, thick and rounded stem that can grow 3 to 10 feat tall.

Photo credit: Jose Garcia

Photo credit: Douglas Atmore

Tule

Photo credit: Keir Morse

Making Your Board Game

#3 Mudflats

The Mudflats are at the bottom of the Tidal Slough and are seen when the tide is out (there are 2 high tides and 2 low tides each day). The Mudflat habitat supports an abundance of life with an estimated 40,000 organisms living in two handfuls of mud — most of the organisms are microscopic (not visible with the naked eye). The larger and more visible creatures that live in the mudflats are snails, mussels, worms, and clams. The mud is dense and has a dark brown color. Birds visit the mudflats to eat the critters found in the mud.

Snowy Egret

Photo credit: Sharon C. Johnson, Flickr

White-tailed Kite

Photo credit: Matt Davis

Making Your Board Game

#4 Upland

The Upland is a freshwater habitat that is at a higher elevation than the other habitats. Since the Upland is a fresh water habitat a variety of plants and animals live there. The Upland habitat at the Refuge is covered with California native plants like the Hollywood berry, Lemonade berry, California buckeye, and Yarrow. Songbirds, birds of prey, jackrabbits, gopher snakes, lizards, hummingbirds, and a variety of insects also live in the Upland.

Pacific Gopher Snake

Photo credit: Matt Jeppson, Shutterstock

Photo credit: Hope Presley, SFBWS

Barn Owl

Photo credit: Matt Davis, Macaulay Library

California Buckeye

Making Your Board Game

#5 Salt Pond

The Salt Ponds at the refuge were originally Salt Marsh habitats that were changed into Salt Ponds to harvest salt. Many Salt Ponds in the Bay Area have been restored back to original tidal Salt Marshes. Restored Salt Ponds serve as feeding and nesting habitat for many migratory birds. Salt Ponds contain salt water and are enclosed by levees (red foxes are commonly seen roaming on levees) . Some Salt Ponds have human made islands on them where birds can rest and nest.

Photo credit: Hope Presley, SFBWS

Caspian Tern

Photo credit: Michl Thompson

Red Fox

Photo credit: Aric Crabb

Making Your Board Game

#6 Salt Marsh

A marsh is where land and water meet. The Salt Marsh is a type of wetland that is constantly flooded with saltwater from the ocean and, as a result, is high in nutrients. The Salt Marsh supports a variety of plant and animal species. The animals, such as Salty and the California Ridgway's Rail, that live in the Salt Marsh are adapted to living in salty conditions. The Salt Marsh is a flat land blanketed with short salty-adapted plants, Pickleweed and Alkali Heath. There is water flowing through the Marsh and birds feeding or resting throughout it.

California Ridgway's Rail

Photo credit: Chris Cochems

Photo credit: Rachel Tertes, USFWS

Salt Marsh Harvest Mouse

Photo credit: Pelican Media

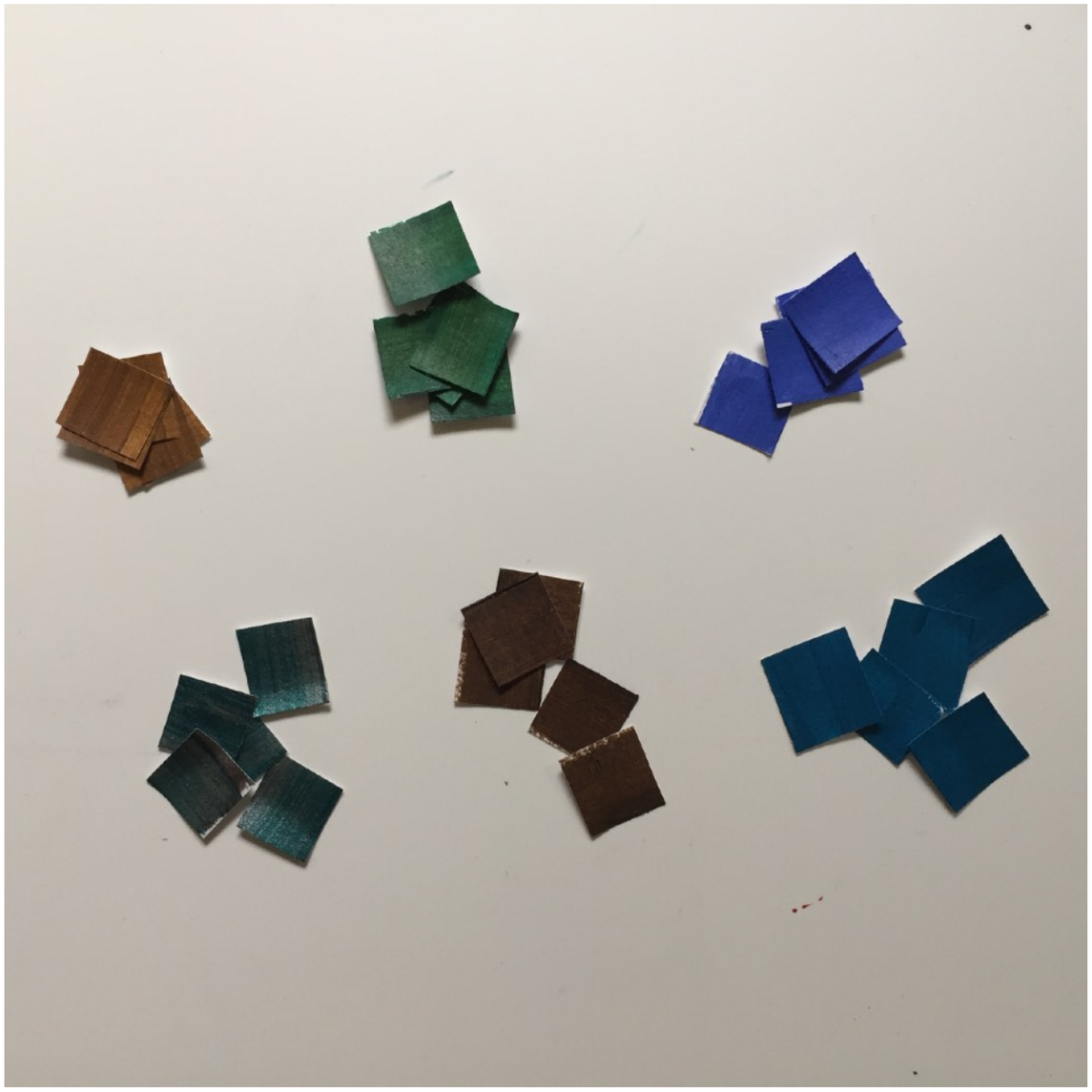
Pickleweed

Photo credit: Megan Davis

Making Your Board Game

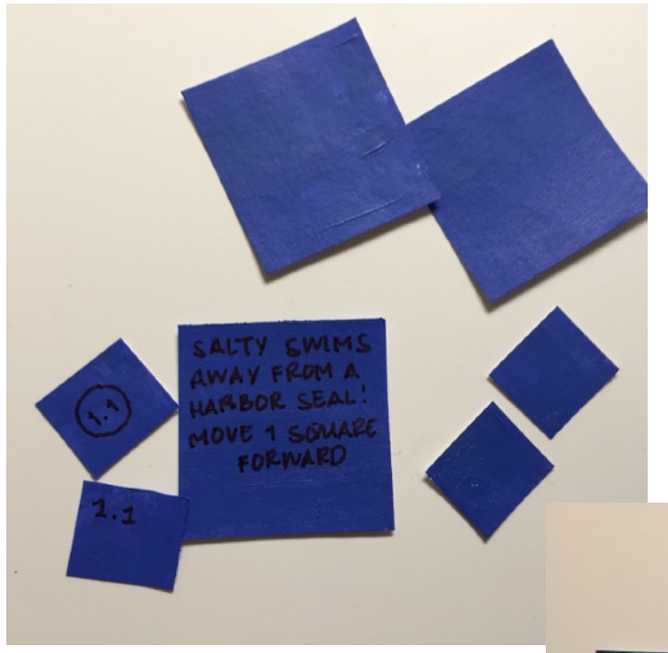
Step 4: Make the squares for Salty's path

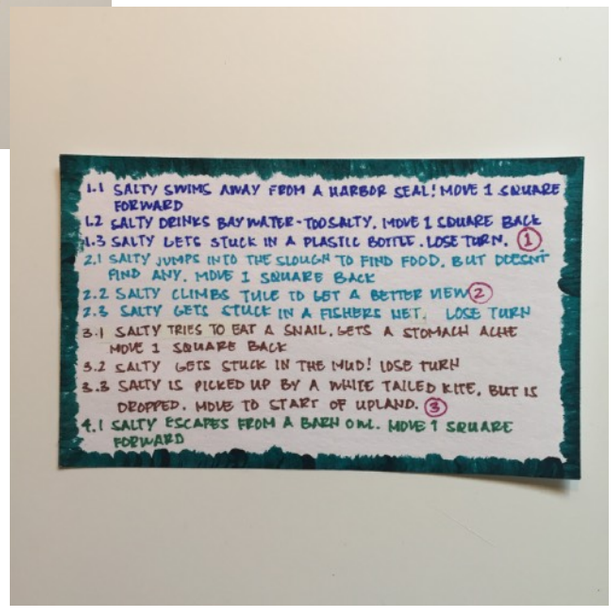
There are at least five squares that go through each habitat. The squares will be different colors to match each habitat. I made Salty's path by cutting out squares of painted paper. You can also color or paint squares directly on your board.



Step 5: Label the squares

This is an important step in making your board game. There are 3 squares in each habitat that have special instructions if you land on them. See the list on the next page when labeling the squares. You can label the squares by writing the instructions on them ("Salty swims away from a Harbor Seal! Move 1 square forward") or writing down the numbers (1.1- 6.3) then have all the instructions written down on a piece of paper.





Making Your Board Game

Step 5: Label the squares

#1 Open Bay

1.1 Salty swims away from a Harbor Seal! Move 1 square forward
1.2 Salty drinks the bay water and finds it too salty. Move 1 square back
1.3 Salty gets stuck in a plastic water bottle that drifted to the shore. You lose a turn (ACTION 1)

#2 Slough

2.1 Salty jumps into the Slough to find food, but doesn't find anything to eat. Move 1 square back.
2.2 Salty climbs up a Tule plant to get a better view. (ACTION 2)
2.3 Salty gets stuck in a net left by fishers. You lose a turn

#3 Mudflats

3.1 Salty tries to eat a snail in the mud, and gets a stomach ache. Move 1 square back.
3.2 Salty gets stuck in the mud! You lose a turn.
3.3 Salty is picked up by a White Tailed Kite but is dropped. Move to the start of the Upland habitat. (ACTION 3)

#4 Upland

4.1 Salty escapes from a Barn Owl! Move 2 square forward.
4.2 Salty gets stuck in trash that drifted from a landfill. You lose a turn. (ACTION 4)
4.3 Salty is nearly eaten by a Gopher Snake! Move 1 square back

#5 Salt Pond

5.1 Salty runs into a Red fox on the levee and gets scared! Move 1 square back.
5.2 Salty gets a whiff of salt air and feels inspired. (ACTION 5)
5.3 Salty hides from a Great Egret. Move 1 square forward.

#6 Salt Marsh

6.1 Salty has to run away from a California Ridgways Rail. Move 2 squares back.
6.2 Salty sees a school group visiting the Salt Marsh (ACTION 6)
6.3 Salty finds pickleweed, its favorite food. Move 1 square forward

Note: You can add more blank squares to your board game to make Salty's path longer or create your own special instructions or actions squares.

Making Your Board Game

Step 5: Label the squares

There is one square in each habitat that asks you to do an action if you land on them. These are called action squares. The actions are listed below. Feel free to change, make up your own actions, or add more actions squares. Label action squares with a dot, star, or simply write ACTION (#)

ACTION 1: Plastic pollution is harmful for animals and plant life. Find out how much plastic is in our oceans <u>or</u> look around the room you are in and count all the items made from plastic

ACTION 2: The Tule Plant can grow up to 10 feet tall. Say three other plants that can grow this tall

ACTION 3: The White-tail Kite hovers in the air to look for prey. Wave your arms fast like wings for 10 seconds

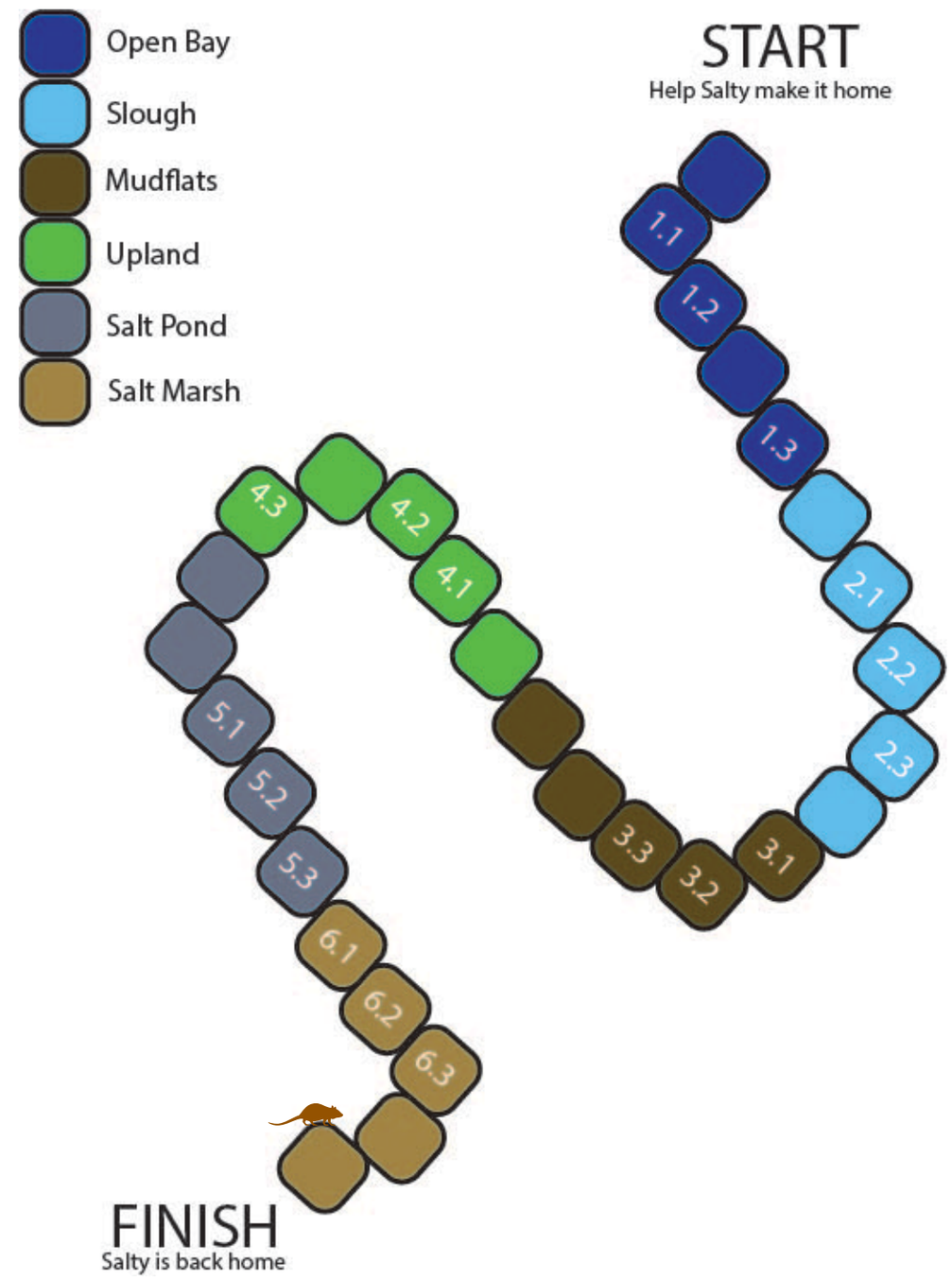
ACTION 4: Say three ways you can reduce pollution

ACTION 5: Go to your closest outdoor setting or get close to an open window and take 3 deep breaths of fresh air. What does the air smell like?

ACTION 6: Many students visit the Refuge to lean about Salty. Say or write down 2 ways you can help Salty survive

Step 6: Arrange your squares

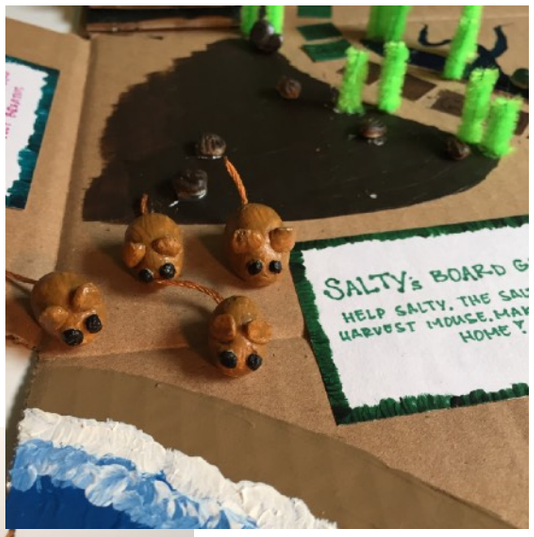
Use the diagram below as a guide to lay out your squares for Salty's path. You can always add more squares; it'll make your play time longer!



Making Your Board Game

Step 7: Make Salty characters out of any material you have at home

I made my Salty characters out of clay that I painted over. I used embroidery string for tails. You can also make your Salty characters by finding a rock, washing it, and painting over it. You can also draw Salty on cardboard or paper. Make sure to make each Salty slightly different so you can tell them apart.



Step 8: Find a dice or make your own (see pages 16-17)

Step 9: Find a pal to play with or help Salty on your own solo mission. Have fun!

Make clay

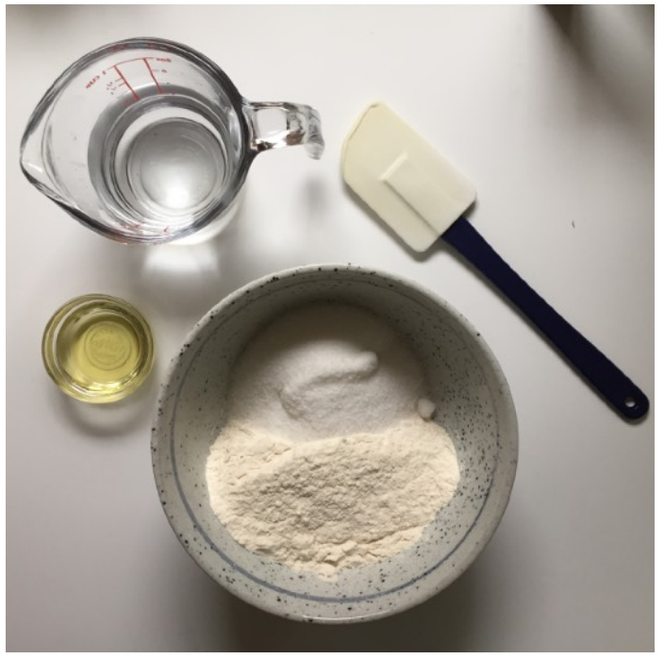
Materials
1 cup of flour
1/2 cup of salt
1 tablespoon vegetable oil
1/2 cup of water

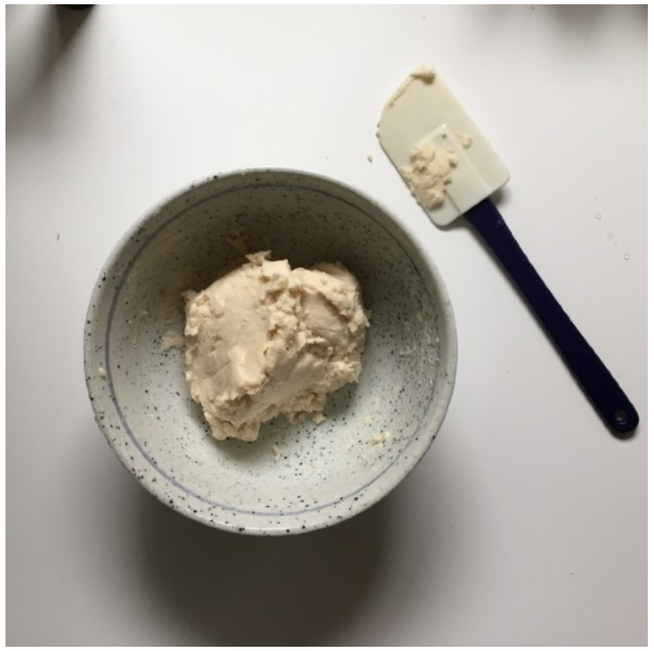
Instructions
1) In a large bowl, mix flour and salt
2) Add the oil, and then slowly add the water and stir until you get a clay consistency; the clay should form into a shape and not stick to your hands
3) Once mixed, make your Salty characters
4) Bake in a 250 degree F oven for about an hour, depending on the size of your Salty characters. Bake long enough for clay to harder but not burn.

Notes:
To harden the Salty characters without using oven, air dry for 48-72 hours.

You can also make the other critters in your board game with the clay. I had my clay in the oven for about 30 minutes since they were small.

Recipe was adapted from the Spruce Crafts Website https://www.thesprucecrafts.com/oven-flour-clay-recipe-1250343

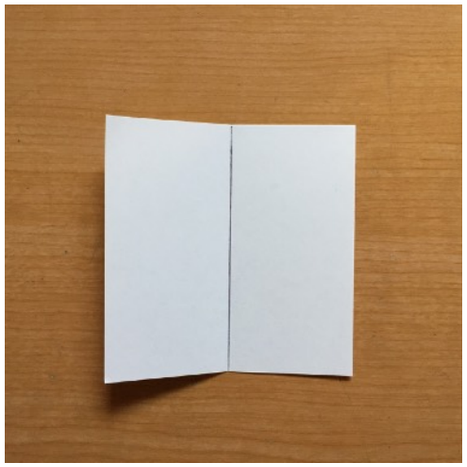




Make a paper dice

Step 1: Cut out 6 square pieces of paper <u>or</u> use origami paper

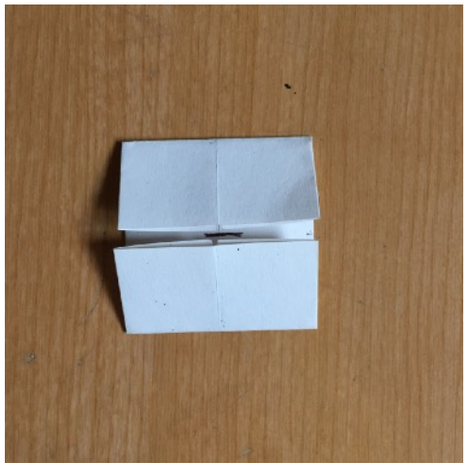
Step 2: Draw a straight line down the middle of the paper



Step 3: Fold both ends of the paper to the middle

Step 4: Make a small mark in the middle of the folded paper

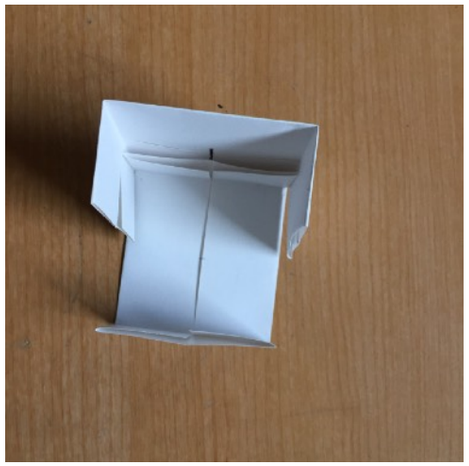
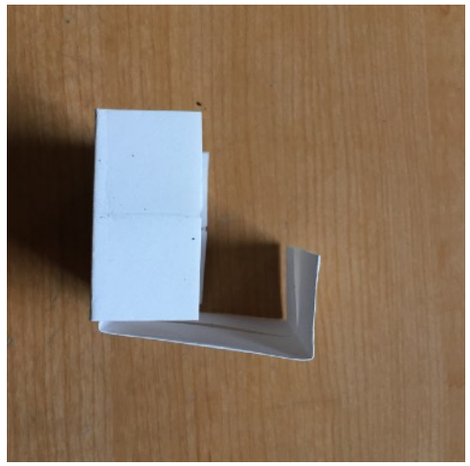
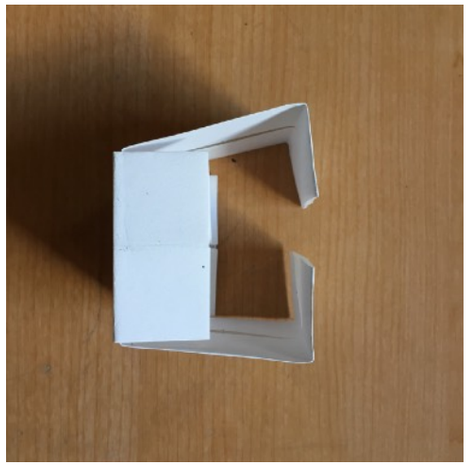
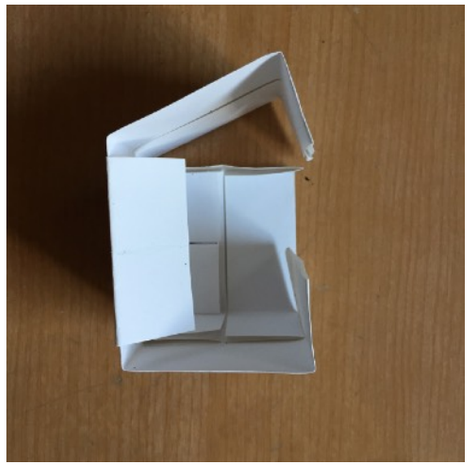
Step 5: Fold both ends to the mark at the middle

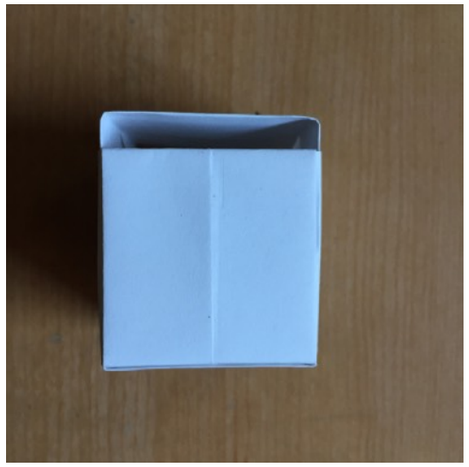


Step 6: Repeat Steps 2-5 for 5 more pieces of paper

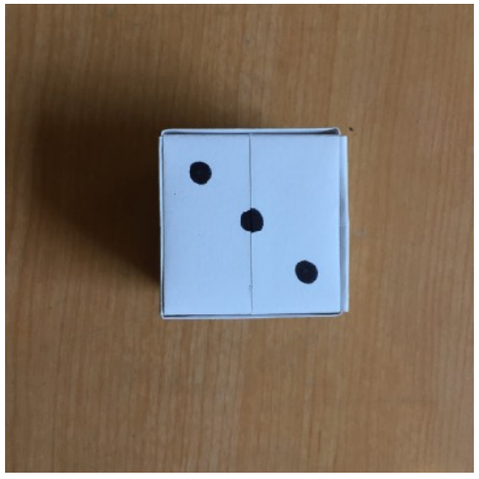
Make a paper dice

Step 7: Interlock pieces of folded paper by placing the folded ends of each piece to the middle of another piece

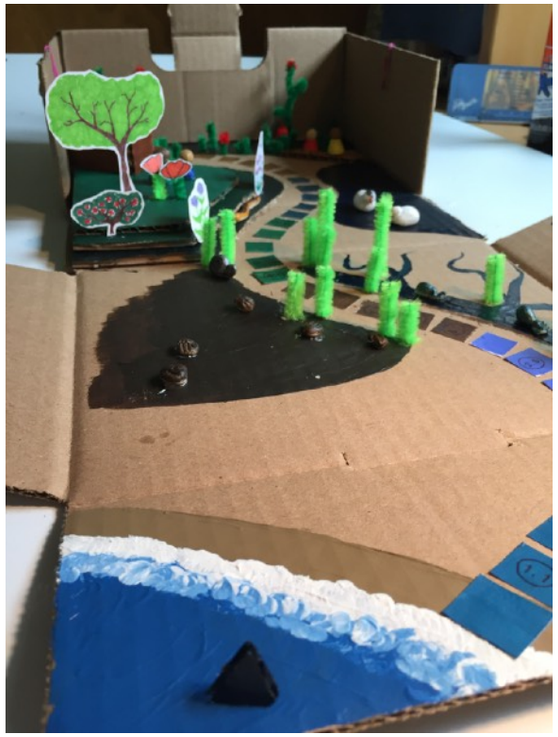





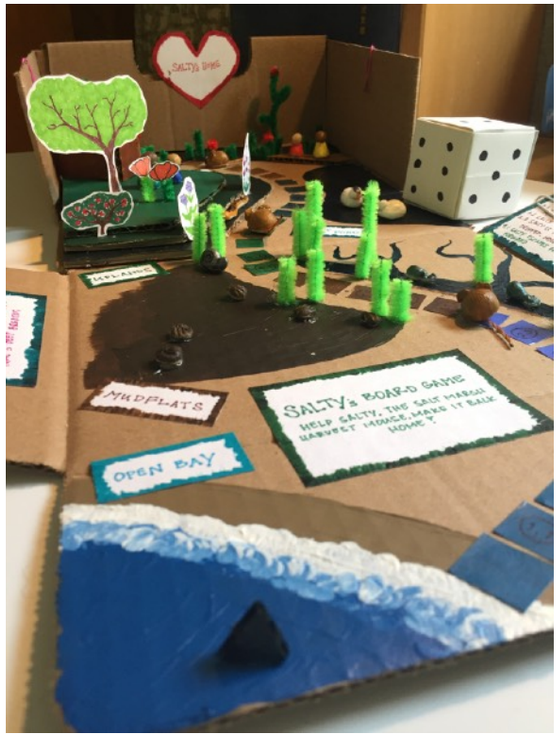


Step 8: Draw the small dots, 1-6, on each side of the dice



Salty's Board Game Process





Recommendations?

The Salty Board Game is new to the world. If you have any recommendations for making Salty's board game better please email watershedwatchers@gmail.com. We appreciate your thoughtful recommendations.

Watersheds

Photo credit: California Landscape Conservation Partnership website

A watershed is an area of land where all of the water drains to the same place. Watersheds include natural waterways including creeks, rivers, lakes, and wetlands that all drain into the bay. Watersheds also include human-made drainage features such as aqueducts, reservoirs, and storm drains. All the water that flows over the land surface is called runoff, which goes into storm drains and eventually ends up in the Bay. Urban runoff is water that flows over urban landscapes and eventually into storm drains; unfortunately, urban runoff carries contaminants such fertilizers, pesticides, and fluids from cars. Urban runoff is not filtered or cleaned before it ends up into the Bay and ocean; therefore, it is huge risk to human, animal, and plant health. In order to keep our watersheds clean and healthy we have to prevent trash and pollutants from entering our waterways and storm drains. You can pick up trash, stop using harmful pesticides and fertilizers, and dispose of car fluids properly.

Learn more about protecting watersheds at www.mywatershedwatch.org

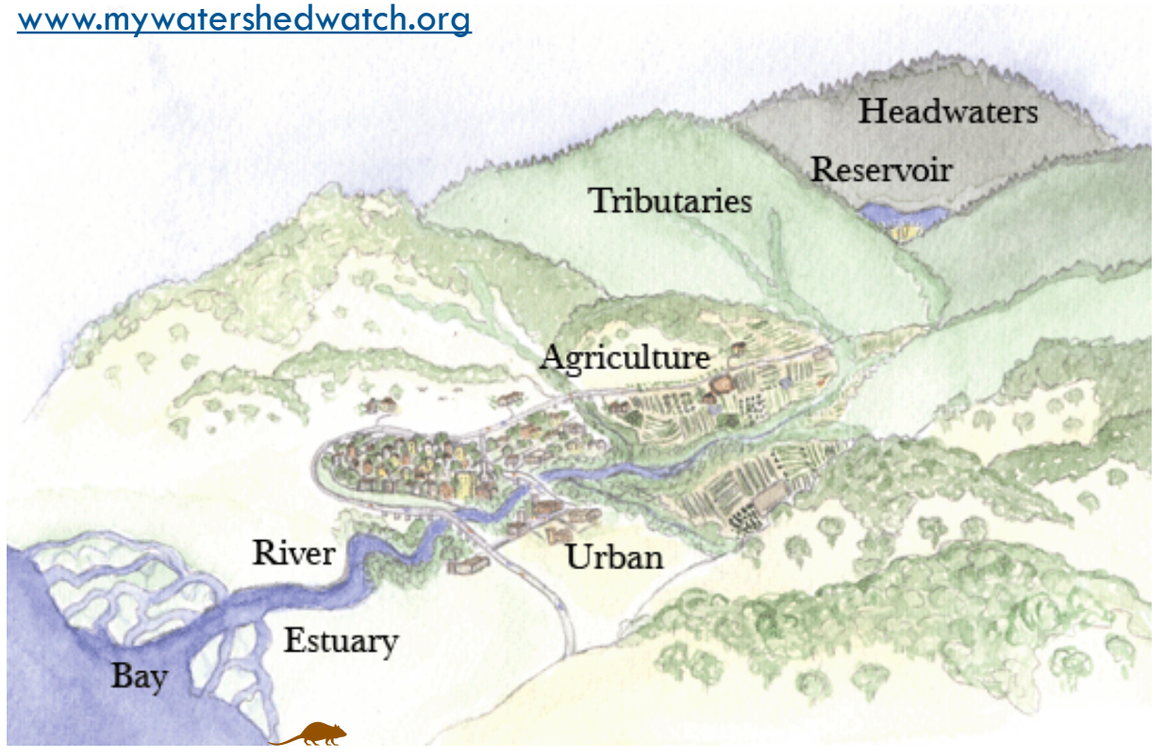


Photo credit: California Waterboards website

Extra Activities

How did Salty end up by the Open Bay? Did Salty sleepwalk from the Salt Marsh all the way to the Open Bay? Did Salty tag a ride from an Owl?

Write a creative short story of how you think Salty ended up so far away from home. Submit your story to watershedwatchers@gmail.com and win a prize!

How many Salty shapes (🦡) can you spot in this document? Answer at the bottom of page

Definitions

Habitat: a home for a plant or animal
Endangered: a species at risk of extinction
Levee: an embankment made to surround a Salt Pond
Wildlife Refuge: an area to protect wild animals, where hunting, fishing, or gathering is prohibited or controlled

Thank You!

We thank you for taking the time to make Salty's Board Game. We hope that this activity serves as a creative outlet and a fun game to play with your friends, family, and loved ones. Please visit the Don Edwards San Francisco Bay National Wildlife Refuge, the location this game was based on, when it is safe to do so. We look forward to seeing you. 💙

San Francisco Bay Wildlife Society

Santa Clara Valley *Urban Runoff* Pollution Prevention Program

10 Saltys