SEASHELL ACTIVITIES

AGES

Children 5+ years

PROGRAM DESCRIPTION

Three different seashell crafts and activities. Great for sensory input. Suggested runtime: 45 min.

Image source: Shutterstock

MATERIALS AND PREPARATION

Station #1: Decorate a Seashell

Materials: Large seashells, beads, crayons, stickers, cutouts, glue, paint and paintbrushes (optional)

Instructions: Children decorate a large shell with beads, crayons, cutouts, paint, etc.

TIP:

See also Jewelry Trays and Treasure Boxes on page 47 for a variation on this idea for teens/tweens.

Station #2: Watercolor Seashells

Materials:

- Watercolor paper
- Watercolors
- white glue and black acrylic paint (or premade black glue)
- Paintbrushes
- Pencils,
- Salt (optional)
- Seashell template (optional; see Resources)
- Tables and chairs

Image source: Heather Oates of Ligonier Valley Library, Ligonier, PA

Instructions:

- In advance, make your own black glue by mixing white glue with black acrylic paint until you reach desired opacity. Set up tables and chairs.
- Draw seashells or another scene on watercolor paper, or make photocopies for children to trace (see Resources for a template).
- Trace the lines of your drawing with the black glue, and let it dry.
- Watercolor between the lines. Optionally, when wet, sprinkle salt.

TIP:

If time is limited, trace the lines with black glue before the program so children can get right to painting. Or omit the black glue and have children paint a beach scene.

Station #3: Shell Identification

Materials: Shells, shell identification books, magnifying glasses

Instructions:

- In advance, purchase shells, shell identification books, and magnifying glasses. Alternatively, you could print or cut out images of different types of shells and laminate them.
- Children examine seashells and try to identify them.

ADAPTATION:

For younger children, instead of identification, discuss where shells come from and how they're made, then let them handle different kinds of shells.

GAME/ACTIVITY

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Add an extra volunteer to each station.

RESOURCES

Web

Watercolor seashell craft from *The Pinterest Parent*: https://bit.ly/3fpKk7a

Video of "Seashore Surprises" from *Reading Rainbow* (free): https://bit.ly/3uq2HgB

Learning about shells from *wNet School*: https://bit.ly/2SxFaNo

Books

Non-fiction

Seashells: More Than a Home (2019) by Melissa Stewart and Sarah S. Brannon (children's)

Shells (Smithsonian Handbooks) (2002) by S. Peter Dance (children's)

Sand (Jump into Science series) (2006) by Ellen J. Prager and Nancy Woodman (children's)

Fiction

Seashells by the Seashore (2002) by Marianne Berkes and Robert Noreika (children's)

A House for Hermit Crab (2002) by Eric Carle (children's)

Grains of Sand (2018) by Sibyle Delacroix trans. Karen Li (children's)

The Sandcastle Contest (2005) by Robert Munsch and Michael Martchenko (children's)

Day at the Beach (2018) by Tom Booth (children's)

It Is Not Perfect (2020) by Anna Kang and Christopher Weyant (children's)

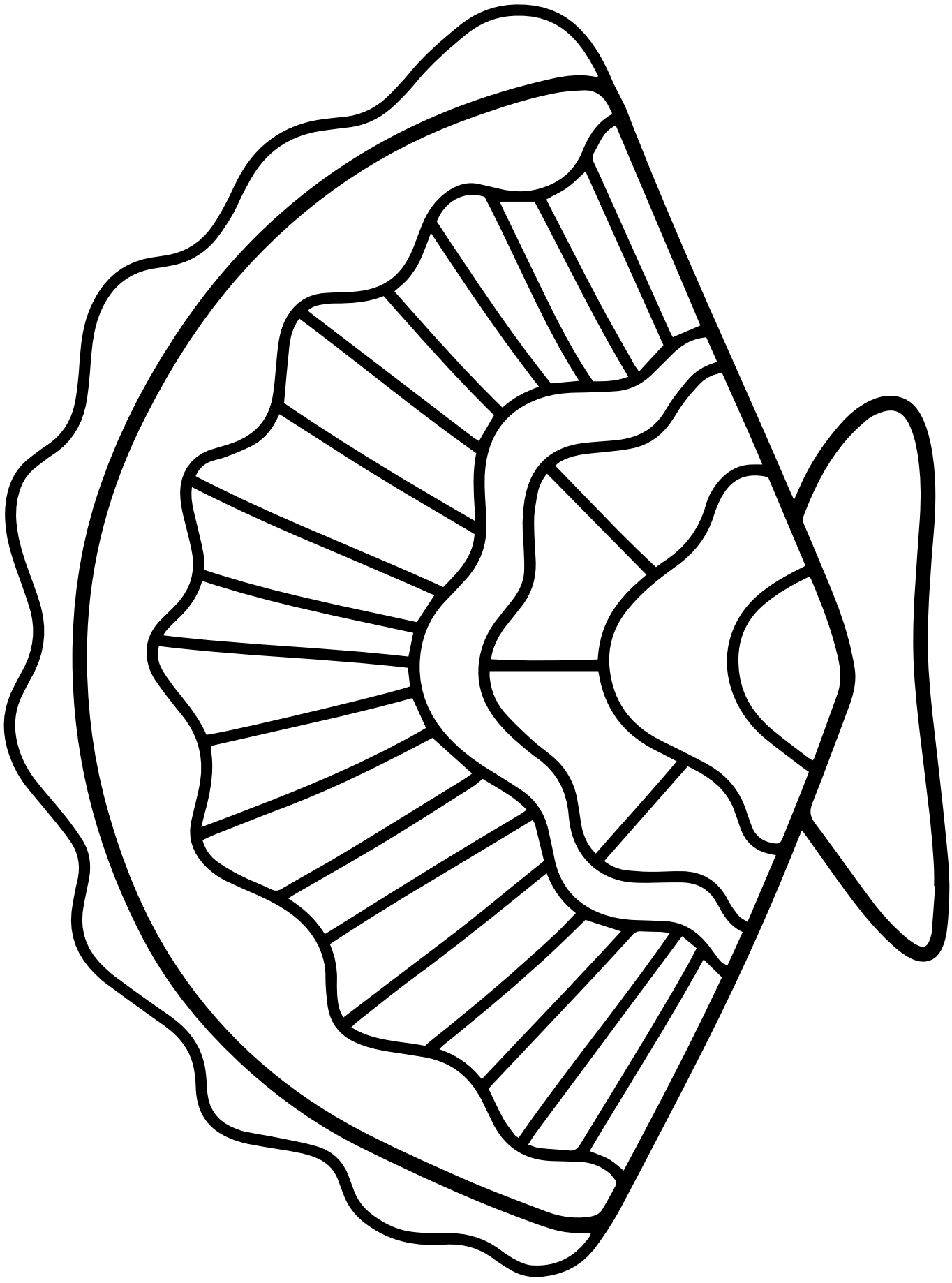
Sand Cake (2015) by Frank Asch (children's)

Where the Ocean Meets the Sand (2020) by Beth Costanzo and Ekaterina Illina (children's)

Jules vs. the Ocean (2020) by Jesse Sima (children's)

Printables

Seashell Template



GAME/ACTIVITY | CRAFT | LOW COST

FRIENDSHIP IS A TREASURE

AGES

Children 6+ years

PROGRAM DESCRIPTION

After reading *The Rainbow Fish* by Marcus Pfister, discuss friendship and brainstorm ways in which to be a good friend. Work together as a group to write an acrostic poem about friendship on a whiteboard. Alternatively, older children can write their own poems. Children then work on their "friendship fish" art by coloring or decorating a fish to make it sparkle like treasure. Suggested runtime: 45 minutes.

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials: White board for the acrostic poem; cardstock; markers; glue, sequins, buttons, felt, glitter, or other sensory items to decorate the fish (optional)

Instructions:

- Before the program, print fish silhouettes onto cardstock, and set up tables and chairs.
- If children will write their own poems, create handouts with a blank line for each of the letters in FRIENDSHIP.

DEFINITION:

An acrostic poem is one in which the first letter of every line spells out a word. "Friendship," "Friend," or "Treasure" would all work well.

NOTE:

This idea was adapted from an activity from *The Mailbox Magazine* from Aug/Sept. 2007.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Books

<u>*Non-fiction*</u>

I'll Walk With You (2020) by Carol Lynn Pearson and Jane Sanders (children's)

Friends: Making Them and Keeping Them (2015) by Patti Kelley Criswell and Stacy Peterson (children's)

Do My Part (2020) by Tamika Leshā (children's)

<u>*Fiction*</u>

The Rainbow Fish (1999) by Marcus Pfister (children's)

Julián is a Mermaid (2018) by Jessica Love (children's)

A Stone for Sascha (2018) by Aaron Becker (children's)

The Proudest Blue (2019) by Ibtihaj Muhammad, S.K. Ali, and Hatem Aly (children's)

Pool (2015) by Jihyeon Lee (children's)

The Story of Fish and Snail (2013) by Deborah Freedman (children's)

Catching a Storyfish (2016) by Janice N. Harrington (children's)

The Little Wave (2019) by Pip Harry (children's)

Printables

Fish Silhouette to Decorate or Color

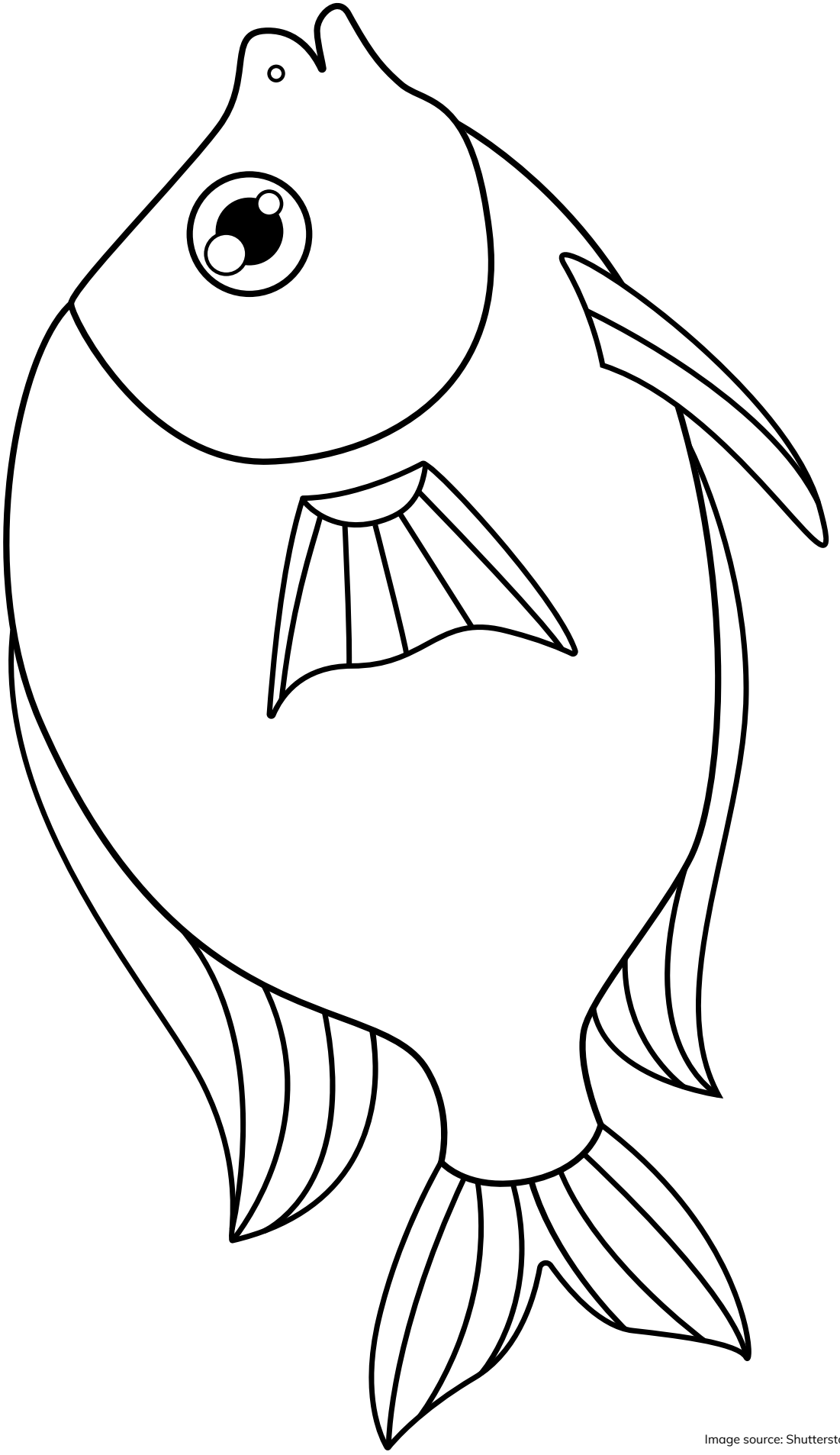


Image source: Shutterstock

JEWELS OF THE SEA: PEARLS

AGES

Children 8+ years

PROGRAM DESCRIPTION

Pearls are the only gemstone to come from a living creature! Depending on audience age, discuss pearl diving, pearl formation/farming, and/or pearl history. Pearls are formed in mollusk shells and come in many shapes and colors. They are prized amongst jewelers. Most pearls today are cultured, meaning they are grown in a pearl farm. After a discussion or presentation, participants "dive" for their own pearls with which to create their own keychain or bracelet. A coloring sheet is included for children who finish their crafts early. Suggested runtime: 60 min.

Image source: Amanda Raiche of Edith B. Siegrist Vermillion Public Library, Vermillion, SD

MATERIALS AND PREPARATION

Activity: Pearl Diving

Materials: Small kiddie pool(s); water to fill up pool; sand; pipe cleaners; pearl beads; other beads to supplement the pearls; containers for pearls to bury in the sand (you could use baggies or small plastic containers for something very simple and cost effective, or a plastic clamshell from a craft store).

TIP:

You can also have participants make "oysters" by putting frosting and a candy pearl between two cookies.

Image source: Shutterstock

ADAPTATION:

For those who need physical accommodations, use containers on tables instead of kiddie pools.

TIP:

If weather and space permit, take this activity outside! It can get messy.

Instructions:

- In advance, separate out pearls into containers (baggies, tupperware, or plastic clamshells, or shallow pan/container). Alternatively, just throw pearls in the bottom of any pan/container.
- Fill the kiddie pools ⅓ with sand, just enough to cover the pearls.
- Add water to your desired depth. (The deeper, the messier!)

For the activity:

- This can be run as a relay between teams or done collaboratively in groups around the pools.
- Make “clothespins” out of pipecleaners, and bend them around kids’ noses.
- Participants will place a large clothespin on their nose to replicate the turtle shell clip pearl divers used and one by one run to the pool to dig up their pearls. When they have their set, they will run back and tag the next person. The first team finished wins!
- Alternately, you can have the kids participate in groups around the pools with no rush or competition needed.

Craft: Pearl Keychains and Bracelets

Materials: Beads; string or cord; keychain rings

Instructions:

- In advance, set up tables with craft materials.
- Cut the string to twice the desired length.
- Fold the string in half and put both ends through the keychain loop.
- Put the ends of the cord through the loop and pull tight to secure.
- String beads, making sure to pull both strings through.
- When done, tie a double knot at the end of the strings until beads are secure.
- Trim excess string.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

"Pearl Description" from *Gemological Institute of America*: https://bit.ly/3fsufNS

Teacher's pack for *The Pearl Diver* from *Medina Publishing*: https://bit.ly/3hYcSWV

"Pearl Diving" from *Abu Dhabi Culture*: https://bit.ly/3usOS11

"Meet the Female Pearl-Divers of Japan: The 'Ama'" from *Forbes*: https://bit.ly/2ROAYJ2

"Pearl Farming in Japan" from *The Guardian*: https://bit.ly/3hYcOq9

Beaded keychain tutorial from *Instructables*: https://bit.ly/3i4AZ6i

Books

Non-fiction

Diving for Pearls (Gemstones of the World) (2018) by Rachael Morlock (children's)

Pearls (Gems: Nature's Jewels) (2015) by Sarah Machajewski (children's)

Fiction

Pearl (2018) by Molly Idle (children's)

A Single Pearl (2013) by Donna Jo Napoli and Jim LaMarche (children's)

The Pearl Diver (2015) by Julia Johnson and Patricia Al Fakhri (children's)

The Pearl-shell Diver (2016) by Kay Crabbe (children's)

Printables

Pearl Coloring Sheet

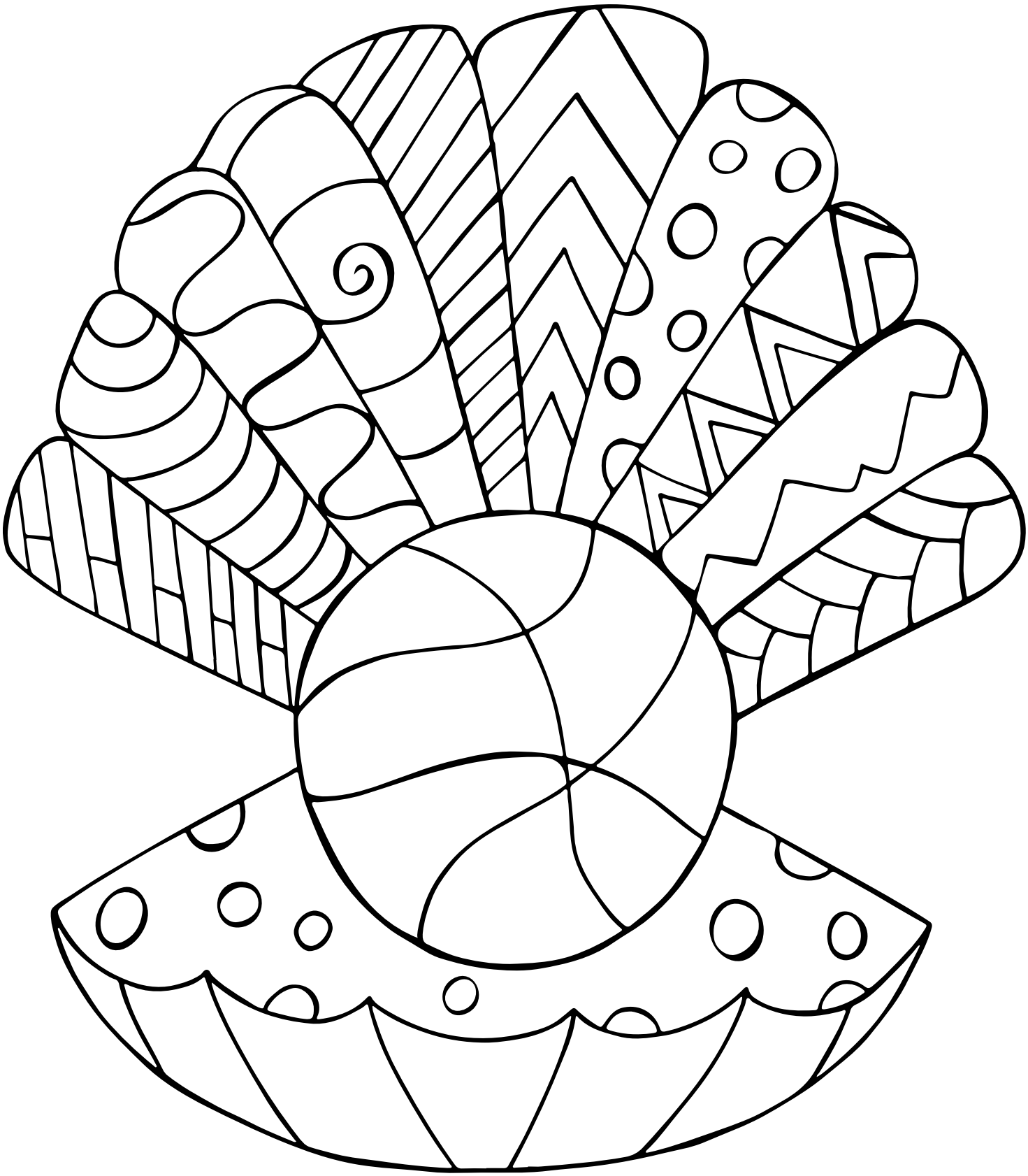


Image source: Shutterstock

GAME/ACTIVITY | PASSIVE | LOW COST

PIRATE SCAVENGER HUNT

AGES

Children 6+
Multigenerational

PROGRAM DESCRIPTION

Participants explore the library or community looking for treasures! Modify the scavenger hunt list to suit any theme or audience. Participants could also be given a treasure map to follow until they reach the X. Excellent for family nights. Suggested runtime: 45 min.

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials:

- Printed scavenger hunt lists (modify as desired); pencils

Suggested instructions for an in-person family event:

- Divide participants into groups of 2–3 people.
- Give them 30 minutes to explore and check off their findings.
- Be sure to give the exact time all groups should be back at the library.
- Don't forget prizes!

TIP:

See Here Be Monsters on page 329 for a family map-making program that could be combined with this scavenger hunt.

TIP:

Prearrange with community partners to place pirate and ocean-related props and pictures. Think inflatable sharks or mermaids, and nets with starfish or seashells.

ADAPTATION:

You could also have patrons paint seashells, then hide them around town. Let others post their findings on the library's Facebook page!

ADAPTATION:

Another idea is to hide laminated pirate/ocean words throughout a small geographic area, such as a local park. Participants write down all the words they can find, then use those words to make a sentence (or a short story). They get a prize for bringing their sentence to the librarian.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Books

Non-fiction

Treasure Hunting and Real Life Treasure Hunters (2019) by Catherine Fet (children's)

The Treasure Hunter's Handbook (2014) by Liz Gardner Walsh and Jennifer Smith-Mayo (children's)

Pirates and Treasure (1995) by Saviour Pirotta (children's)

Fiction

Treasure Island (1881) by Robert Louis Stevenson (children's)

Captain Jack and the Pirates (2016) by Peter Bently and Helen Oxenbury (children's)

The Treasure of Pirate Frank (2018) by Mal Peet, Elspeth Graham, and Jez Tuya (children's)

Pirate Nell's Tale to Tell (2020) by Helen Docherty and Thomas Docherty (children's)

Printables

Blank Treasure Map

Pirate Scavenger Hunt

FUN FACT:

It is a literary trope that pirates buried their treasure, born from the popular novel *Treasure Island:* See https://bit.ly/2TlwNVI or https://bit.ly/3hY76Ve for more info.

Image source: Shutterstock

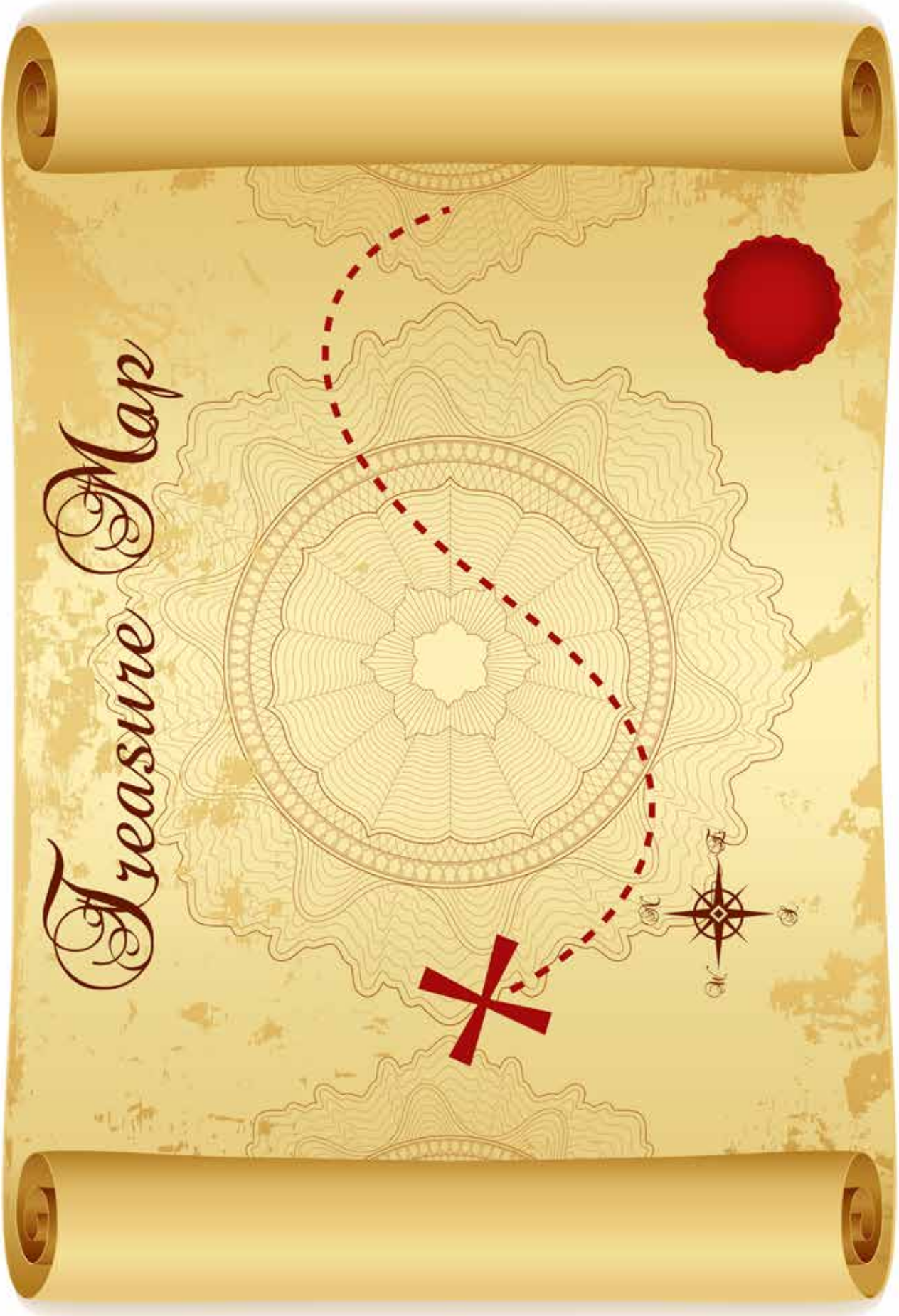


Image source: Shutterstock

PIRATE SCAVENGER HUNT

Can You Find...

A plank of wood ____

An eye patch ____

A hook ____

A rope ____

A flag ____

A map ____

An X ____

A parrot ____

A mermaid ____

A seashell ____

A coin ____

A key ____

A skull ____

A barrel ____

Stripes ____

Something that rhymes with wave ____

Something that rhymes with ship ____

Something that rhymes with blue ____

Something gray like a shark ____

Something wavy like seaweed ____

Something shiny like treasure ____

Something colorful like a parrot ____

SECRET MESSAGE IN A BOTTLE

AGES

Children 8+ years
Teens/tweens

PROGRAM DESCRIPTION

Decoding secret messages is sure to be a hit with older children and tweens! First they create their secret codes, then write secret messages to each other. Have them put their secret messages into empty soda bottles for transport. Suggested runtime: 45–60 min.

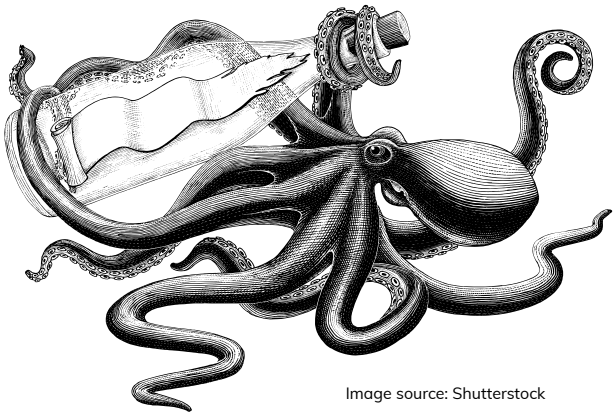


Image source: Shutterstock

MATERIALS AND PREPARATION

Materials: Paper; pens/pencils/markers; empty plastic water bottles; printable code references (see Resources); cardstock, split pins, and template (optional, for cipher wheel).

Instructions:

- Before the program, set up tables and chairs, and set out supplies.
- Once children have experimented with codes, they can either decode messages that you've put in bottles before the program, or trade their own codes with other children to decipher.
- They could also decorate the bottles.

Secret Code Ideas

Number Substitution

One number represents one letter. The simplest version is 1=A, 2=B, 3=C, and so forth.

Morse Code

Letters are represented by lines and dots. See Lighthouse STEAM Challenge on page 304 for a Morse code printable.

Book Cipher

This code requires that both the code writer and the person decoding it use the same edition of an agreed-upon book. It references entire words rather than letters. It works by providing numbers in sequences of threes—these numbers refer to the page number, line number, and word. You could use books in the library as references for this cipher!

Pigpen Code

This code uses shapes and dots to represent letters. (See Resources for a printable Pigpen code alphabet.)

Cipher Wheel

This code gives the children an opportunity to create their own cipher wheel.

- Print the cipher wheel template (see Resources) onto cardstock.
- Cut out the circles.
- Write the alphabet in the outer margin squares of each wheel.
- Use a split pin to secure the wheels together through the center, with the smaller wheel on top.

To use:

- Align the wheels so that the alphabet matches on both wheels.
- Choose two letters that both you and the recipient of the code will need to remember.
- Adjust the wheels so that these two letters line up.
- Now, you can use a simple letter substitution method to write your code!

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

Secret codes from *Enchanted Little World*: https://bit.ly/3c05AhP

Secret codes from *Pickle Bums*: https://bit.ly/3hTpiiZ

Cipher wheel tutorial from *Savvy Homemade*: https://bit.ly/3fnFuaq

Printable pigpen cipher from *Pickle Bums*: https://bit.ly/3umjuAZ

Books

<u>*Non-fiction*</u>

Top Secret: A Handbook of Codes, Ciphers, and Secret Writing (2006) by Jenna Lareau (children's)

Samuel Morse, That's Who! (2019) by Tracy Nelson Maurer and el primo Ramón (children's)

<u>*Fiction*</u>

The Uncorker of Ocean Bottles (2016) by Michelle Cuevas and Erin E. Stead (children's)

Harriet the Spy (2001) by Louise Fitzhugh (children's)

The Haunted Lighthouse (The Code Busters Club) (2013) by Penny Warner (children's)

The Secret Three (1963) by Mildred Myrick (children's)

The Mysterious Message (Geronimo Stilton Micekings) (2017) by Geronimo Stilton (children's)

Printables

Alphabet Cipher Wheel

Image source: Shutterstock

A B C D E F G I L M N O P Q R S T V X Z 1 2 3 4
a c e g k l n p r t v z & x y s o m q i h f d b
A B C D E F G I L M N O P Q R S T V X Z 1 2 3 4
a c e g k l n p r t v z & x y s o m q i h f d b

AHOY, MATEY! TALK LIKE A PIRATE DAY

AGES

Children 8+
Teens/tweens

PROGRAM DESCRIPTION

Celebrate the seafaring life through knotting and pirate talk! This program has several activity ideas. Run a quiz-style game on sailor/pirate vocabulary, modified for age-appropriateness. Make temporary tattoos and set up a sailor's "tattoo parlor." Teach a few basic seafaring knots and let participants practice them before running a contest to see who can tie them the fastest. Children can also use basic knots to create one-of-a-kind friendship bracelets or reef knot necklaces. Choose whichever games and crafts would best suit your library and audience, or run them all as stations. This program works well outdoors, and the knot-tying component would be easy to include in take-and-make bags. Suggested runtime: 45–90 min.

Image source: Shutterstock

Clove hitch knot

MATERIALS AND PREPARATION

Sailor's Tattoo Parlor

Materials: Printable clip art (see Resources); regular inkjet printer; white letter-size printer paper; A4 tattoo transfer paper; popsicle sticks

Instructions:

- Print tattoo clip art onto regular printer paper
- Apply adhesive transfer paper to printed sheets and remove air bubbles with popsicle stick
- Cut out tattoos
- Set up a tattoo station

TIP:

If your library subscribes to Mango Languages, it includes Pirate!

NOTE:

International Talk Like a Pirate Day is on September 19, so you could also run this program in the fall.

TIP:

Temporary tattoos also make great prizes for other programs. Get some printed with your library's logo here: https://bit.ly/2STarun

ADAPTATION:

Older audiences might love a presentation about historical pirates or what life is life on the high seas.

TIP:

If you're printing words, remember to print a mirror image of the tattoo! Otherwise, it will print backwards on skin.

Seafarer's Knots

Materials: Lengths of rope or macrame cord; pieces of doweling or overturned tables (to hitch to the legs); knot-tying books from your collection; embroidery floss; tape; ocean-themed charms, beads, and letters (optional); Cotton rope 3–10mm; scissors; ruler; masking tape

Instructable tutorial here: https://bit.ly/3yGUDv3

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Add an extra volunteer to each station to help with crafts.

RESOURCES

Web

Reef knot necklace from *Instructables*: https://bit.ly/3yGUDv3

"How to Tie Friendship Bracelets" from *WikiHow*: https://bit.ly/3bZq7Tz

Ways to start and finish bracelets from *DIYholic*: https://bit.ly/3bYseXQ

Sliding knot paracord bracelet from *Bored Paracord*: https://bit.ly/3fqJG9p

"Junior Pirates" from *Talk Like a Pirate*: https://bit.ly/3ySzEFY

Books

Non-fiction

The Whydah: A Pirate Ship Feared, Wrecked, and Found (2017) By Martin W. Sandler (YA)

Breverton's Nautical Curiosities: A Book Of The Sea (2010) by Terry Breverton (YA)

Fiction

The Last Voyage of Poe Blythe (2019) by Ally Condie (YA)

The Abyss Surrounds Us (2016) by Emily Skrutskie (YA)

Daughter of the Pirate King (2017) by Tricia Levenseller (YA)

Along the Saltwise Sea (2021) by A. Deborah Baker (YA)

The Bloody Jack series (2002–2014) by L. A. Meyer (children's)

The Castaways of the Flying Dutchman series (2002–2005) by Brian Jacques (children's)

Hook's Daughter: The Untold Tale of a Pirate Princess (2018) by R.V. Bowman (children's)

Printables

Nautical Knots

Oysterman and Stevedore Knot Steps

Sailor/Pirate Tattoos

Sailor Vocabulary

TIP:

If running as a large event with many people, it might be helpful to have a "cool down" space, a smaller, quieter room that can be used if a participant becomes overwhelmed by the noise/number of people.

Sheet Bend

Square Knot

Clove Hitch

Reef Knot

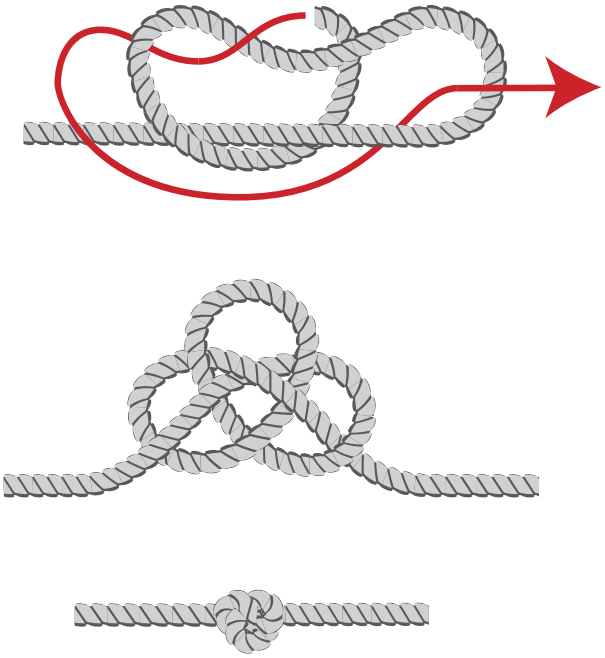
Figure 8 Knot

Fisherman's Knot

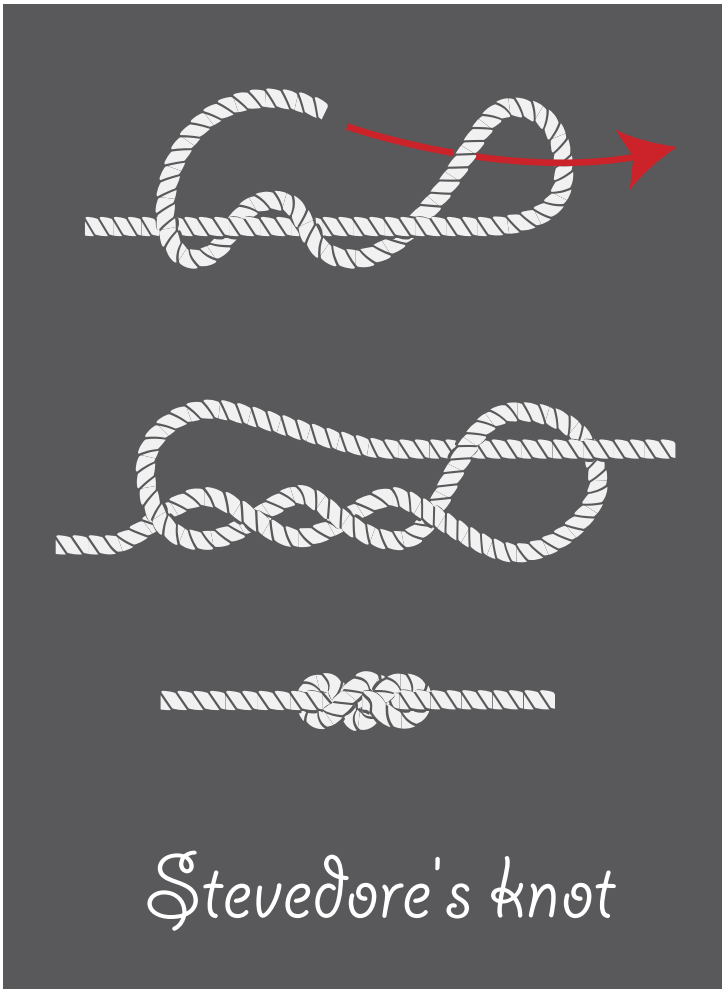
Carrick Bend

Overhand Knot

Image source: Shutterstock



Oysterman's knot



Stevedore's knot

Image source: Shutterstock

Image source: Shutterstock

SAILOR VOCABULARY

Ship Vocabulary

1. Baggywrinkle: A soft covering for standing rigging that prevents sail chafing.
2. Bumpkin: A beam projecting from the hull of a vessel.
3. Scantlings: The dimensions of a ship's structure.
4. Port and starboard: The left and right of a vessel.
5. Bow and stern: The front and back of a vessel.
6. Fathom: Unit of length to measure depth, the equivalent of six feet.
7. Bear: A large square stone used with sand to scrape wood decks clean.
8. Skiff: A small boat for leisure or fishing.
9. Stow: To store or put things away.

Sailor Vocabulary

1. Geedunk: Junk food.
2. Avast!: Stop what you're doing.
3. Scuttlebutt: Sailor gossip; also, an open cask of drinking water.
4. Landlubber: Someone unfamiliar with the sea.
5. Sea dog: An experienced sailor; also, a pirate or a harbor seal.
6. Flotsam: Wreckage from a ship floating on the water.
7. Jetsam: Goods from a ship cast deliberately overboard.
8. Grog: A mix of rum and water.
9. Bottomry: Pledging a ship as security in a financial transaction.

SINK OR FLOAT

AGES

Children 5–10 years

PROGRAM DESCRIPTION

This sink or float program can be run in a few different ways. For early elementary or kindergarten prep, discuss sinking vs. floating or show a video. Ask the children to predict if they think a variety of objects will sink or float, then test each one in the tub of water. Discuss and record together. Older children can design their own boats to see which one holds the most weight in water. Other simple craft options include origami boats and tiny cork boats. Suggested runtime: 30–60 minutes.

MATERIALS AND PREPARATION

Sink or Float Tests

Materials:

- A variety of waterproof items
- A tub of water
- Recording sheet with large boxes (optional, see Resources)

Image source: Shutterstock

ADAPTATION:

You could also set out a second tub of salt water for children to explore how salt water affects buoyancy.

Floating Boats

Materials:

- Aluminum foil 12 x 18 inches (1 sheet per person)
- Plastic tub with water
- At least 30 pennies for testing
- Paper and pencils for design work
- Masking tape, craft sticks, and craft foam (optional)
- Corks and toothpicks (optional)

Image source: Shutterstock

Instructions:

Children see what kind of boat they can make out of tinfoil. The boat must be able to float, cannot be wider or longer than 6 inches, and each penny added to the boat must hold for at least 15 seconds before adding another penny.

Image source: Shutterstock

Questions to ask:

- What if you redistribute the weight of the pennies?
- Is there any way to improve your boat? Modify your design and re-test.
- Which materials make a better boat?

ADAPTATION:

If you have time, try testing the boats in waves. Which ones handle waves the best?

UNIQUE SPACE AND/OR PERSONNEL NEEDS

An extra volunteer or staff member to monitor water safety.

RESOURCES

Web

Chicken crossing icebreaker puzzle from *Math Is Fun*: https://bit.ly/3yD0TUV

"Sink or Float" from *Sci Kids* (video): https://bit.ly/3vtz1jN

"Ferry Boat for Kids" from *Moving Machines for Kids*: https://bit.ly/34kU4JJ

Buoyancy video from *Kids Want to Know*: https://bit.ly/3fHZ684

Sink or float worksheet from *Teachers Pay Teachers*: https://bit.ly/3p3eFM8

Books

<u>*Non-fiction*</u>

Captain Kidd's Crew Experiments with Sinking and Floating (2012) by Mark Weakland (children's)

Let's Try It Out in the Water (2001) by Seymour Simon, Nicole Fauteux, and Doug Cushman (children's)

Things That Float and Things That Don't (2014) by David A. Adler and Anna Raff (children's)

Ways We Go: We Go on a Ferry (2019) by Joanne Mattern (children's)

Ferry Boat (2021) by Michael Garland (children's)

<u>*Fiction*</u>

What Floats in a Moat (2013) by Lynne Berry (children's)

Swim Swim Sink (2020) by Jennifer Harney (children's)

Fox & Chick: The Quiet Boat Ride and Other Stories (Fox & Chick series) (2019) by Sergio Ruzzier

Printables

Origami Boats

Instructions. How to make a paper boat

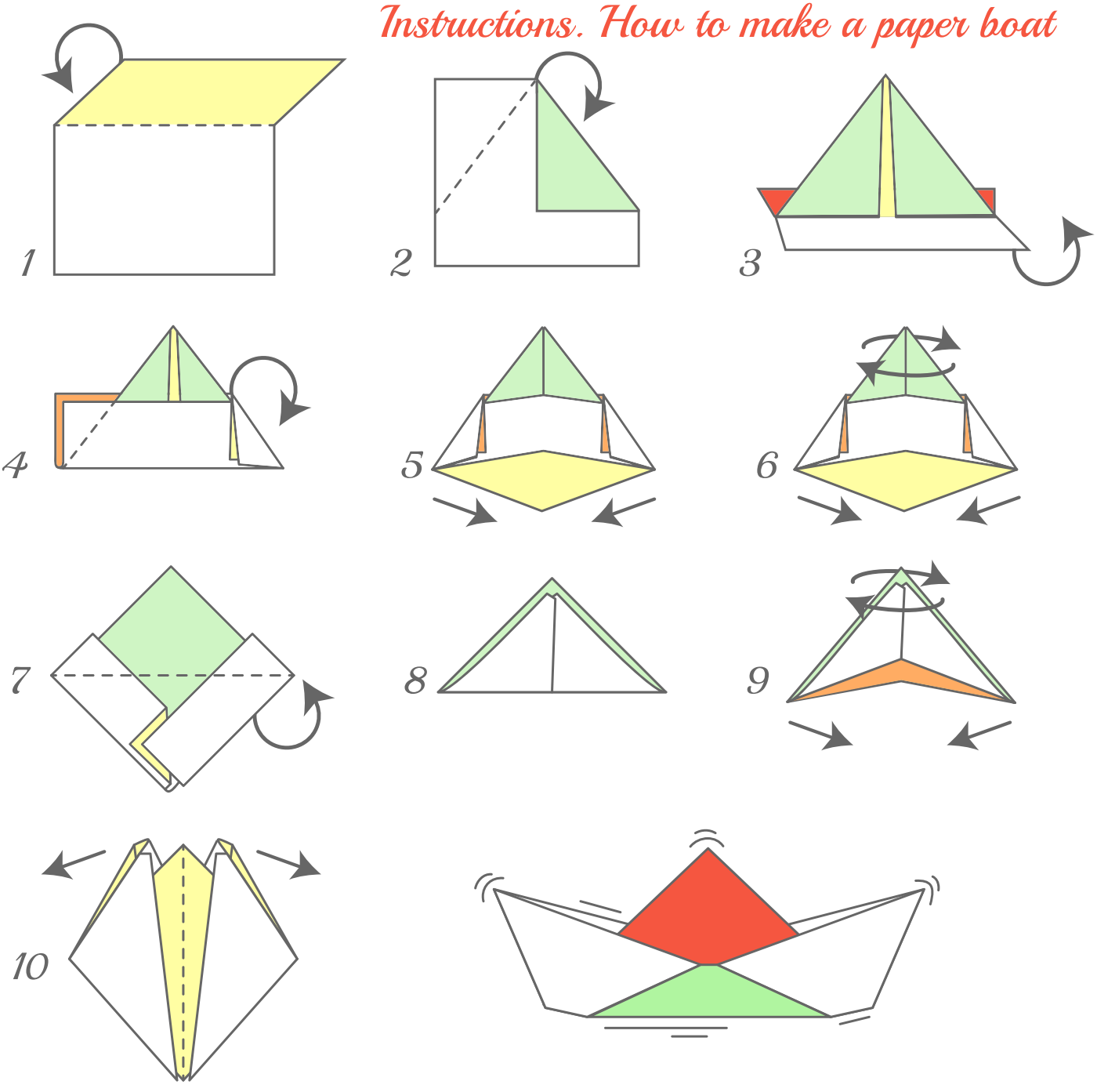


Image source: Shutterstock

SHARK LADY SUNCATCHER

AGES

Children 6+ years

PROGRAM DESCRIPTION

An elementary school-age program that introduces Eugenie Clark, a woman who made a career out of studying sharks. Run a short shark quiz game, then show short YouTube videos or read a picture book. The suncatcher craft is simple and made more so by precutting the tissue paper squares and silhouettes for younger children. Suggested runtime: 45 minutes.

Image source: Azita Frattarelli of Riverview Veterans Memorial Library, Riverview, MI

MATERIALS AND PREPARATION

Materials:

- Laminating sheets
- Tissue paper squares in different shades of blue and white
- Black construction paper
- Scissors
- Shark and diver silhouettes (see Printables)

Preparation:

- If you plan to show videos, you'll also need a laptop/projector.
- For younger children, precut tissue paper squares and shark/diver silhouettes.

TIP:

See also Shark Week! on page 256 one for more shark-themed games and crafts.

To assemble:

- Using the shark templates provided, children trace shark shapes onto black construction paper using pencils or white crayons. Cut them out.
- For each child, lay down one of the sheets of film sticky side up. They fill in the entire background with squares or torn bits of tissue paper. A few different colors make for a nice contrast.
- Place silhouettes on the tissue paper background. No need to worry about them sticking as the second sheet of film will seal them in place.
- When the picture feels complete, lay another piece of film on top, sticky side down. This will seal the picture.
- Use a hole punch to make two holes in the top of the suncatcher and string through a piece of ribbon for hanging.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

Shark suncatcher tutorial from *Buggy and Buddy*: https://bit.ly/3ut0vom

Shark quiz from *Britannica*: https://bit.ly/3bZfY9n

Article about Eugenie Clark from *Smithsonian*: https://s.si.edu/2RP8LSy

Eugenie Clark research with eels [6:24] from *Small Hope Bay Lodge*: https://bit.ly/3vEHqBn

Eugenie Clark memorial video [2:47] from *Cayman Tourism*: https://bit.ly/3yK4G2w

Books

Non-fiction

Swimming with Sharks: The Daring Discoveries of Eugenie Clark (2016) by Heather Lang and Jordi Solano (children's)

Ocean Speaks: How Marie Tharp Revealed the Ocean's Biggest Secret (2020) by Jess Keating and Katie Hickey (children's)

Fiction

Misunderstood Shark (2018) by Ame Dyckman and Scott Magoon (children's)

Printables

Shark Silhouettes
Diver Silhouettes

Whale Shark

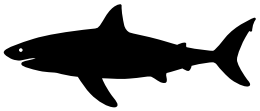
Basking Shark

Mako Shark

Common Thresher Shark

Bull Shark

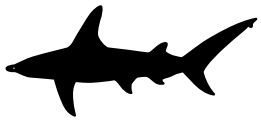
Tiger Shark



Great White Shark

Oceanic White Tip Shark

Blue Shark



Great Hammerhead Shark

Nurse Shark

Blacktip Reef Shark

Brownbanded Bambo Shark

Lemon Shark

Blunt nose sixgill Shark

Cookiecutter Shark

Dwarf Lantern Shark

Longnose Saw Shark

Image source: Shutterstock

Image source: Shutterstock

GAME/ACTIVITY | LOW COST

GIVE ME A SIGN! FUN WITH DIVING SIGN LANGUAGE

AGES

Children 8+ years
Multigenerational

PROGRAM DESCRIPTION

Learn about diving hand signals, then use them in an "underwater" obstacle course! Easily adaptable for children of all ages by controlling the number of hand signals you learn, or by adjusting the difficulty of the obstacle course. Good for families as well! See Resources for videos created by Allyson Brickner of Southwest Public Libraries in Grove City, OH. Suggested runtime: 45 min

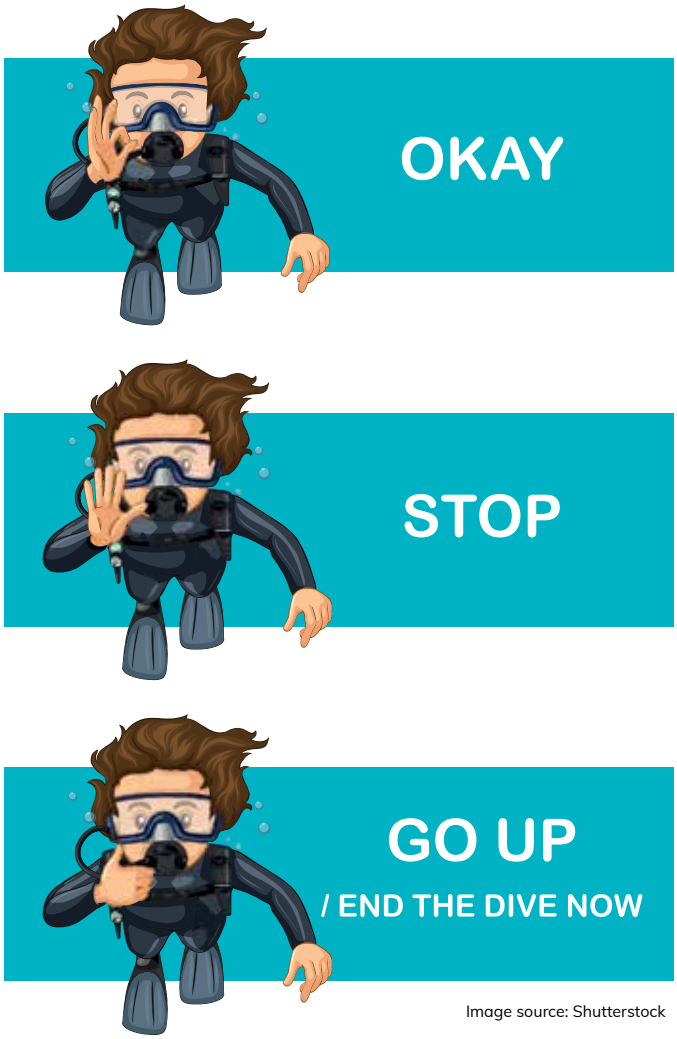


Image source: Shutterstock

TIP:

See Printables for an infographic on organizing multigenerational events, created by Stacey Brown of Augusta Memorial Public Library, Augusta, WI.

TIP:

When designing the courses, be sure to keep mobility issues in mind. Keep spaces wide and provide alternate routes for those in wheelchairs.

ADAPTATION:

If you can find a diving instructor, dive school, or diving enthusiast in your area, have them come in and talk about their experiences, bring their diving equipment and explain what hand signals they use.

GAME/ACTIVITY | LOW COST

MATERIALS AND PREPARATION

To introduce the topic, show a photo of a diver in a wetsuit/mask, or watch a video of scuba divers underwater. Discuss how communication changes when diving. For example, the mask/regulator makes seeing faces difficult, and divers can't talk. If you have a diving face mask/snorkel available you can use them to demonstrate. What might you need to say to someone under water? How could you make that clear without talking?

Hand Signals Practice

- Divide participants into groups of 2–4.
- Give each group at least one copy of the scuba hand signals page.
- Have them practice communicating with each other using only hand signals.
- Then tell a diving story for the whole room to practice together. It might sound something like this: "You have just dived into the ocean. Get with your buddy! (They show the "get with buddy" sign.) Tell your buddy you want to dive down! (They show the "go down" sign.) Or have groups make up their own stories.

TIP:

In addition to the handout, play YouTubes videos that demonstrate diving hand signals! See Resources for videos made by Allyson Brickner of Southwest Public Libraries in Grove City, OH.

IMAGINARY DIVE

Materials:

- Face masks (pandemic style), goggles/swim masks, or crafted masks
- Obstacle cards or objects

Instructions:

Keep participants in groups of 2–4. Have them wear "scuba" masks of some sort. One person in each group is the "dive leader" and directs the other members around the obstacle course using only hand signals. You can set up the obstacle course in your programming space beforehand, or have participants write/draw obstacles on poster board to spread around the room. For example, a sign might say "Oh, no! You're running short on air!" At that obstacle, divers must solve the problem by using the dive sign "ascend." You can also designate a volunteer to read each obstacle card out loud (for participants who cannot read).

TIP:

To make the experience even more immersive, set up a laptop/projector to project a live underwater scene that participants can "swim" through.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly

RESOURCES

Web

Video (silent) by Allyson Brickner of Southwest Public Libraries in Grove City, OH: https://youtu.be/-2p0H2GNSr8

Video (with speech) by Allyson Brickner of Southwest Public Libraries in Grove City, OH: https://youtu.be/vEGJQ3z1Eto

"What Is Scuba Diving Like?" [1:12] from *Groupon*: https://bit.ly/2QXmR3T

"Diving Underwater with PADI Instructor Thomas Koch" [1:15]: https://bit.ly/3wEb9KI

Basic diving signs from *For Divers*: https://bit.ly/3yBRMnn

Scuba diving hand signals and printable from *PADI*: https://bit.ly/3xkvrJW

Books

<u>*Non-fiction*</u>

Scubasigns: The Guide to All Diving Hand Signals (2009) by Dave van Stijn and Mike Harterink (adult)

<u>*Fiction*</u>

The Aquanaut (2021) by Jill Heinerth and Jamie Kim (children's)

Pete the Cat: Scuba-Cat (Pete the Cat: I Can Read! series) (2016) by James Dean and Kimberly Dean (children's)

Scuba Dog (2016) by Ann Marie Stephens and Jess Golden (children's)

Printables

Tips for Running Multigenerational Programs

TIP:

In "Diving Underwater with PADI Instructor Thomas Koch," a deaf diving instructor explains the difference between diving signals and ASL. Subtitles/no sound.

TIPS FOR PLANNING MULTIGENERATIONAL /FAMILY EVENTS

CHOOSE A SAFE HOST LOCATION

Be sure to consider the needs of seniors and young children. Look for potential hazards from falling, electricity, and water. Avoid pools/lakes where there is no lifeguard. Look for even walkways in outdoor spaces. Find ground level facilities or those that are handicap accessible.

ENSURE ADEQUATE SEATING

Provide some chairs with arms to help the elderly get up more easily. Offer high chairs or secure seats for toddlers. Allow space between seats for folks to navigate with walkers and canes. Reserve seating near aisles for parents with strollers and those in wheelchairs or who may need extra space.

INCLUSIVE ACTIVITIES

Try to include activities that everyone can participate in, such as puzzles, crafts, games, singing, or watching movies.

SERVE APPEALING FOODS/DRINKS

Offer kid-friendly finger food or other snack options that are easy to serve and appeal to a variety of age groups. This is helpful for parents as well as seniors who may have difficulty with passing heavy dishes or carrying trays to a table.

BOOST HEARING & VISUAL AIDS

Provide microphones and/or sound system amplification so that everyone can hear the presentation. Utilize a large screen with a large font on visual presentations so that even those seated in the back can read the slides.

KEEP IT SHORT & ENGAGING

Allow time for folks to get up and move around. It can be challenging to sit for a long presentation. Break it up into smaller bits to allow time for restroom breaks and snacks.

OTHER MATTERS FOR CONVENIENCE

- Find a location with a kitchen space if planning to serve foods.
- Make things user-friendly for seniors and parents of small children (e.g., restrooms with changing tables, accessible restroom facilities, elevators, handicap parking, etc.).
- Place trash and recycling bins near exits for easier cleanup.
- Ensure plenty of power supplies, outlets, and extension cords for AV equipment and/or small appliances for keeping food hot.

For additional tips visit:
https://productionplus.com/blog/event-solutions/multigenerational-event-planning-tips/

Infographic created by Stacey Brown Augusta Memorial Public Library, Augusta, WI

DIVE IN! MORE SCUBA DIVING FUN

AGES

Children 8+ years

PROGRAM DESCRIPTION

More scuba diving activities! Give a short presentation about amazing divers such as the Haenyeo Divers, Jacques Cousteau, or Eugenie Clark, then lead a discussion. What is the difference between snorkeling and diving? Children can practice "snorkeling" by pinching their noses and breathing through a paper straw for a couple of breaths. Then have children create a cute scuba diver craft (two options provided). For the photo booth, borrow some scuba diving gear from a local enthusiast. Suggested runtime: 60–90 min.

MATERIALS AND PREPARATION

Ocean Mural

Materials:

- Large paper
- Assorted art materials
- Scuba diving props (optional)

Image source: Shutterstock

Instructions:

Using a large piece of paper, draw an outline for an underwater scene. Participants add to the mural by using markers, paint, cutouts, etc. Add texture with additional art materials, such as crepe paper streamers for seaweed, sandpaper for the ocean floor, etc. Use whatever materials you have on hand. Once all participants have cycled through this station, open it up as a photo booth!

ADAPTATION:

A good program for older kids is to see if they can get a "scuba diver" to achieve neutral buoyancy. The librarian can explain the differences between positive, neutral, and negative buoyancy.

Egg-Cellent Diver Craft

Materials:

- 1 egg (blown-out shell, paper egg, or plastic egg)
- Hair elastics (1 per egg)
- Googly eyes (1 set per egg)
- Plastic bottle caps (1 per egg)
- Bendy paper straws (1 per egg)
- Stiff felt or cardboard (1 small piece per egg)
- White glue, quick-dry tacky glue, glue dots, or hot glue gun
- Egg dye or permanent markers (optional)
- Loop or training scissors (for inclusion)
- Oversized pencils (for inclusion)

Image source: Sidnie Srader of Jones Public Library, Dayton, TX

Assembly:

- Draw a flipper shape on your foam sheet, then cut it out.
- Glue flipper on the pointiest end of the egg (hold glue dot for 10 seconds)
- Wrap pipe cleaner around the middle of the egg, and twist the ends together
- Remove to cut off the extra, then secure it back in place with a glue dot.
- Place glue dots (two) on opposite edges of the bottom of the bottle cap, then attach the bottle cap to the pipe cleaner. Hold for 10 seconds.
- Attach googly eyes to the bottle cap with a glue dot for each, or use a sticker backed googly eye.
- Pull open the bendy straw. Place the shorter bent area below the bottle cap. Cut the long end so the straw is just above where the egg ends. Secure the egg with glue dots.

TIP:

If you use plastic eggs, you will need hot glue or glue dots to attach the pieces.

Swimming Diver Craft

Materials:

- Shoebox lid
- Craft stick
- Blue construction paper
- White paper
- Scissors or utility knife
- Glue or tape
- Markers/crayons and assorted craft materials

Assembly:

- Turn the shoebox lid lengthwise and cut blue paper to fit inside the lid.
- Create an ocean scene on the blue paper using markers/crayons, or whatever craft materials you have on hand for texture.
- Glue the picture inside the lid.
- Using scissors or a utility knife (have volunteers to help with this!) cut a long slit in the middle of the picture/lid, leaving uncut room on each end.
- Draw and color a diver on the white paper, then cut it out.
- Glue the diver to the top of the craft stick.
- Slide diver through the slit, so that you can move the diver around the picture.

Ocean Mural Photo Op

Participants take a picture in front of the mural wearing real scuba gear! Be sure to have a volunteer on hand to disinfect the gear between each person. You could also purchase props such as sea creatures for participants to hold and/or purchase a premade backdrop. Consider leaving the photo booth up all summer for a passive photo booth opportunity.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

An extra volunteer is recommended for each craft station.

Image source: Shutterstock

RESOURCES

Web

Divers in the Red Sea [6:30] from *Eastanubis*: https://bit.ly/3urmA6W

Video of a kid learning to scuba dive from *Laura Berg Life*: https://bit.ly/3wDmcUl

Depth and water pressure from *Education*: https://bit.ly/34kRZ03

Video about Haenyeo Divers from *UNESCO*: https://bit.ly/2RP9oLU

"Jacques Cousteau for Kids" from *Bedtime History* [11:57]: https://bit.ly/3vrnyBt

"The Story of Jacques Cousteau" from *SciShow* [4:32]: https://bit.ly/2SyPuog

List of live underwater feeds from *The Haphazard Traveler*: https://bit.ly/3bUjQbB

Alternate egg-cellent diver craft from *Hot Cinnamon Sticks*: https://bit.ly/3fNSPb1

Egg-blowing instructions from *Saunder's Eggs*: https://bit.ly/3oV7Zzk

Books

<u>*Non-fiction*</u>

Manfish: A Story of Jacques Cousteau (2008) by Jennifer Berne and Éric Puybaret (children's)

The Fantastic Undersea Life of Jacques Cousteau (2012) by Dan Yaccarino (children's)

<u>*Fiction*</u>

The Ocean Calls: A Haenyeo Mermaid Story (2020) by Tina Cho and Jess X. Snow (children's)

Monsters Don't Scuba Dive (The Adventures of the Bailey School Kids) (1995) by Debbie Dadey, Marcia Thornton Jones, and John Steven Gurney (children's)

TIP:

See Shark Lady Suncatcher on page 78 for resources about Eugenie Clarke.

INTO THE ABYSS: OCEAN ZONES

AGES

Children 8+ years

PROGRAM DESCRIPTION

Several options for learning about ocean zones! The first is an interactive display where patrons add sea creatures to the correct depths. The display can also be left up as a passive activity. For an in-person program, play the active Ocean Zones Game, then make a craft. To modify the craft for different age groups, have younger children distinguish between the three ocean zones (Sunlight, Twilight, and Midnight), and have older children use all five scientific zones (which further divide the Midnight Zone into the Abyss and the Deep Trenches). Suggested runtime: 45 min.

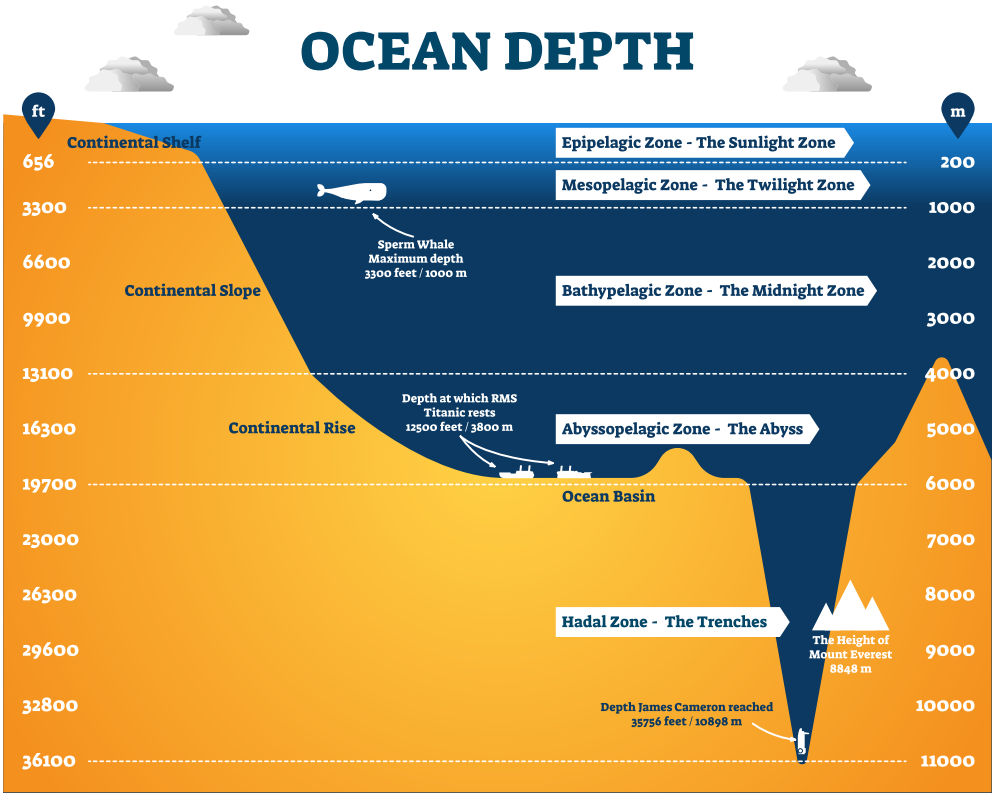


Image source: Shutterstock

TRIVIA:

What is the deepest point on earth? The Mariana Trench, at about 7 miles deep! (See the Mariana Trench program on page 308 for more.)

MATERIALS AND PREPARATION

Ocean Zones Display

Materials:

- Blue paper or felt in different shades
- Large magnetic or felt board
- Images of sea creatures (from sticker sheets or printed)
- Laminator
- Magnets or felt backing
- Scissors
- Hot glue to attach sea creatures to magnets or felt backings

Put up a poster or list of ocean zones and the sea life in those zones. Next to it, provide a blank ocean display (with clearly labelled zones) on which patrons can move sea creatures into their respective zones.

TIP:

Don't forget that some sea creatures live in more than one zone!

Ocean Zones Game

Materials:

- Tape, rope, or other materials to divide space into 3 sections.
- Ocean animal cards

Preparation:

Before the program, prep the cards. Each one should include a picture, name, and a fact about each animal. Choose a game option that best suits your audience.

Version 1 (very active)

- Participants line up at one end of the room
- Leader holds up an ocean creature, and participants run to that zone
- The leader reads the fact about that creature
- Then the leader holds up another creature and participants run to that zone
- There is no elimination, just a lot of movement for an active group

Version 2 (less active)

- Participants each are given a card with a ocean creature
- When given a signal, they sort themselves into the correct zone (no running needed)

Version 3 (less active, more challenging)

- Five participants are each given a card with an ocean creature, each from a different zone
- WITHOUT talking, participants sort themselves according to zone.

Ocean Zones Craft

Materials:

- Tall container, such as for sanitizing wipes or oatmeal
- 3 or 5 different shades of blue tissue paper
- Black tissue paper
- Paintbrush
- Mod Podge or white glue
- Scissors
- Animal silhouettes

For younger children, cut out the animal silhouettes in advance. Older children could also draw their own ocean animals.

Assembly:

- If using a container with a label that won't come off, paint it or glue on white paper before adding tissue paper. Alternatively, cover with construction paper instead.
- Then glue the tissue paper onto the container in three stripes.
- While the zones dry, participants cut out or draw their animal silhouettes.
- Then they glue them to the correct ocean zones. For example, kelp and all plants go in the Sunlight Zone, as do sea turtles and dolphins; whales go in both the Sunlight and Twilight Zones; and anglerfish go in the Midnight (Abyssal) Zone.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

The Ocean Zones game works well outdoors.

RESOURCES

Web

Deep sea creatures quiz from Zoo: https://bit.ly/3bXVSfA

Ocean zones video form *SciShow Kids*: https://bit.ly/3vtJpbl

Bizarre deep sea creatures video from *Be Amazed*: https://bit.ly/3yFCePo

Abyss-dwelling animals video from *Henry the PaleoGuy*: https://bit.ly/3uvBfxQ

Strange ocean creatures video from *Ben G. Thomas* [13:46]: https://bit.ly/3yHyNHW

Ocean zones craft from *Live Porpoisefully*: https://bit.ly/3yJ5eWw

Books

<u>*Non-fiction*</u>

Do Jellyfish Like Peanut Butter: Amazing Sea Creature Facts (2020) by Corinne Demas, Artemis Roehri and Ellen Shi (children's)

Alien Deep: Revealing the Mysterious Living World at the Bottom of the Ocean (2012) by Bradley Hague (children's)

Somewhere in the Ocean (2000) by Jennifer Ward, T.J. Marsh, and Kenneth J. Spengler (children's)

The Most Amazing Creatures in the Sea (2015) by Brenda Z. Guiberson and Gennady Spirin (children's)

I Wish I Was a Sea Turtle (Ranger Rick: I Can Read! series) (2020) by Jennifer Bové (children's)

Ocean Atlas: A Journey Across the Waves and Into the Deep (2020) by Tom Jackson and Ana Djordjevic.

<u>*Fiction*</u>

The Blobfish Book (2016) by Jessica Olein (children's)

The Ocean Disaster (Mad Scientist Academy) (2019) by Matthew McElligott (children's)

Challenger Deep (2016) by Neal Shusterman and Brendan Shusterman (YA)

Printables

Ocean Zones Facts

Sea Life Silhouettes

OCEAN ZONES FACTS

Zone 1: Sunlight (Epipelagic Zone, 0–200m below the surface)

Contains 90% of all ocean life, most animals and ALL of the plants. Dolphins, sea turtles, and most other air-breathers need to live in this zone. It is the warmest zone, and it gets enough sunlight to support photosynthesis. Plankton, seaweed, algae, seagrass, jellyfish, coral, turtles, orcas, dolphins, bigeye tuna, blue whales, sharks, angelfish, oysters.

Zone 2: Twilight (Mesopelagic Zone, 200–1,000m below the surface)

No plants grow in this zone because it doesn't have enough sunlight for photosynthesis. Animals in this zone either eat each other or floating bits that sink from the sunlight zone. Some bioluminescent animals live here, and some whales can dive into this zone too. Most fish in this zone are highly mobile, with muscular bodies and rigid bones. Sponges, octopuses, sperm whales, squid, crab, cuttlefish, swordfish, wolf eels, gulper eels, bigeye tuna, viperfish, hatchet fish.

Zone 3: Midnight (Bathypelagic Zone, 1,000–4,000m below the surface)

This zone is completely dark! Bioluminescence is the only source of light. It is cold and has very high water pressure. This zone goes all the way down to the deepest part of the ocean, the Mariana Trench in the Pacific Ocean, which is about 6.8 miles (11 km) deep. Fish here tend to have huge mouths that let them swallow everything that comes their way. Sea stars, octopuses, squid, large whales, frilled sharks.

Zone 4: Abyss (Abyssopelagic Zone, 4,000–6,000m below the surface)

Near freezing and low in oxygen, food, and nutrients. Fish often have no eyes. Anglerfish, Deep Sea/Humpback Anglerfish, deep sea jellyfish, tripod fish, cookiecutter shark, abyssal octopus.

Zone 5: Deep Trenches (Hadalpelagic Zone, 6,000–11,000m below the surface)

Freezing temperatures, heavy pressure, intense darkness. Mostly invertebrates. Sea cucumber, tube worms, deep-water squids, basket stars, sea pigs, sea spiders, star fish.

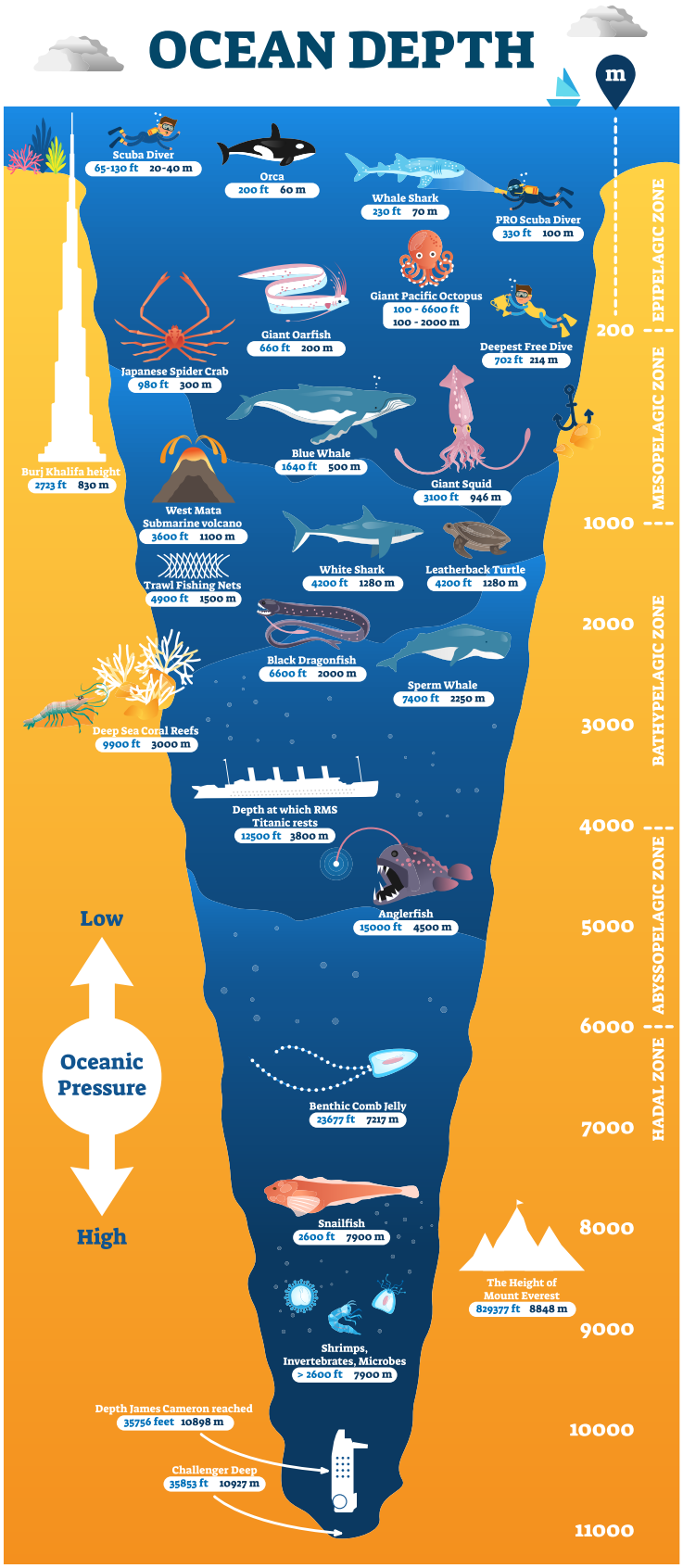


Image source: Shutterstock

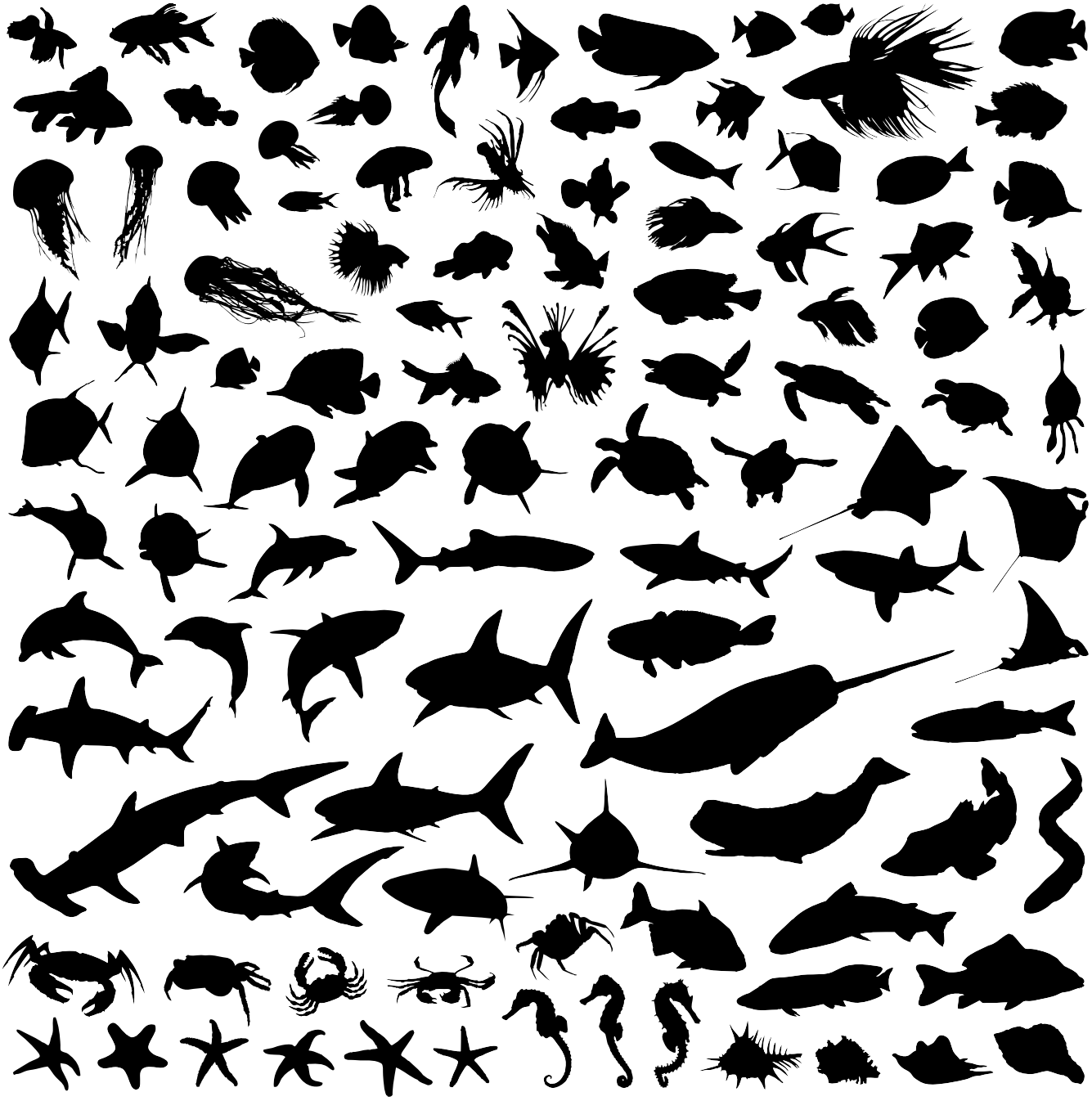


Image source: Shutterstock

CAN YOU DIG IT? MARITIME ARCHEOLOGY AND SHIPWRECKS

AGES

Children 7+ years

PROGRAM DESCRIPTION

Image source: Shutterstock

As time capsules, shipwrecks like the Titanic provoke our imagination. Underwater archaeologists interpret sunken artifacts, such as clothes, dining menus, and mariners' compasses, to tell us how ships were built, why they sank, and the stories of people from the past. In this program, mock digs and artifacts provide children the chance to piece together stories just like archaeologists. Don't forget to reach out to local museums or colleges to reach archeologists who might be able to give a presentation about local artifacts. Activities inspired by Luz Mejia-Ramos at the Pasadena Central Library and the San Diego Archaeological Center. Suggested runtime: 90 min.

MATERIALS AND PREPARATION

Activity #1: Artifact Bottles

Materials: Water bottles with labels removed (the smoother the sides the better), small objects to find (e.g., tiny charms, seashells, small toys, shaped beads, birthday candles, coins, keys, buttons), filler (e.g., colored rice, small peas, or sand), scoops or cups to get the filler in the bottle, super glue or hot glue to seal the bottles.

Optional: funnels; ribbon, stickers, etc. to decorate the top of the bottle when done

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

ADAPTATION:

A scaled-down version of this program could be used as part of an ocean-themed escape room. Children excavate a small plastic bin's worth of sand and dirt to find 3–4 parts of an object to tape together, or letters from a word to unscramble.

TIP:

Shipwrecks aren't just for oceans! According to the Great Lakes Shipwrecks Museum in Michigan, roughly 6,000 shipwrecks are currently at the bottom of these freshwater lakes, with 550 in Lake Superior alone. Reach out to local museums or historical societies to discuss wrecks in waterways near you.

ADAPTATIONS:

- Instead of making sensory bottles, set up a sensory station.
- Use tupperware or bags instead of bottles.
- This craft also makes a fun take-and-make kit.

Instructions:

- Let participants select 15–20 items to go in their bottle.
- Take a reference photo of their items, and print it out (optional).
- Fill the bottle around ¼ full with filler.
- Add the objects and more filler if necessary until the bottle is ¾ full.
- Place the cap on the bottle, using a little glue to make sure it stays secure. Decorate the top as desired.

Activity #2: Titanic Artifacts

Materials: 5–8 artifacts similar to those that have been recovered from the Titanic (such as a menu, pair of gloves, leather shoe, receipts, violin, coins, and more) or photographs of those artifacts, handouts of the Titanic's blueprints.

Optional: Projector, screen, and laptop to create a slideshow presentation of the artifact photographs—if using this method, include the blueprints of the Titanic here instead of as a handout.

Instructions:

- If using, prepare the slideshow presentation in advance.
- Reveal artifacts one at a time and lead a discussion around each one. Who do the children think owned it? How do they think it was used? Where in the wreck do they think it was found? Do they think similar artifacts will be recovered?

Activity #3: Buried Treasure Archaeological Dig

Materials: Artifacts or pictures of them; sand; water; cornstarch; plastic cup; broken pieces of recycled/paper/styrofoam dishes; large basin; excavation tools such as popsicle sticks, spoons, rocks, and brushes; tablecloths; masking tape; tacky glue; pencils; paper

Instructions:

- Prep archaeological digs 2–3 days before the program. Break styrofoam or paper cups and/or plates into chunks.
- In cups, combine 3 parts sand, 2 parts cornstarch, and 1 part water. The mixture should have the consistency of soft serve ice cream. Add small amounts of any ingredient if you need to make adjustments to the consistency.

Image source: Shutterstock

TIP:

Because it includes small objects and strong glue, children under 5 will need supervision. You could also size up the artifacts for younger children.

- Pour the mixture into the basin. Press down broken pieces. Let the mixture dry for 2-3 days.
- Cover two tables with tablecloths. Place the prepared basin and the excavation tools on one, and on the other set up a restoration station where they can try to reconstruct cups or plates.
- Children use a variety of excavation tools to dig up the pottery pieces.

Activity #4: Large Mock Dig

Materials: A large kiddie pool (may need more than one depending on the size of the group—4–5 children can work on one kiddie pool); potting soil, sand, water, stones and other natural materials to create the landscape of an archaeological dig; rubber gloves; string or yarn; scissors; tape; yard-stick; pencil; paper; a variety of artifacts such as coins, cooking utensils, dishes, jewelry, or keys; excavation tools such brushes and trowels; tarps or drop cloths for messes.

Instructions:

- Place drop sheets or tarps down to catch any mess.
- In advance, fill the kiddie pool with potting soil, sand, stones, and a small amount of water to create the landscape of a dig site. Bury artifacts throughout the pool.
- Divide children into groups of four or five per kiddie pool. Have children wear gloves.
- Archeologists dig in a grid system to stay neat and organized. Use the yarn, scissors, and yardstick to divide each pool into sections; secure yarn with tape. Have each child pick a plotted piece to excavate.
- Children bring excavated items to the restoration station to sketch and categorize them. Who or what left them behind?

UNIQUE SPACE AND/OR PERSONNEL NEEDS

The mock digs can get messy and work well outdoors. Add 1–2 extra vol-unteers or staff members as needed to help with multiple activities.

RESOURCES

Web

Dig program from the San Diego Archaeological Center: https://bit.ly/2SAb8sd

"Dig for Ancient Treasures" from the Pasadena Public Library: https://bit.ly/3fvWRWV

"Titanic Deck Plans" from *Encyclopedia Titanica*: https://bit.ly/3uoia0x

Preserving Titanic artifacts from *CNN*: https://bit.ly/3up5eaD

"New Artifacts from the Titanic" from *Today in Nashville*: https://bit.ly/2Toxwp6

"What is Marine Archeology?" from the Smithsonian: https://s.si.edu/3vmAwjT

"Marine Archeology" from the NOAA: https://bit.ly/34njMwZ

Books

Non-fiction

The Sinking of Titanic (2018) by Valerie Bodden (adult)

Discovering the Titanic's Remains (2017) by Meish Goldish and Melinda E. Ratchford (children's)

Digging Deep: How Science Unearths Puzzles from the Past (2019) by Laura Scandiffio (children's)

Shackles from the Deep (2017) by Michael H. Cottman (children's)

Accidental Archaeologists (2020) by Sarah Albee and Nathaniel Hackett (children's)

OCEAN DAY: HONORING THE OCEAN

AGES

Children 8+
Teens/tweens

PROGRAM DESCRIPTION

This program was inspired by the Japanese summertime holiday Ocean Day (also referred to as Marine Day), that honors the ocean as a food source and as a means of transportation. You can teach children about the holiday or alter the program to have an environmental twist. One popular Ocean Day tradition is to light lanterns on the waterfront in Tokyo, so children can make their own paper lanterns with LED lights. Suggested runtime: 60 min.

Image source: Shutterstock

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials: Watercolors, paintbrushes, paper, white paper lunch bags, hole punches, battery operated tea lights, tables, chairs

Optional: PowerPoint presentation, laptop, projector

Image source: Shutterstock

TIP:

Offer ocean-themed or Japanese candies and snacks, such as Swedish Fish, sheets of seaweed, Pocky sticks, Hello Pandas, etc.

ICEBREAKER IDEA:

Create a PowerPoint with enlarged images of ocean life, then have participants try to guess what the images are.

Instructions:

- Teach participants about the holiday. Ocean Day is celebrated on the third Monday of July and celebrates gratitude for the ocean and its importance in our lives. People spend their time watching fireworks, coordinating beach clean ups, and attending festivals.
- Create paper lanterns out of white lunch bags. Children can paint, decorate, or add poems to their lanterns before adding LED tea lights.
- Teens may like to try their hand at writing kanji on their lanterns (one of the three scripts used in Japanese writing). They could also use blank stationary or create a watercolor wash background. Kanji suggestions are words such as ocean, peace, respect, etc.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

"Celebrating Marine Day in Japan" from *The Japanese Shop*: https://bit.ly/3wD49xD

Plastic phones on the beach from *The New York Times*: https://nyti.ms/3fsHrmd

Guide to writing kanji from *Kanshudo* https://bit.ly/3fvVxDr

Study tool for leaning kanji from *Kanji Alive*: https://kanjialive.com/

Books

<u>Non-fiction</u>

Japanese Celebrations: Cherry Blossoms, Lanterns and Stars! (2006) by Betty Reynolds (children's)

Floating Lanterns and Golden Shrines: Celebrating Japanese Festivals (2000) by Rena Krasno (children's)

Let's Learn Japanese (2019) by Aurora Cacciapuoti (children's)

My First Book of Haiku Poems (2019) by Esperanza Ramirez-Christensen and Tracy Gallup (children's)

The Mess That We Made (2020) by Michelle Lord and Julia Blattman (children's)

A Planet Full of Plastic (2019) by Neal Layton (children's)

Let's Investigate Plastic Pollution (2018) by Ruth Owen (children's)

What a Waste: Trash, Recycling, and Protecting our Planet (2019) by

Jess French (children's)

Plastic, Ahoy!: Investigating the Great Pacific Garbage Patch (2014) by Patricia Newman (children's)

Fiction

Saving Tally: An Adventure into the Great Pacific Plastic Patch (2019) by Serena Lane Ferrari and Giorgia Fallicelli (children's)

The Phone Booth in Mr. Hirota's Garden (2019) by Heather Smith and Rachel Wada (children's)

Harry Saves the Ocean: Teaching Children about Sea Pollution and Recycling (2019) by N.G. K., Sylva Fae, and Janae Dimmet (children's)

CRAFT | LOW COST | PASSIVE

VISION BOARDS: DREAMS AS VAST AS THE SEVEN SEAS

AGES

Children 8+ years

PROGRAM DESCRIPTION

Participants learn about vision boards and create one for themselves. Be sure to create a vision board before the program, or show pictures of different vision boards, to give them ideas! You could cut out images, pictures, and quotes ahead of time, or let participants choose their own from magazines. This could also work as an activity that children complete at home, then bring to the library to share or display. Older children could make bullet journals instead. Suggested runtime: 45–60 min.

Image source: Shutterstock

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials: Poster board, scissors, tape, pins, glue sticks, markers, stickers, magazines, printer (optional).

CRAFT | LOW COST | PASSIVE

Instructions:

- Introduce vision boards. They are creative expressions of our dreams, goals, and values that can be placed in our homes to inspire and motivate us.
- Ask participants about their goals and dreams.
- Participants will then cut out pictures from magazines or print images/ quotes from the internet.
- Suggest that they choose a collage of seven items that mean something to them, such as words, images, or poems.
- They can decorate the poster board however they choose.

The significance of seven:

- The term “seven seas” dates back thousands of years and has, over time, referred to many different bodies of water as determined by many different cultures.
- To the Ancient Greeks, the seven seas were said to be the Mediterranean Sea, Aegean Sea, Adriatic Sea, Black Sea, Red Sea, Caspian Sea and the Persian Gulf.
- In the Age Of Exploration, the seven seas were said to be Arctic Ocean, Atlantic Ocean, Indian Ocean, Pacific Ocean, Mediterranean Sea, Caribbean Sea and Gulf of Mexico.
- In Modern times, the seven seas consist of the South Atlantic Ocean, North Atlantic Ocean, South Pacific Ocean, North Pacific Ocean, Arctic Ocean, Indian Ocean and Southern Ocean.
- Seven is a very significant number religiously and culturally. Consider:
  - 7 colors of the rainbow
  - 7 wonders of the world
  - 7 days of the week
  - 7 dwarves in the story of Snow White
  - 7 days of creation in Christianity
  - 7 branches of the Menorah
  - 7 chakras in Hindu mythology
  - 7 Heavens of Islam

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly. Wall space for display (optional).

RESOURCES

Web

About vision boards from *A Conscious Rethink*: https://bit.ly/3fnbcES

Books

<u>*Non-fiction*</u>

Emmanuel's Dream: The True Story of Emmanuel Ofosu Yeboah (2015) by Laurie Ann Thompson and Sean Qualls

Dare the Wind: The Record-Breaking Voyage of Eleanor Prentiss and the Flying Cloud (2014) by Tracey Fern and Emily Arnold McCully

Child of the Dream (2020) by Sharon Robinson (children's)

<u>*Fiction*</u>

Auntie Luce's Talking Paintings (2018) by Francie Latour and Ken Daley

Newsprints (2017) by Ru Xu (children's)

Take the Mic: Fictional Stories of Everyday Resistance (2019) by Jason Reynolds, Samira Ahmed et. al. (children's)

Tar Beach (1996) by Faith Ringgold (children's)

TIP:

See Here Be Monsters: Family Map-Making Night on page 329 for more resources about the seven seas.

GAME/ACTIVITY

PERCY JACKSON BOOK CLUB

AGES

Children 8+ years
Teens/tweens

PROGRAM DESCRIPTION

Run a Percy Jackson Book Club and end the summer with a Percy Jackson Party! If your budget allows, offer a book to anyone who participates. Once the books have been read but prior to the celebration, have children choose their Greek god/goddess name and come dressed as that character (e.g., Zeus, Poseidon, Hades, Hera, Ares, Athena, Apollo, Aphrodite, Hermes, Artemis, Hephaestus, Demeter, Dionysus). Percy's Mother had a thing for blue food, so you could serve blueberries, blue corn tortilla chips, blue Gatorade, blue jelly beans, blue fruit roll-ups, and blue yogurt. For a teen adaptation, consider *Lore* by Alexandra Bracken or *Tristan Strong Punches a Hole in the Sky* by Kwame Mbalia. Suggested runtime: 90 min.

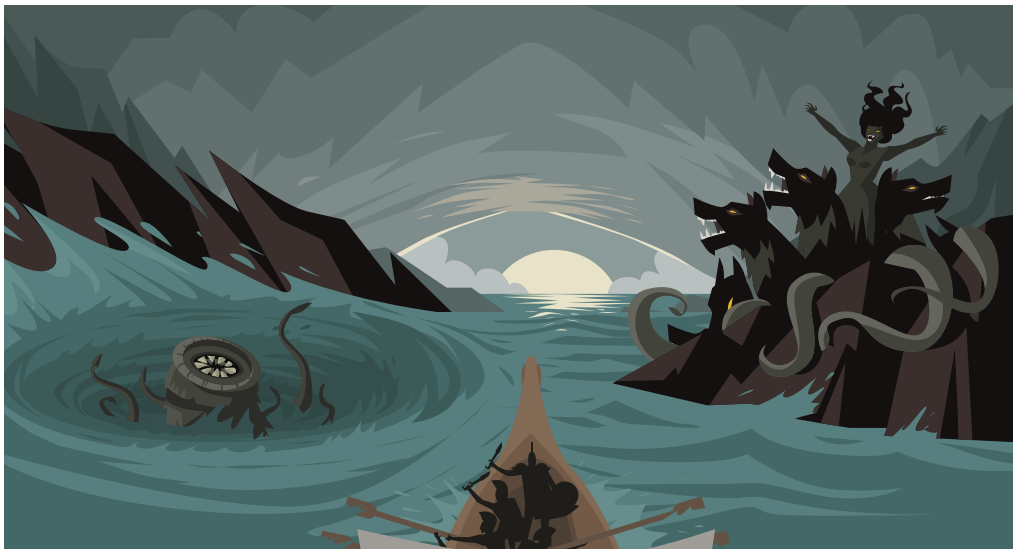


Image source: Shutterstock

Image source: Shutterstock

ADAPTATION:

Tie a program to Artemis, Goddess of the Hunt. Many state wildlife or parks departments offer free archery lessons for kids.

GAME/ACTIVITY

MATERIALS AND PREPARATION

Activity #1: Create a God/Goddess Headband

Materials: Plastic headbands, cardstock, scissors, felt, glue, ribbon

Instructions:

- Draw a laurel leaf template on cardstock and cut it out.
- Trace the leaf shape onto felt.
- Cut out as many leaves as desired, and glue them to the headband.
- Add ribbon if desired.

Image source: Shutterstock

Activity #2: Battle with Poseidon

Materials: Kiddie pool or large tub, water, corks, rubber bands, toothpicks, colored paper

Image source: Shutterstock

Instructions:

- Use corks to build a simple toy boat by securing three corks together side-by-side with rubber bands.
- Once you have the floating cork base, push a toothpick partially into the center, so that it sticks straight up.
- Cut a triangle out of the colored paper for the sail, and “thread” it onto the toothpick by puncturing the paper at the top and bottom.
- Sail your boat across the sea (kiddie pool or tub).
- You can create your own Sea of Monsters for the boats to battle across by adding items which represent Polyphemus, Scylla and Charybdis, the Sirens, or Poseidon.

Activity #3: Percy Jackson Mad-Libs

Materials: Official Percy Jackson Mad-Libs are available online; alternatively, make your own using the books as reference.

Instructions:

- In advance, make or purchase Percy Jackson Mad-Libs.
- Have children call out different kinds of words to fill in the blanks and make funny sentences.
- Children could also play this in pairs.

Activity #4: Temporary Tattoos

Materials: Simple clip art (the more basic the better), printer and paper, spray bottle of isopropyl alcohol, hot water, sink or basin to hold the water, towels or rags

Instructions:

- In advance, research the history of tattoos.
- Share the cultural and historical importance of tattoos with the participants.
- Invite children to choose a simple clip art image. See Resources for a Greek gods clip art.
- Print images and cut them out, leaving about ½ inch–1 inch of border around the image.
- Spray the image with isopropyl alcohol from a distance of about six inches. Continue spraying until the image is fully drenched.
- Prepare a hot water bath, either by filling a sink with hot water, or boiling water and pouring it into a basin.
- Immerse the paper in the hot water for 3–5 minutes.
- Very carefully remove the paper—it will be delicate and rip easily!
- Spray your arm (or the place where you want the tattoo to go) with the isopropyl alcohol.
- Lay the paper face down on your arm, cover with a rag or towel, and hold tightly for 90 seconds.
- Lift the towel and peel the paper off. Voilà! You have a tattoo.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

The Battle with Poseidon is a good activity to take outside.

GAME/ACTIVITY

RESOURCES

Web

"Laurel Wreaths Three Ways" from *Small Talk Mama*: https://bit.ly/3iaCm3N

Easy cork boat craft from *RedTedArt*: https://bit.ly/3hVADiz

Percy Jackson Mad Libs from Amazon: https://amzn.to/3hXDO9p

Temporary tattoos with perfume from Readers Digest: https://bit.ly/3fqDnmr

Temporary tattoos with alcohol from *LifeHacker*: https://bit.ly/34lTfA2

Books

Percy Jackson and the Olympians series by Rick Riordan (children's):

#1: *The Lightning Thief* (2005)

#2: *The Sea of Monsters* (2006)

#3: *The Titan's Curse* (2007)

#4: *The Battle of the Labyrinth* (2008)

#5: *The Last Olympian* (2009)

Printables

Greek Gods/Goddesses Clip Art

Image source: Shutterstock

MYTHICAL SEA CREATURES: FLIPBOOKS, BINGO, AND MORE!

AGES

Children 8+ years

Teens/tweens

PROGRAM DESCRIPTION

Participants draw their own versions of mythical sea creatures using fish, human, monster, or animal body parts. Their drawings then get sliced into thirds and compiled into a flipbook. You can also make this into a collaborative drawing game known as Exquisite Corpse, where children add to each other's drawings without seeing what was drawn before. While the flipbooks get compiled, children can play sea creature bingo, or make mermaid terrariums or painted rocks. The bingo cards would also work in a library scavenger hunt. Suggested runtime: 45–60 min.

MATERIALS AND PREPARATION

Activity #1: Mix-Up Flip Books

Materials: Drawing paper; construction paper; pens, colored pencils, crayons, or markers; stapler; 3-hole punch and rings or spiral binding machine; photocopier (optional)

Instructions:

- In advance, prepare an 8 ½ x 11" piece of paper by dividing it into thirds with dotted lines (head, body, and tail sections). Across the whole page, draw a partial outline of a sea creature for children to finish. Ensure that you leave a margin on the left hand side for binding. Make enough copies for every participant.
- Children draw/finish their mythical creatures.
- When the drawings are complete, cut the pictures along the dotted lines.
- Staple, hole-punch, or spiral bind the different pictures together along the left side and bind them together into a book.
- Use as a flip book, changing which parts line up, to make new creatures.

TIP:

If running this program Exquisite Corpse-style, you can mark the points at which the head should join to the body, and the body should join the tail. Or you can leave the very bottom strip of the previous drawing exposed when it is passed to the next person. Either way allows for vastly different drawings to match up for continuity.

ADAPTATION:

For a passive option, provide stacks of paper on which teens draw their own versions of gods/goddess/sirens. After a number of submissions, slice each drawing into thirds and turn them into a laminated flipbook to display in the teen area of the library.

- Optionally, make copies of each participant's drawing, then collate them so every participant gets to take home their own flipbook.
- Run an ocean-themed game or craft in the interim while a volunteer or other staff member does the photocopying and binding.

Activity #2: Sea Creatures Bingo

Materials: Sea creature bingo cards or printouts, bingo markers

Instructions:

- In advance, create sea creature bingo cards by writing different sea creatures in each bingo square. Use the template provided or design your own cards using Adobe Spark (see Resources). You could also laminate them for multiple uses.
- Choose obscure or well-known sea creatures, depending on your audience.
- If families participate, children as young as four could play along.

Activity #3: Mermaid or Sea Creature Terrariums

Materials: Clear containers such as glass pint jars, clear plastic cups, glass vases, or clear recycled soda bottles; pebbles; real moss and/or plants, or "plants" made from colored paper, clay, or recycled materials; soil if using real plants; plastic sea creatures/mermaids or clay

Image source: Shutterstock

Instructions:

- Have children build their terrariums by layering their materials in the clear containers in the following order:
  - Pebbles
  - Soil
  - Moss
  - Plants (real or crafted), as well as sea creatures/mermaids, etc.
- If plants are used, teach children how to water and look after their terrariums.

TIP:

Using real dirt in terrariums can get messy, so consider taking this craft outside.

Activity #4: Painted Mermaid Rocks

Materials: Flat rocks, acrylic paint, paintbrushes, Mod Podge (optional), metallic paint pens (optional)

Instructions:

- Before beginning, wash your rocks and allow them to dry.
- Invite children to mix blue or green colors and cover their rocks with a coat of color.
- Using a fine brush or a paint pen, add mermaid scales over top of the blue or green color.
- Alternatively, children can paint fish, sea creatures, waves, etc. on the rocks. See Resources for inspiration.
- Once the paint has dried, coat the rocks with a layer of Mod Podge (optional)

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Volunteers to collate the drawings and/or help with individual activities.

RESOURCES

Web

Bingo card templates from Adobe: https://adobe.ly/3urM44a

List of legendary creatures from *Wikipedia*: https://bit.ly/2R2o4ql

"Exquisite Corpse" video from *Art in Motion*: https://bit.ly/3i4J1vY

Monster flip book tutorial from *Make and Takes*: https://bit.ly/3uvYwQ9

"Ocean Animals Mix and Match" (printable) from *All Kids Network*: https://bit.ly/3wQlALp

"DIY Terrariums for Kids" from *CBC Kids*: https://bit.ly/3oUtG2F

Exquisite corpse explanation from MOMA: https://mo.ma/3yGX15c

Exquisite corpse from *Wikipedia*: https://bit.ly/3yH2cCb

Painting mermaid rocks tutorial from *Fin Fun*: https://bit.ly/2SaPQSn

Books

Non-fiction

The Loch Ness Monster (2020) by Jen Besel (children's)

The Atlas of Monsters: Mythical Creatures from Around the World (2019) by Sandra Lawrence and Stuart Hill (children's)

Children's Book of Mythical Beasts and Magical Monsters (2018) by DK (children's)

Fiction

Myth Match: A Fantastical Flipbook of Extraordinary Beasts (2018) by Good Wives and Warriors (children's)

Putuguq and Kublu and the Qalupalik (2019) by Roselynn Christopher, Danny Christopher, and Astrid Arijanto (children's)

The Loch Ness Monster (Autobiographies You Thought You'd Never Read) (2015) by Catherine Chambers (children's)

How to Catch a Mermaid (2018) by Adam Wallace and Andy Elkerton (children's)

Emily Windsnap series by Liz Kessler and Natacha Ledwidge (children's)

Mabel: A Mermaid Fable (2020) by Rowboat Watkins (children's)

Printables

Blank Bingo Card

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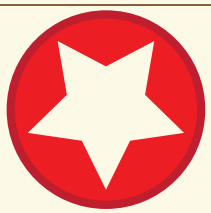
				

UNDER CONSTRUCTION: SEVEN WONDERS OF THE SEVEN SEAS

AGES

Children 8+
Teens/tweens

PROGRAM DESCRIPTION

In this program, teens build structures based on the New Seven Wonders of the World. They could use candy, veggie sticks and toothpicks, and/or non-edible building materials such as Legos, popsicle sticks, or balsa wood. Choose building materials that work best for your library and patrons. As an icebreaker, run a seven seas taste-testing challenge! Set out seven different flavors of Goldfish crackers (or nori, sea creature gummies, etc.). Participants can try to name the flavors or simply rank their favorites from best to worst. You could also feature one book to go with each flavor. See Printables for a Goldfish coloring sheet for teens who finish both activities early. Suggested runtime: 60–90 min.

Image source: Shutterstock

MATERIALS AND PREPARATION

Goldfish Taste Testing

Materials:

- Goldfish crackers in assorted flavors
- One bowl per flavor
- Cups for each participant to put goldfish crackers in
- Forms listing each goldfish cracker, with a blank space for rating
- Small pencils
- Napkins
- Featured book descriptions

Instructions:

- Set up tables throughout the room.
- Each table should have a bowl of Goldfish crackers, napkins, and spoons.
- When teens arrive, give them the form to fill out, a pencil, and a cup.
- Randomly assign teens to tables.
- Give two minutes at each station to sample and read book descriptions.
- At the end, give five minutes for teens to rate. Compare ratings.
- Let teens peruse the featured books.

Building Activities

Materials:

- Building materials
- Photos of the New Seven Wonders of the World
- Prizes for the winners

Instructions: Set up seven tables up with tablecloths and evenly divide candy or building supplies. Label each table with a different wonder of the world and place a corresponding photo on the table. Divide teens evenly and have them create their interpretations of one of the seven wonders. Let teens know how much time they have to build. At the end, have a representative from each group talk about their wonder, then have teens vote by applause (while not voting for their own wonder). The group with the loudest applause will be declared winners!

TIP:

Have teens peruse the actual books (rather than descriptions) after the taste-testing to avoid greasy fingers on books. Be sure to acquire (or interlibrary loan) extra copies of your chosen books!

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Consider soliciting food donations from a local grocery story or bakery.

RESOURCES

Web

"Seven Wonders of the Ancient World" from *National Geographic Kids*: https://bit.ly/3fpXIs0

"Seven Wonders of the Ancient World" from *Wikipedia*: https://bit.ly/3vwS1Oo

"Seven Modern Wonders of the World" from *Wikipedia*: https://bit.ly/3uqUFUA

List of Goldfish flavors from *Thrillist*: https://bit.ly/2ROU8yA

Books

Fiction

The Seven Wonders series (2013–2016) by Peter Lerangis (YA)

Non-fiction

Where Were the Seven Wonders of the Ancient World? (2020) by Yona Z. McDonough and Dede Putra (children)

Seven Wonders of the Ancient World (2002) by Diana Bentley (YA)

Book of the Seven Seas (2003) by Peter Freuchen (YA)

The Seven Wonders of the World: A History of the Modern Imagination (2005) by John Romer and Elizabeth Romer (YA)

What are the Seven Wonders of the World? And 60 Other Great Cultural Questions (2005) by Peter D'Epiro, Mary Desmond Pinkowish, and Richard Beards (YA/adult)

Printables

Goldfish Coloring Sheet

TIP:

The middle grade Where Is? series is also a good choice about specific locations and wonders from all over the world.

Image source: Shutterstock

GAME/ACTIVITY | OUTDOORS | LOW COST

CATCH! THE WORLD'S OCEANS

AGES

Children 5+ years

PROGRAM DESCRIPTION

Children get to know each other through a fun activity that introduces the importance of water on Earth. This can be run as an icebreaker or a short program on its own. First, ask them to guess how much of the earth's surface is covered by water (71%). During the game, children toss a soft Earth (such as an inflatable ball or stuffed globe), noting with each catch whether their index finger touches ocean or land. The record keeper tracks the tally, and you can determine the ratio as a group after the game is over. Estimated runtime: 30 minutes.

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials:

- 1 inflatable Earth globe or a Hugg-a-Planet Earth
- Calculator (optional)

Instructions:

Select a volunteer record keeper, and invite children to stand in a circle and toss the Earth ball to each other. Designate the area immediately behind one side of the circle "ocean" and the other side "land." Every time a child catches the ball, they shout "Ocean!" or "Land!" depending on where their finger lands. Then they move to the ocean or land side of the circle. Two lines form as the game progresses. At the end, ask the record keeper to share results. Calculate the percentage of "ocean" vs. "land" contacts.

SOURCE:

Developed by National Science Foundation and STAR Net; reprinted with permission.

ADAPTATION:

For younger children, be sure to discuss how the blue parts of the globe represent water, and the other colors represent land. Instead of calculating percentages, point out how the "ocean" line is longer than the "land" line at the end of the game.

ADAPTATION:

For older children, guide a discussion about how oceans influence weather patterns, even if your region is far from the ocean.

Questions to ask during discussion:

- How do we use water everyday?
- Where is water found?
- Where do we find salt water vs. fresh water?

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Works well outdoors. Solo-librarian friendly.

RESOURCES

Web

Full program from *STAR Net*: https://bit.ly/3hYO15i

Hugg a Planet Earth from *Peace Toys*: https://bit.ly/3fpwyl2

Books

<u>*Non-fiction*</u>

Why Water's Worth It (2019) by Lori Harrison and Jon Harrison (children's)

Ocean! Waves for All! (2020) by Stacy McAnulty and David Lichtfield (children's)

If Polar Bears Disappeared (2018) by Lily Williams (children's)

Ocean Seasons (2014) by Ron Hirschi and Kirsten Carlson (children's)

<u>*Fiction*</u>

Sea Bear (2019) by Lindsay Moore (children's)

The Snail and the Whale (2006) by Julia Donaldson and Alex Scheffler (children's)

Oliver and the Seawigs (2014) by Philip Reeve and Sarah McIntyre (children's)

OCEAN ECOSYSTEM DESSERT

AGES

Children 8+ years

PROGRAM DESCRIPTION

It's hard to imagine life on Earth without oceans. The air you breathe used to be an ocean breeze. The water you drink was once in a cloud over the ocean. The ocean is also important to the many species of plants and animals that call the water their home. This community of organisms is called an ecosystem.

Human-caused climate change is warming our planet, and the oceans are feeling the heat. Plants and animals in the ocean ecosystem are sensitive to changes in the ocean's temperature. Some organisms can adapt to the change, but others can't survive the warmer temperatures. Since so much life is dependent on these waters, it's important to keep the oceans healthy!

Scientists are monitoring the temperature of the ocean with an instrument called the Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Aqua satellite. The satellite measures the temperature of the top millimeter of the ocean's surface.

With this activity, learn to make a cool and tasty version of the ocean ecosystem at home! Suggested runtime: 30–90 minutes.

MATERIALS AND PREPARATION

Materials:

- A large, clear bowl
- Two 6 oz boxes of blue gelatin dessert mix
- Red licorice twists and gummy fish
- Mint leaves
- Scissors
- Hot and cold water
- Liquid measuring cup
- Spoon

SOURCE:

This activity was reprinted with permission from NASA Climate Kids.

TIP:

Plan a 45-minute activity to fill the time for the gelatin to thicken, or prepare the "ocean water" 45 minutes before the start of the program. The desserts will need to solidify for another 2–3 hours after they are assembled, so make this a two-part program where children eat their desserts on the second day.

TIP:

After 45 min, the gelatin should be a thick liquid that is only slightly firm.

To make:

- Make the ocean water. Follow the directions on the box of blue gelatin dessert mix by pouring 2 cups of hot water into the bowl with 2 packages of blue gelatin powder. Stir for 2 minutes. Once the powder is dissolved, mix in 2 cups of cold water. Place the bowl in the refrigerator for approximately 45 minutes.
- Make the coral. While the gelatin is in the refrigerator, use the scissors to cut the red licorice strips into short sections that are only a few inches long. The licorice will represent the coral in your edible ecosystem.
- Make the seaweed. Cut the mint into segments approximately 2 to 3 inches long. The mint leaves will represent the seaweed in your edible ocean ecosystem.
- After 45 minutes have passed, remove your gelatin from the refrigerator. It should be thicker than liquid, but not completely firm. If the gelatin is still very runny, place it back in the refrigerator for 10 minutes and check it again.
- Assemble your ocean ecosystem. Once the gelatin has become a thick liquid, begin placing your seaweed (mint), coral (licorice), and fish (gummy fish) in the ocean of blue gelatin. Push each item into the gelatin with your finger. Be sure to place some of your fish, coral, and seaweed right next to the glass so that they're easy to see. When you're done, jiggle the gelatin a bit to repair the holes.
- Refrigerate the gelatin again. Place gelatin in the refrigerator for another 2 to 3 hours. This will allow the gelatin to become totally firm.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

You will need a refrigerator and a way to boil water. Solo-librarian friendly.

RESOURCES

Web

Ecosystem dessert from *NASA Climate Kids*: https://go.nasa.gov/3foepUK

Books

Non-fiction

The New Ocean: The Fate of Life in a Changing Sea (2017) by Bryn Barnard (children's)

Ocean Sunlight (2012) by Penny Chisholm and Molly Bang (children's)

Fiction

Crab Cake: Turning the Tide Together (2019) by Andrea Tsurumi (children's)

Touch the Earth (2017) by Julian Lennon, Bart Davis, and Smiljana Coh (children's)

WATERSHEDS AND AQUIFERS

AGES

Children 6+ years

PROGRAM DESCRIPTION

Introduce children to watersheds or aquifers—or both!—with these activity ideas.

For the watershed, children build a model landscape using recycled materials, then add water to watch how the shape of the land helps collect water. Older children can use modeling clay, salt dough, or landscaping materials to form the watershed. For the aquifer, children layer landscaping materials (or edible food items) in a translucent container to watch how water (or soda) seeps through the layers. For an outreach component, invite local soil and water conservationists to talk about the watershed in your area. See Resources for a groundwater worksheet and video clip suggestions that can be used to introduce either topic. Suggested runtime for each activity: 30–45 min.

MATERIALS AND PREPARATION

Watersheds

Materials:

- Large shallow pans (one per group)
- Recycled materials such as newspaper, cups, and plastic bottles
- Water, blue food coloring, and spray bottles
- Clear or light-colored plastic, such as tarps or garbage bags
- Glitter, spices, or sprinkles to represent litter
- Plastic table coverings for easy cleanup
- Paper towels

Before the program, cover the tables with plastic table coverings for easy cleanup. Set out one shallow pan, recycled materials, and tape for each workstation.

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

DEFINITIONS:

Watershed: A land area whose runoff drains into any river, stream, lake, or ocean. Watersheds transport water over the Earth's surface.

AQUIFER:

A geologic formation of soil, sand, and rock that stores groundwater that has seeped down from the surface.

FUN FACT:

70% of the Earth is covered in water, but only 1% is readily available for human use!

TIP:

If making edible aquifers for children to eat, be sure to list all ingredients and check for any dietary restrictions before the program.

During the program, instruct children to use the recycled materials to build a model landscape with valleys, rivers, hills, and lakes. For example, they can crumble newspapers into balls of different shapes and sizes. Have them tape all landscape elements to the bottom of the pan. When they're finished, cover the models with clear or light-colored plastic, pressing it down in between the landscape features. They can now spray their landscape with "rain."

Discussion questions/topics:

- Did the rain go where they expected it to go?
- How many hills/mountains and valleys does the model have?
- Is there a drainage divide (imaginary lines along which "rain" goes to one side or another)?
- Where are there rivers and streams (where water runs downhill)?
- Where are the ponds and lakes (where river pools in low areas)?
- Where does your water come from? Your local watershed! Which is why it is important to not pollute land and water.

Ask participants to soak up all the rain water from their models with paper towels. This time, add litter to the tops of hills and mountains (i.e., sprinkles, glitter, or spices). Where does the litter end up?

Aquifers

Materials:

- Clear containers (such as large mason jars or plastic cups)
- Landscaping materials such as sand, pebbles, or rocks
- Water to pour over the aquifers

An edible version might contain layers of ice cream, breakfast cereal, crushed ice, chocolate chips, crushed cookies, sprinkles, and clear soda. For this version, have a volunteer on hand to scoop the ice cream into each cup, and cover the tables with plastic for easy cleanup. After children layer their aquifers, they pour water into the container and watch how it collects. (For the edible version, pour clear soda over the layers instead of water.)

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

ADAPTATIONS:

Use an adaptive cup to pour the "rain" on the model instead of using a spray bottle. The model can also be done on the floor or at a table depending on ability. Clear mugs can be substituted for plastic cups that are hard to grasp. Be sure to use closed captioning on video, and printed materials can be enlarged for low vision.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

When making large models, this program works best outdoors.

RESOURCES

Web

"Build a Watershed" from *PBS Kids*: https://to.pbs.org/3usuwVA

"What is Groundwater?" video from *KQED Quest*: https://bit.ly/3hWZmmw

Watershed protection activity booklet from *Project Wet*: https://bit.ly/3wzQaIX

"Edible Aquifers" from *The Groundwater Foundation*: https://bit.ly/3c0ZrSn

Books

Non-fiction

The Water Princess (2016) by Susan Verde, Georgie Badiel, and Peter H. Reynolds (children's)

We Are Water Protectors (2020) by Carole Lindstrom and Michaela Goade (children's)

The Ocean in Your Bathtub (2020) by Seth Fishman and Isabel Greenberg (children's)

Blue Planet: Life in Our Oceans and Rivers (2019) by Moira Butterfield and Jonathan Woodward (children's)

This Raindrop: Has a Billion Stories to Tell (2020) by Linda Ragsdale and Srimalie Bassani (children's)

I Am the Rain (2018) by John Paterson (children's)

Fiction

River (2019) by Elisha Cooper (children's)

Crawdad Creek (2002) by Scott Russell Sanders (children's)

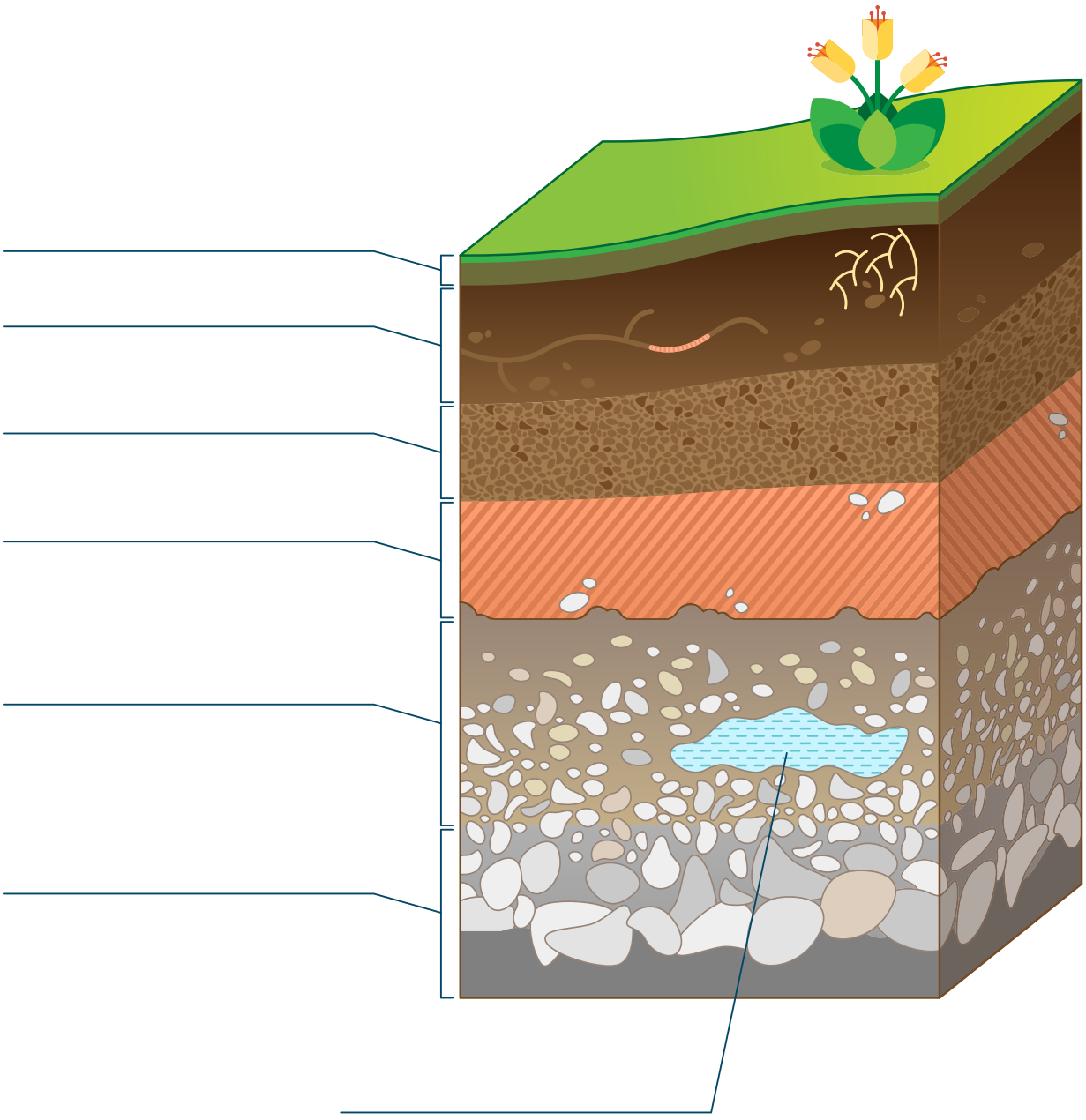
The River Bank (2017) by Kij Johnson and Kathleen Jennings (children's)

Song of the River (2020) by Joy Cowley and Kimberly Andrews (children's)

Printables

Ground Layers Worksheet

Ground Layers
Worksheet



Sub Soil

Top Soil

Eluviated (Leaching Layer)

Rock (Parent Material)

Organic (Litter Layer)

Groundwater

Weathered Parent Material

Image source: Shutterstock

PLASTIC POLLUTION

AGES

Children 6+ years

PROGRAM DESCRIPTION

A program about the human impact on our waterways and oceans due to the global plastic trash crisis. Globally, plastic is the most abundant type of marine litter. Plastics are so abundant because they take so long to break down. Begin a discussion about what we use and dispose of that is plastic, i.e. straws, plastic cups, shampoo bottles, flip-flops, toys, pens, etc. Discuss microplastics, which include toothpaste, makeup, fleece, etc. Microplastics are small (less than 5 mm in diameter) but deadly to marine life. Activities adapted from "Talking Trash & Taking Action" by the Ocean Conservancy & NOAA Marine Debris. Suggested runtime: 30 min per activity.

MATERIALS AND PREPARATION

Activity #1: Plastic Breakdown

Materials:

- ½ sheet of scrap paper per participant

Children rip paper into tiny pieces until they can't be made smaller. Explain that this activity mimics how plastics break down in the ocean and other waterways. The tiny pieces of plastic that break down from larger ones are called microplastics, which are very harmful to marine life that ingests the plastics.

Activity #2: Trash Travels

Materials:

- Bowls or pie tins (1 per person)
- Spoons (1 per person)
- Lightweight breakfast cereal
- Water

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

ADAPTATION:

For teens/adults, hold a plastic-free spa day by making natural scrubs from coconut oil, sugar, and salt, and/or face masks from honey and bananas.

TIP:

For a teen/adult plastic upcycling project, see also Plastic Bag Pot Craft on page 52.

Discuss how currents are important because they carry nutrients and organisms (like Crush from Nemo!) across the oceans. You can show current maps or have participants draw currents of maps. Then show a picture of the Great Pacific Garbage Patch.

Assembly:

- Fill each bowl ¾ with water, or have children do this themselves.
- Add ¼ cup of cereal (marine debris) to the water.
- Using the spoon, stir the water for 10 seconds near the edge of the bowl.
- Remove the spoon and observe what happens to the "marine debris." Most of the debris (cereal) accumulates in the center of the bowl because it follows the current. Some other debris gets caught in another current and gets sent to the edge (shore/beaches).

Activity #3: Food or Foe

Materials:

- Vanilla pudding cups (1 per person)
- Small bowls (1 per person)
- Gummy bears (8 per person)
- Gummy worms (2 per person, precut into quarters)
- Spoons (1 per person)
- Napkins
- Sprinkles

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

Children replicate how marine debris is mistaken for food and ingested by marine wildlife.

Assembly:

- Add vanilla pudding to a bowl and mix in 2–3 drops of blue food coloring.
- Rinse and keep the empty pudding cup to upcycle it into a craft!
- Add quartered gummy worms and bears to the pudding.
- Add a spoonful of sprinkles to each bowl.
- One everyone has their "ocean" bowl, a spoon, and a napkin, tell them that they are sea turtles and are going to eat jellies.

- Give children 20 seconds to collect as many jellies as they can using ONLY their spoons. Have them add the food onto the napkin. Tell participants not to eat anything yet!
- Look at what they collected. Explain that both the gummy bears ("food") and worms ("plastic") look very similar in the pudding, just like how plastic in the ocean looks to marine animals. If they have any sprinkles they have also ingested microplastics.
- Now they put everything back in the bowl and eat their ocean plastics.

Activity #4: Upcycled Jellyfish Pudding Cup Craft

Materials:

- Recycled pudding cups (1 per person)
- Googly eyes (1 per person)
- Recycled bubble wrap in 14–16" long strips (6–10 per person)
- Colored ribbon in 14–16" long strips (5–7 per person)
- Tape & glue
- Something sharp to put a hole in the pudding cup

To prepare, solicit recycled materials before the program. Cut strips and poke holes in the pudding cups before the program, or let older children do this themselves.

Assembly:

- String a piece of ribbon through and tie a knot on the inside of the cup, so it won't pull through.
- Tape bubble wrap and ribbon strips to the inside of the cup.
- Glue googly eyes on the front of the pudding cup.

Image source: Joelle Wake of Whiting Public Library, Whiting, IN

TIP:

In the spirit of reducing plastic waste, be sure to use recycled materials for your jellyfish.

RESOURCES

Web

Video about plastic pollution from *Oceana*: https://bit.ly/3oUAWvv

What happens to the plastic you throw away from *TED-Ed*: https://bit.ly/3wE0Oyh

Books

<u>*Non-fiction*</u>

Plastic Sea: A Bird's-Eye View (2020) by Kristi Blom and Geir Wing Gabrielson (children's)

Plasticus Maritimus: An Invasive Species (2020) by Ana Pego,Isabel Minhós Martins, and Bernardo P. Carvalho (children's)

The Last Straw: Kids Vs. Plastics (2021) by Susan Hood and Christiane Engel (children's)

Cast Away: Poems for Our Time (2020) by Naomi Shihab Nye (children's/YA)

Kids Fight Plastic (2020) by Martin Dorey and Tim Wesson (children's)

Taking on the Plastics Crisis (2020) by Hannah Testa and Ashley Lukashevsky (YA)

<u>*Fiction*</u>

Seagull Sid and the Naughty Things His Seagulls Did (2019) by Dawn McMillan and Ross Kinnaird (children's)

Stella Diaz Never Gives Up (2020) by Angela Dominguez (children's)

The Party's Over! Plastic Pollution Must End (2020) by Scott Andrew MacNeil Bernier (YA)

WATER CYCLE RELAY RACE

AGES

Children 8+ years
Tweens

PROGRAM DESCRIPTION

This game helps patrons learn about the water cycle with a fun relay race that uses water cycle vocabulary. First describe the steps in the water cycle and show how it works. This game was originally created by Utah State University Water Quality Extension. Suggested runtime: 30 minutes.

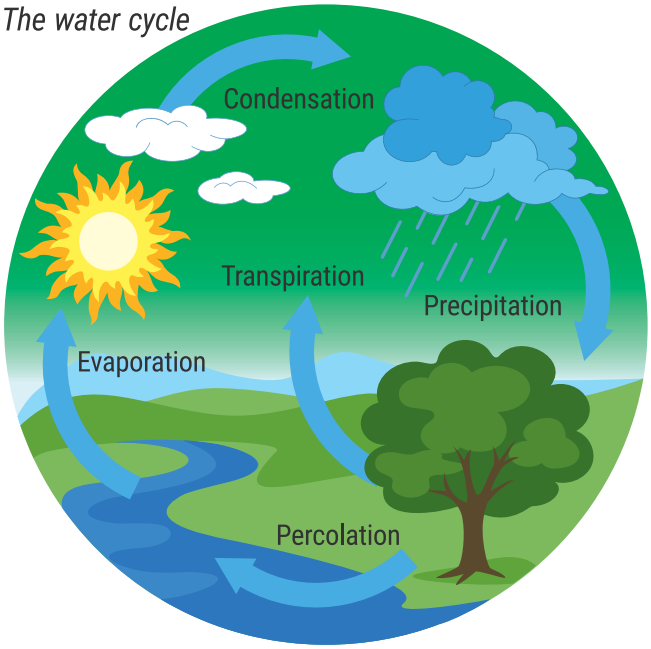


Image source: Shutterstock

MATERIALS AND PREPARATION

Materials:

- 1 tray of ice cubes per team
- 1 set of vocabulary words on paper or index cards per team
- Tape for each team
- 1 spoon per team
- 1 set of definitions
- 1 or 2 buckets or large bowls
- Water cycle poster with lines for corresponding vocabulary (see Printables)

Before the program, create the water cycle poster. You can create a water cycle poster by enlarging and adding blank lines to the printable attached to this idea.

ADAPTATIONS:

Allow participants to sit while playing, reduce the distance between lines, use spoons with ergonomic grips, increase size/font of water cycle poster, or read the definitions out loud and write them on poster board.

To start:

- Divide the group into two or more teams.
- Describe the steps in the cycle, and discuss how it works.
- Show the missing terms on the water cycle diagram. Explain that they will fill in the blanks with the missing words during the relay race.
- Pass out a spoon and a tray of ice cubes to each team.
- Optional: have the teams practice passing the spoon with the ice cube on it.
- Give each group a set of the following nine vocabulary words written on index cards or paper: evaporation, condensation, cloud, precipitation, river, infiltration, ground water, evapotranspiration, and water cycle.
- Have the teams attach a piece of tape to each slip of paper.
- Give the teams time to discuss the words and their definitions, and to look at the poster to begin thinking about where the vocab words go.

To play:

- After you read a definition from the water cycle, the team QUIETLY decides which word best fits the definition.
- The last person in line tapes the slip of paper with the matching word to the bottom of the spoon and places the ice cube in the spoon. They then pass the entire spoon to the next person, and so on down the line.
- The person at the head of the line walks quickly to the poster at the front of the room, places the ice cube in the bucket and tapes the word to the correct spot on the cycle, then returns to the end of the line. The race begins again with another definition.
- Teams score one point for each correctly placed vocabulary word. The team that finishes first gets an extra point (and wins!).

UNIQUE SPACE AND/OR PERSONNEL NEEDS

To prevent wet carpets, this program works best outside. Solo-librarian friendly.

RULES:

No one may touch the ice cube after it has been placed on the spoon. If an ice cube drops, teams must restart from the back of the line. They can use the fallen ice cube or start fresh with a new one.

RESOURCES

Non-fiction

The Great Big Water Cycle Adventure (2018) by Kay Barnham (children's)

Water is Water: A Book About the Water Cycle (2015) by Miranda Paul and Jason Chin (children's)

All the Water in the World (2011) by George Ella Lyon and Katherine Tillotson (children's)

When Cloud Became a Cloud (2021) by Rob Hodgson (children's)

Drop: An Adventure Through the Water Cycle (2021) by Emily Kate Moon (children's)

Printables

Water Cycle Poster

Water Cycle Vocabulary (two pages)

Image source: Shutterstock

PRINT AND CUT: WATER CYCLE VOCABULARY

EVAPORATION	**CONDENSATION**	**CLOUD**
PRECIPITATION	**RIVER**	**INFILTRATION**
GROUND WATER	**EVAPOTRANSPIRATION**	**WATER CYCLE**

PRINT AND CUT: WATER CYCLE DEFINITIONS

EVAPORATION Heat from the sun makes water rise up.	**CONDENSATION** Was once a gas but then changed into a liquid able to be seen.	**CLOUD** Water vapor in the sky. We refer to them as cumulus, stratus, and cirrus.
PRECIPITATION Falls down as a crystal, drip, or even a ball	**RIVER** A large natural stream of water flowing in a channel to the sea, a lake, or another such stream.	**INFILTRATION** Movement of water into the ground from the surface.
GROUND WATER Is beneath the surface of the ground in the zone of saturation where every pore space between rock and soil particles is saturated with water.	**EVAPOTRANSPIRATION** Water evaporated from plants.	**WATER CYCLE** Movement of water into the ground from the surface.

GAME/ACTIVITY

OIL SPILL CLEANUP

AGES

Children 8+ years

PROGRAM DESCRIPTION

Ocean life is beautiful, but oil spills can pose a threat to these awesome ecosystems! Explain oil spills and their effects on the ecosystem, or read a picture book on the subject. For older children, you can talk about historical spills, such as Exxon Valdez (1989), Deep Water Horizon (BP) (2010). These two hands-on experiments—birds and oil spills, and oil removal—help to explain why oil spills are so damaging to the environment, and why they are so difficult to clean up. Each experiment can be done individually or as a group. Suggested runtime: 60 minutes.

ADAPTATION

These experiments can be made more rigorous by using kitchen scales to weigh each material before and after it has absorbed oil. The higher the difference between before weight and after weight the more oil has been absorbed.

MATERIALS AND PREPARATION

Image source: Shutterstock

GAME/ACTIVITY

Experiment #1: Birds and Oil Spills

Materials:

- Foil pans/pie pans (2/person or group)
- Water
- Vegetable oil (1/4 cup/person)
- Feathers
- Buckets & water (or running water)
- Dish soap
- Paper towels
- Tablespoons
- Tweezers
- Cotton balls
- Table covers
- Blue food coloring (optional)
- Black or brown food coloring (optional)
- Aprons or large old shirts (optional)

Before the program, cover each table with plastic. On each table, place pans with ½-1" of water, cups filled with 1/4" of oil, gloves, and paper towels. If possible, provide old shirts or aprons for children to wear over their clothes.

Before the experiments, discuss. Why is oil so toxic for birds and other animals that come in contact with it? Oil damages birds' feathers so birds cannot keep their bodies dry. Without the ability to repel water and insulate from the cold water, birds and mammals will die from hypothermia (when body temperature falls to dangerously low levels). Many birds and animals also swallow oil when they try to clean themselves, which can poison them.

To experiment:

- Participants slowly pour a ¼ cup of oil into their water. Ask them to notice how the oil forms a pool on top of the water.
- Have each child dip a feather into the pool of oil in the pan and take it out.
- Have them run their fingers over it to see what it feels like.

- Then wash the feather with hand soap and rinse it in the bucket of water. Did the oil come off? Repeat washing the feather. How many times must you wash the feather to get the oil to come off? Does it ever all come off?

Experiment #2: Oil Removal

Booms contain the top layer of oil on water, and skimmers remove that oil from the surface. Sorbents absorb oil. One type of sorbent boom looks like a sausage, and another is made of pads that float on the surface and absorb fine traces of oil.

Image source: Shutterstock

Boom/skimmer method: Using the same pans as above, children scoop out as much oil as they can with a tablespoon and place it in an empty cup.

Boom/sorbent method: Children pinch a cotton ball in tweezers and drag it over the water's surface to absorb the oil. Do the same thing with a piece of paper towel.

Questions to ask:

- How well does the boom and skimmer method work?
- Can you get all of the oil out of the water?
- Does the sorbent remove more oil than the boom/skimmer?
- Should there only be one method or many used?
- Can you think of any other materials that might be able to absorb oil?

GAME/ACTIVITY

UNIQUE SPACE AND/OR PERSONNEL NEEDS

This one can get messy! Consider taking it outdoors.

RESOURCES

Web

Experiment variations from *Georgia Aquarium*: https://bit.ly/3vsL1lz

"Office of Response and Restoration" from *National Ocean Service*: https://bit.ly/3fVB2Pw

Video about 14-yr-old student's oil clean up innovation from *Tech Insider*: https://bit.ly/3foOegD

"Demonstration: Oil Spill Clean Up" from *Arizona Science Center*: https://bit.ly/3vtfEaN

Books

Non-fiction

Oil (2020) by Jonah Winter and Jeanette Winter (children's)

Oil Spill (Let's Read and Find Out Science) (1994) by Melvin Berger and Paul Mirocha (children's)

Olivia's Birds: Saving the Gulf (2011) by Olivia Bouler (children's)

The Great Penguin Rescue: 40,000 Penguins, a Devastating Oil Spill, and the Inspiring Story of the World's Largest Animal Rescue (2010) by Dyan Denapoli (adult)

CHILDREN TWEENS

CRAFT | PASSIVE | LOW COST

WATER BOTTLE SEA CREATURES DESIGN CHALLENGE

AGES

Children 5+ years

Tweens

PROGRAM DESCRIPTION

This is a contest you can run at the beginning of the summer reading program, or make it a take-home component of any program about plastic pollution or recycling. Each child receives a recycled plastic water bottle to turn into a sea creature of their choosing. Prepare take-and-make bags that include various art supplies, or tell them they must use recyclable materials found around their homes to make their creature. Optionally, children could build dioramas as well. One week later, they return entries to the library to be displayed. You can have a committee judge them by age group, or let it be a people's choice award. Offer prizes such as reusable water bottles, and display the entries all summer for easy, ocean-themed décor!

Image source: Sidnie Srader of Jones Public Library, Dayton, TX

TIP:

Consider enlisting teen judges!

CHILDREN TWEENS

CRAFT | PASSIVE | LOW COST

MATERIALS AND PREPARATION

Preparation:

- Decide how you would like to run your contest and create a list of guidelines.
- Set out a box to collect donated plastic water bottles.
- When each child registers, give them a water bottle and contest guidelines.
- Display the entries when they are returned.
- Gather a panel of judges, or public vote, judge the entries.
- Give the winners a special homemade award, recognition on the website/socials/newsletter, or extra entries into the grand prize drawing.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

You will need a display area for the submissions. Solo-librarian friendly. If you choose to have a panel of judges, consider your local city council, library board, celebrities, or people who work in environmental stewardship.

RESOURCES

Books
A Crabby Book series (2019) by Jonathan Fenske (children's)

RECYCLED T-SHIRT BOOK BAG

AGES

Children 8+ years
Teens/tweens

PROGRAM DESCRIPTION

Do you have a beloved old t-shirt that is too small or worn? Repurpose it into a bookbag for all your library materials! Ask participants to bring their own t-shirts, but be sure to have some extras on hand. In the spirit of reuse, solicit donations from staff, patrons, or local businesses rather than buying new t-shirts. Suggested runtime: 45 min.

Image source: Sidnie Srader of Jones Public Library, Dayton, TX.

MATERIALS AND PREPARATION

Materials:

- T-shirts (one per participant)
- Scissors (sharp enough to cut fabric)
- Rulers
- Pencils (optional)

Before the program, set up a demonstration table at the front or the room and table space for each participant. Lay scissors, pencils, and rulers on each table. Once every participant has their t-shirt in front of them, lead them through step-by-step.

Image source: Sidnie Srader of Jones Public Library, Dayton, TX.

TIP:

Don't forget to test your scissors to make sure they're sharp enough to cut fabric. You might also consider asking participants to bring fabric scissors from home if they have them.

ADAPTATION:

Be sure to have adaptive or dual control scissors on hand.

1. Cut the arm holes out from the inside of the arm seam
2. Cut the neckline out by following the seam. You can make the hole small by sticking to the seam, or measure about an inch out from the seam and cut. If you use a pencil to measure make sure to turn the t-shirt inside out so you don't see the pencil markings.
3. If you haven't already, turn the t-shirt inside out.
4. Measure three inches from the bottom of the ruler and trace up with the pencil
5. Make the same marks all the way across the shirt. Use the width of the ruler for the width of the strips
6. Cut the pencil markings up to the three inch mark. Don't forget to cut the seams!
7. You can have the fringe on the outside for decoration or on the inside for a smooth bottom. If you want the fringe on the outside, turn your shirt right side out at this point.
8. Knot each set of strips together tightly.
9. Once you've knotted all the way across, the book bag is ready to use!

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Each participant will need half a table. Solo-librarian friendly. For younger children, volunteers or parents will need to help tying knots.

TIP:

You can also link this craft to the book *I Had a Favorite Dress* (2011) by Bonnie Ashburn and Julia Denos.

CRAFT

AQUAMAN AND FRIENDS RECYCLED BEADED BRACELETS

AGES

Children 10+ years

Teens/tweens

PROGRAM DESCRIPTION

Aquaman loves the ocean and wants to keep it clean and healthy for every person and every animal to enjoy for years to come. One way we can help is to recycle and reduce single-use plastic, which often ends up in the ocean. Participants make beads out of recycled paper, then make jewelry or keychains out of their own beads! Older teens could also make beads out of plastic bottles, but this option is more complex and will have sharp edges (protective gloves required). For a shorter program, purchase beads made out of recycled materials and have children use those instead. Suggested runtime: 60–90 min.

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials:

- Magazines
- Scissors
- Reusable straws or doweling
- Glue
- String
- Mod Podge (optional)

To make the beads, cut strips of paper into triangles approximately 12” long x 1” wide. Roll the strips around the straw, starting with the wide end of the triangle, and glue the end piece. Optionally, finish with Mod Podge for extra shine. When dry, string the beads together for jewelry or keychains.

ADDITIONAL FUN:

Watch Aquaman—or any other ocean-themed film to which your library has viewing rights—while making the beads.

UNIQUE STAFF AND PERSONNEL NEEDS

1-2 volunteers to help with bead-making.

RESOURCES

Web

Video on DIY Paper Beads from Magazines from *Red Ted Art*: https://bit.ly/3oXKw0L

Video on DIY Plastic Bag Beads: https://bit.ly/3yMaf0n

"How to Make Recycled Beads from Plastic Bottles" from *The Beading Gem*: https://bit.ly/3oUQGyF

Recycled beads for purchase from *Etsy*: https://etsy.me/3wD6EjA

Books

Non-fiction

Plastic Soup: An Atlas of Ocean Pollution (2019) by Michiel Roscam Abbing (YA)

Rachel Carson and Ecology for Kids (2020) by Rowena Rae (children's)

The Sea Around Us, 3rd ed. (2018) by Rachel Carson (YA/adult)

Climate Change: The Science Behind Melting Glaciers and Warming Oceans (2020) by Josh Sneideman and Erin Twamley (children's)

Fiction

Mera: Tidebreaker (2019) by Danielle Paige and Stephen Byrne (YA)

The Highest Tide (2010) by Jim Lynch (YA)

OCEAN ANIMALS EARLY LIT CROSSOVER

AGES

Children 4+ years

PROGRAM DESCRIPTION

An ocean animal storytime with ocean stations that can be combined with storytime for an early lit/children's crossover program that works for slightly older children as well. Each station has adaptations to make it into a virtual program. If there are children in attendance who are too young for the stations, put out an ocean themed felt board and a box of ocean animal toys. Suggested runtime: 45 min.

MATERIALS AND PREPARATION

Station #1: Paper Plate Octopus

Materials: paper plates, streamers or tissue paper, glue, string, crayons or paint & brushes, small craft items such as sequins, pom-poms, googly eyes, etc.

Instructions:

- In advance, cut paper plates in half. Cut strips of streamer or tissue paper. Cut lengths of string.
- Invite children to decorate their half plate as the octopus's head, using whatever materials they like.
- Once the plate is decorated (and the paint is dry, if using paint), glue the strips of streamers to the back of the plate so that they hang down like tentacles.
- Make a small hole at the top and thread a length of string through it for hanging your octopus up.

Image source: Azita Frattarelli of Riverview Veterans Memorial Library, Riverview, MI

ASL ADAPTATIONS:

Investigate whether or not there are interpretative services (or someone who knows ASL) in your community. See if they'd be willing to partner with you for this (and other) events. Alternatively, learn ASL for opening/closing songs: https://bit.ly/3unoSnr

FACT:

Octopuses have eight arms with suckers along most of their length. Tentacles, on the other hand, only have suckers on their ends.

TIP:

If your audience contains children under three, omit the small craft materials such as sequins and pom-poms.

ADAPTATION:

For a virtual program, provide make-and-take bags with the supplies patrons can pick up in advance. Include paper plates and streamers or tissue paper. Children can follow along with a video while staff demonstrates how to make it.

Station #2: Ocean Identification Cards

Materials: laminated ocean animal pictures (see Printables for silhouettes)

Instructions:

- In advance, laminate pictures of ocean animals and plants. Write the name of each object on the back of the card.
- Children identify and sort cards.
- Alternatively (or in addition), cut out pictures of ocean animals from magazines. Make something "wrong" with each one, like an extra tentacle, an eye out of place, parts of another creature.
- Children identify what is wrong with each picture.

Station #3: Ocean Playdough

Materials: Small sea creature toys, divided serving tray, blue and brown play dough

Optional: Ocean-themed animal felt board and ocean animal toys

Instructions:

- In advance, place items in a divided tray with blue and brown play dough (or sand dough).
- If desired, you can also make homemade play dough to use.
- Children will flatten the play dough and create seascapes by placing the items on the ocean floor (brown play dough) or in the water (blue play dough).

UNIQUE SPACE AND/OR PERSONNEL NEEDS

An extra volunteer for each station.

ADAPTATIONS:

For a virtual program, sign up for a free Kahoot account. Set up an ocean animal guessing game to share on your screen. Alternatively, play it game show-style with flashcards: Hold up ocean animal cards and let children guess what they are. You can also make movement cards for ocean animals (crawl like a crab, swim like a fish, etc.).

ADAPTATION:

For a virtual program, provide take-and-make bags with blue and brown construction paper and ocean animal/sea floor pictures. Children can cut out the animals and sea floor objects, then sort them by placing them on the correct color of construction paper.

RESOURCES

Web

Ideas for Ocean-Themed Stations:

"Preschool Lab: Ocean Animals" from *Abby the Librarian*: https://bit.ly/3oYrveh

Paper plate jellyfish craft from *Learn Create Love*: https://bit.ly/2Sx87Jx

Ocean play dough from *The Imagination Tree*: https://bit.ly/3bXu7Ef

Sand play dough from *The Imagination Tree*: https://bit.ly/3hY0TZJ

Kahoot! app: https://bit.ly/2Tjmu4l

Books

Non-fiction

The Big Book of the Blue (2018) by Yuval Zommer (children's)

The Sea Knows (2020) by Alice B. McGinty and Alan B. Havis (children's)

Shimmer & Splash: The Sparkling World of Sea Life (2013) by Jim Arnosky (children's)

A First Book of the Sea (2018) by Nicola Davies and Emily Sutton (children's)

Hello World! Ocean Life (2019) by Jill McDonald (children's)

Fiction

Deep Sea Dive (2012) by Salina Yoon (children's)

Commotion in the Ocean (2002) by Giles Andreae and David Wojtowycz (children's)

Printables

Ocean Animals Silhouettes

TIP:

See early literacy sections for storytime books and song ideas!

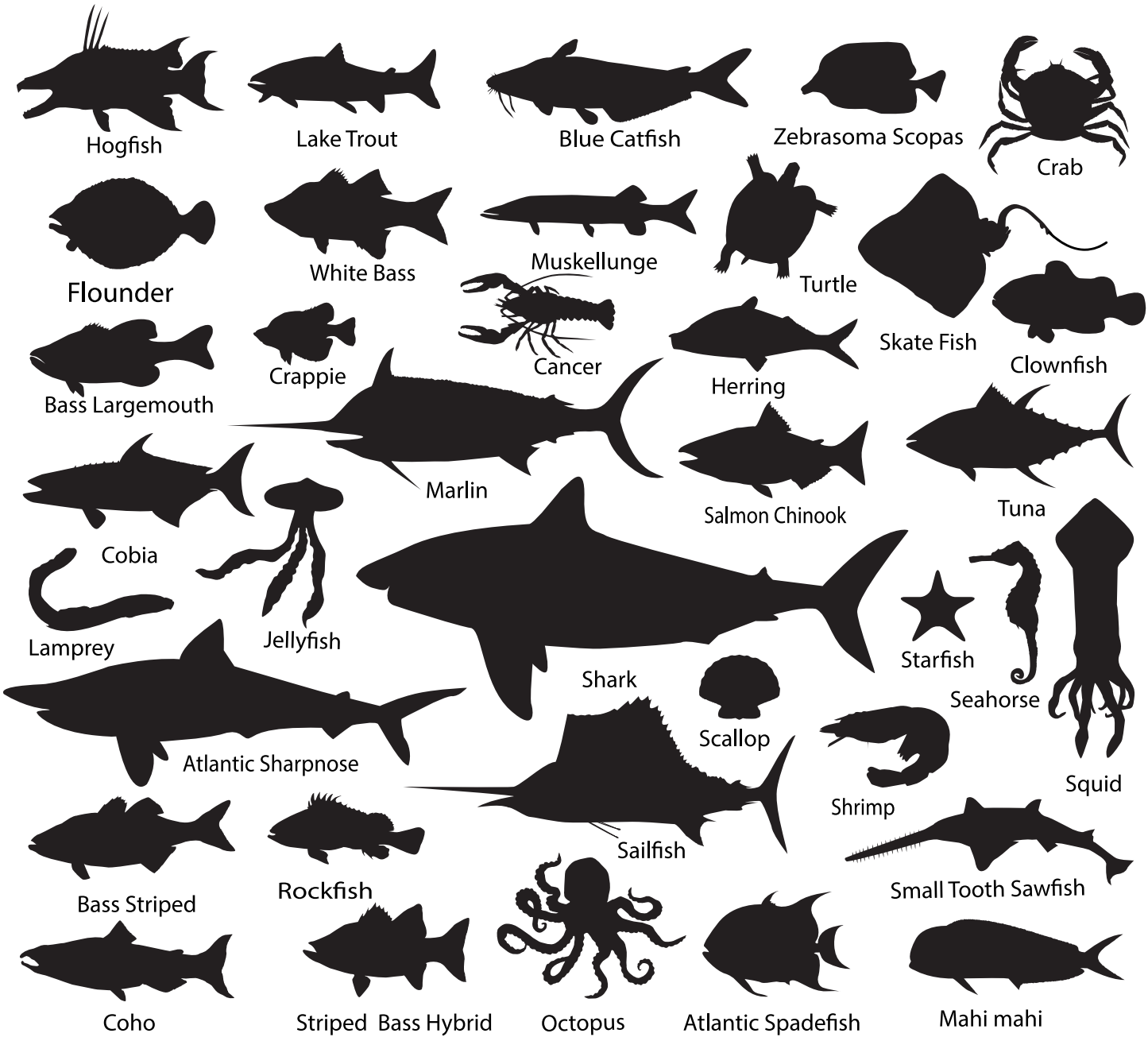


Image source: Shutterstock

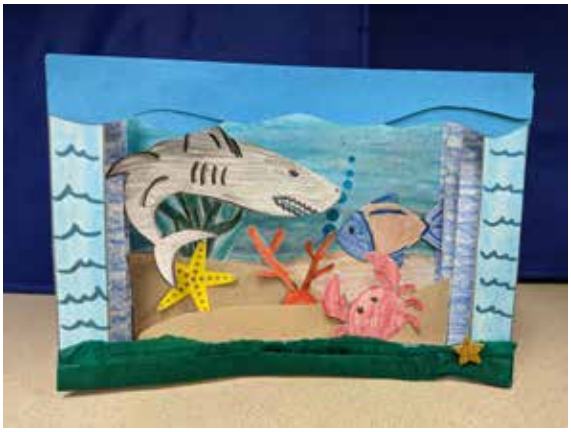
3-D FISH BOWL CRAFTS

AGES

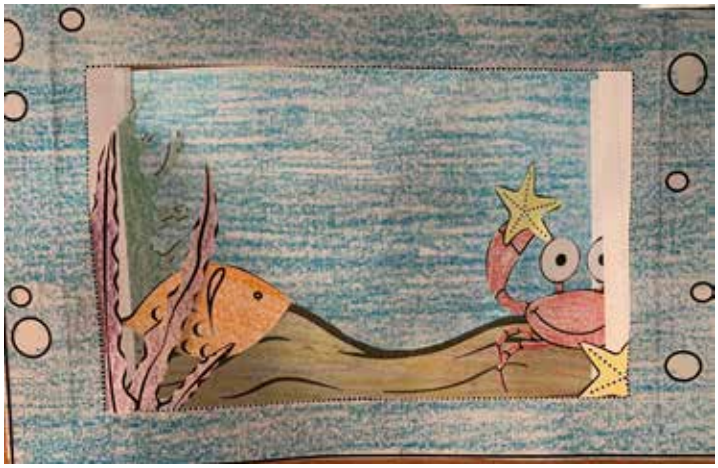
Children 6+ years

PROGRAM DESCRIPTION

In the ocean or in aquariums, let's talk about fish! Two crafts—an accordion book and a fish tank—are provided for older and younger children, respectively. Adjust the pictures or create new silhouettes to match any ocean theme. Suggested runtime: 45–60 min.



Amanda Raiche of Edith B. Siegrist Vermillion Public Library Vermillion, SD



Mindy Barrett of Myrtle Glanton Lord Public Library, Murfreesboro, TN

Image source: Heather Oates of Ligonier Valley Library, Ligonier, PA

ADAPTATION:

If participants have trouble cutting out the printed images (because of age or ability), have them cut a circle around the image and color the negative space within the circle.

MATERIALS AND PREPARATION

Under the Sea Accordion Book

Materials: Printables (cardstock recommended but plain paper will work), scissors, glue, pencils/crayons/markers

Optional: Craft sticks, sandpaper or other textured material, magazines for children to cut out ocean images, misc. craft materials for plant or ocean life (tissue paper, construction paper, buttons, sequins, chenille stems, ribbons, etc.), ocean-themed stickers or stamps, watercolors or pastels, cardboard to back the project if using plain paper

Amanda Raiche of Edith B. Siegrist Vermillion Public Library Vermillion SD

Instructions:

- Print all 3 pages for each participant.
- Color and cut out all of the elements.
- Fold both of the rectangles on the dotted lines (accordion-style).
- Cut out the creatures or plants that you would like to add to your ocean.
- Once all pieces are cut out and the sides are folded, glue one of the accordion sides to the left side of the background (top to bottom). Make sure the colored side is facing in toward your ocean scene. Glue the other accordion side to the right side of the ocean background, again, taking care to face the colored side toward the ocean scene.
- To add the front frame, put glue on the other ends of the accordion sides and attach the left and right side of the frame.
- The creatures and plants can now be added to your scene. Objects with tabs appear to be suspended in the water; tabs can be removed or added to pieces however the children wish.
- Decide where you would like to put your land pieces and glue the tab behind one of the folds of the accordion sides. Note: These land pieces can easily be flipped to the other side or cut into a different shape.
- Add any ocean creatures or plant life to the scene by gluing directly to the background, land pieces, or by gluing the tabs off the accordion sides.

TIP:

You can also paste sea creature silhouettes onto the end of popsicle sticks.

Cut small slits in the accordion and move the popsicle sticks for interactive dioramas.

Paper Plate Aquariums

Materials:

- Blue paper plates (two per aquarium)
- Silhouettes on cardstock (see Printables)
- Scissors
- Tacky glue
- Kix cereal, felt balls, or small pom-poms
- Crayons and markers
- Stapler (optional)
- Googly eyes (optional)

Print the fish and sea life silhouettes onto colored cardstock. For younger children, cut out the fish and sea life silhouettes before the program, and prepare the aquarium lids by cutting out the center of paper plates (one per aquarium). Older children may do the cutting themselves.

Assembly:

- Glue sea life silhouettes to the blue side of one paper plate.
- Add googly eyes as desired.
- Glue cereal to the bottom half of the same plate.
- Let children color with crayons or markers as desired.
- With white side facing out, glue or staple the plate with the center cut out to the decorated plate.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

Under the sea tunnel book from *Easy Peasy and Fun*: https://bit.ly/3oWL4DN

Paper plate aquarium idea from *Crafts by Amanda*: https://bit.ly/34rcAjo

Ocean coloring pages from *Easy Peasy and Fun*: https://bit.ly/2QVXP50

Sea animal paper plate aquariums from *Pichea Place*: https://bit.ly/34qvHdn

Books

Non-fiction

Dolphins on the Sand (2008) by Jim Arnosky (children's)

The Sea Book (2019) by Charlotte Milner (children's)

Ocean Animals and their Ecosystems (2020) by Dr. Erica Colón (children's)

Fiction

Narwhal and Jelly (2016–2021) by Ben Clanton (children's)

Mermaid Tales series (2012–2021) by Debbie Dadey (children's)

Picture Books

Secret Seahorse (2005) by Stella Blackstone (children's)

Whale in a Fishbowl (2018) by Troy Howell and Richard Jones

Explore the Shore (Curious Kids) (2020) by Jonny Marx and Christiane Engel (children's)

Ocean: A Peek-Through Picture Book (2019) by Britta Teckentrup (children's)

Over in the Ocean (2006) by Marianne Berkes and Jeanette Canyon (children's)

Swimmy (1963) by Leo Lionni (children's)

Printables

Under the Sea Accordion Cover Template

Under the Sea Accordion Fold Template

Under the Sea Accordion Creatures Template

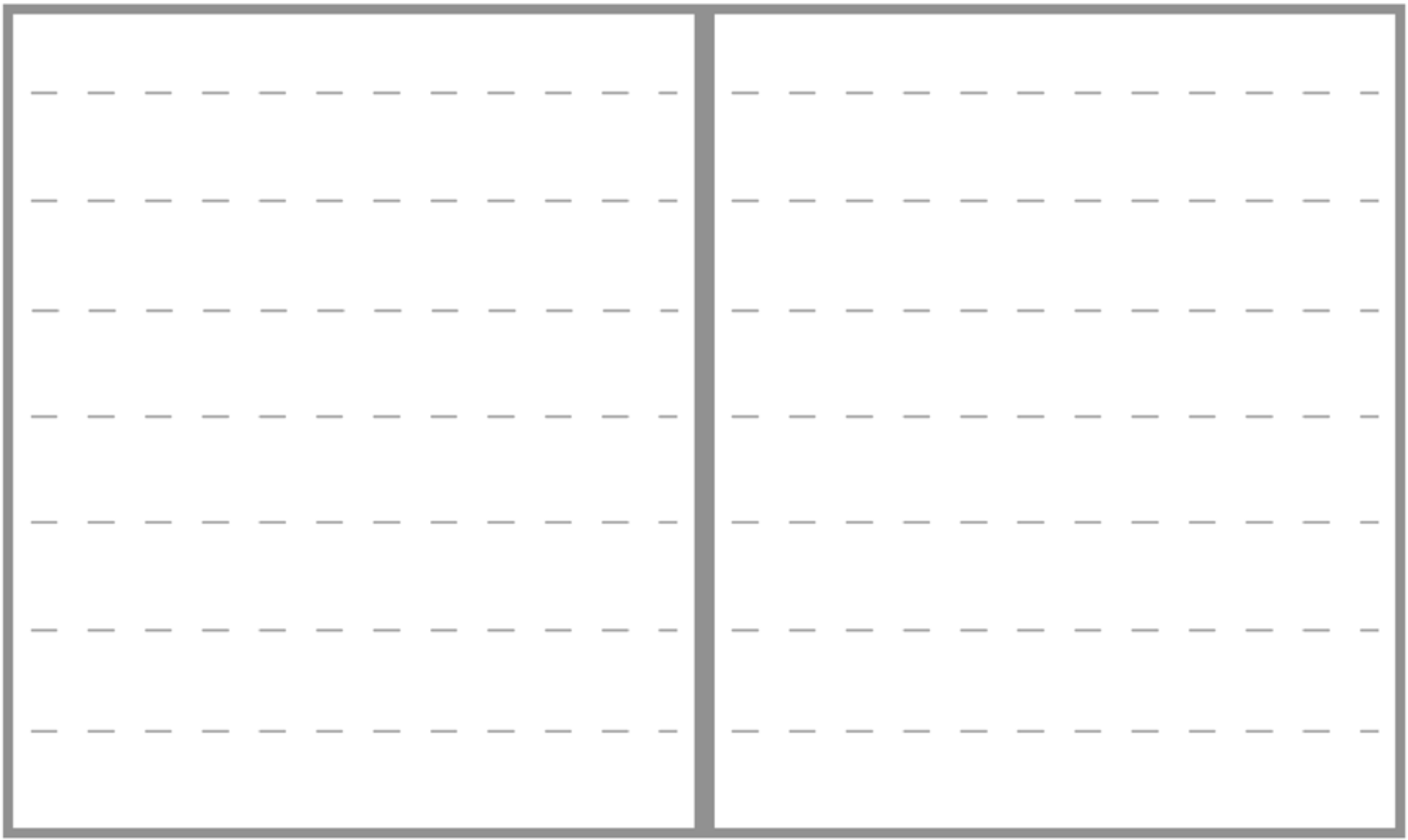
More Fish Silhouettes

Aquarium Coloring Sheet

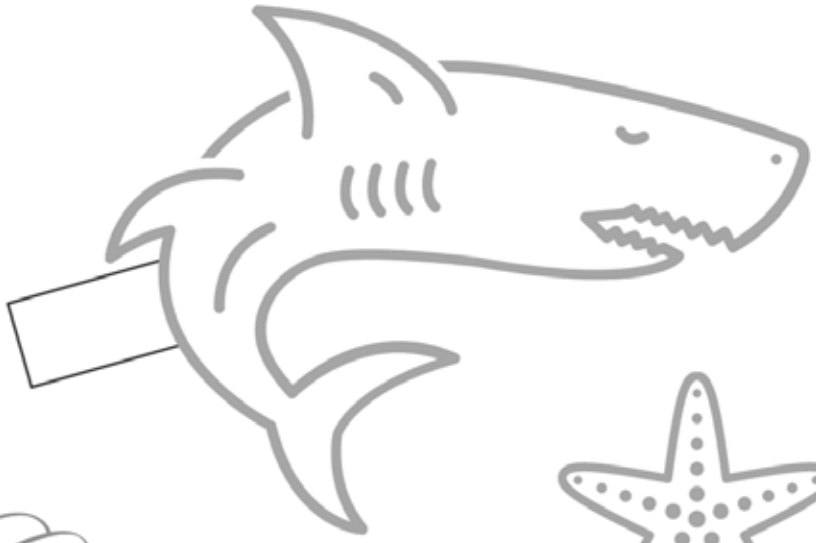
SOURCE:

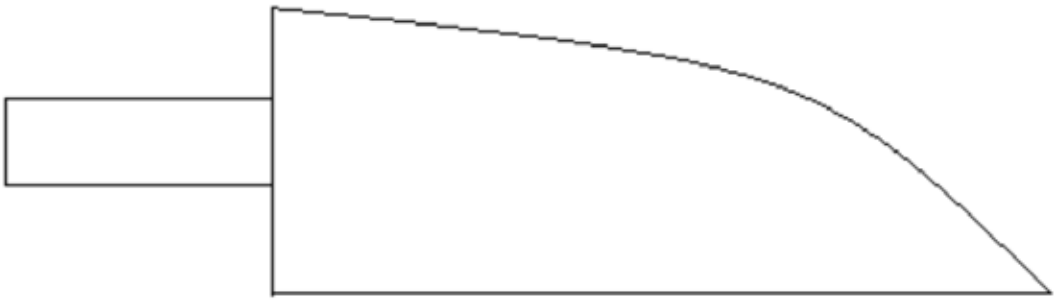
All accordion book templates courtesy of Amanda Raiche, Edith B. Siegrist Vermillion Public Library, Vermillion, SD.

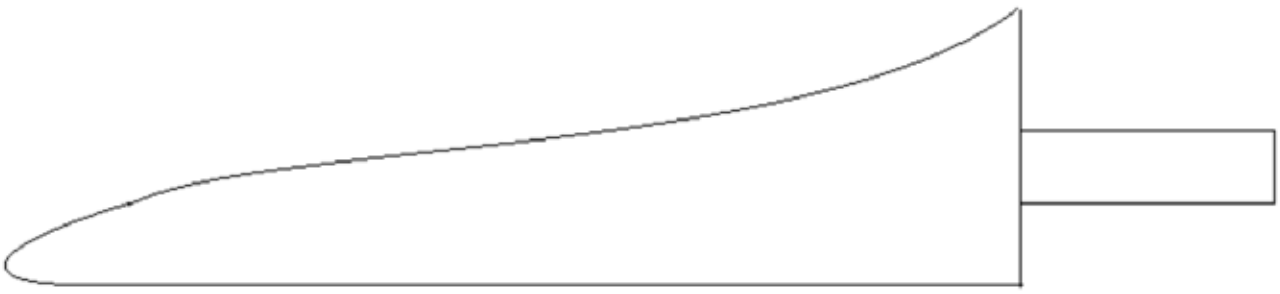
Cut this center square out to create a frame



Cut on solid lines and fold (accordion-style) on dotted lines.







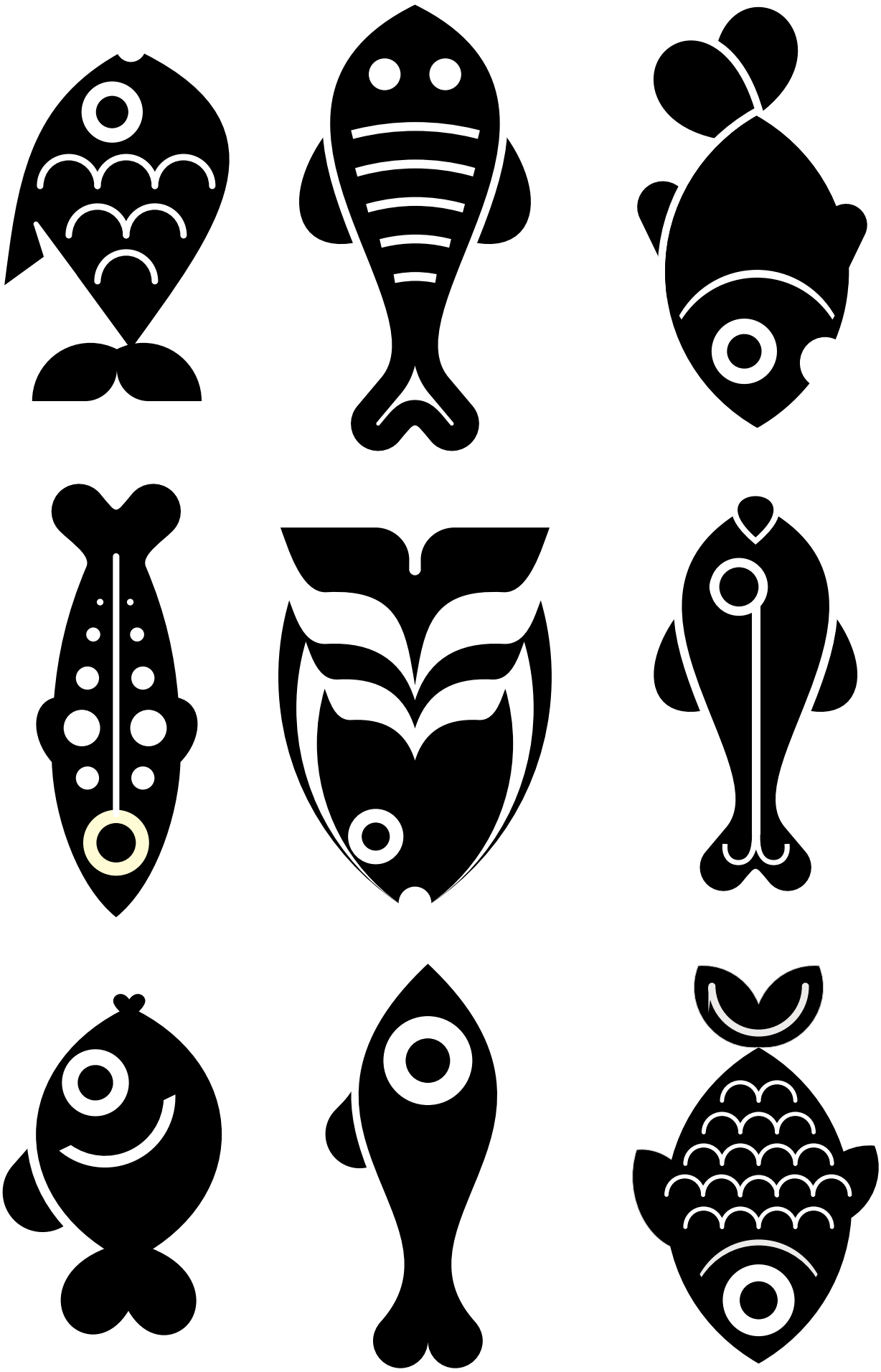


Image source: Shutterstock

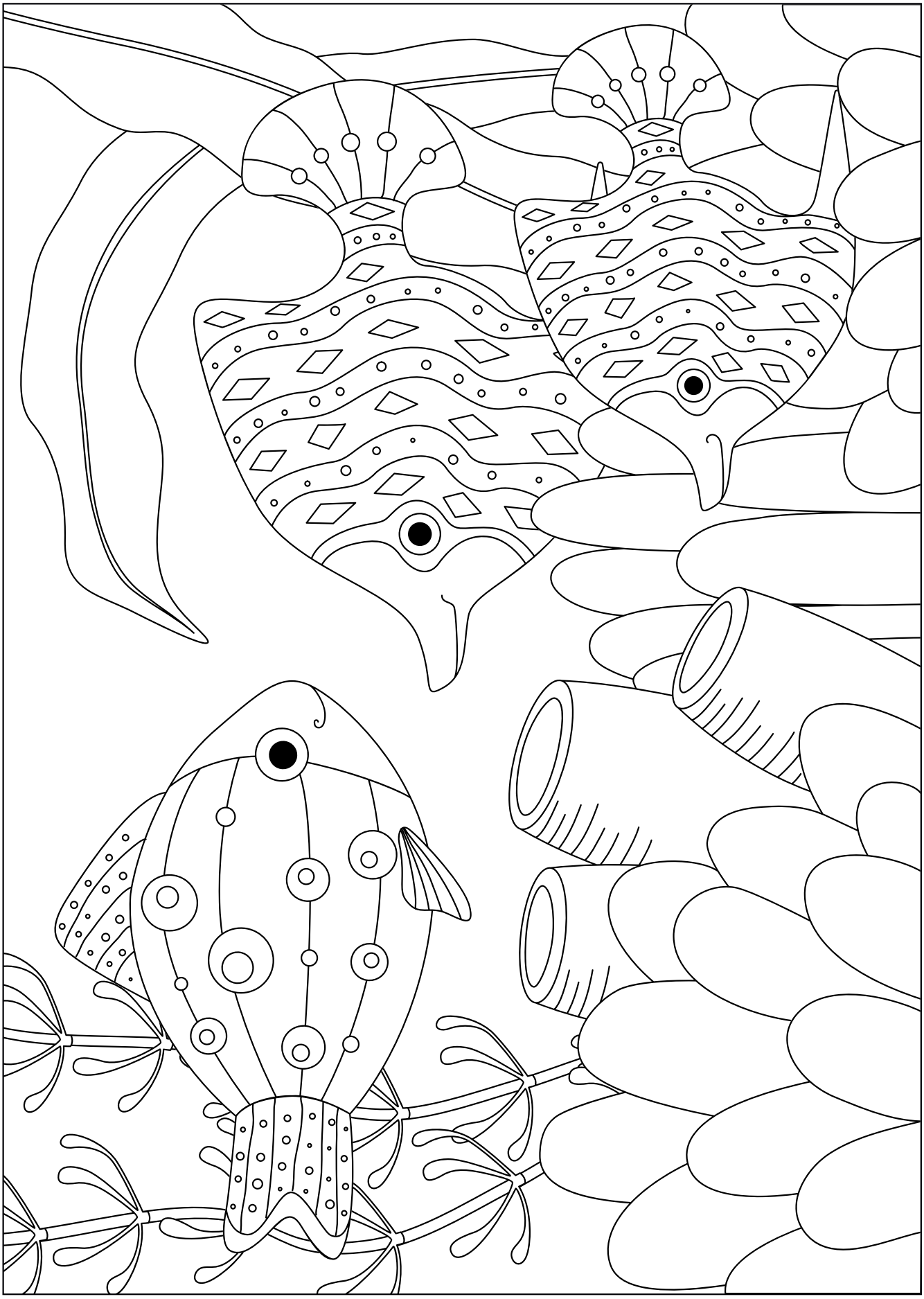


Image source: Shutterstock

GAME/ACTIVITY | CRAFT | OUTDOORS | STEAM

SHARK WEEK!

AGES

Children 5+ years

PROGRAM DESCRIPTION

A fun program that includes a simple STEAM demonstration, active games that work well outdoors, and three crafts. You could run this as a party with multiple stations, or spread activities out over a week. Alternatively, pick and choose activities to use as filler for other programs or events. Two shark coloring pages are included. Suggested runtime: Flexible.

MATERIALS AND PREPARATION

Shark Float Demonstration

Materials: Two empty plastic bottles or bags, markers, oil, water, large container in which to float the bottles

Instructions:

- Using your marker draw a shark (or shark teeth) on each of your water bottles.
- Fill one bottle with water and the other with oil. Seal tightly.
- Fill your container ¾ with water, enough room for the shark to sink.
- Place both bottles of water in the container and observe.

Shark buoyancy facts

- Sharks need to keep moving all the time. Otherwise, they will sink!
- Most fish have a special organ that is filled with gas, which helps them to float. Sharks do not. This means that they can safely move to different depths more quickly, but it also means that they have to work harder to stay afloat.
- One of the ways that sharks stay buoyant is by using their oil-filled livers.
- Oil is lighter than water, which is why the oil-filled bottle floats, and how sharks stay afloat.
- Sharks use their fins and tails to stay moving. They also have cartilage rather than bones, which helps them to be lighter.

TIP:

Shark Binoculars and Shark Origami are easily adapted to take-and-make bags.

TIP:

For another shark-based program/craft, see Shark Lady Suncatcher on page 78, a program based on the career of Eugenie Clark.

TIP:

If running multiple stations, consider creating passport-style booklets for participants to keep track of what's coming next (particularly helpful for autistic participants).

Questions you can ask:

- What do you think will happen with each of the bottles?
- What happened with each of the bottles?
- Did you guess what would happen correctly?
- Why do you think one bottle sank while the other floated?

Image source: Sidnie Srader of Jones Public Library, Dayton, TX

Shark Games

See *The Spruce* for simple shark games/activities that you can take outside: https://bit.ly/3vtozsN. These all work as icebreakers or fillers as well.

Shark Binoculars Craft

See the *Pink Stripey Socks* blog for detailed instructions: https://bit.ly/2R011Na

Materials: 2 toilet paper rolls or craft paper rolls, blue construction paper (or any color you wish) white construction paper, scissors, markers, tape or glue, hole punch, ribbon or yarn.

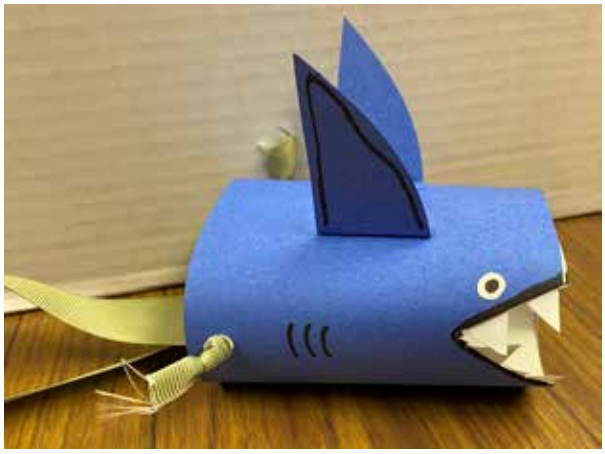


Image source: Azita Frattarelli of Riverview Veterans Memorial Library, Riverview, MI

TIP:

Cutting out the small fins, teeth, and eyes can be done before the program for younger children.

Glittery Floating Shark Craft

Materials: Empty water bottles with the labels off, blue glitter glue, silver or blue glitter, water, grey foam paper, black permanent marker, scissors, funnels for pouring for participants who have difficulty with fine motor skills. Optional: shark stencil printed on heavy cardstock.

Instructions:

- Cut a small shark shape out of the grey foam. You can use the optional shark stencil to trace the shape, or you can draw it freehand. Make sure that the shark is small enough to "swim" in the bottle.
- Decorate your shark with permanent marker, adding eyes, fins, etc.
- Add the blue glitter glue to the empty water bottle, using about 3 oz, or half a bottle. The more glitter glue you add, the darker the water will be (and the harder it will be to see the shark).
- Fill the rest of the bottle with water, leaving some space at the top.
- Add as much silver or blue glitter as you like. This can get messy!
- Roll the foam shark into a tube shape to fit it through the neck of the bottle. Push it in and close the bottle tightly.
- Shake the bottle to mix everything together.

Origami Shark Bookmarks

This is an easy origami project; however, it still involves careful following of directions and careful folding, which would be better for older children. See Resources for full instructions; see also Printables for a slightly more difficult version of shark origami.

Materials: Origami paper (6x6 inches) in light blue, pink, and white; white cardstock; scissors; clear-drying craft glue; googly eyes or eyeball stickers

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Large space required for the games and/or a multistation shark party. Activities work well outdoors.

TIP:

See Shark Lady Suncatcher on page 78 for printable shark silhouettes.

RESOURCES

Web

"Top 10 Shark Party Activities" from *The Spruce*: https://bit.ly/3vtozsN

Shark binoculars from *Pink Stripey Place*: https://bit.ly/2R011Na

Glitter shark bottle from *Modern Mom Life*: https://bit.ly/3wCb4aj

Simple origami shark bookmark from *Kids Activities*: https://bit.ly/3fOnaqa

Shark activity ideas for teens/tweens from *Bryce Kozla Blog*: https://bit.ly/3bZOr7J

Books

Non-fiction

Smart About Sharks! (2016) by Owen Davey (children's)

Shark Lady: The True Story of How Eugenie Clark Became the Ocean's Most Fearless Scientist (2017) by Jess Keating and Marta Álvarez Miguéns (children's)

If Sharks Disappeared (2017) by Lily Williams (children's)

Neighborhood Sharks: Hunting with the Great Whites of California's Farallon Islands (2014) by Katherine Roy (children's)

Fiction

Land Shark (2015) by Beth Ferry and Ben Mantle (children's)

Sea Creatures from the Sky (2018) by Ricardo Cortés (children's)

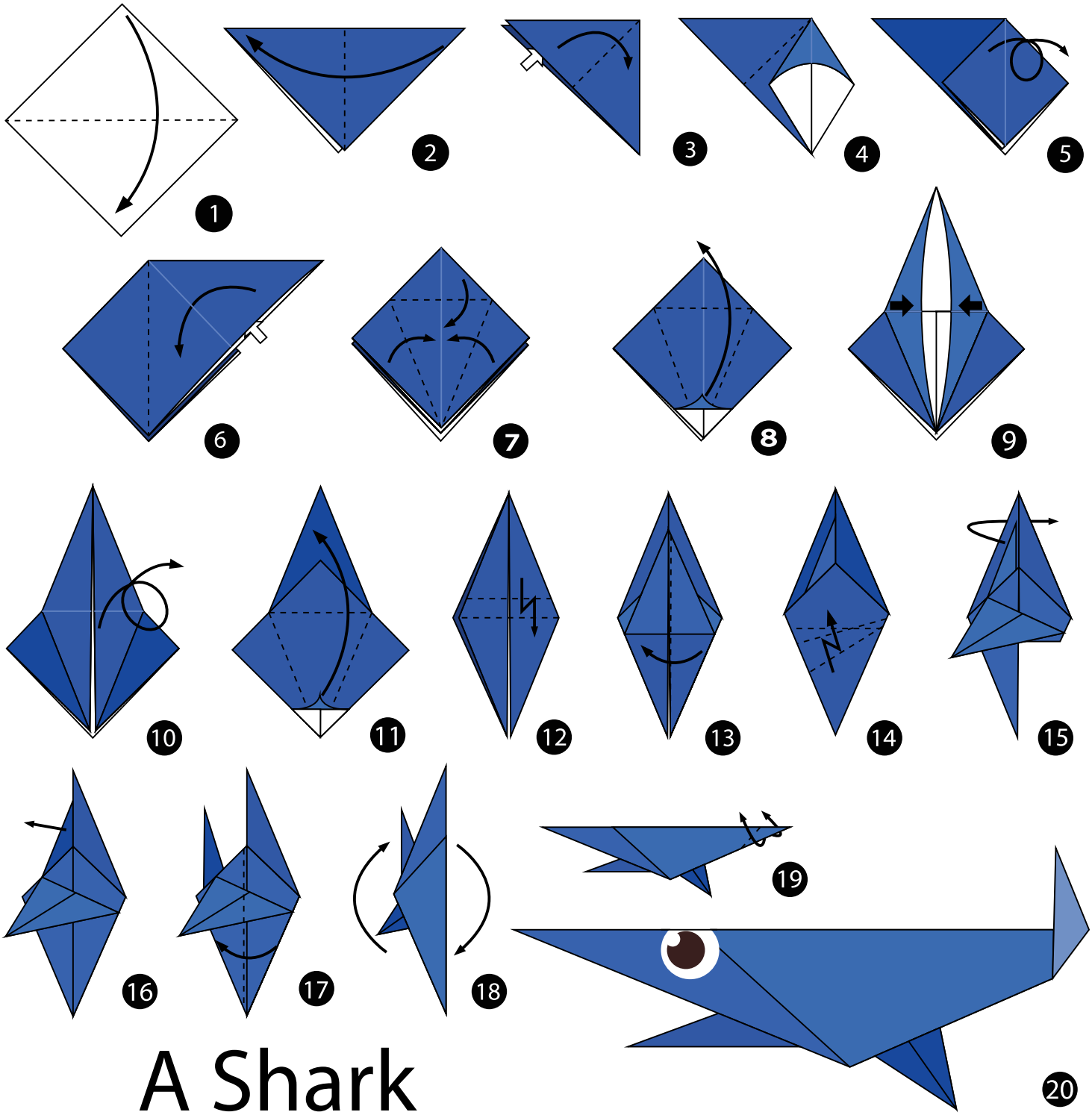
The Line Tender (2019) by Kate Allen (children's/YA)

Printables

Origami Shark Template

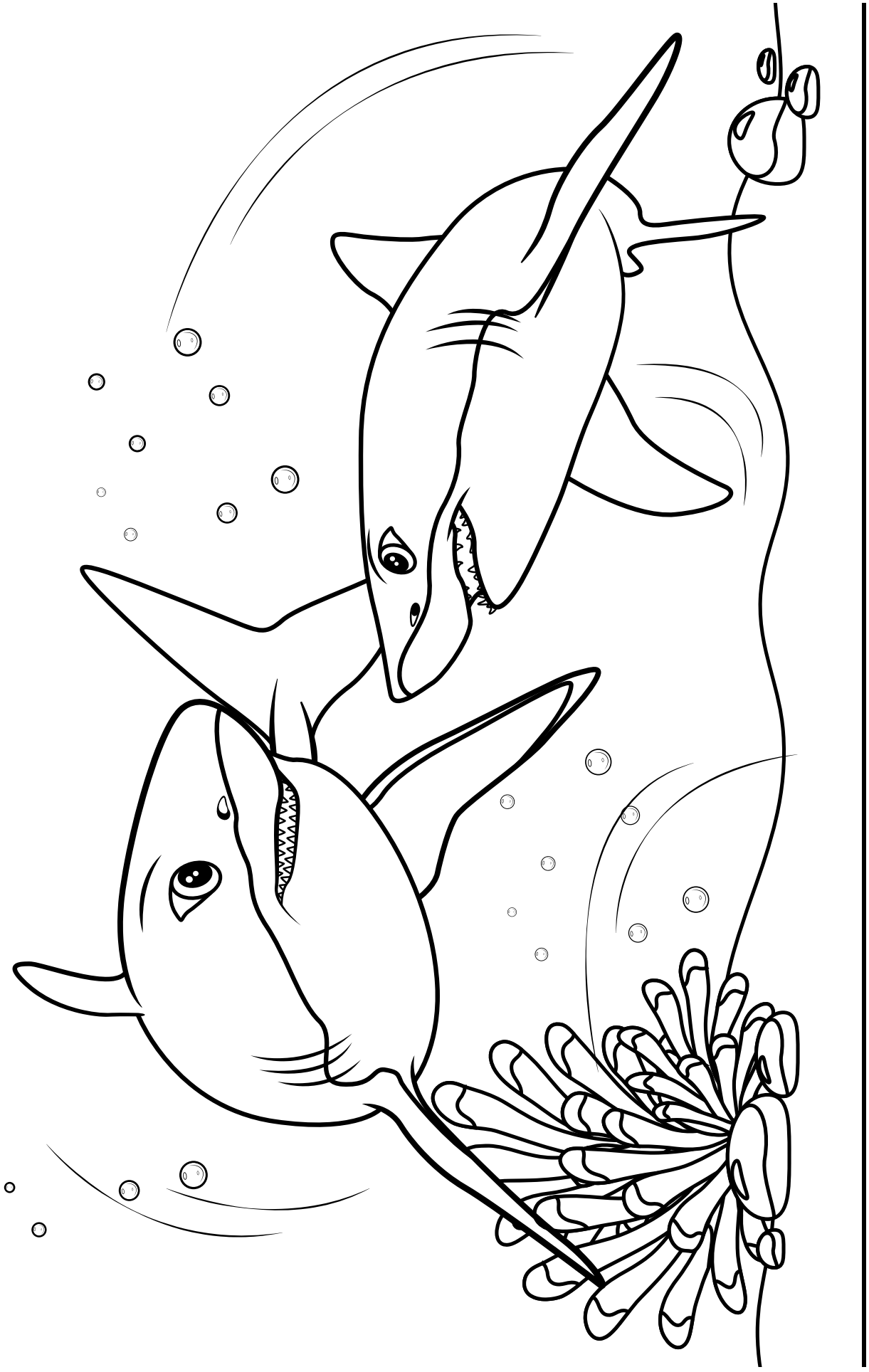
Shark Coloring Sheet (children)

Shark Coloring Sheet (tweens)



A Shark

Image source: Shutterstock



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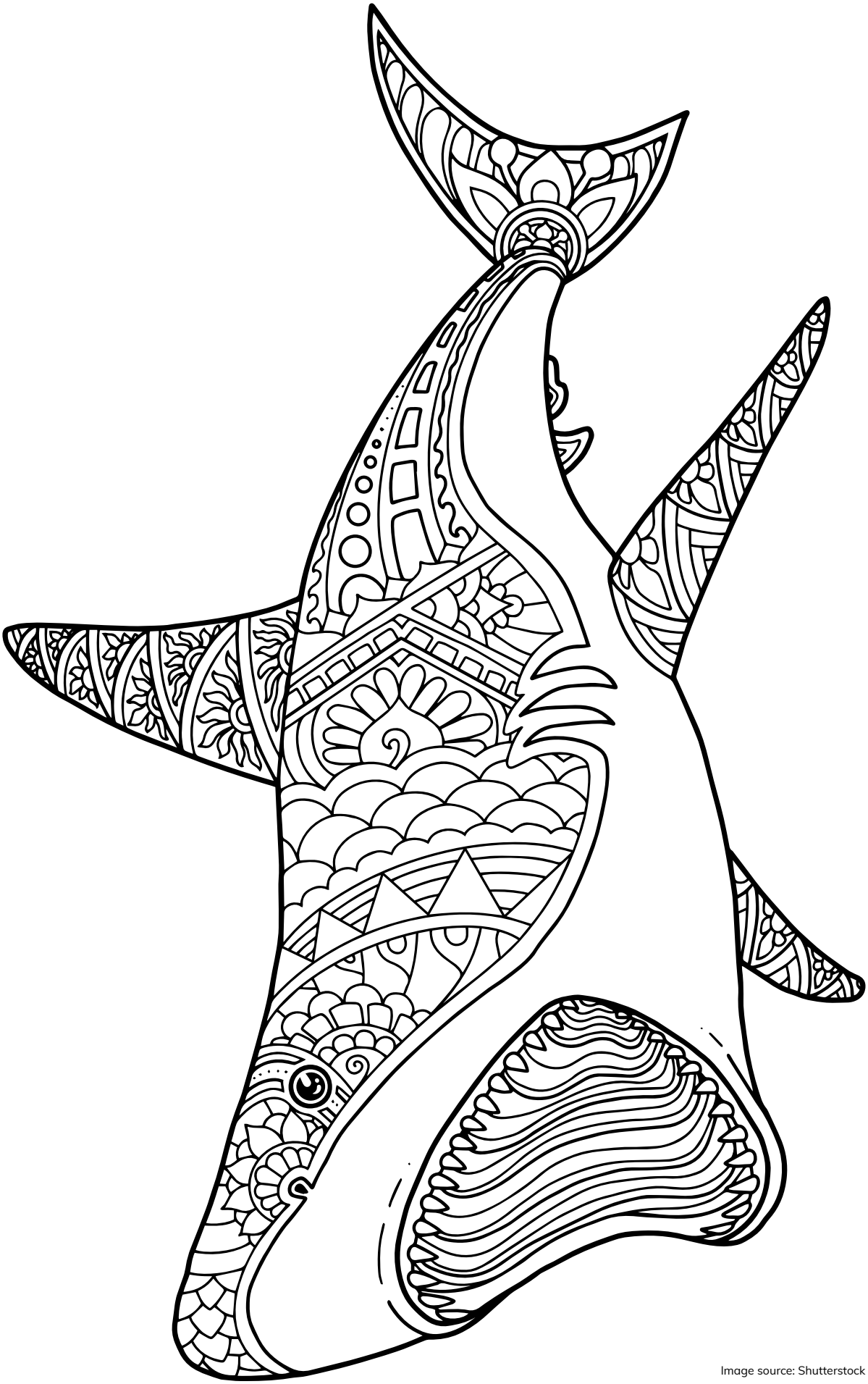


Image source: Shutterstock

GREAT TENTACLES! OCTOPUS STEAM

AGES

Children 6+ years
Tweens

PROGRAM DESCRIPTION

More than 150 species of octopuses exist in seas throughout the world. Famous for their bulbous bodies, bulging eyes, and eight arms with suckers, these "monsters of the sea" are invertebrates, solitary creatures, and highly intelligent with the ability to camouflage, move in and out of small nooks and crannies, and even the ability to expel ink. These group activities are designed to celebrate the unique cephalopod. You might also contact local marine biologists, aquariums, or other experts on octopuses and see if any can come present at your library. Suggested runtime: 60 minutes.

Image source: Shutterstock

MATERIALS AND PREPARATION

Optional: A projector, projector screen, and laptop if presenting examples of ocean environments and octopus camouflage.

TIP:

Due to copyright issues, you probably cannot screen *My Octopus Teacher* (Netflix) in your library, but you can recommend that tweens watch it at home before or after the program!

ADAPTATION:

For younger children, read *Inky's Amazing Escape* and make octopus slime together. You can also make a game out of matching an octopus to its environment, or create a "Where's Waldo?" type game by asking for little ones to spot the camouflaged octopus.

ADAPTATION:

For teens, consider making no-sew octopus plushies! Tutorials available on Amy Glassenburg's *While She Naps* blog, *https://bit.ly/3wJgO2d* or from *Jennifer Maker*, https://bit.ly/2QYmqX3

Activity #1: Octopus Locomotion

Materials: Balloon (1 per child), plastic straw (1 per racing station), small binder clip (1 per child), fishing line (various lengths for racing stations), crepe paper, construction paper, masking tape and regular tape, scissors, permanent markers

Optional: Octopus silhouettes on cardstock, air pump

An octopus can travel in two ways: When searching for prey, it will use its arms to slither over surfaces and feel for food; when it needs to move quickly, whether to attack prey or avoid danger, it will draw water into its muscular body cavity and then quickly force it out from a tube under its head. The force of the water squirting out pushes the octopus forward; this is called jet propulsion. In this activity, participants will design their own balloon octopus and demonstrate how they use jet propulsion to travel.

Instructions:

1. For each racing station, cut fishing line roughly the length of your activity room.
2. Thread the fishing line through the straw, then attach each end of the fishing line to the back of two chairs.
3. Make sure the chairs are pulled apart and the fishing line is stretched tightly.
4. Give each child a balloon and have them blow it up. (An air pump would also be useful to have.) Use a binder clip to keep the balloon nozzle closed so air cannot escape.
5. Optionally, let the children decorate octopus silhouettes on cardstock, which they can tape to their balloon when it's their turn.
6. To test the jet propulsion after the octopuses are complete, tape the threaded straw securely to the top of a completed balloon.
7. Carefully remove the binder clip and release the air.
8. The balloon will travel in the opposite direction from which the air escaped. Remind children that the balloons are using air for propulsion, whereas an octopus would use water.
9. Children can test how far their octopuses travel, make adjustments to their designs or the amount of air they use, and compete in races.

TIP:

Be sure to have a latex warning for parents (or buy latex-free balloons). Just being in the same room as latex can cause a reaction for those with an allergy.

Activity #2: Octopus Camouflage

Materials: Air-dry clay in a variety of colors; items for creating texture, such as forks, combs, crinkled foil, and Legos; a variety of pictures of ocean environments and octopuses (printed or virtual)

Octopuses are masters of camouflage, seamlessly blending into their ocean surroundings or standing out in bright colors to startle their enemies. Octopuses are most unique because not only can they change their color to camouflage themselves, but they can also change their texture. In this activity, children create clay octopuses and see how well their camouflage blends into different habitats.

TIP:

A less costly alternative to using air-dry clay is to have children color coffee filters instead.

Instructions:

1. Give each child a ball of air-dry clay and instruct them to sculpt an octopus with a unique texture, shape, size, and color to demonstrate their camouflage abilities.
2. You can give each child a printed picture of an ocean habitat they need to match, or provide pictures in a presentation for inspiration.
3. You can have a show and tell portion when they are finished creating their sculptures.
4. Think of the following while creating the octopuses:
   - *Shape*: Think of unique ways to mold your octopus. How could an octopus change its shape to look like something different when hiding?
   - *Texture*: Use a variety of items to give unique textures to your octopus. For example, if trying to blend in with a rock that looks very rough, how could octopus skin camouflage to look rough?
   - *Size*: Stretch the air-dry clay, or use small amounts depending upon whether or not you think the octopus would want to appear big or small in its environment.
   - *Color*: Use a variety of air-dry clay colors and blend them together to create the best camouflage. You could also use white clay and have children return to paint them at a later date or paint them at home.

Activity #3: Octopus Slime

Materials:

- 5 oz. clear glue
- ½ cup warm water
- 2–4 drops food coloring
- ½ tsp. baking soda
- 1–2 Tbsp. contact lens solution
- Mixing bowl
- Spoon
- A variety of small containers to test slime texture and shape, such as toilet paper tubes, ice cube containers, condiment cups, etc.

Octopuses have soft bodies, with the exception of their beaks, so they can fit into incredibly small spaces. In 2016, Inky, an octopus at New Zealand's National Aquarium, escaped his tank through a small opening, crawled across the floor, and then slid through a drainpipe that led directly to the sea. Inky was roughly the size of a soccer ball and the drainpipe was only a few inches wide. After making the slime, mimic Inky's escape and have children test what shapes and containers it can fill easily.

Instructions:

- Combine the glue and water.
- Add food coloring of your choice and mix well.
- Add the baking soda and stir.
- Now add the contact lens solution in a slow, steady stream. It is important to go carefully here. The chemicals in the contact lens solution activate the recipe, so make sure you don't go too fast or add too much.
- Stir it well, at first with a spoon, and then knead it with your hands. It will be sticky at first, but the longer you knead it the smoother it will become.

Activity #4: Suction Strength

Materials: A variety of suction cups (including those with hooks); a variety of materials to test, such as paper clips, keys, rubber bands, cups, plastic bags, and paper plates.

Octopuses have roughly 280 suckers located on their arms. They use them to grasp onto objects in their environment, such as rocks when they're moving or hiding, or onto food in order to guide it into their mouths to eat. Some of the large suckers near the octopus' beak can hold around 35 pounds of weight and crack open clams or other prey. When a suction cup latches onto an object, the pressure from the air or water outside is stronger than the pressure inside the suction cup. It pushes on the suction cup and creates the force we call suction, causing it to stick to whatever object it's attached to.

Instructions:

1. Stick a variety of suction cups to different surfaces and objects.
2. Test out different strategies for making the suction cups stick, such as adding water to the suction cup versus leaving it dry. What items do the suction cups stick to? Why do you think so?
3. Hang a variety of items from suction cup hooks of different sizes on the wall. Which suction cup hooks can hold the greatest amount of weight? The smallest amount of weight? Why might some be weaker than others?
4. You can also play Pin the Sucker on the Octopus on a window or whiteboard (see Resources for an octopus silhouette)

TIP:

You can also make suction cup seascape prints by dipping the cups in green or blue paint, and pressing them onto paper.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Add extra staff or volunteers for large groups. Octopus locomotion is a great one to run outdoors.

RESOURCES

Web

"Cephalopod Locomotion Lab" from *New England Aquarium*: https://bit.ly/3cjg9fN

Jet propulsion from NASA: https://go.nasa.gov/3yGztxf

Information about octopus camouflage from *Science Friday*: https://bit.ly/3vnueAx

"How Do Octopuses Change Color?" from *Ocean Conservancy*: https://bit.ly/3yIKkH3

Inky the Octopus from *National Geographic*: https://on.natgeo.com/3frwRvs

Coffee filter camouflage from *The Library as Incubator Project*: https://bit.ly/3yLchOz

Slime recipe from *Natural Beach Living*: https://bit.ly/2RRAiCH

Suction cup strength tests from *Kids Soup*: https://bit.ly/3fL5vQ2

Suction cup printing from *Kids Soup*: https://bit.ly/3bVRk9S

"Eight Great Reasons To Be A Sucker For Octopuses: from *Oregon Coast Aquarium*: https://bit.ly/3frv4GZ

Books

<u>*Non-fiction*</u>

Obsessive About Octopuses (2020) by Owen Davey (children's)

Inky's Amazing Escape (2018) by Sy Montgomery and Amy Schimler-Safford (children's)

The Octopus Scientists (2015) by Sy Montgomery and Keith Ellenbogen (children's)

The Soul of an Octopus (2016) by Sy Montgomery (adult)

<u>*Fiction*</u>

Octopus Escapes Again (2016) by Laurie Ellen Angus (children's)

Fourteen Animals (That Are Definitely Not an Octopus) (2018) by Gabe Pyle (children's)

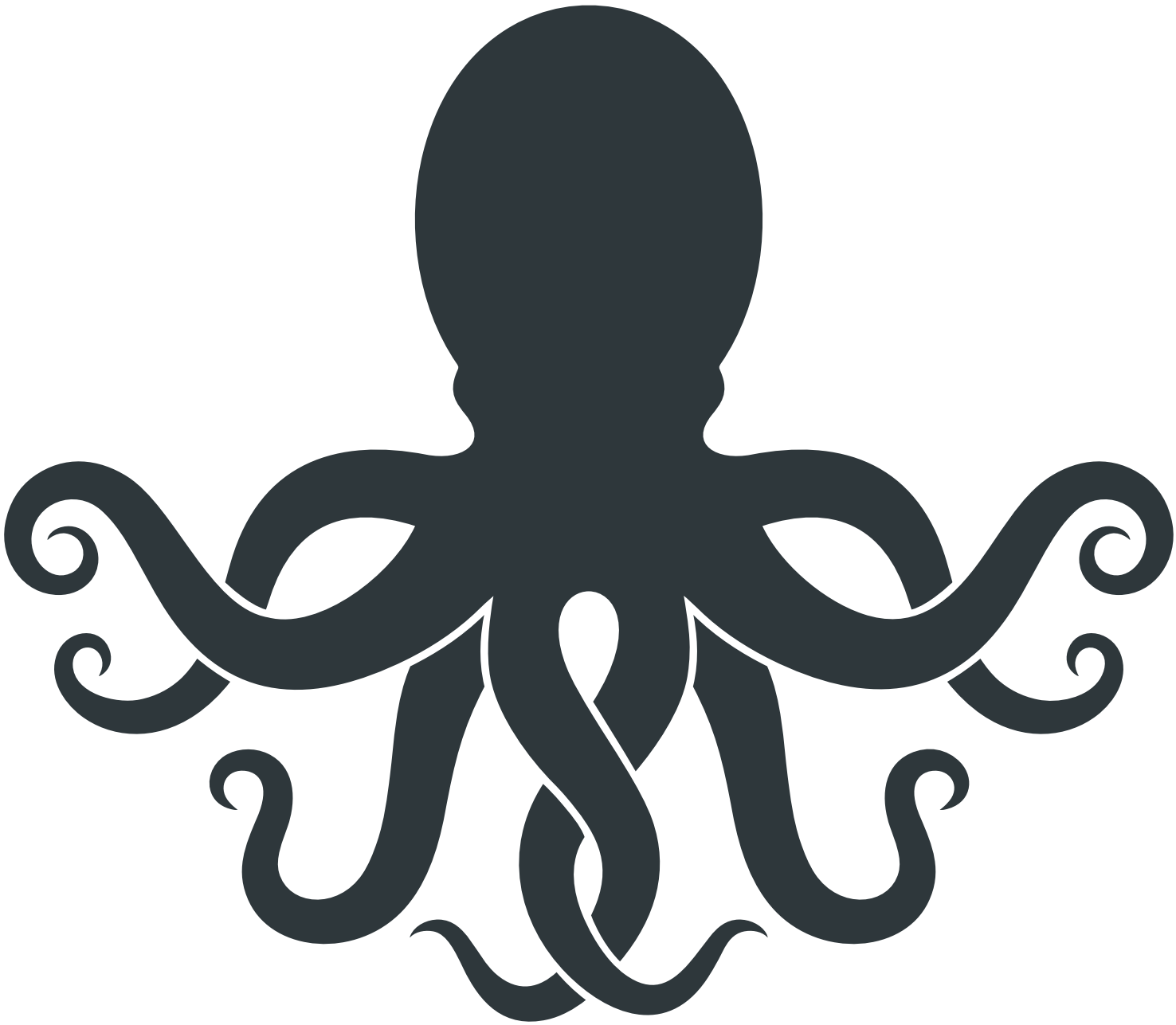
If I had an Octopus (2021) by Gabby Dawnay and Alex Barrow (children's)

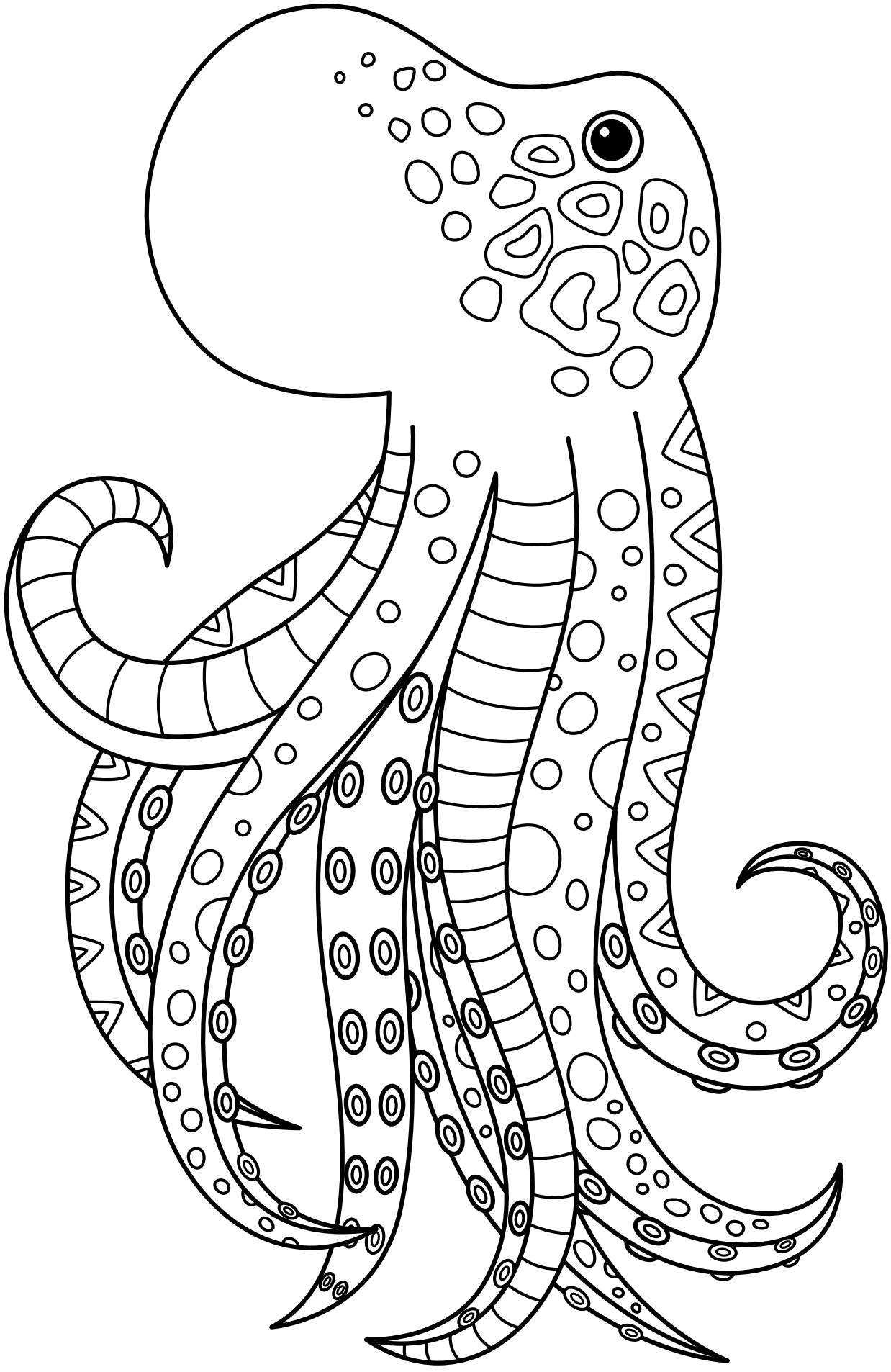
The Benefits of Being an Octopus (2018) by Ann Braden (children's)

Printables

Octopus Silhouette

Octopus Coloring Sheet





CHILDREN TWEENS

GAME/ACTIVITY | PASSIVE | LOW COST

TANGRAM FISH

AGES

Children 8+ years
Tweens

PROGRAM DESCRIPTION

A tangram is a puzzle in which different designs can be made by arranging geometric shapes. This can be a passive program, a filler for another program, or a game where the fish get progressively more difficult. Suggested runtime: 30 min.

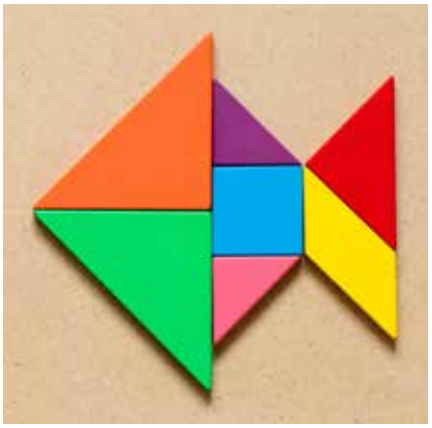


Image source: Shutterstock

MATERIALS AND PREPARATION

Materials: Colored paper or construction paper, scissors, laminator (optional)

Instructions:

In advance, cut the geometric shapes out of the colored paper and laminate them if desired. You can also purchase foam tangrams for participants of all ages. A traditional set of tangram shapes includes two small triangles, one medium triangle, two large triangles, one square, and one parallelogram.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

About tangrams from *Study.com*: https://bit.ly/3bV3JKT

Tangram fish inspiration from *Class Playground*: https://bit.ly/3utc5zS

Tangram fish inspiration from *Scout Life Magazine:* https://bit.ly/2SyHYd8

Tangram fish inspiration from *Seesaw:* https://bit.ly/3hY4lTT

Tangram ideas for preschoolers from *Prekinders*: https://bit.ly/2QYVzdt

ADAPTATION:

Large foam tangrams also work well for early literacy.

ADAPTATIONS:

This can be a passive activity where children design their own tangram animals and have others guess what they are. Alternatively, you can create a game to see who can complete a tangram the quickest.

Books

Non-fiction

Math by the Ocean (Math is Everywhere!) (2017) by Kieran Shah (children's)

A Math Journey Under the Ocean (Go Figure!) (2016) by Hilary Koll (children's)

Grasping Mysteries: Girls Who Loved Math (2020) by Jeannine Atkins (children's)

Fiction

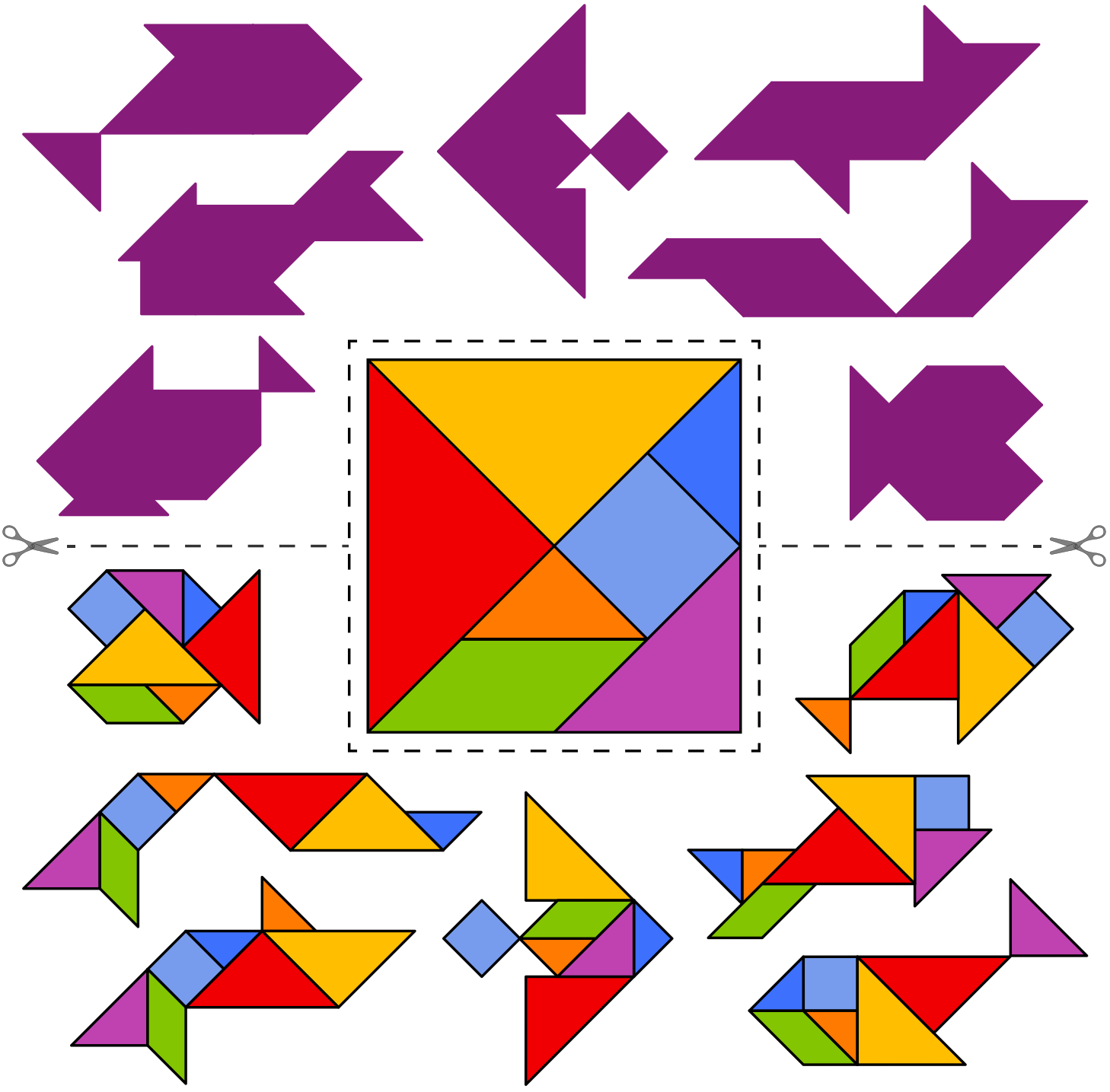
Color Zoo (1997) by Lois Ehlert (children's)

The Greedy Triangle (2008) by Marilyn Burns and Gordon Silveria (children's)

How to Code a Sandcastle (2018) by Josh Funk and Sarah Palacios (children's)

Printables

Tangram Template



LIGHT UP ANGLER FISH

AGES

Children 8+ years
Teens/tweens

PROGRAM DESCRIPTION

Create a circuit to emulate the angler fish's lure! To ensure that you have enough supplies for an in-library program, be sure to have a sign-up sheet with a limited number of participants. These also make great take-and-make kits. See Printables for an angler fish template by Christina Dorman of Maine State Library, Augusta, ME. Suggested runtime: 60 min.

MATERIALS AND PREPARATION

Materials: Cardstock, colored paper, glue, markers, pencils, transparent tape, copper tape (¼ inch width), LED lights (5mm or LED stickers), coin batteries, small binder clips

In advance, precut strips of copper tape approx. 6-8" long (two per participant). Create packets for each participant containing:

- 2 strips of copper tape
- 1 coin cell battery
- 1 LED
- 1 small binder clip
- Transparent tape
- Angler fish circuit template

During the program:

- Explain how circuits work, the etymology of the word, and how they are used.
- Introduce the idea of conductive vs. non-conductive materials
- Distribute materials to the participants and give them a primer on construction instructions.
- Invite each participant to use the angler fish template to guide placement of the copper tape and apply it.
- Tape the LED light in place with transparent tape.
- Place the coin cell battery in the designated spot on the template, fold the corner of the paper over it, and clip it in place with the binder clip.
- The LED will light up!

TIP:

To reduce costs, purchase AA batteries with battery holders instead of coin batteries. For take-home kits, use wrapped wire or alligator clips instead of copper tape.

ADAPTATION:

Create a 3-D angler fish using wrapped wire or alligator clips. Cut the fish out of cardboard or heavy paper, then tape or staple the circuit with the LED light dangling off the front. Caution: Wrapped wire is sharp!

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly for small groups. For large groups, add 1–2 volunteers or staff members to ensure that everyone gets their angler fish to light up.

RESOURCES

Web

About angler fish from *SciShow Kids*: https://bit.ly/2SvQqKc

60 second paper circuit tutorial video from *Fawn Qiu*: https://bit.ly/2TpeTRW

Books

<u>*Non-fiction*</u>

Creatures of the Deep (2015) by Matthew Rake and Simon Mendez (children's)

The Anglerfish (2017) by Tanya Turner (children's)

Wire It! 6 Creative STEM Projects for Budding Engineers (2019) by Caroline Alliston and Tom Connell (children's)

<u>*Fiction*</u>

Anglerfish for Rent (2016) by Sarah Fox Anderson and Leo Silva (children's)

Nick and Tesla series (2013–2016) by Bob Pflugfelder (children's)

Printables

Angler Fish Template

TIP:

Be sure to watch "Folding Copper Tape for Paper Circuitry" from NexMap to understand how to correctly fold/turn the copper tape: https://bit.ly/3vsobup

LIGHTHOUSE STEAM CHALLENGE

AGES

Children 8+ years

PROGRAM DESCRIPTION

Read a story about a lighthouse, or share fun facts about lighthouses (the National Park Service is a great resource). Then, participants compete to see who can build the tallest lighthouse using paper straws, craft sticks, or index cards. Those who finish early can work on a lighthouse coloring sheet or experiment with Morse Code to send messages to each other (see Printables). This program is easily adapted to Zoom. Suggested runtime: 45 min.

Image source: Shutterstock

TIP:

Check out your local lighthouse society for free virtual tours. You might even be able to take a field trip to hold a storytime (virtual or in-person) from the lighthouse!

ADAPTATION:

For hearing- or vision-impaired patrons, create posters that include pictures of lighthouses with easy-to-read facts. While reading a story, consider projecting the ebook version on a screen or wall as you go along.

ADAPTATION:

Based on Sophie Blackall's book *Hello Lighthouse*, you could also have participants build a device to move things from the floor to table, and vice versa, without dropping anything.

MATERIALS AND PREPARATION

Materials:

- Laptop/projector to share NPS info
- Paper straws, craft sticks, and/or index cards
- Masking tape
- Battery tealights
- Paper and pencils for participants to draw their plans
- Flashlights (optional)
- Morse code handouts (optional)

The lighthouse must support a battery tea light. Be sure to leave time for participants to share their structures with each other.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

Lighthouse history and activities from *National Park Service*: https://bit.ly/3fpBXZa

Books

<u>*Non-fiction*</u>

Lighthouses for Kids: History, Science, and Lore with 21 Activities (2008) by Katherine L. House (children's)

Lighthouse: An Illuminating History of the World's Coastal Sentinels (2018) by R. G. Grant (adult)

<u>*Fiction*</u>

Hello, Lighthouse (2018) by Sophie Blackall (children's)

The Little Red Lighthouse and the Great Gray Bridge (2002) by Hildegarde H. Swift and Lynd Ward (children's)

The Lighthouse Family: The Storm (2003) by Cynthia Rylant and Preston McDaniels (children's)

The Lighthouse Cat (2004) by Sue Stainton and Anne Mortimer (children's)

The Lighthouse Mystery (The Boxcar Children Mysteries) (Second Edition) (1990) by Gertrude Chandler Warner and David Cunningham (children's)

Printables

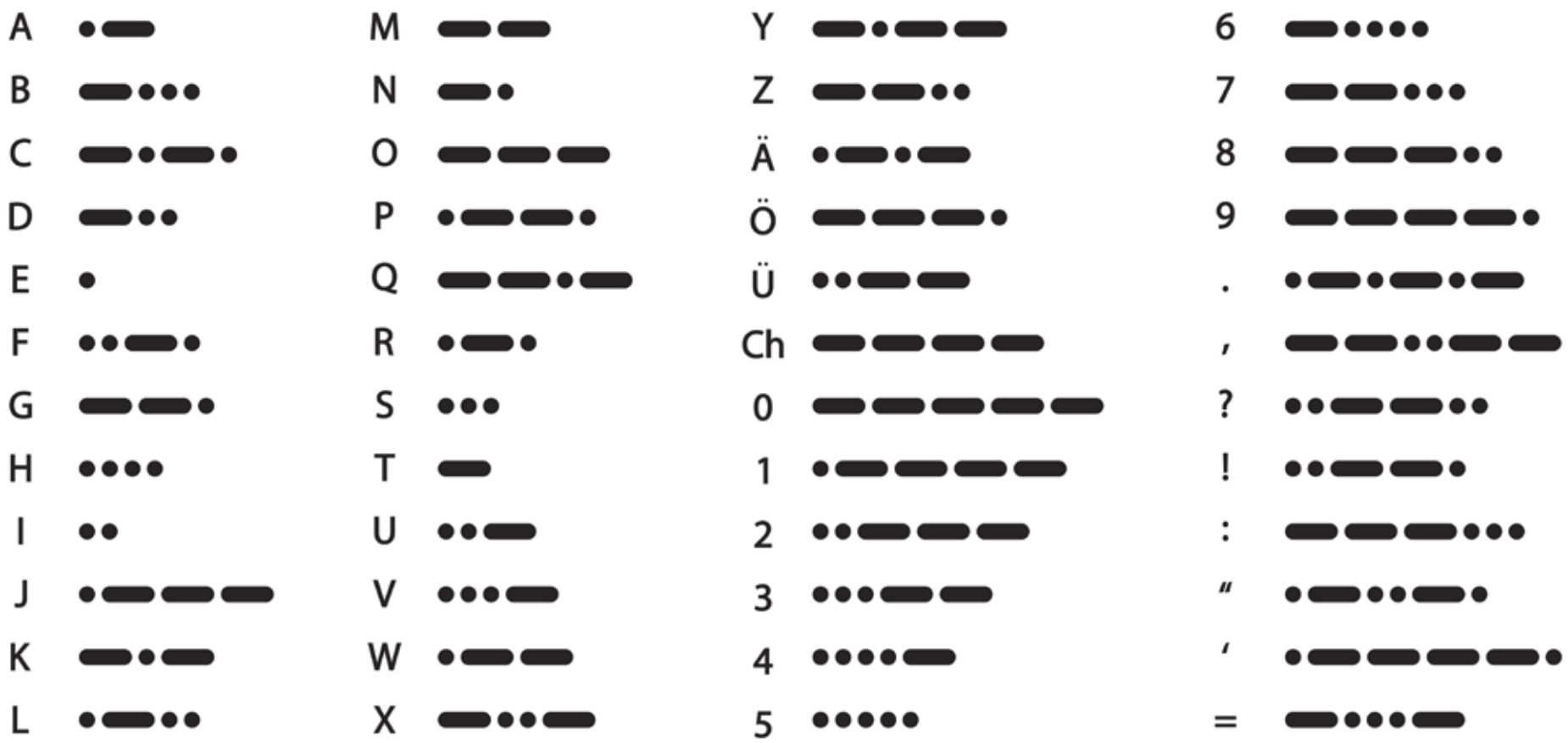
Morse Code

Lighthouse Coloring Sheet

DISCUSSION IDEA:

Hello, Lighthouse describes performing the same task for hours on end. Do the children think they could do that same task? For how long? A few minutes? 1 hour? 12 hours?

Morse Code



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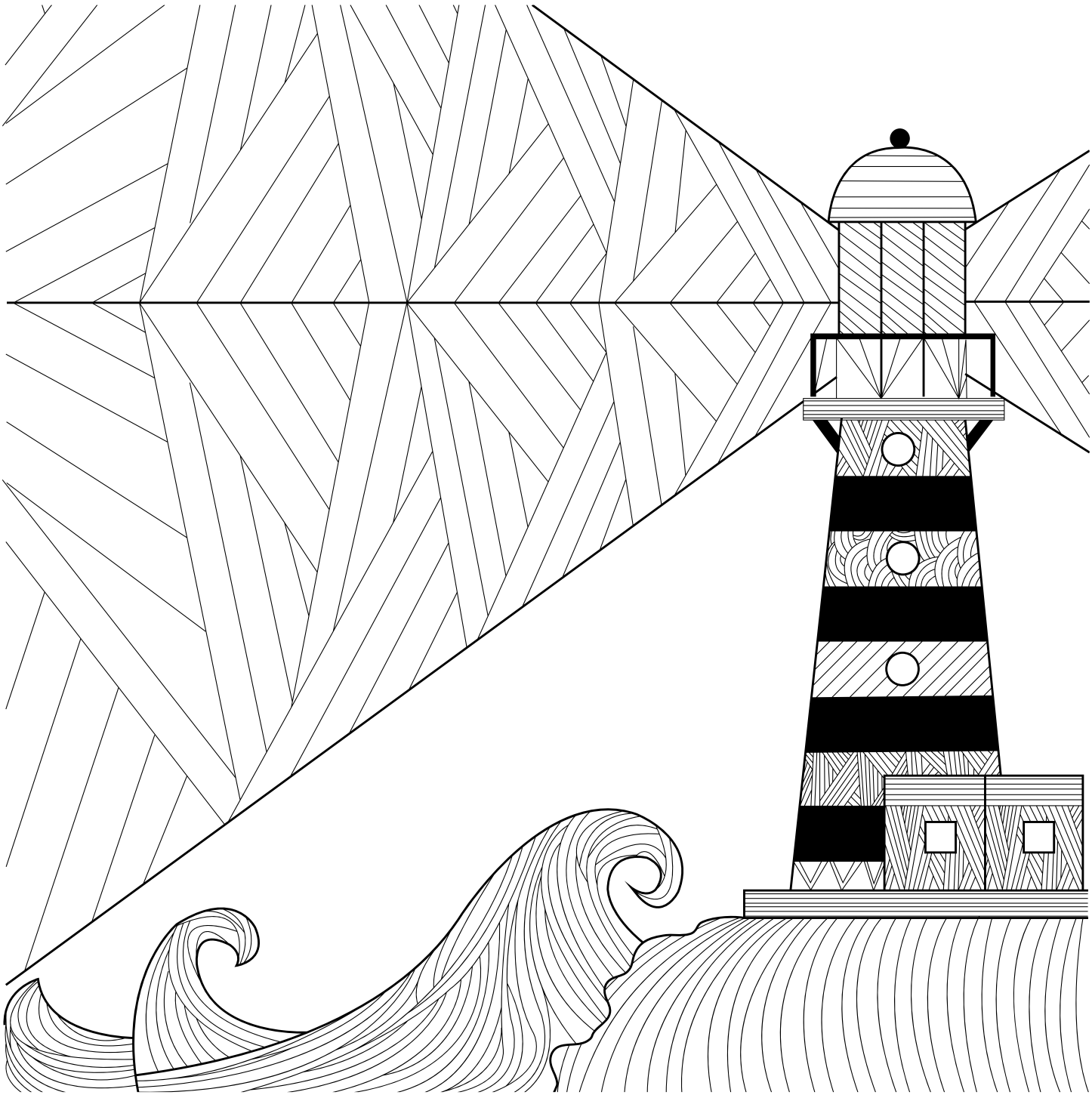


Image source: Shutterstock

GAME/ACTIVITY

MARIANA TRENCH: THE DEEPEST SPOT ON EARTH

AGES

Children 8+ years

PROGRAM DESCRIPTION

Dig deep into the Mariana Trench! As a group, children try to place locations according to depth on a Mariana Trench wall display. Watch YouTube videos, and use Milky Way candy bars, or a non-food option, to demonstrate the plate tectonics that created the Mariana Trench. Suggested runtime: 45 min.

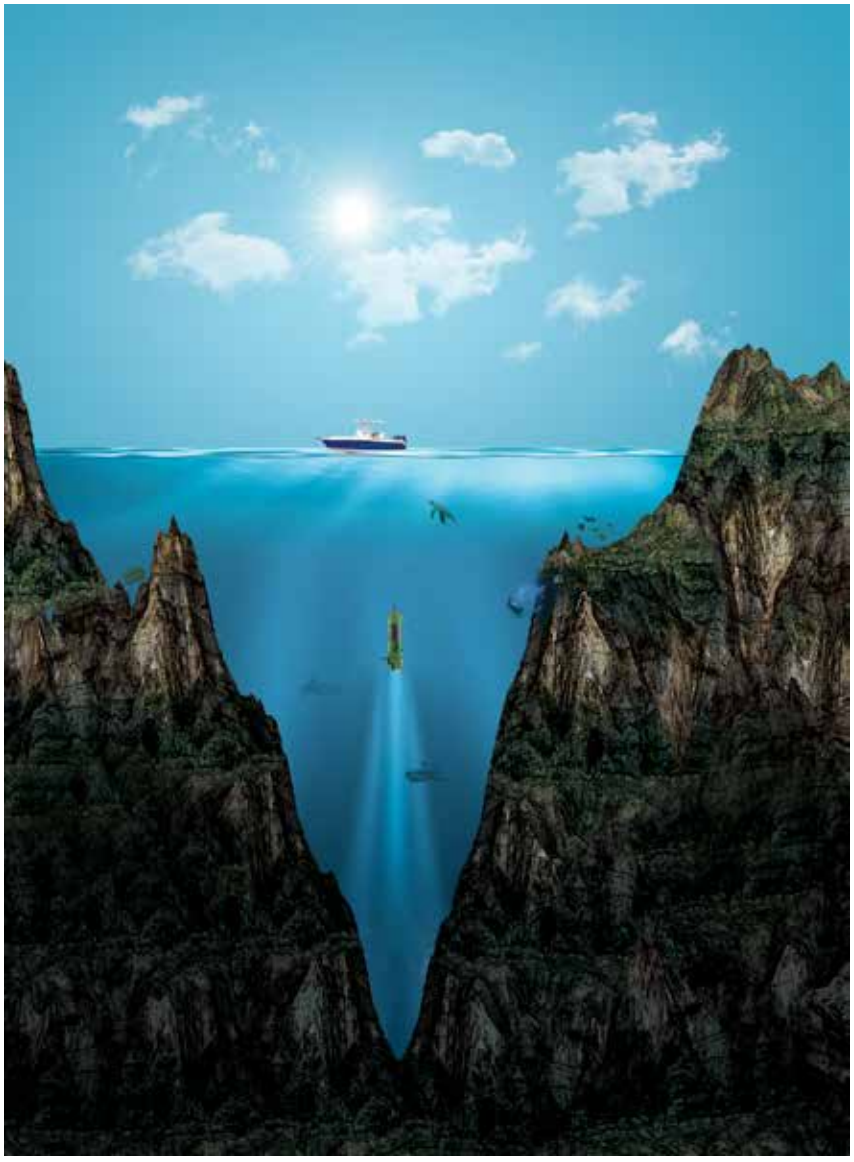


Image source: Shutterstock

ADAPTATION:

For older children and teens, replace one of the activities (or add on) with an activity about water pressure. Two great ideas here: https://bit.ly/3bVSYs4

MATERIALS AND PREPARATION

Materials:

- World map or globe
- Yard sticks
- Paper plates
- Milky Way bars, or graham crackers and frosting, or cardboard and glue
- White board and magnets, or painter's tape, or butcher paper and markers
- Tables and chairs for plate tectonics and coloring

Make a Mariana Trench depth display using a wall, magnetic white board, or strips of butcher paper. Mark off lines with distances, from 0 ft. to 35,000 ft. If you are short on space, include only the specific depths needed.

Some images to consider laminating, for attaching with magnets or painter's tape to your display: The "midnight zone" (1000 ft.), great white shark (4500 ft), black dragonfish (6600 ft), deep sea coral reefs (9900 ft), average ocean depth (12100 ft), angler fish (15000 ft), SS Rio Grande shipwreck (18900 ft), Trench begins (19700 ft), snailfish (26000 ft), Challenger Deep (35853 ft).

Program outline:

- Show a world map and ask if anyone can locate the Mariana Trench.
- Use National Geographic Interactive map to look at the depths surrounding the trench (if you have access to multiple devices, let kids do this themselves):
- Bring out your premade Mariana Trench depths display with stick ons and

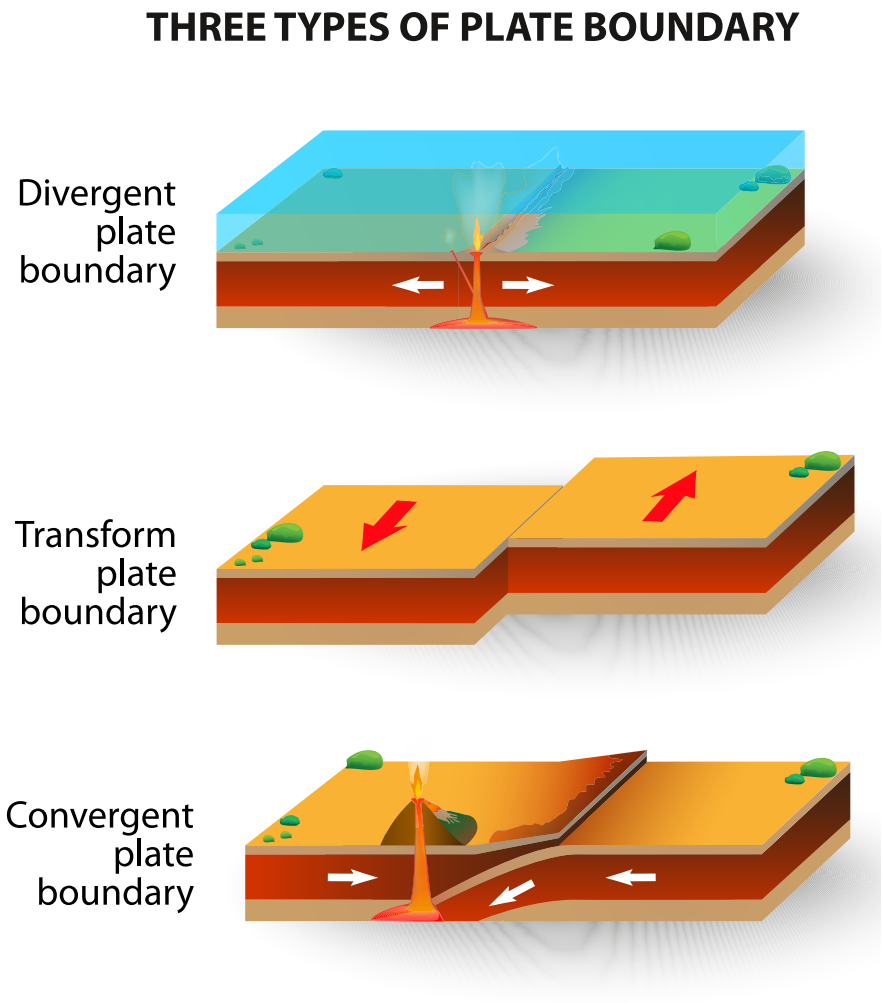


Image source: Shutterstock

have kids decide where they think the items go. When they've made a guess, tell them how many are right and give them the option of rearranging. Finally, give them the correct answers.

- 35,000 ft is approximately 7 miles. Using a map, show them things that are 7 miles from the library so they can get an idea of how deep it is.
- Talk about tectonic plates. Lead a tectonics demonstration using mini Milky Way bars (not bite sized), or use a non-food substitute. Make a crack in the top layer of chocolate with a plastic knife. Pull the candy bar apart a tiny bit (this makes a divergent boundary). Push the candy bar together (this makes a convergent boundary and is what created the subduction and the Mariana Trench). Push the two sides in opposite directions (this is a transform boundary).
- Finally, watch a video about the Mariana Trench on Youtube. Give kids paper and crayons to color an ocean scene while watching.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

"MapMaker Interactive" from *National Geographic*: https://bit.ly/3fOr6Hs

"What is Tectonic Shift?" from *National Ocean Service*: https://bit.ly/3g5DO4P

"Plate Tectonics" from *National Geographic*: https://bit.ly/3fO6bnK

Books

Non-fiction

Mapping the Deep: The Extraordinary Story of Ocean Science (2000) by Robert Kunzig (adult)

Fiction

The Young Captain Nemo series (2019–2021) by Jason Henderson (children's)

The Beast of Cretacea (2015) by Todd Strasser (YA)

Meg (2005) by Steve Altern (adult)

TIP:

For more children's deep sea non-fiction titles, see programs in Chapter 02: Explore New Depths.

SURVIVAL ISLAND: CAN YOU SURVIVE?

AGES

Children 8+ years
Teens/tweens

PROGRAM DESCRIPTION

Test your patrons' ability to survive on a deserted island! Adapt this program for any age group or runtime target by running fewer stations and/or modifying station activities. It would also make a fun kick-off party for summer programming, especially if you invite participants to wear costumes. Suggested runtime: 60–90 min.

Image source: Shutterstock

ADAPTATION:

For a passive program, display resources and create "Can You Survive?" cards depicting various scenarios. Patrons see the correct answers along with resources for each scenario.

TIP:

The Worst-Case Scenario Survival Game has lots of fun trivia questions about different survival scenarios. The board game could be played as part of the program, or ideas/questions for the program can be pulled from the game.

ADAPTATION:

For an online program, you can also have children build "I survived" catastrophes in Minecraft.

MATERIALS AND PREPARATION

Station #1: Make Your Own Water Filter

Materials:

- Empty 2 liter soda bottles (1 per filter)
- Exacto knife
- Rubber bands
- Spoons
- Assortment of layering materials, such as rocks of various sizes, gravel, charcoal, sand, cotton balls, or clay
- Coffee filters, napkins, or socks

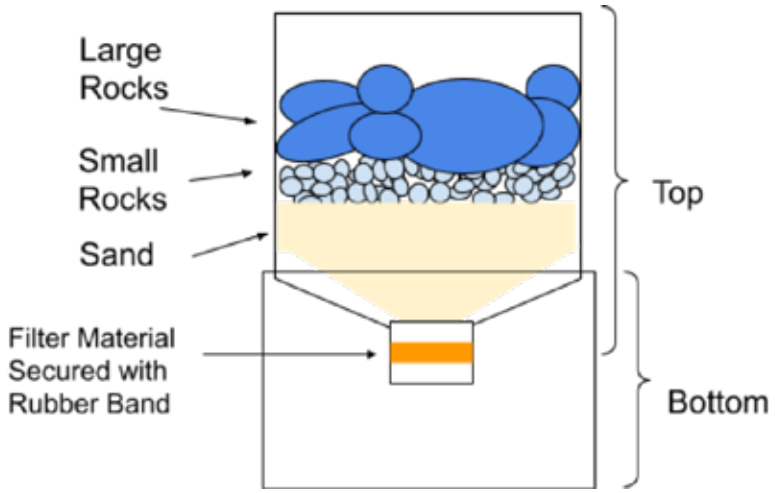


Image source: Christina Dorman of Maine State Library, Augusta, ME

Before the program, precut the soda bottles into two pieces. The cap section, or top of the bottle, should be shorter than the bottom section. Prepare the “dirty” water (with dirt and cooking oil) that participants will use to test their filters.

Assembly:

- Place top section upside down in the bottom section.
- Participants layer filter components into the upside down cap section.
- The finest layers (such as sand) should be at the bottom to catch the finest particulates. Larger materials are layered on top.
- Place filter or napkin around the bottom of the mouth of the bottle and secure it with a rubber band.
- Give them time to test their filters with the dirty water.

Station #2: Make a Friend

Materials:

- Small rubber balls or ping-pong balls
- Markers

Participants draw a friendly face for themselves (think Tom Hanks's Wilson volleyball.)

Image source: Shutterstock

Station #3: Build a Raft

Materials:

- Popsicle sticks or gathered sticks
- Yarn or string
- Large leaves (optional)
- Small items of different weights

Challenge participants to make a small raft from the gathered materials. Provide a tub or pool to test out their rafts. Try increasingly heavier objects on the rafts to see how much they can hold.

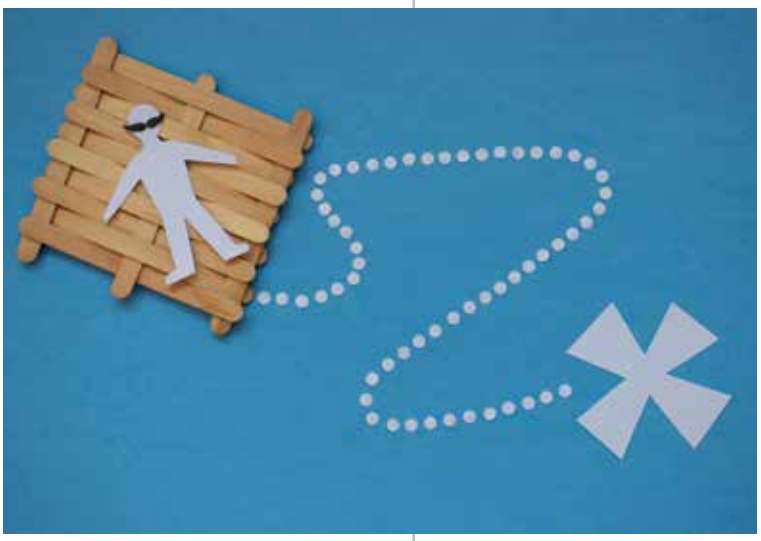


Image source: Shutterstock

Station #4: Build a Shelter

Materials:

- Recyclable materials
- Any craft materials
- Any blocks
- Lego minifigures
- Blankets and pillows (optional)

Challenge kids to build a shelter for Lego minifigures from recycled materials or blocks. Alternatively, they could make blanket forts.

Station #5: Send an SOS

See Lighthouse STEAM challenge for a Morse Code Printable. Cut a flashlight-sized hole from a cardboard box, behind which children can stand to send their SOS.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

A large space if you plan to run all the stations. Extra volunteers will be helpful.

RESOURCES

Web

"Make a Water Filter" from *National Geographic Kids*: https://bit.ly/3urxh9l

Resources for natural disasters/extreme weather from *CDC*: https://bit.ly/3fs1VeQ

"How to Survive in Ocean/Open Water" from *Survive Nature*: https://bit.ly/2TrPmHX

"Survival skills" from *Wikipedia*: https://bit.ly/3ur9CGl

Worst Case Scenario board game: https://amzn.to/3p89V85

Books

Non-fiction

I Survived (True Stories) (2013–2020) by Lauren Tarshis (children's)

Adrift at Sea: A Vietnamese Boy's Story of Survival (2016) by Marsha Skrypuch Tuan Ho and Brian Deines (children's)

Fiction

Overboard! (Survivor Diaries) (2017) by Terry Lynn Johnson and Jani Orban (children's)

The Adventures of John Blake (2017) by Philip Pullman and Fred Fordham (children's)

The Living (2015) by Matt de la Peña (YA)

CRAFT | OUTREACH | LOW COST

LŪʻAU: MAKE A HAWAIIAN LEI

AGES

Children 8+ years

PROGRAM DESCRIPTION

Children make Hawaiian leis, then take an imaginary boat ride to the island to be garlanded upon their arrival. See if you can partner with a local dance agency to give a brief hula lesson, or ask a local musician to play simple songs on the ukulele. Suggested runtime: 45 min.

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials:

- Cardstock
- Flower punch, Ellison Die Cut machine, or scissors
- Paper hole punch
- Paper drinking straws
- Yarn or thick string
- Plastic needles or floss threaders (optional)

Before the program, create paper flowers with a hole in the middle of each. If you don't have a flower punch, cut out simple flower shapes. Cut the paper straws into one-inch pieces. Place flowers and straws in bins on each table.

TIP:

The Ellison Die Cut machine makes paper flowers the perfect size for this craft. Single flower punches are also easy to find online or at craft stores. After punching out the flower, use a small paper punch to put a hole in the middle.

During the program, each participant gets a length of string and a threader. To make the leis, they alternate between stringing paper flowers and pieces of straw until the string is filled. Tie the ends of the string together to finish.

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

The history and cultural appropriation of the lūʻau from *Seaside with Emily: https://bit.ly/3io0Gz4*

Traditional Hawaiian food from *Onolicious Hawaii: https://bit.ly/2RqYxHI*

Books

Non-fiction

Natural Hawai'i: An Inquisitive Kid's Guide (2011) by Dana Rozier (children's)

Nāhoa, The Lucky Cat of Lāna`i (2020) by J. Likolani Tackett (children's)

Ohana Means Family (2020) by Ilima Loomis and Kenard Pak (children's)

West of Then (2005) by Tara Bray Smith (adult)

Fiction

Pele and Poli'ahu (2018) by Malia Collins and Kathleen Peterson (children's)

Dog-of-the-Sea-Waves (2004) by James Rumford (children's)

Hina and the Sea of Stars (2003) by Michael Nordenstrom (children's)

Malia in Hawaii (2013) by Karyn Hopper and Tammy Yee (children's)

Shark Dialogues (1995) by Kiana Davenport (adult)

Saturday Night at the Pahala Theatre (1993) by Lois-Ann Yamanaka (adult)

DRIP, SPLATTER, SPLASH: CORAL REEF CREATIONS

AGES

Children 6+ years
Tweens

PROGRAM DESCRIPTION

Frequently called “rainforests of the sea,” coral reefs are some of the most diverse ecosystems in the world! They serve as a primary habitat, breeding area, and food source for all types of marine life. Show participants pictures or videos of coral reefs, then discuss what lives there. You might also show on a map where the biggest coral reef in the world, the Great Barrier Reef, is located. Choose from four different craft ideas inspired by the colors, shapes, and creatures of coral reefs. See Printables for an ocean floor coloring sheet. Suggested runtime: 45–60 min.

Image source: Shutterstock

FUN FACT:

Coral reefs get their signature shapes from tiny organisms called coral polyps. Polyps often live together in large colonies and protect themselves by building hard tubes, fans, and other shapes. Sea turtles, clownfish, sponges, and more live in coral reefs.

ADAPTATION:

For older children, talk about coral bleaching and why it is happening. Focus on what children can do to protect coral reefs.

ADAPTATION:

Teens or adults might enjoy the interactive documentary *Lost Cities* produced by CaracanLab and Ruth Gates: http://lostcities.org/#/

MATERIALS AND PREPARATION

Craft #1: Grow Your Own Coral Reefs

Materials:

- Dolomite rocks, or dolomite powder and small pieces of sponge (try garden supply stores or Amazon)
- Household vinegar
- Small, clear containers

Image source: Shutterstock

Coral reefs are made out of calcium carbonate crystals (aragonite), and children can grow their own! Children place a dolomite rock (or a piece of sponge mounded with dolomite powder) in a small container, then cover the rock/sponge about three-quarters of the way with household vinegar. Keep the rocks in the library where they will not be disturbed for 5 days to 2 weeks, at which point they will be ready to remove or display.

Craft #2: Blow Painted Coral Reefs

Materials:

- Cardstock or watercolor paper
- Non-toxic, washable paint in glass jars or plastic cups
- Paper/reusable straws, or spray bottles, turkey basters, or pipettes
- Water
- Paper towels
- Making tape

TIP:

Make sure you leave the top part of the rock or sponge uncovered! Otherwise, the calcium carbonate cannot grow.

FUN FACT:

Like coral reefs, sea shells and pearls are also made of calcium carbonate.

CRAFT

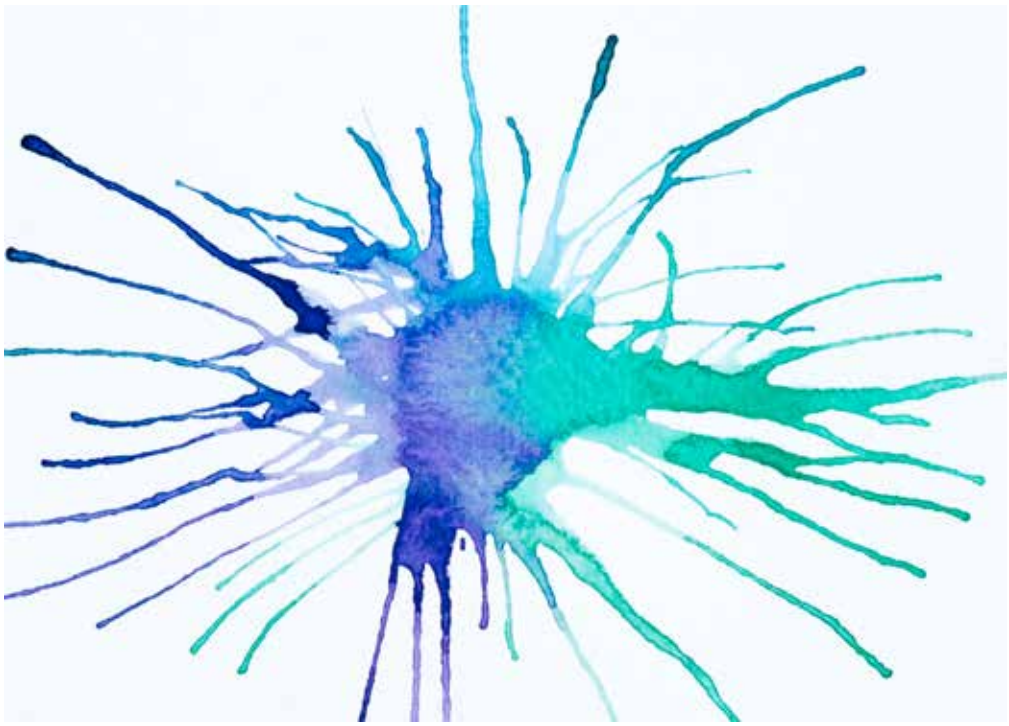


Image source: Shutterstock

To make:

- Dilute paints with a small amount of water. You want paint that is thin enough to go in and out of a straw easily.
- Fix the paper to the table with masking tape.
- Show children how to dip their straws into the diluted paint containers, with a finger over the top to add suction. They release the paint over their paper, then gently blow on the wet paint through the straw.
- Repeat with multiple colors. If using straws, each participant will need a separate straw for each color.
- Optionally, provide animal silhouettes and/or magazines for children to make collages on top of their dried paintings.

TIP:

Instead of straws, you can also use reusable turkey basters or pipettes. Children can also finger paint, or flick paint onto the paper with paint brushes Jackson Pollock-style.

Craft #3: Coral Reef Sculptures

Materials:

- 8–10” cardboard circle or a floral foam half sphere for each participant
- Glue
- Pipe cleaners
- Scissors
- Various recycled materials and craft supplies, such as paper tubes, paper egg cartons, coffee filters, seashells, burlap pieces, beads, colored moss, acrylic or tempera paint, glitter Mod Podge, scissors, paintbrush, beads, pom-poms, rocks, pipe cleaners, coffee filters, fusilli pasta, pool noodles, and any other textured materials (optional).

The simplest version of this craft is to provide floral foam and pipe cleaners precut into various sizes and lengths. Children roll and twist the pipe cleaners into various shapes, then glue them into the floral foam. Depending on budget and/or supplies on hand, consider expanding material options for more detailed and layered sculptures. A coating of glitter and Mod Podge, or seashells or rocks, makes a good base layer.

Source: Joelle Wake of Whiting Public Library, Whiting, IN

Craft #4: Coral Reef Prints

Materials:

- Paint. Crayola Project Paint is recommended because it's a non-toxic washable tempera paint and comes in plenty of fun colors, such as neon.
- Wide paintbrushes
- Wood stylus, dull pencil, or pen
- Scratch foam paper or pieces of recycled Styrofoam
- Cardstock or other heavy paper

During the program:

Children sketch coral reef shapes (or a clownfish, sea turtle, or sea anemone). When they have one they like, they etch it into a piece of foam paper with a wood stylus. Remember that their design will be flipped or reversed when it's stamped. To stamp, cover the etching with a generous layer of paint, then stamp the design onto a piece of paper. Continue stamping and experimenting with multiple colors and sizes.

Image source: Shutterstock

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Single crafts are solo-librarian friendly; add volunteers if running multiple stations.

RESOURCES

Web

Get a free Coral Heroes comic from *Secore International*: https://bit.ly/3yGTeF1

Protecting coral reefs infographic from *National Ocean Service*: https://bit.ly/2SsWUtj

Coral reef week from *Art Project Memphis*: https://bit.ly/3wv9rey

"How to Grow Aragonite Crystals" from *Tinker Lab*: https://bit.ly/3chdS59

Coral reef blow painting from *Woo!Jr*: https://bit.ly/3yIOezH

"Coral Reef Week!" from *The Art Project*: https://bit.ly/3wv9rey

Pipe cleaner coral reef craft from *Powerful Mothering*: https://bit.ly/2Su8x3c

Books

Non-fiction

Looking Into the Ocean (2020) by Martha London (children's)

The Coral Kingdom (2018) by Laura Knowles and Jennie Webber (children's)

What Do You Find in a Coral Reef? (2016) by Megan Kopp (children's)

Dive In: Swim With Sea Creatures at Their Actual Size (2020) by Roxie Munro (children's)

Coral Reefs: Cities of the Ocean (2016) by Maris Wicks (children's)

Fiction

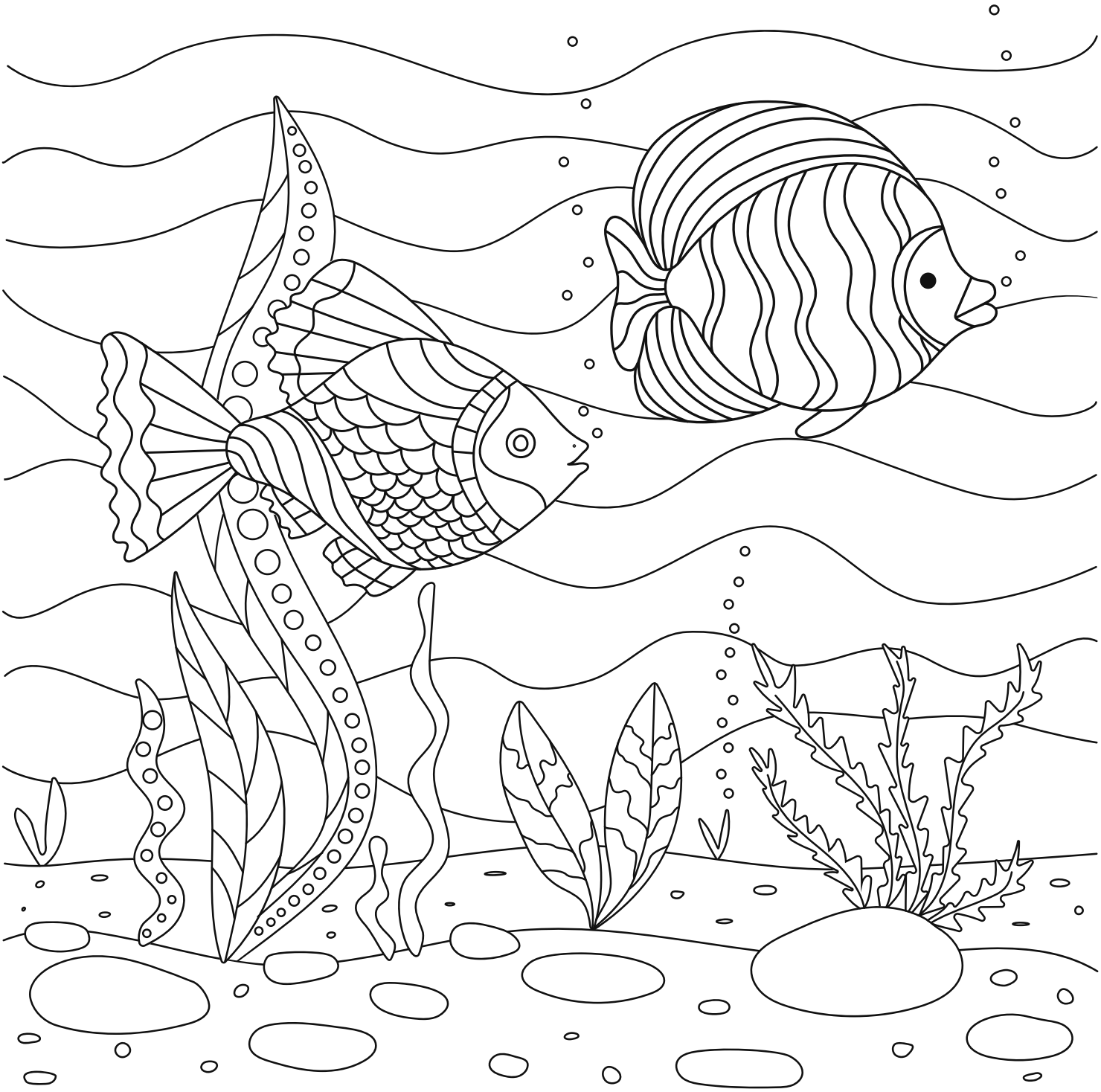
The Mystery at the Coral Reef (2015) by Harper Paris and Marco Calo (children's)

One White Dolphin (2013) by Gill Lewis and Raquel Aparicio (children's)

Professor Astro Cat's Deep Sea Voyage (2020) by Dominic Walliman and Ben Newman (children's)

Printables

Coral Reef/Ocean Floor Coloring Sheet



EXPLORING EARTH: RISING SEA TOPOGRAPHY

AGES

Children 8+ years

PROGRAM DESCRIPTION

This is a hands-on activity demonstrating ways to use topographical mapping techniques to track changes in sea level. The activity is connected to current NASA research. Together, participants and facilitators can discuss the effects of rising sea levels on coastal communities and the natural environment. Learners explore how to use topographical mapping techniques to track changes in sea level and have discussions about the effects of rising sea levels on the environment and coastal communities. See Resources for videos, Printables, and conversational prompts for this program. Suggested runtime: 45 min.

Image source: Shutterstock

SOURCE:

Program from the National Informal STEM Education Network (NISE Net); reprinted with permission.

GAME/ACTIVITY

MATERIALS AND PREPARATION

Materials:

- Translucent plastic bin
- Modeling clay
- Clear acrylic sheets (Plexiglass)
- Dry erase markers
- A large pitcher and water
- Blue food coloring
- Sponges or paper towels
- Activity sheet (see Resources)
- Facilitator guide (see Resources)

Before the program, fill the pitcher with water and a few drops of blue food coloring.

Use modeling clay to create a landform that will fit into the bottom of the translucent bin. (Alternatively, you can get children to create the landform as part of the program.)

During the program:

- Place the acrylic sheet over the basin. Use a marker to trace around the outside edge of the island landform.
- Add water to the basin until it comes up to the first mark. Now, replace the acrylic sheet back on top and trace the edge of the landform where it emerges from the water. Is your line in the same place?
- Keep adding small amounts of water and tracing the coastline until you have created a topographic map. Why do you think it's important to track changes in the coastline?

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Solo-librarian friendly.

RESOURCES

Web

Videos and printables from *NISE Net*: https://bit.ly/2RHfI8h

A similar clay topographic map activity from *NASA*: https://go.nasa.gov/3yLfFZN

Books

Non-fiction

Using Topographic Maps (2016) by Tracy Nelson Maurer (children's)

Rising Seas (2018) by Keltie Thomas and Belle Wuthrich (children's)

Start Now! You Can Make a Difference (2020) by Chelsea Clinton (children's)

Fiction

Across the Risen Sea (2020) by Bren MacDibble (children's)

The Year the Maps Changed (2020) by Danielle Binks (children's)

The End of the World is Bigger Than Love (2020) by Davina Bell (YA)

HERE BE MONSTERS: FAMILY MAP-MAKING NIGHT

AGES

Children 6+ years
Tweens/teens
Multigenerational

PROGRAM DESCRIPTION

Introduce cartography by hosting an all-ages map-making event! Show maps of real and fictional worlds, then let participants create their own. You could have them map their bedrooms, houses, neighborhoods, or towns, or remake a map from a book or movie. Show old maps that depict sea monsters and uncharted areas, and encourage map-makers to add their own fantastical elements to give them a historical nautical feel. See Resources for map elements, backdrops, and coloring sheets. Don't forget to discuss what a map key is and why it's important! A fun all-ages event. Suggested runtime: 60–90 minutes.

Outcomes for teens:

- Teens will become aware of the technologies and techniques used in map making;
- If partnering with a local GIS professional or government agency, teens will be introduced to potential careers in map making and other related fields;
- Teens will be able to articulate how artistic expression can be used in a practical way;
- Teens will practice communication skills by presenting their work to the group.

Image source: Shutterstock

TIP:

Local museums will likely have a number of maps in their collection (and many such map collections are digitized).

ADAPTATION:

Focus on fictional explorers of the seven seas, such as the Kidd siblings (*Treasure Hunters*), the Swiss Family Robinson, or Captain Nemo (*Twenty Thousand Leagues Under the Sea*). Children can make maps that depict these stories.

ADAPTATIONS FOR TEENS:

- For a pre-event craft, teens could make map paper by browning white paper in a tea bath and adding texture.
- Add a role-playing component. World-building and visuals are great to add to gameplay!
- Focus on map-making technology. Partner with a local GIS agency to introduce potential careers.

MATERIALS AND PREPARATION

Map-making supplies:

- Brown grocery bags, large sheets of butcher paper, or printed templates
- Crayons and markers
- Printed icons
- Scissors and glue
- Examples of real and fictional maps
- Laptop/projector (optional)
- Poster tubes (optional)
- Dowels and string for hanging (optional)

Participants make maps from memory, as fantastical or realistic as they desire. For extra fun, streets and highways can be painted blue and referred to as waterways. Don't forget the map key so others can interpret it!

UNIQUE SPACE AND/OR PERSONNEL NEEDS

For outreach, try to find a local cartographer or historical society member. Local GIS agencies or professionals, fantasy authors, illustrators, or graphic designers might also be great guest presenters.

RESOURCES

Web

Map collection from *Library of Congress*: https://bit.ly/3vygjHW

Map collection from *New York Public Library*: https://www.nypl.org/node/80186

Tutorial for tea-stained paper from *How Stuff Works*: https://bit.ly/3oUNcMk

"Introduction to Cartography" from *GIS for Youth Empowerment*: https://bit.ly/3uqNmMH

"A Brief History of Cartography and Maps" from *KnowledgeHub*: https://bit.ly/2QYrtqt

Map Making Resources from *National Geographic*: https://bit.ly/2RIikmp

"Map-Making 101: Drawing the Map" from *Go Teen Writers*: https://bit.ly/3vsuCO5

"Draw Your Own Fantasy Maps" from *Instructables*: https://bit.ly/3p3q1j5

"How to Draw a Fantasy Map" from *WASD20*: https://bit.ly/3hYCQtG

"The Seven Seas"' from *World Atlas*: https://bit.ly/3yHOyhX

"Old Maps of the Seven Seas" from *Old Maps Online*: https://bit.ly/2RPor8l

10 famous explorers from *Biography*: https://bit.ly/3fpNhEQ

Books

<u>Non-fiction</u>

How to Make Hand-Drawn Maps (2018) by Helen Cann (children's/YA)
Ultimate Mapping Guide for Kids (2016) by Justin Miles (children's)
Otis and Will Discover the Deep (2018) by Barb Rosenstock and Katherine Roy (children's)
Flying Deep (2018) by Michelle Cusolito and Nicole Wong (children's)
Solving the Puzzle Under the Sea: Marie Tharp Maps the Ocean Floor (2016) by Robert Burleigh and Raúl Colón (children's)
Atlas of Ocean Adventures (2019) by Emily Hawkins and Lucy Letherland (children's)

<u>*Fiction*</u>

The Writer's Map: An Atlas of Imaginary Lands (2018) edited by Huw Lewis-Jones (children's)
The Atlas of Fairy Tales (2017) by Claudia Bordin (children's)
Cheesie Mack Is Not Exactly Famous (Cheesie Mack series) (2014) by Steve Cotler and Douglas Holgate (children's)
20,000 Leagues Under the Sea (Graphic Revolve: Common Core Editions) (2014) by Jules Verne, Carl Bowen, Benny Fuentes, and Jose Alfonso Ruiz (YA)
Mice of the Seven Seas (Mice of the Herring Bone) (1999) by Tim Davis (children's)
Swiss Family Robinson (1813) by Johann David Wyss (children's)
Ocean Meets Sky (2018) by Terry Fan and Eric Fan (children's)

Printables

Vintage Sea Monsters

Nautical Map Icons

Historical Boats

Old Map Paper

Map of World Coloring Sheet

TIP:

You could also pull books with maps from your fantasy collection, such as those of Eragon, The Illustrated Wizard of Oz, The Lord of the Rings, or Winnie the Pooh. More fantasy book map ideas here: https://bit.ly/3vuMZCf

Image source: Shutterstock

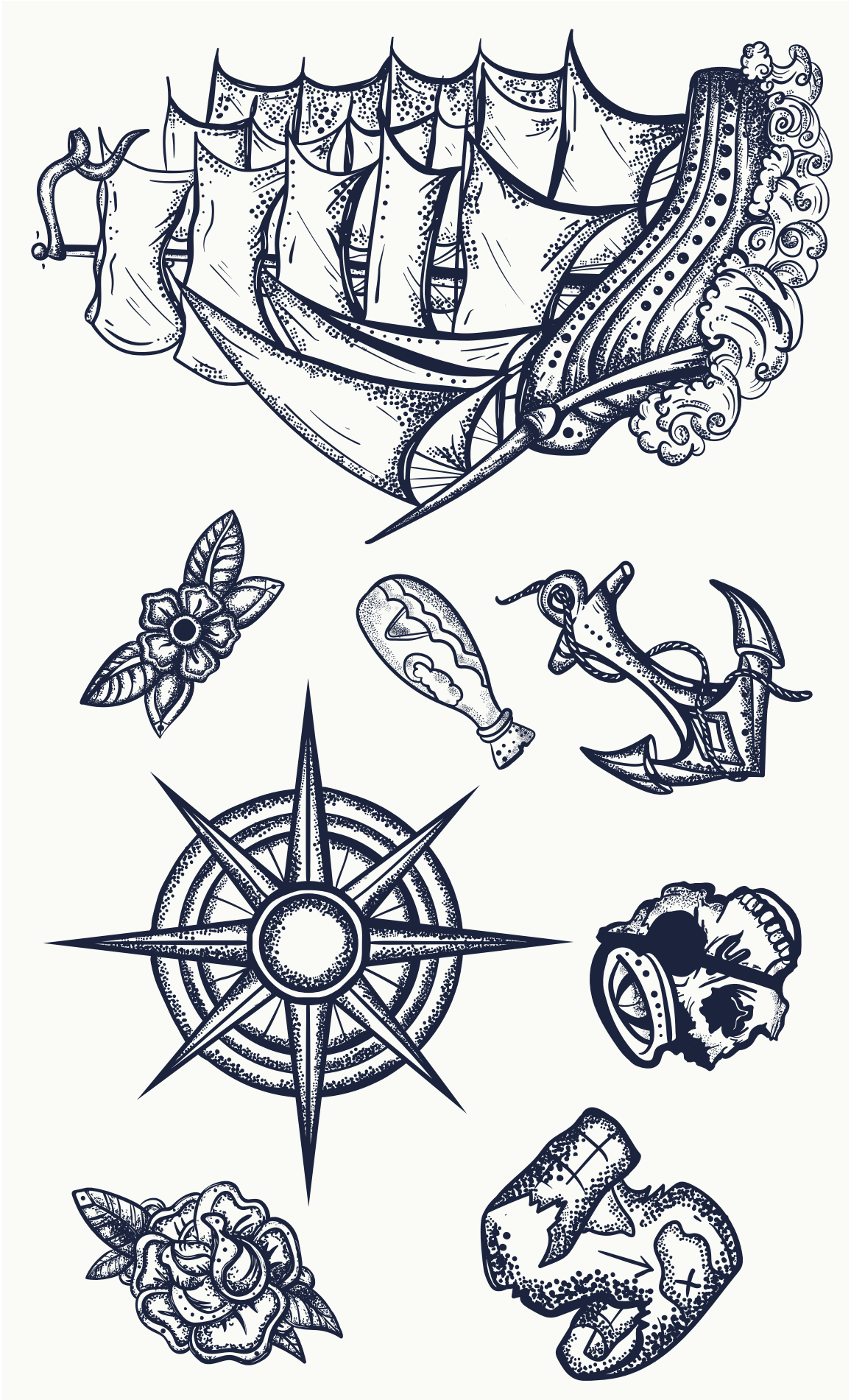
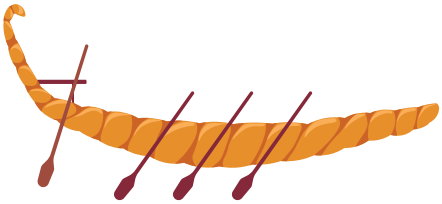


Image source: Shutterstock



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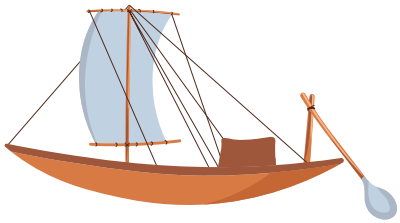

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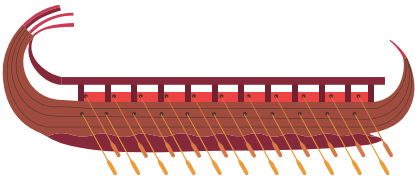

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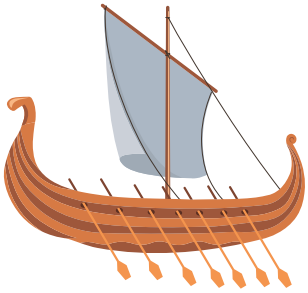

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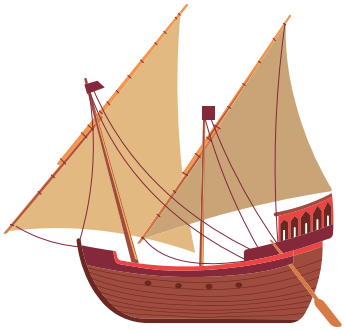

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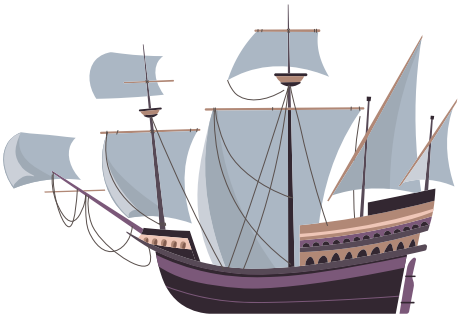

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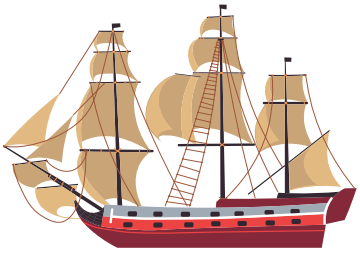

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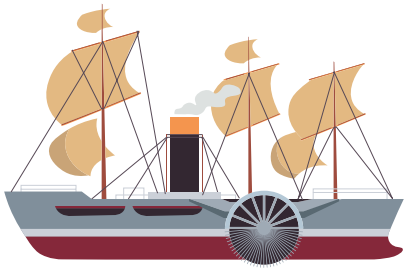
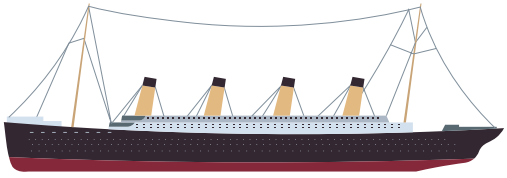


1850



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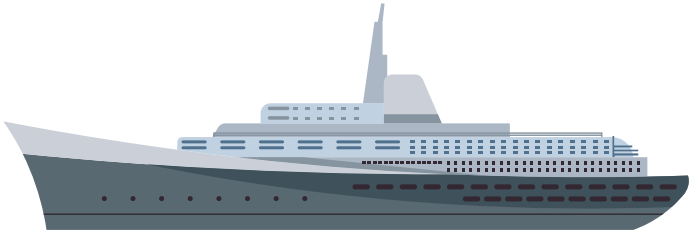
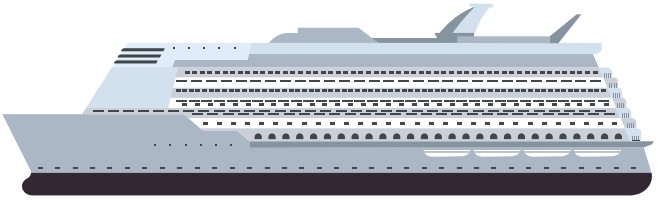


1960



2010

Image source: Shutterstock

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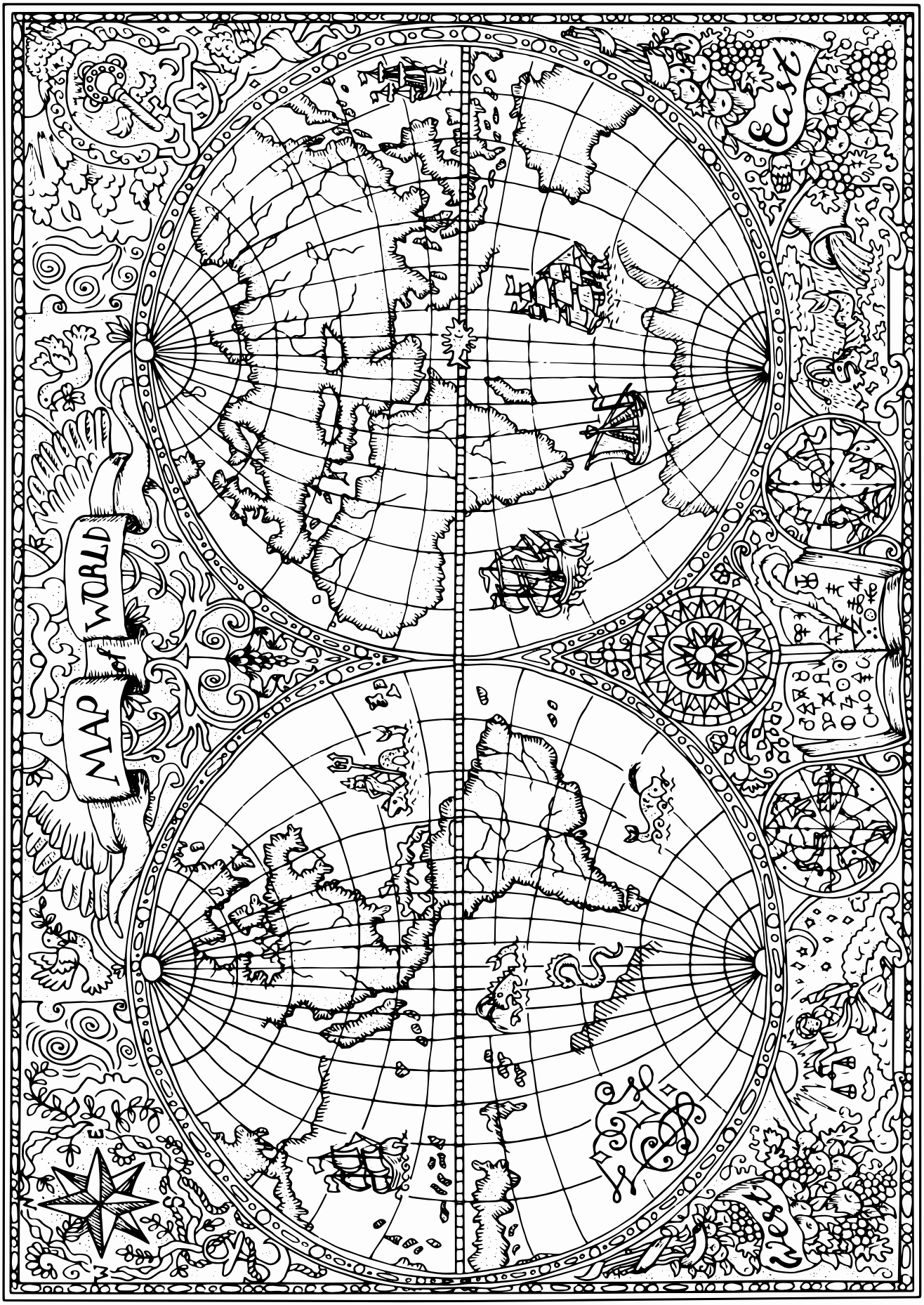

Image source: Shutterstock

GAME/ACTIVITY

BERMUDA TRIANGLE ESCAPE ROOM

AGES

Children 8+ years
Teens/tweens
Multigenerational

PROGRAM DESCRIPTION

The Bermuda Triangle is a space in the North Atlantic where ships, planes, and people have allegedly gone missing. Roughly, its borders run from Florida to Bermuda to Puerto Rico. Set up your own Bermuda Triangle Escape Room, and challenge your patrons to make it through! Modify clues with more or less complexity for different age groups. Puzzles created by Kara Reiman of Maine State Library, Augusta, ME. Suggested runtime: 60 min.

ADAPTATION:

For a digital version, use this escape room link: https://bit.ly/3fq5q5b. Share the link directly with patrons, or screen share over Zoom.

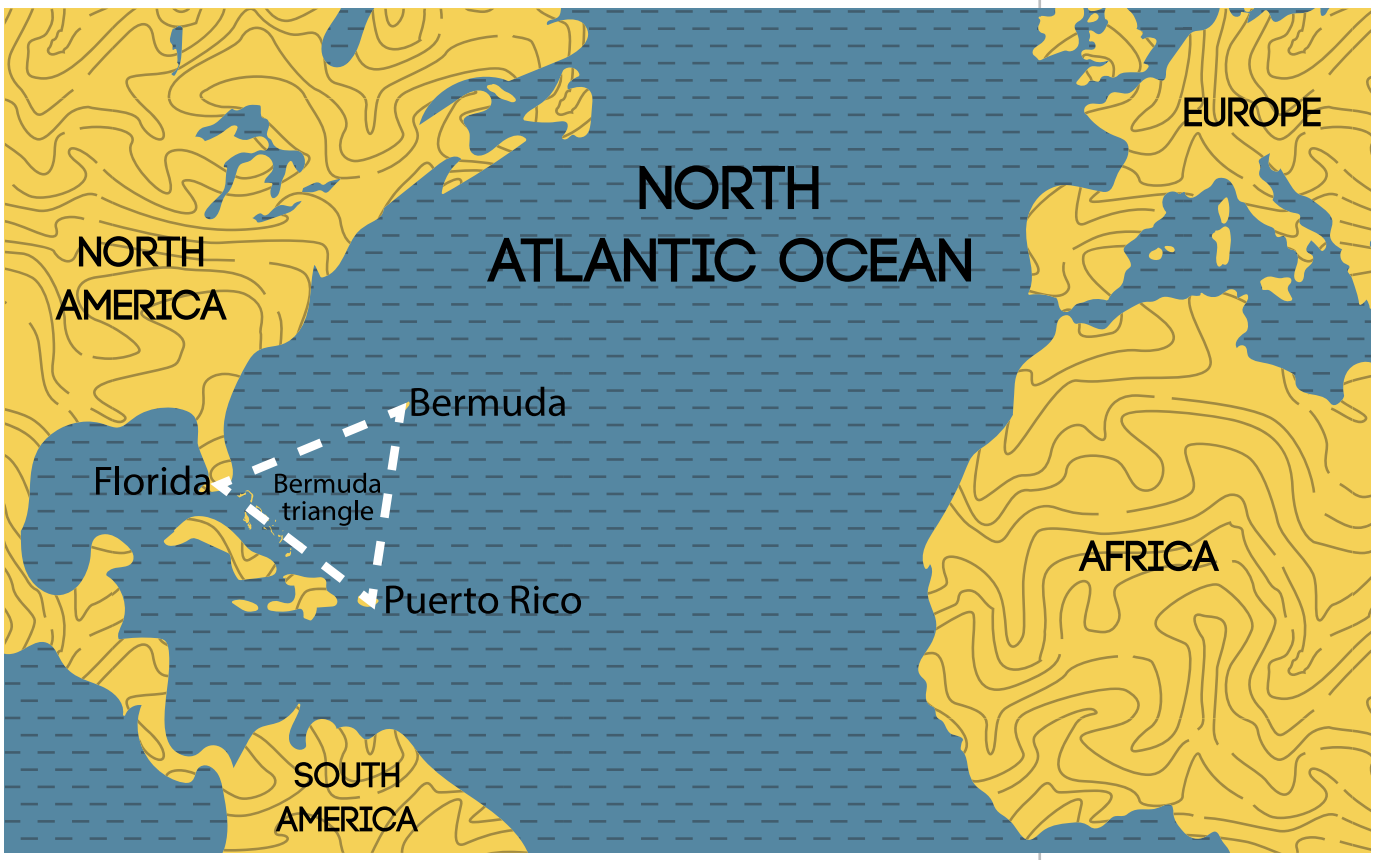

Image source: Shutterstock

MATERIALS AND PREPARATION

Materials:

- A map that shows latitudes and longitudes in the Caribbean
- Image of airplane dashboard
- Black poster board
- White paint or white gel pen
- 5-digit word lock
- GO button
- Lockbox with padlock (and key)
- Compass (real or fake)
- Black light
- Invisible ink
- Magnifying glass

To prepare the puzzles:

- Blow up a map of the Caribbean and mark the following locations, printing the names as follows: waShington dc, bermUda, miaMi, cubA, puerto riCo.
- Map a night sky map by painting or drawing stars on black poster board. Draw a yellow streak and write “meteor” in tiny letters underneath.
- Set the word lock to SUMAC.
- Create or buy a button that says GO.
- Print out or draw your own airplane dashboard, use invisible ink to draw N, E, W, S in the correct diamond pattern somewhere on it. (To be more accurate, have the N facing toward the back of the plane.) Set up the dashboard at the front of the room on a table or desk.
- Set up a table or desk at the front with a few rows of 2x2 chairs for airplane seats.
- Put the maps up on the walls, and place the locks and clues.

Before letting a group enter the room, explain the guidelines and rules, and give them a short description of the mysteries of the Bermuda Triangle. Read the intro letter and each announcement as they have accomplished the tasks.

Introduction letter: Welcome, travelers! I’m so glad you decided to embark on this journey with us. This is a non-stop flight from Washington, DC to San Juan, Puerto Rico. We’re looking at a smooth journey over the Bermuda Triangle today, but if anything goes wrong, we’ll be looking to you to help out. Make sure you look all around you as you board the plane so you know where everything is. Let’s go!

TIP:

Have someone run through the game once before you go live to make sure everything works smoothly and you haven’t forgotten something.

TIP:

To ensure smooth gameplay, require registration and keep the groups small.

GAME/ACTIVITY

ANNOUNCEMENT #1:

Oh, dear. I have forgotten the code I need to enter our destination into the computer. It's something about a tree that's also a spice. Can you see if you can help me remember it? Once you have it, just enter it into the lock there to access the GO button.

PUZZLE #1:

A map of BT with some locations labeled, some letters capitalized (SUMAC). Those letters, from N to S, will be the code to unlock a box with the "GO" button (this can be a piece of paper with "go" written on it, or it can be an actual button). Additionally, they may figure it out if they can figure out the clue.

ANNOUNCEMENT #2:

What's this? We seem to be flying into some fog. Oh no! Our directional system is not responding. I'm going to need a compass. Has anyone found one for me? Could you bring me one?

PUZZLE #2:

A compass (real or fake) locked in a box with a key lock. Hide the key and the locked box.

ANNOUNCEMENT #3:

The compass is going wild! Something is throwing it off. How will we ever figure out which direction is true north? I wish someone would SHINE SOME LIGHT on it.

PUZZLE #3:

Hide a black light somewhere in the room or in another locked box. The black light needs to be shined on the control panel which indicates NSWE in invisible ink.

ANNOUNCEMENT #4:

Good! We're back on track! Woah! Did anyone see that? It was a streak of light in the distance. I wonder what it was. Can you do some research and see if you can figure it out? I'm just gonna keep the plane in a holding pattern until we figure out what that was! I'd hate to bump into a UFO!

PUZZLE #4:

Hide a magnifying glass somewhere in the room. A map of the night sky will show a tiny yellow meteor somewhere on it and in tiny letters it will say meteor next to it.

GAME/ACTIVITY

ANNOUNCEMENT #5.

Ah, so it was just a meteor! Strange. Well, we're just about ready to start our descent into Puerto Rico. I just have to double check our coordinates. Oh, dear. I seem to have lost the paper with the Puerto Rico coordinates on it. Can somebody help me find them? I sure hope they didn't get separated. I need two coordinates.

PUZZLE #5:

Hide four slips of paper with the coordinates listed separately (18.4655° N, 66.1057° W, 59.9311° N, and 30.3609° E) in different places, such as in a flight-related book or taped to the bottom of an "airplane" seat. Have a map that shows latitude and longitude so that they can figure out the correct two coordinates (18.4655° N and 66.1057° W). They win if they bring you the correct two coordinates in time.

ANNOUNCEMENT #6 (SUCCESS):

Awesome job! We're coming in for a landing in Puerto Rico thanks to your hard work. Looks like the whole Bermuda Triangle thing is just a myth!

ANNOUNCEMENT #6 (FAILURE):

(Maybe play spooky music, like the X-Files theme song.) Hmmm...this doesn't seem right. We've been flying forever. I think, despite your best efforts, we've gotten lost in the Bermuda Triangle, never to return. Better luck next flight!

UNIQUE SPACE AND/OR PERSONNEL NEEDS

Set up the room with clues before the program. Solo-librarian friendly.

RESOURCES

Books

Non-fiction

Where Is the Bermuda Triangle? (2018) by Megan Stine and Tim Foley (children's)

Bermuda Triangle (Eyewitness Books) (2000) by Andrew Donkin (children's)

Fiction

The Treasure Of The Bermuda Triangle (2014) by Steve Stevenson and Stefano Turconi (children's)

Printables

Printable: World Map

Printable: Airplane Dashboard

Image source: Shutterstock

Image source: Shutterstock