

Science @Home

WHALES



Whale hello there! You'll flip(per) for this supersized set of activities for ages 4-8 that celebrates the beauty, brains, and brawn of whales.

From their record-breaking migrations to their haunting undersea songs, cetaceans—whales, dolphins, and porpoises—are as captivating to humans as they are critical to ocean ecosystems. Connect with these charismatic creatures through a week of guided videos, crafts, activities, and more.

Please note: While Science @ Home activities are designed to be conducted by kids, some little ones might need adult help with reading instructions and preparing crafts.

Day 1: Cetacean Superstars

45-60 minutes

- » What Whale are you? (activity) (en español)
- » Exhaling Whale (craft)
- » Wealth of Whales (coloring)

Day 2: Baleen Whales

45-60 minutes

- » Baleen Comb (activity) (en español)
- » Cut Out Whale (craft)
- » Gray Whale (coloring)

Day 3: Toothed Whales

45-60 minutes

- » Dolphin Breach Plate (craft)
- » Cetacean Investigation (video)
- » Orca coloring (coloring)

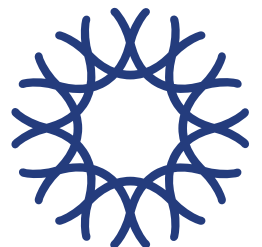
Day 4: Wonderful Whales

60-90 minutes

- » Whale Fall Diorama (craft) (en español)
- » Paper Tube Whales (craft)
- » Operation Whale Rescue (video)
- » Whale Sounds Trivia (video)

Kid & Caregiver Extension Activities

- » Blubber hand (experiment) (en español)
- » Happywhale.com (activity/resource)
- » What happens when whales strand? (video) (guiding questions)





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What Whale Are You?

Whales may be famous for their record-breaking size, but they are also an amazingly diverse group, just like humans! Take this personality quiz to determine the whale that best matches your personality.

Materials

A pen or pencil
Page 2, printed out (or scrap paper)

Directions

1. **Gather** your materials. Grab a pen or pencil and either print out the quiz on page 2 or get a piece of scrap paper.
2. **Take** the quiz. Read each question and circle the answer that feels the most true to you. Or, on your scrap paper, write down the letter you choose for each answer. For example, "A, C, D, C."
3. **Add up** your answers. Either in the table on page 2 or on your scrap paper, add up the number of times you answered a question with each letter. For example, "A: 2, B:4, C:1, D: 1."
4. **Discover** your whale! Using the answer key on page 3, find out what whale you are!

Questions:

1. What do you do in your spare time?
 - A. Make music
 - B. Eat yummy food
 - C. It's a secret
 - D. Hang out with my friends
2. If you could visit anywhere in the ocean, where would you go?
 - A. I love the whole ocean— don't make me choose!
 - B. The chilly arctic ocean
 - C. The dark depths of the sea
 - D. I prefer rivers
3. What's something you love about yourself?
 - A. I'm creative
 - B. I'm strong
 - C. I'm unique
 - D. I'm funny
4. Which superpower would you choose?
 - A. Using bubbles to catch my enemies
 - B. The biggest mouth in the world
 - C. A long, sharp tooth
 - D. The power of pink
5. What kind of clothes do you like?
 - A. Beautiful
 - B. Useful
 - C. Wacky
 - D. Cute
6. When you grow up, you want to:
 - A. Be famous
 - B. Live forever
 - C. My plans are top secret
 - D. Have fun
7. What's your favorite game?
 - A. Dress-Up
 - B. Daydreaming
 - C. Hide-and-seek
 - D. Sports
8. What are your friendships like?
 - A. I have a small group of my best friends
 - B. I mostly like to spend time alone
 - C. I have tons of friends and love big parties
 - D. I have lots of friends but only a few I'm close friends with

In the table below, **write down** the number of times you circled each of the letters:

A	B	C	D

Which letter (A, B, C, or D) did you circle the most times? That is the key to answer the question, “What Whale Are You?” If your answer is a tie between different letters, then you can decide which description fits you best.

A. **You’re a humpback whale!** You’re dramatic, adventurous, and clever to boot! With a beautiful singing voice and the longest recorded migration of any mammal, you humpback whales have a lot to brag about. Who would have thought to blow bubbles to make nets to trap food? You’ve got a small group of close friends who’ll be there for you as you adventure across the ocean together.



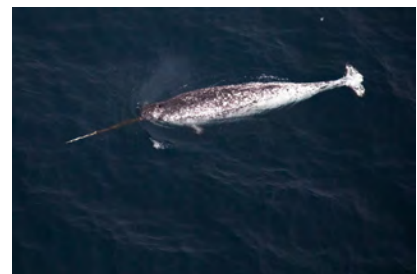
Todd Cravins, Unsplash Free Use License

B. **You’re a bowhead whale!** You enjoy delicious food, alone time, and are patient when it comes to getting things you want. Able to live up to 200 years, you bowhead whales spend your life in the cold waters of the Arctic. But those waters are full of something important—food! And you’ve got the biggest mouth of any animal in the world to enjoy it with.



Bering Land Bridge National Preserve, CC BY-SA 2.0
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C. **You’re a narwhal!** You’re the life of the party and a keeper of secrets—the kind of whale everyone wants to befriend. You narwhals are called the “unicorns of the sea” because of your long tooth and because you’re super special! Those teeth are mostly used to compete for mates, but may also help sense how warm or cold the water is in the deep arctic waters where you hunt.



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D. Wait a second—you’re not a whale... **You’re an Amazon river dolphin!** Your personality is electric! Everyone wants to be your friend, but only a few get to join your inner circle. Amazonian river dolphins like you live in the biggest river in the world—the Amazon! With bright pink coloration, energetic behavior, and amazing echolocation that helps to navigate murky waters, what’s not to love?



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Que ballena sos?

Ballenas pueden ser famosas por su tamaño que quiebran records, pero también son un grupo increíblemente diversos, como los humanos! Toma este cuestionario de personalidad para determinar cuál ballena mejor coincide con tu personalidad.

Materiales

Una pluma o lapiz
Página 2, impresa (o un trozo de papel)

Direcciones

1. **Reúne** tus materiales. Agarren una pluma o lápiz e imprime el cuestionario en página 2 o use un trozo de papel
2. **Toma** el cuestionario. Lea cada pregunta y circula la respuesta que se sienta más apropiada para ti. O, en tu trozo de papel, apunte la letra que escogiste para cada respuesta. Por ejemplo, "A,C,D,C."
3. **Suma** tus respuestas. En la tabla en página 2 o en tu trozo de papel suma las veces que has respondido cada pregunta con una letra. Por ejemplo, "A:2, B:4, C:1, D:1"
4. **¡Descubre** tu ballena! Usando la clave de respuestas en página 3, averigua qué ballena sos!

Preguntas:

1. ¿Qué haces durante tu tiempo libre?
 - A. Hacer music
 - B. Comer comida rica
 - C. Es un secreto
 - D. Pasar el rato con mis amigos
2. Si pudieras visitar cualquier lugar del océano, ¿a dónde irías?
 - A. ¡Me encanta todo el océano-no me hagas escoger!
 - B. Las aguas frías del océano ártico
 - C. La profundidades oscuras del mar
 - D. Prefiero rios
3. ¿Qué es algo de ti que te encanta?
 - A. Soy creativo/a
 - B. Soy fuerte
 - C. Soy unico/a
 - D. Soy gracioso/a
4. ¿Cuál superpoder elegirías?
 - A. Usar burbujas para capturar mis enemigos
 - B. Tener la boca más grande en el mundo
 - C. Un diente larga y afilada
 - D. El poder del color rosado
5. ¿Qué tipo de ropa te gusta?
 - A. Bella
 - B. Util
 - C. Chiflada
 - D. Linda
6. Cuando seas mayor, quieres:
 - A. Ser famoso/a
 - B. Vivir para siempre
 - C. Mis planes son secretos
 - D. Divertirme
7. ¿Cual es tu juego favorito?
 - A. Vestirse
 - B. Soñando despierto
 - C. Escondidas
 - D. Deportes
8. ¿Cómo son tus amistades?
 - A. Tengo un grupo pequeño de mis mejores amigos
 - B. Prefiero pasar la mayoría del tiempo solo
 - C. Tengo un montón de amigos y disfruto fiestas grandes
 - D. Tengo muchos amigos pero solo algunos son cercanos

En la tabla siguiente **apunte** las veces que circulaste cada letra:

A	B	C	D

¿Cuál letra (A,B,C, o D) circulaste más veces? Ese es el código para la pregunta "¿Cuál Ballena eres?". Si tu respuesta es igual entre dos diferentes letras, tu decides cual descripción te refleja mejor.

A. **¡Sos una ballena jorobada!** Sos dramática, aventurera, y además inteligente. Con una voz bella para cantar y la migración más larga grabada de cualquier mamífero, las ballenas jorobadas tienen mucho para presumir. A quién le hubiera ocurrido soplar burbujas para hacer redes para atrapar alimento? Tienes un grupo pequeño de amigos cercanos que están contigo cuando vas de aventura en el océano



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B. **¡Sos una ballena cabeza de arco!** Disfrutas alimentos deliciosos, pasar tiempo solo, y sos paciente cuando se trata de conseguir las cosas que quieres. Viviendo hasta 200 años, las ballenas cabeza de arco pasan sus vidas en las aguas frías del Ártico. Pero esas aguas están llenas de algo bien importante-alimentos! Tienes la boca más grande de cualquier animal en el mundo para disfrutar el alimento.



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C. **¡Sos un narval!** Sos el centro de atención en una fiesta y guardián de secretos, el tipo de ballena que todos se quieren hacer amigos. Los narvales se llaman los "unicornios del mar" por el diente largo que tienen y ¡también son super especiales! Esos dientes se usan sobre todo para competir por parejas pero también puede ayudar en sentir que caliente o frío es el agua que se encuentra lo profundo aguas árticas, donde caza



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D. Espera un segundo, no sos una ballena...**¡Sos un delfín rosado!** Tienes una personalidad eléctrica! Todos quieren ser tu amigos, pero solo un poco consiguen la entrada a tu círculo íntimo. Los delfines rosados como tú viven en el río más grande del mundo, la Amazona! Con colores rosados brillantes, comportamiento energético, y con una ecolocalización asombrosa que te ayuda a navegar aguas turbias, que hay para no gustar?





Exhaling Whale

Whales live in water, but they still need to breathe air. How do they do it? When whales come to the water's surface, they take deep breaths of air using a special nostril on the top of their heads called a blowhole. When they exhale, their warm breath hits the cold air and can look like a spray of mist. Make your own exhaling whale out of an egg carton!

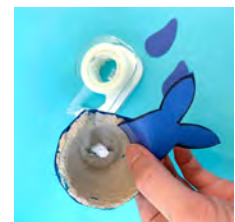
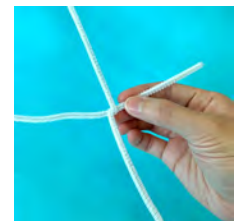
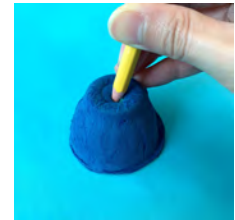
Materials

Egg carton
Paint or markers
Pipe cleaner
Sharpened pencil

Paper
Scissors
Glue or tape
Googly eyes (optional)

Directions

1. **Cut** out a section of the egg carton. This will be the body of your whale.
2. **Paint** or **color** your whale's body.
3. **Poke** a hole in the top with the sharpened pencil. This will be the blowhole of your whale.
4. **Cut** a pipe cleaner in half. Making an "X," **twist** one piece around the other. **Pinch** the pipe cleaners together so all the ends point upwards.
5. **Push** the pipe cleaners through the hole you made at the top of the egg carton. **Bend** or **curl** the ends of the pipe cleaners downward.
6. **Cut** 1 tail and 2 fins out of paper. **Color** them the same color as your whale's body. **Glue** or **tape** them to the whale.
7. **Add** eyes and a mouth to your whale.



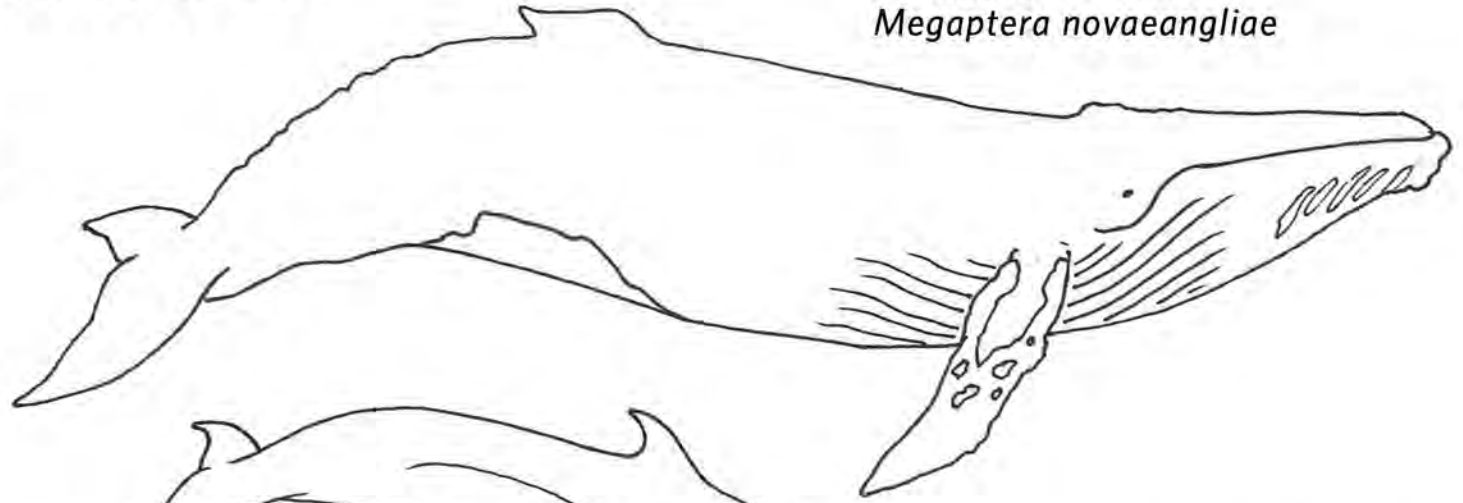
A Wealth of Whales

Baleen Whales

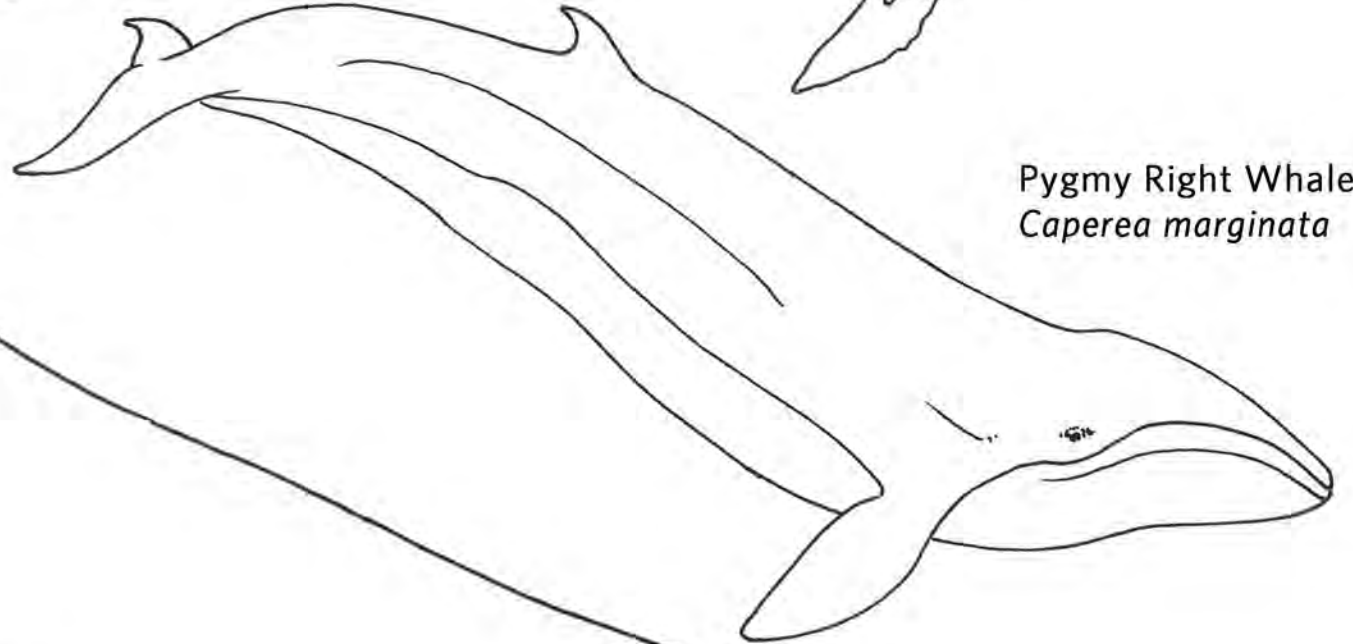
Earth's many whale species can be divided into two groups: baleen and toothed. Baleen whales (like the humpback, blue, and pygmy right) trap prey in their hair-like baleen bristles. Many of these whales eat huge amounts of krill—an adult blue whale might eat four tons of it a day!

Check the back for toothed whales!

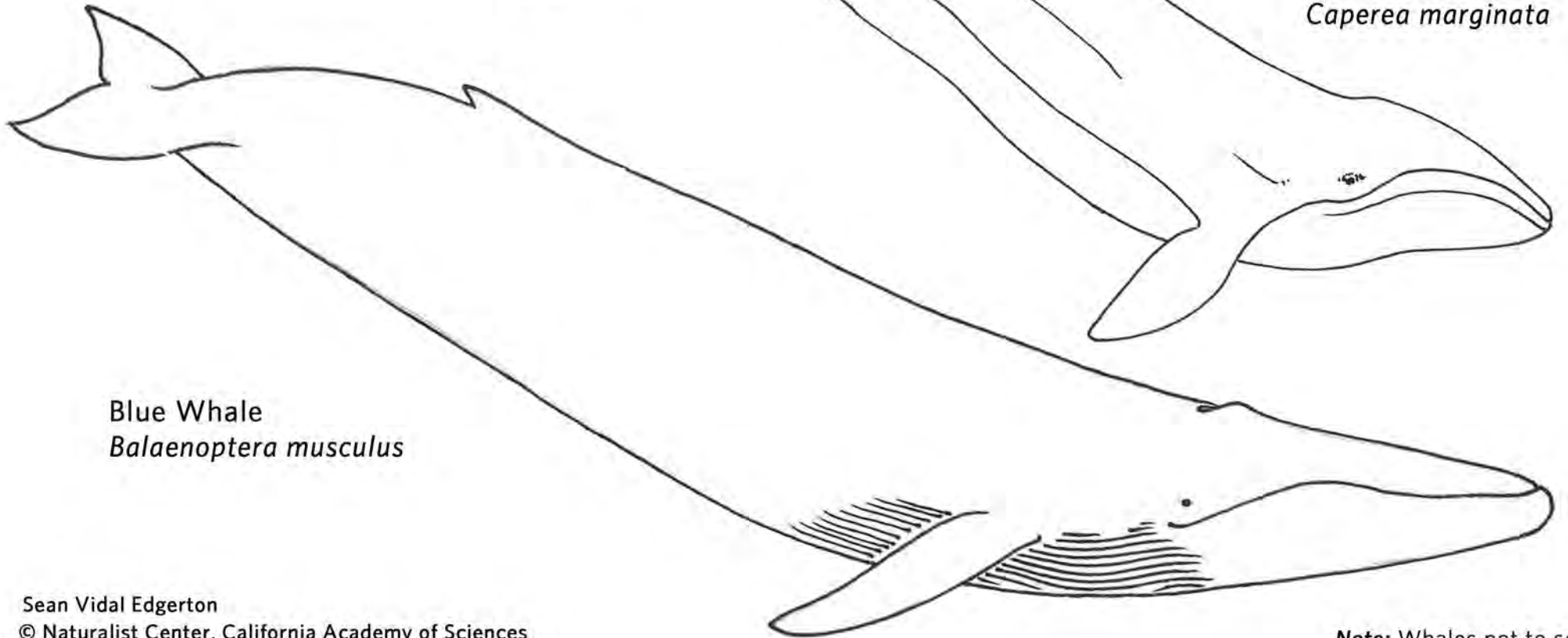
Humpback Whale
Megaptera novaeangliae



Pygmy Right Whale
Caperea marginata



Blue Whale
Balaenoptera musculus



Toothed Whales

Toothed whales (which include the rest of the whales seen here) range from the orca, which snags its prey in its sharp teeth, to the Hubb's beaked whale, which likely only use its teeth for fighting.

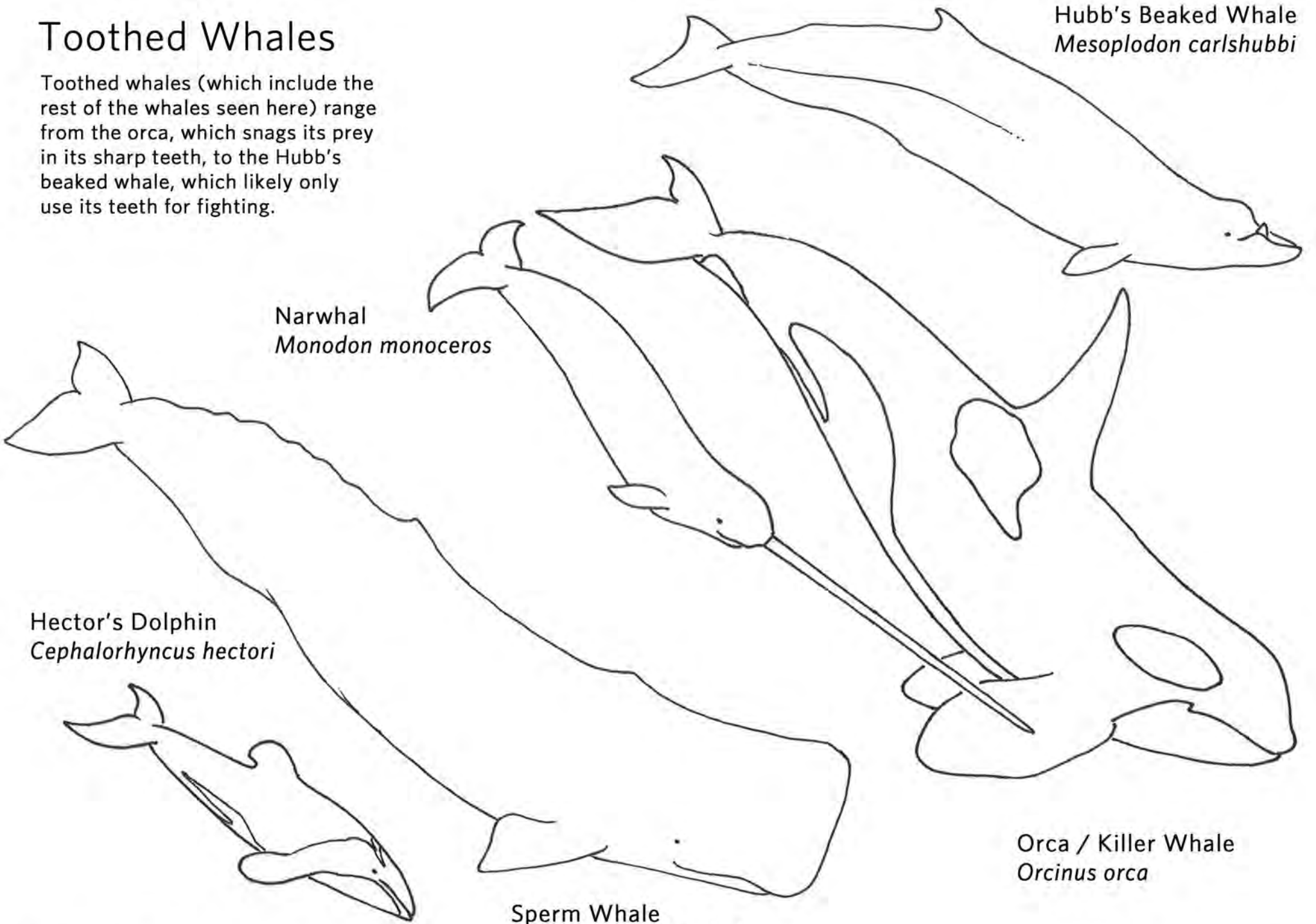
Hubb's Beaked Whale
Mesoplodon carlshubbi

Narwhal
Monodon monoceros

Hector's Dolphin
Cephalorhyncus hectori

Sperm Whale
Physeter macrocephalus

Orca / Killer Whale
Orcinus orca





Baleen Comb

While some whales have teeth, many others have a mouthful of something special called baleen. These tightly packed bristles are made of keratin, the same material as our fingernails! As a whale takes big gulps of water and then pushes the water out with their tongue, the baleen catches small critters like krill or plankton, which the whale then eats. Follow the instructions below to see what it's like to eat like a whale.

Materials

Tub or tray
Play sand (or water)
Raisins
Combs (wide tooth or fine tooth)
Bowl

Directions

1. **Pour** your play sand (or water) into a shallow tub or tray.
2. **Sprinkle** raisins on top and lightly cover with sand.
3. **Brush** the comb through the sand and try to **scoop** up the raisins. This is just like how a whale filters through water with its baleen!
4. **Gather** all the raisins you scooped up with the comb and **place** them in a bowl.
5. *If you used clean water in your tub or tray:*
Rinse the raisins in clean water, and then **enjoy** your snack!
6. **Learn** more about baleen and take a closer look using the photos on pages 3-6.



Guiding Questions

Take a look at the baleen pictured on the following pages. The first baleen featured comes from a blue whale. Blue whales can be up to 110 feet long and weigh up to 330,000 pounds! The second set of photos show baleen from a gray whale. Measuring up to 49 feet long and weighing around 90,000 pounds, these whales are smaller than the blue whale. While investigating the photos on pages 3-6, consider the following questions:

1. Both the blue whale and the gray whale primarily eat tiny shrimp-like animals, but the blue whale can sometimes eat small fish and crustaceans. How do you think the baleen is helpful in eating these different types of food?
2. As noted above, blue whales are much bigger than gray whales. Do you notice any differences between their baleen?
3. Knowing that baleen is made out of keratin, the same material as our fingernails, how do you think it would feel to the touch?

Blue Whale Baleen





Gray Whale Baleen







Peine de Barbas de ballena

Aunque algunas ballenas tienen dientes, muchas otras tienen la boca llena de un material especial llamado barbas. Estas cerdas apretadas están hechas de queratina, el mismo material que nuestras uñas. Cuando una ballena toma grandes tragos de agua y empuja el agua con la lengua, las barbas agarran criaturas pequeñas como krill o plancton, que la ballena se come. Sigue las instrucciones siguientes para ver como es comer como una ballena.

Materiales

Bañera o bandeja
Arena de juego (o agua)
Pasas
Peines (de dientes anchos o de dientes finos)
Tazón

Instrucciones

1. **Vierte** la arena de juego (o agua) en una bañera o bandeja poco profunda.
2. **Espolvorea** por encima las pasas y ligeramente cubre con la arena.
3. **Pase** el peine por la arena y traten de recoger las pasas. ¡Esto es como la ballena filtra el agua con sus barbas!
4. **Recoja** todas las pasas que recogiste con el peine y ponlas en un tazón.
5. *Si usas agua limpia en tu bañera o bandeja:* **Lave** las pasas en agua limpia y **disfrute** tu merienda!



6. **Aprende** más sobre las barbas y examínenlos más cerca usando las fotos en páginas 3-6.

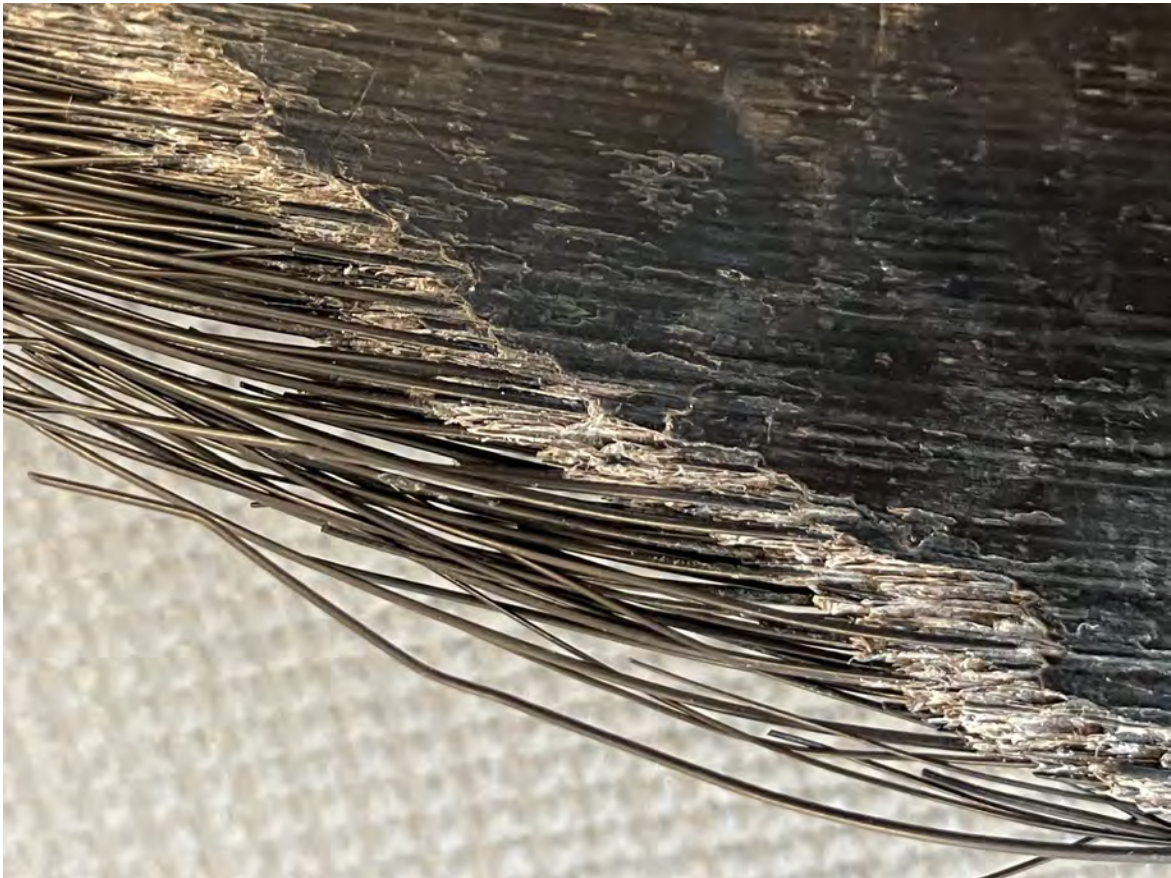
Preguntas exploradoras

Mira las barbas que aparecen en las siguientes páginas. La primera barba viene de una ballena azul. Las ballenas azules pueden medir hasta 110 pies de largo y pueden pesar hasta 330,000 libras. La segunda serie de fotos muestra las barbas de una ballena gris. Midiendo hasta 49 pies de largo y pesando unas 90,000 libras, estas ballenas son más pequeñas que la ballena azul. Cuando investigues las fotos en la página 3-6, considera las siguientes preguntas:

1. La ballena azul y la ballena gris ambas se alimentan principalmente de animales pequeños que se parecen a camarones, la ballena azul a veces puede comer peces pequeños y crustáceos. ¿Cómo piensas que las barbas las ayudan a comer estos diferentes tipos de alimentos?
2. Como se ha citado anteriormente, la ballena azul es más grande que la ballena gris. ¿Notas algunas diferencias entre sus barbas?
3. Sabiendo que las barbas están hechas de queratina, el mismo material que nuestra uñas, ¿cómo se sentiría al tocarlas?

Blue Whale Baleen

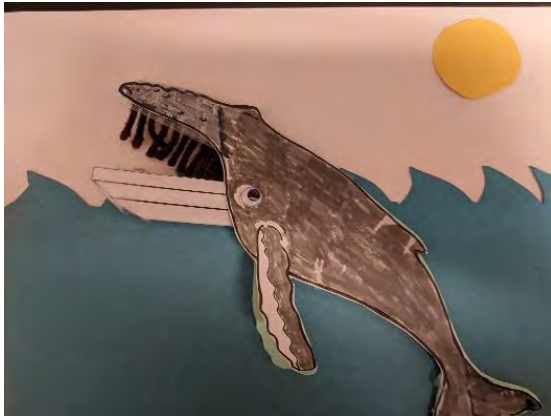




Gray Whale Baleen







Cut-out Whale

Cetaceans (whales, dolphins, and porpoises) are mammals adapted to live their whole lives in the water. They range in size from the tiny vaquita (4.6 feet) to the world's biggest animal, the blue whale (110 feet). All whales can be divided into two groups: ones with teeth and ones with bristles known as baleen. Each has a different way of catching and eating their food. Make your own toothed (sperm whale) and baleen whale (humpback whale) to see the differences.

Materials

Print-out templates (pages 3-5)
Construction paper or cardstock
Yarn
Scissors
Tape
Glue or glue sticks
Paper fasteners
Hole puncher
Googly eyes
Crayons or colored pencils (optional)

Directions

1. **Print** the baleen whale and toothed whale templates on pages 3-5 onto cardstock or construction paper (alternatively, print them on regular paper and glue them onto thicker paper).
2. **Color** the templates. Once you decide, follow the appropriate directions below to make your own baleen or toothed whale.

Baleen whale (humpback whale)

1. **Cut** out the whale and the figure listed as "A". This will be the lower jaw.

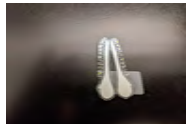


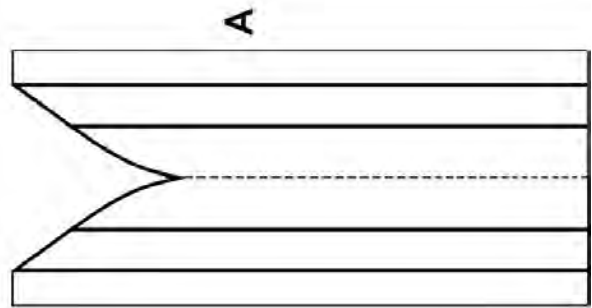
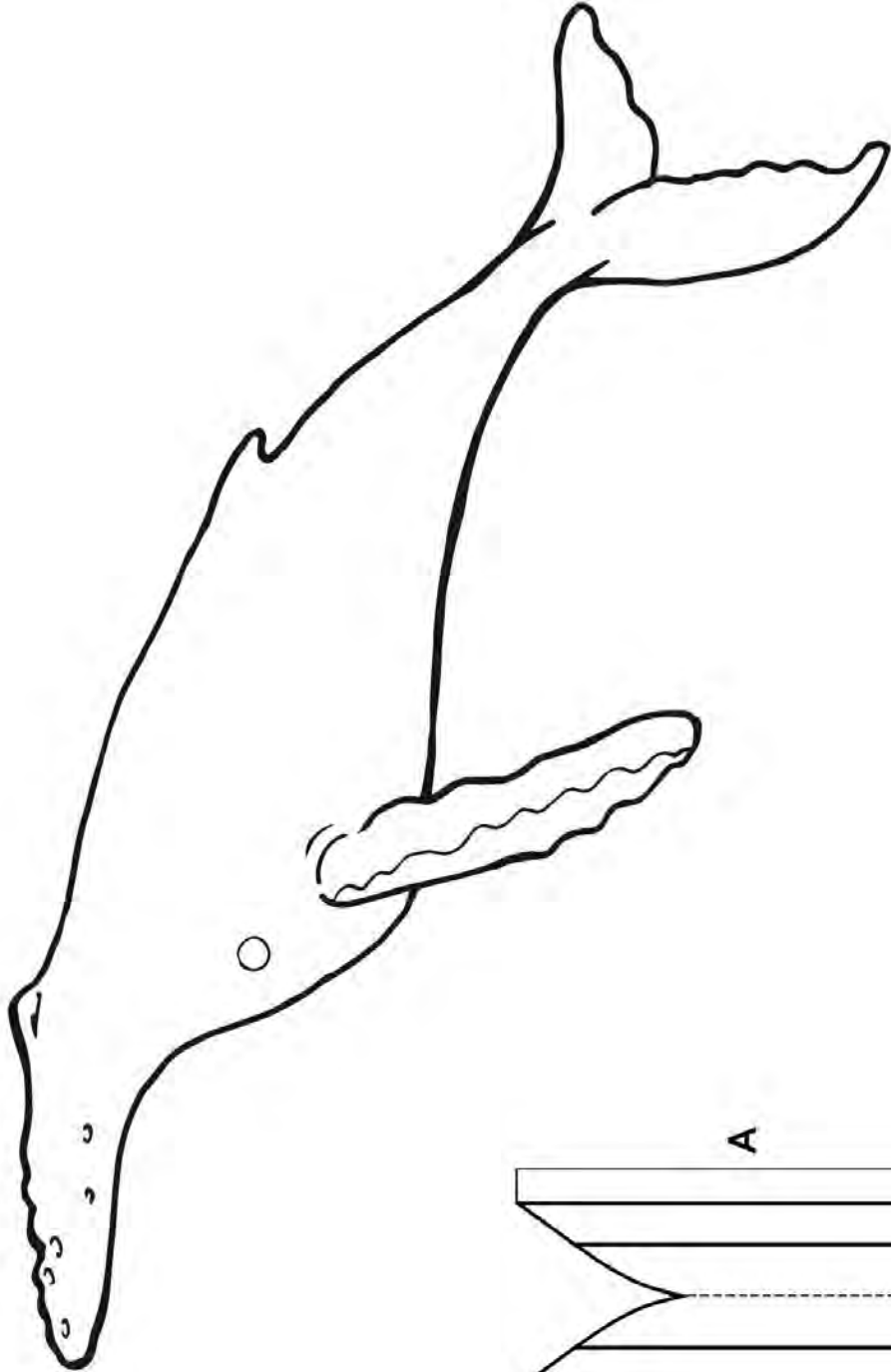
2. **Fold** the lower jaw on the dotted line in the middle. The lines are throat grooves that extend and stretch the lower jaw, allowing the whale to capture and swallow more food.
3. **Tape** the tops of the whales to each other and then put the lower jaw in between both sides. Use a hole puncher to make a hole over the eyespot.
4. **Cut** between 10-12 pieces of yarn of small length. **Line** the yarn up on a small piece of tape. These will be the whale's baleen. Baleen whales use this to filter their food out of the water. Baleen is made out of the same material as hair. Imagine if you were a baleen whale: Instead of teeth growing out of your mouth, it would be hair!
5. **Tape** the yarn to the inside top jaw of the whale cutout. Once done, **insert** a paper fastener into the eye hole on each side, making sure that it goes through the holes in the lower jaw also.
6. **Glue** a googly eye to the top of each paper fastener.
7. Fun fact: Humpback whales have a unique way of capturing their food: They make bubble "nets" to gather small fish into a smaller area before scooping them up in their mouths

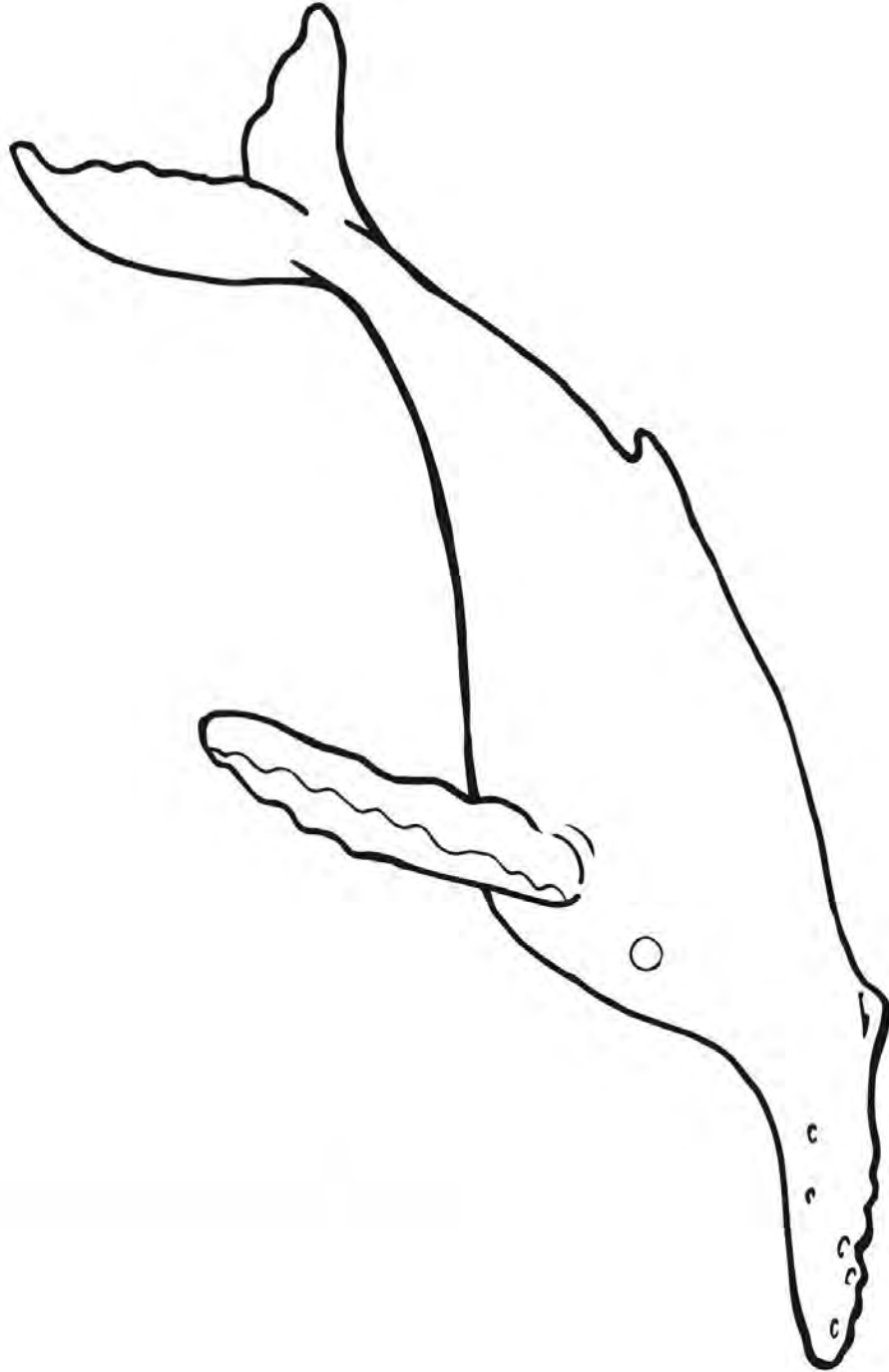


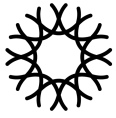
Toothed whale (sperm whale)

1. **Cut** out the sperm whale and the jaw.
2. **Tape** the bottom of the jaws, side by side.
3. **Tape** the tops of the whales to each other and then put the lower jaw in between **both sides**. **Use a hole puncher to make a hole over the spot where the eye is**.
4. **Insert** a paper fastener into each eye hole, making sure it goes through the holes in the lower jaw also.
5. **Glue** a googly eye on top of each paper fastener.
6. Fun fact: Sperm whales, the largest toothed whale on the planet, dive deep in the ocean to hunt one of their favorite prey items, giant squid.

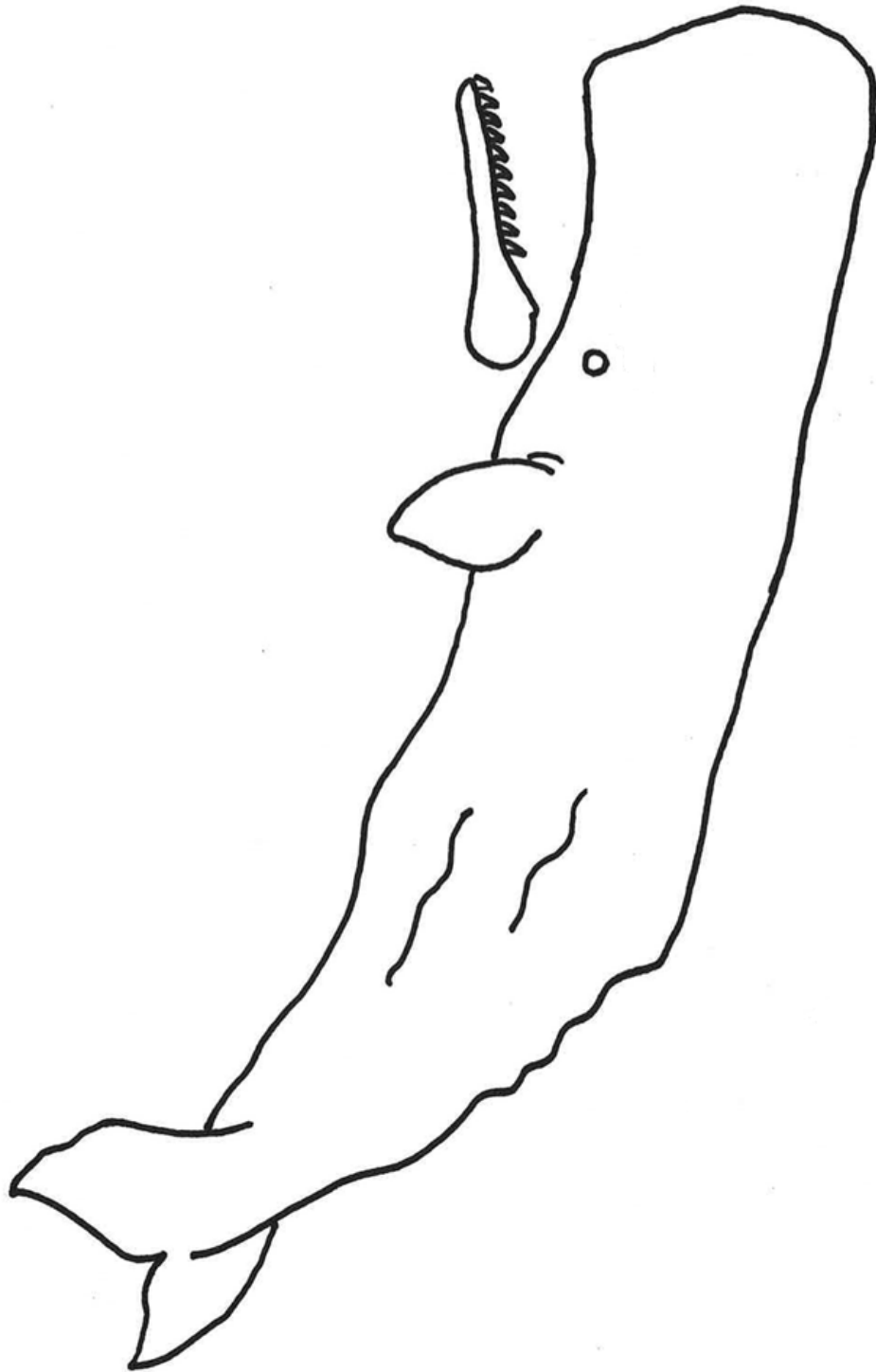






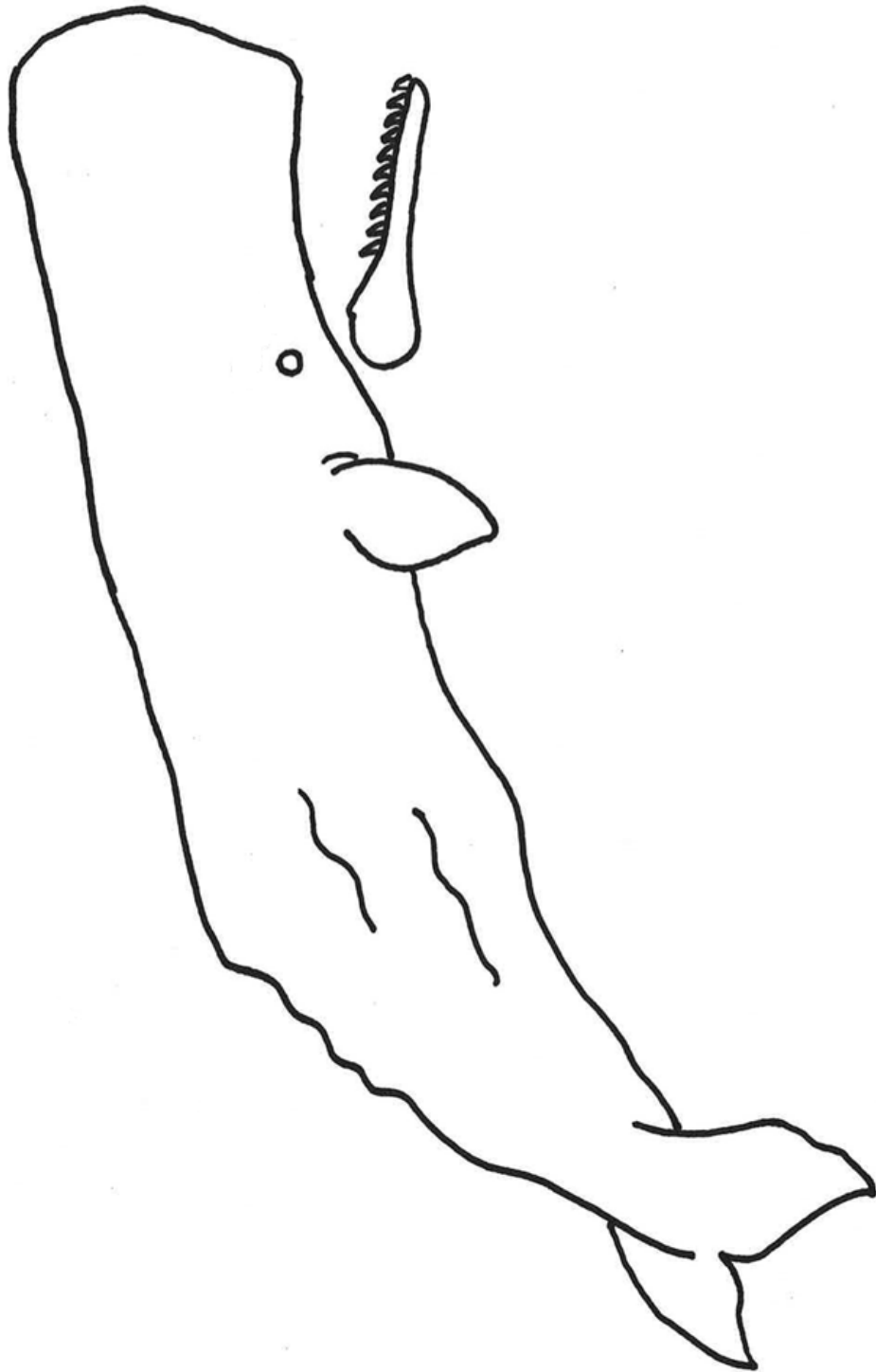


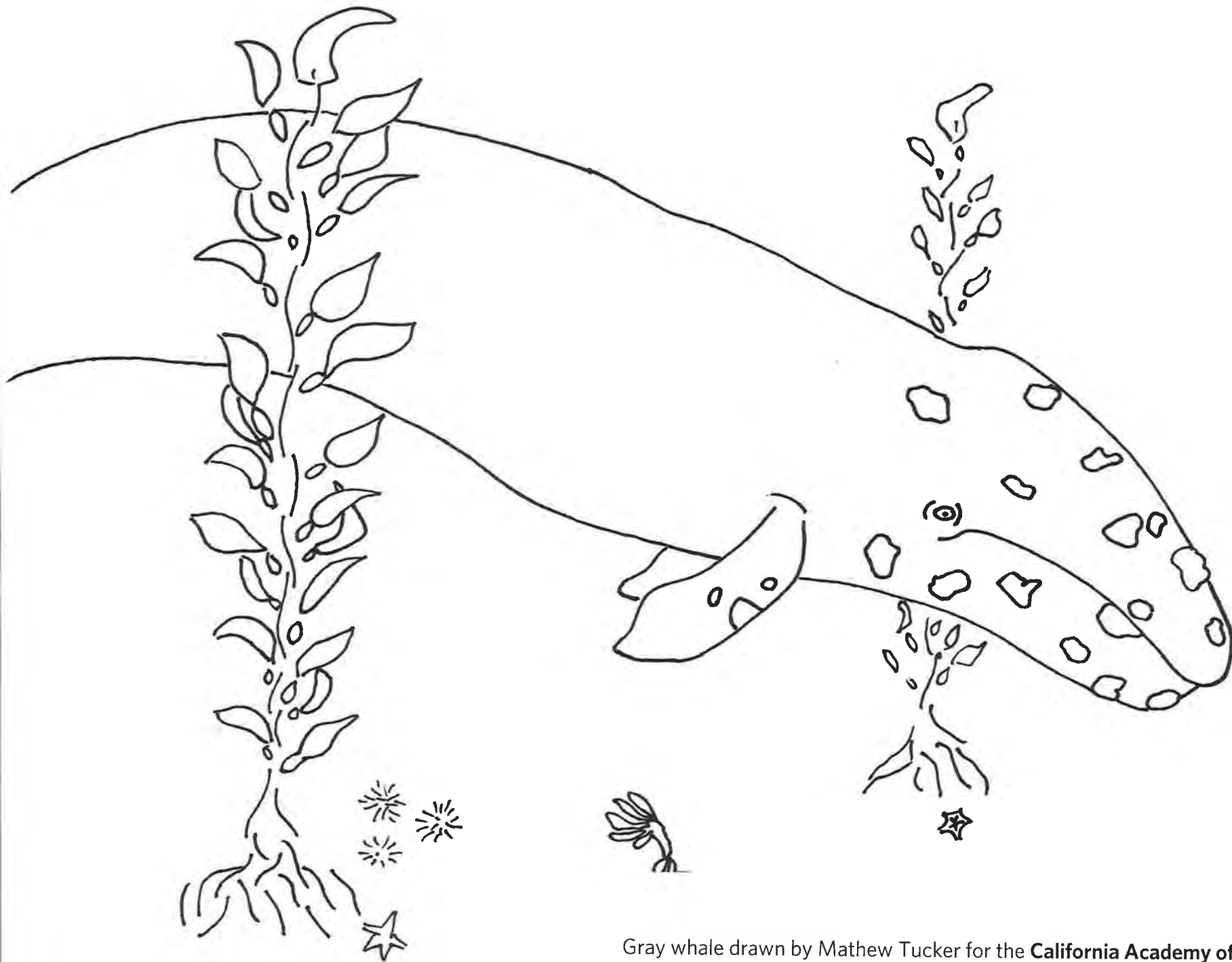
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Gray whale drawn by Mathew Tucker for the **California Academy of Sciences**

Dolphin Breach



Have you ever seen dolphins jump out of the water, or even somersault in the air? If all or most of their body comes out of the water, this is called a breach. Breaching helps dolphins hunt for schools of fish like sardines near the coast—but sometimes they breach just for fun! Whether to play, communicate, or hunt, dolphins are expert aquatic acrobats.

Materials

2 paper plates (1 whole, 1 half)
Printed template of dolphin and waves
Crayons, colored pencils or markers
Scissors
Glue stick or glue
Brass fastener or paperclip

Directions

1. **Print** the dolphin and wave template.
2. **Cut** out the dolphin and wave template using the dotted lines.
3. **Create** an ocean plate:
 - a. **Trace** the wave template about halfway down on a plate.
 - b. **Cut** out the waves.
 - c. **Color** the waves.



4. **Create** a dolphin plate:

- a. **Glue** the dolphin to a whole plate on the top half.
- b. **Color** the dolphin and sky.

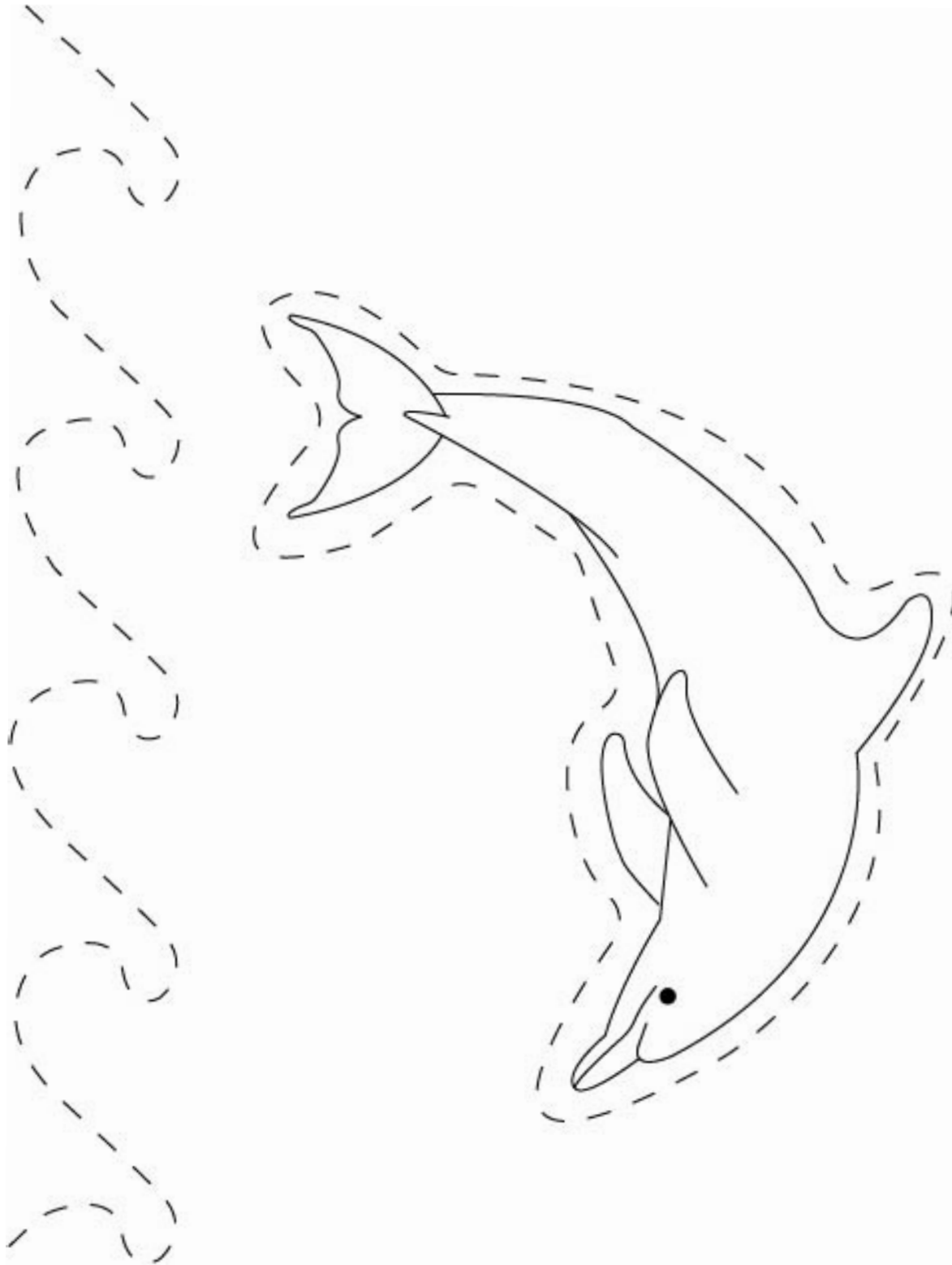


5. **Poke** a hole through the middle of both plates with a brass fastener or paper clip. *Ask a grownup for help if needed.*

6. **Tighten** the fastener.

7. **Spin** your plate to watch the dolphin **breach!**

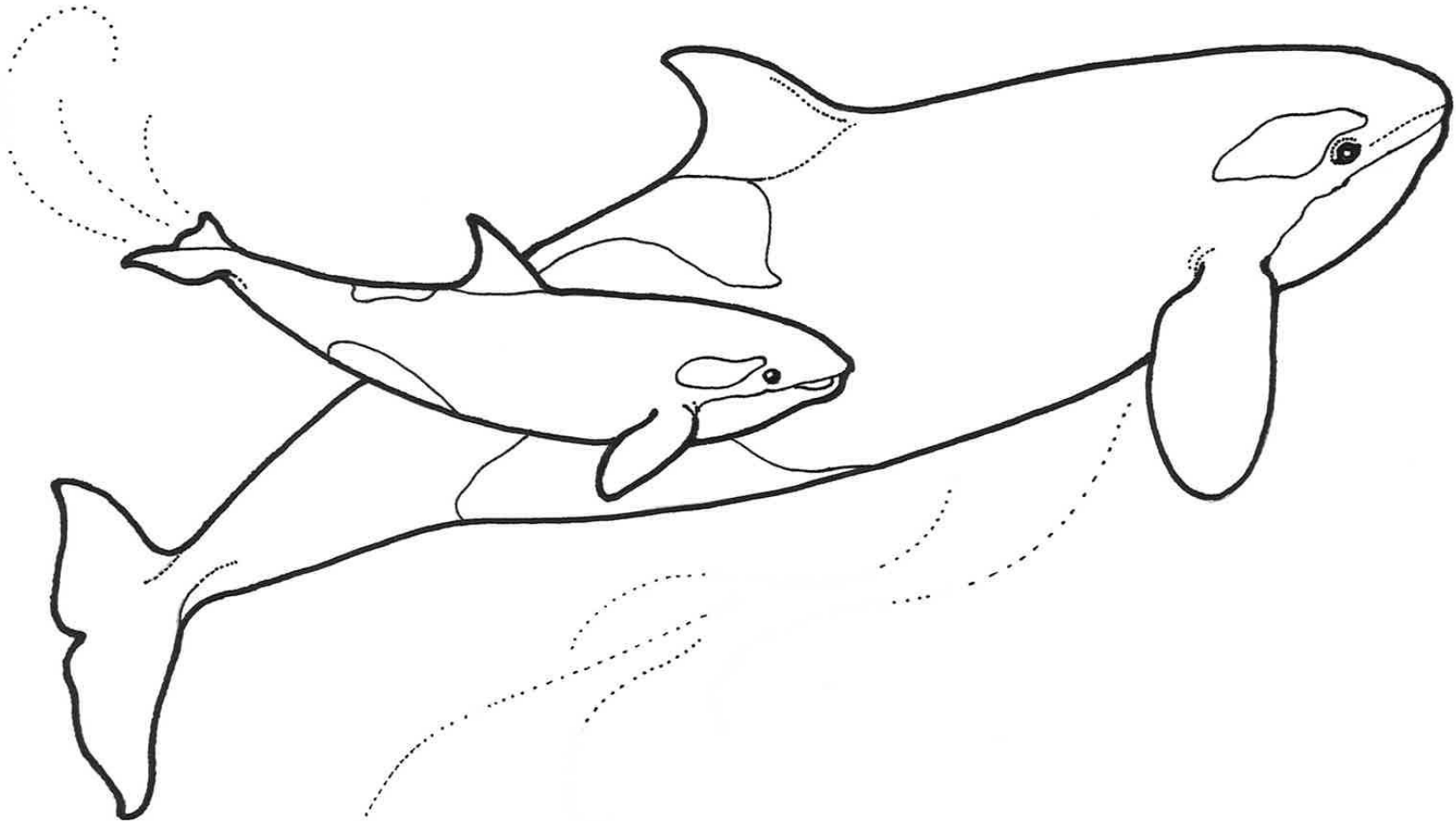




Orca

Orcinus orca

Large size, great strength and a torpedo-shaped body make the orca the fastest member of the dolphin family.



Drawn by Sharon Abe for the **California Academy of Sciences**



Whale Fall Diorama

What happens when a whale dies at sea? Their body becomes an ecosystem! When a whale dies and sinks to the bottom of the ocean, it's called a whale fall. Whale falls provide a sudden explosion of food, supporting a rich community of deep-sea creatures for decades. Make your own mixed media diorama of a whale fall using paper, miscellaneous craft supplies, and your imagination!

Materials

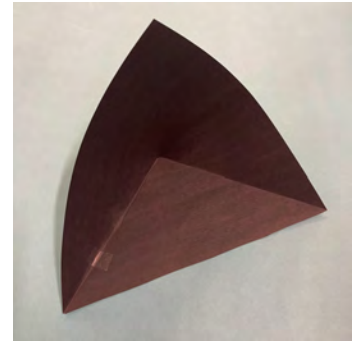
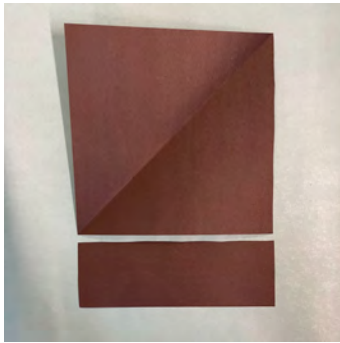
- 1 piece of black construction paper
- Crayons, colored pencils, or markers
- Scissors
- Tape
- Printed animal cut-outs (page 3)
- Miscellaneous craft supplies (cotton balls, pipe cleaners, tissue paper, etc.)

Directions

1. **Make** the diorama by following the directions below.
 - a. **Fold** a piece of black construction paper from one corner across to the opposite edge.
 - b. **Cut** off the bottom strip to reveal a square.

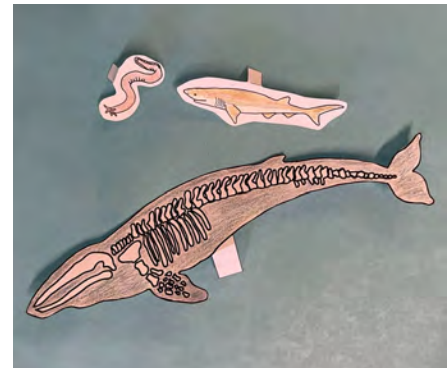
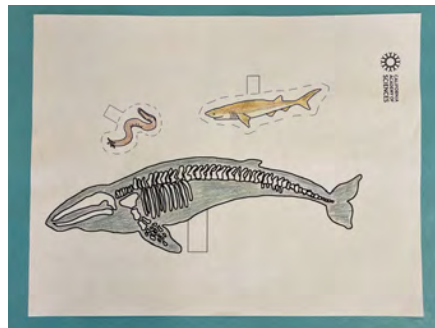


- c. **Cut** a slit from one corner to the middle of the square.
- d. **Fold** in the two smaller triangles to create the diorama, then **tape** down the edges.



2. **Print** and **color** in the whale skeleton, hagfish, and sixgill shark.

3. **Cut out** the whale skeleton along the bolded whale outline, and **cut out** the hagfish and sixgill shark along the dotted line. **Fold back** the tab on each.

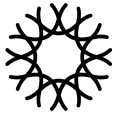


4. **Tape** the whale tab to the base of the diorama, and **tape** the hagfish and shark tabs to the sides of the diorama.
5. **Add** other deep-sea scavengers using miscellaneous craft materials! Here are just a few ideas:
 - a. Make a **Japanese spider crab** out of red pipe cleaners.
 - b. Use tissue paper or pulled-apart cotton balls to add ***Osedax* bone worms** or a **bacterial mat** to your whale skeleton.
 - c. Glue red sequins to the background to add deep-sea jellies, like **bloody-belly comb jellies**.

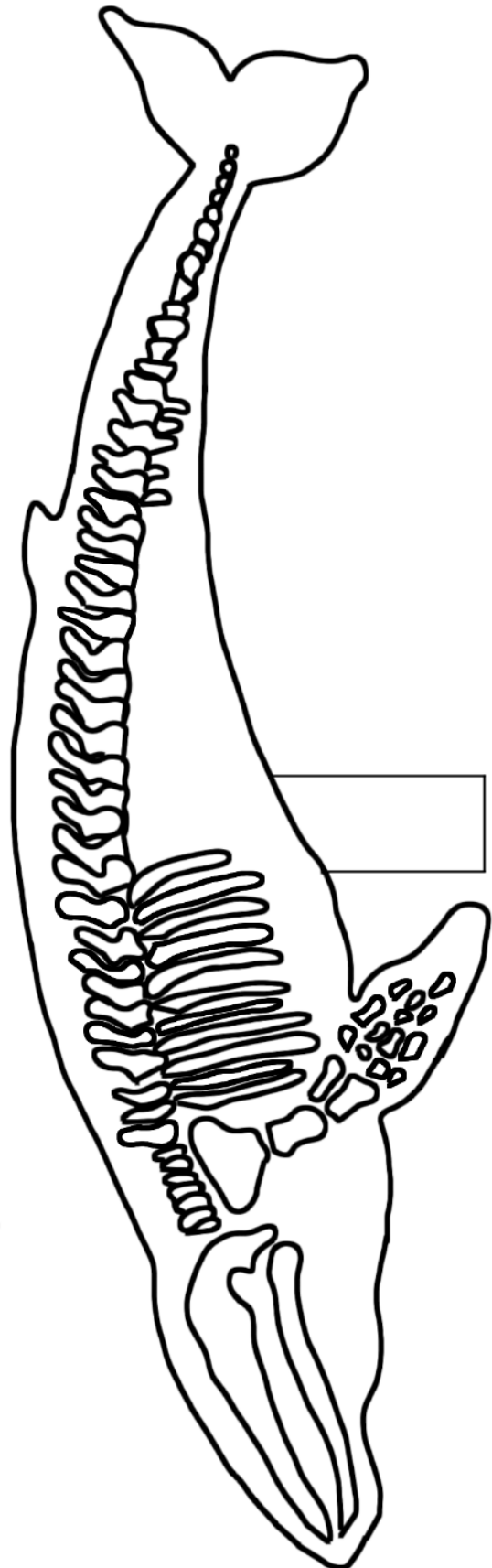
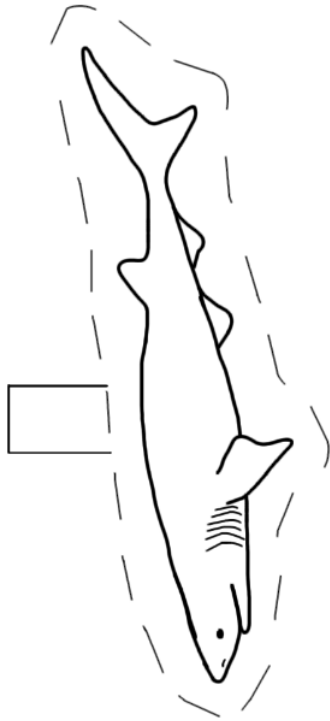




- d. Use beads or small pom-poms to add **pom-pom anemones** or **sea cucumbers** to the base of your diorama.
- e. Use modeling clay to make a deep-sea **octopus** or **sea pig**.
- f. Cut some cotton swabs to act as **disarticulated bones** and add them to the seafloor.



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Diorama de Caída de ballena

¿Qué ocurre cuando una ballena muere en el mar? ¡Sus cuerpos se convierten en un ecosistema! Cuando una ballena muere se hunde al fondo del océano, se llama una caída de ballena. Caídas de ballenas proporciona una repentina explosión de alimentos, que mantiene una comunidad rica de criaturas de la profundidad por décadas. Haz tu propio diorama de una caída de ballena utilizando papel, materiales de artesanía y tu imaginación!

Materiales

Una hoja de papel de cartulina negra

Crayones, lapices de color, o marcadores

Tijeras

Cinta adhesiva

Recortes de animales impresos (página 3)

Materiales de artesanía diversos (bolas de algodón, limpia pipas, papel de seda, etc.)

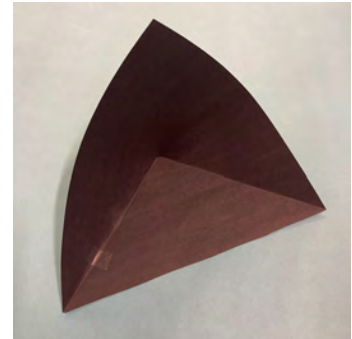
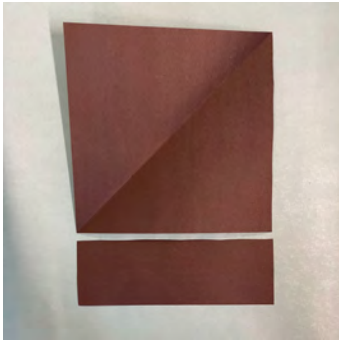
Instrucciones

1. **Haga** el diorama siguiendo las instrucciones siguientes.
 - a. **Dobla** una hoja de cartulina de una esquina hasta el borde opuesto.
 - b. **Corta** la tira inferior para que quede un cuadrado.



- c. **Corta** una hendidura de una esquina hasta el centro del cuadrado.
- d. **Dobla** los triángulos más pequeños para crear el diorama y después pegue los bordes

2. **Imprime y colorea** el esqueleto de la ballena, el pez bruja, y el tiburón de seis agallas en página



3. **Corte** el esqueleto de la ballena alrededor del contorno negro de la ballena y corte el pez bruja y el tiburón de seis agallas alrededor de las líneas de punto. **Dobla** hacia atrás las pestañas de cada uno.



4. **Pegue** la pestaña de la ballena a la base del diorama y pegue las pestañas del pez bruja y el tiburón a los lados del diorama.

5. **Añade** otros carroñeros de profundidad usando varios tipos de materiales de artesanía! Aquí hay unas pocas ideas:

- a. Haga un **Cangrejo Arana Japones** de limpia pipas rojas.
- b. Use papel de seda o bolas de algodón destrozadas para añadir **gusanos de hueso Osedax** o una **estera de bacteria** a tu esqueleto de ballena.



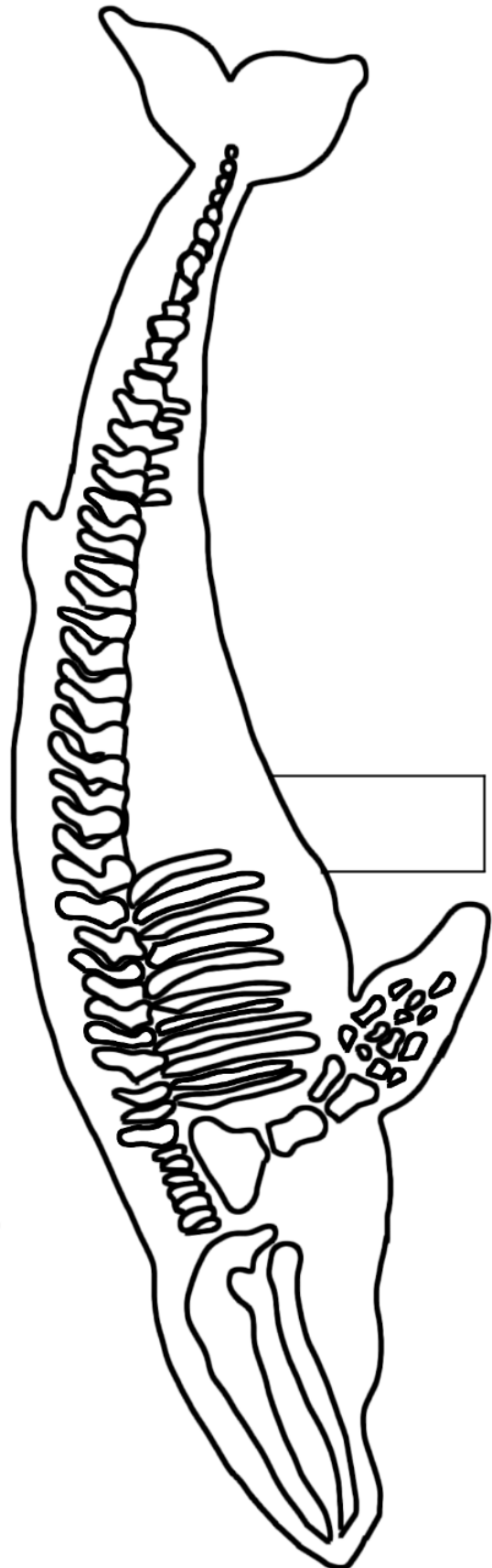
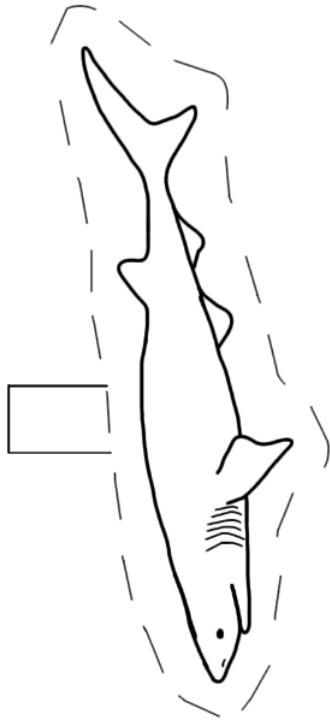
- c. Pegue lentejuelas rojas al fondo para añadir medusas de profundidad, como el

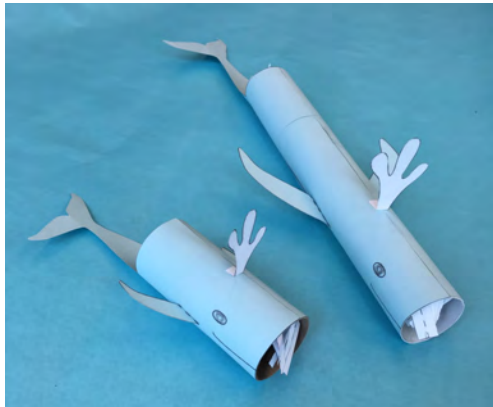
ctenóforo de ventre sangrienta.

- d. Use cuentas o pompones pequeños para añadir **anémonas de pompones** o **pepinos de mar** a la base de tu diorama.
- e. Use barro de modelar para hacer **pulpos** de profundidad o un **cerdo de mar**.
- f. Corte unos bastoncillos de algodón para reproducir **huesos desarticulados** y agregalos al fondo marino.



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Paper Tube Whales

Mother blue whales watch over their calves for the first six months of their life. The young blue whales have a lot of growing to do: Whale milk is so high in fat that their calves gain 250 pounds per day! Eventually the blue whales will start eating krill and grow up to 110 feet long, the same length as two school buses.

Materials

- 1 paper towel tube
- 1 toilet paper tube
- Crayons or markers
- Tape or glue
- Scissors
- 4 sheets of paper (3 blue optional)
- Print-out templates (page 4-7)
 - Baby whale page 4
 - Mama whale pages 5-6
 - Extra pieces page 7

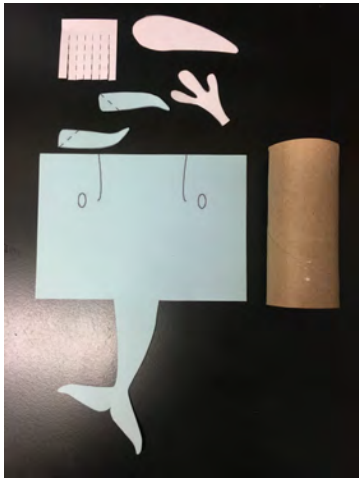


Directions

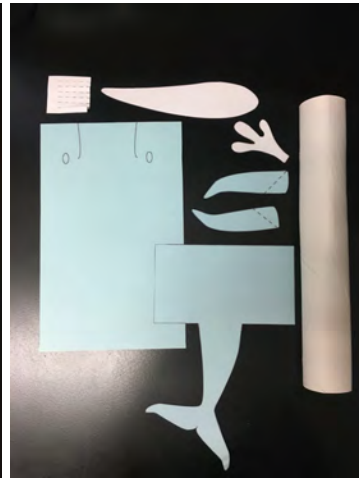
1. Print whale templates: pages 4-6 on blue paper if desired, page 7 on white paper.

2. **Cut** out the templates.

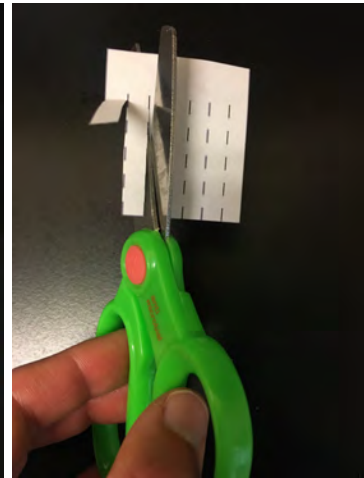
Baby Whale



Mama Whale



Baleen



3. **Color** whales as desired.

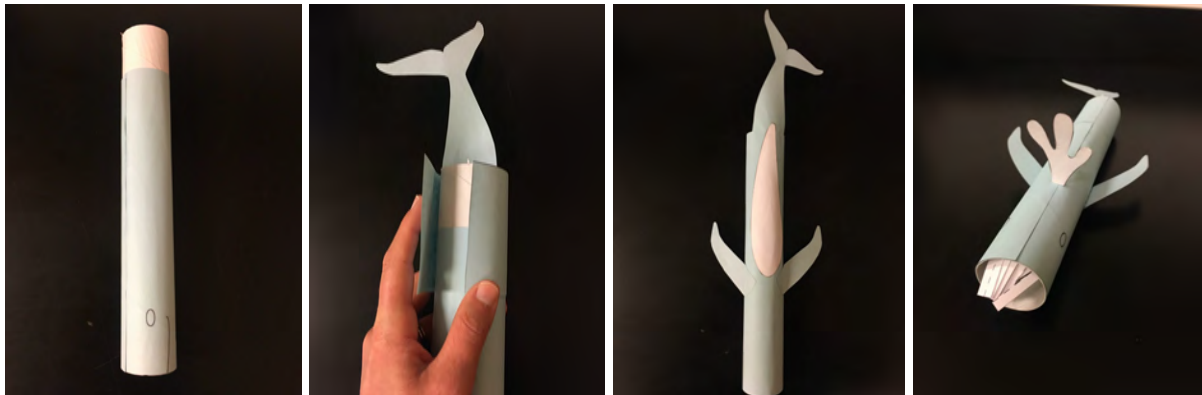
4. **Assemble** Baby Blue Whale

- a. **Wrap** the body around a toilet paper tube.
- b. **Glue** or **tape** in place.
- c. **Glue** or **tape** the tummy in the middle of the body.
- d. **Fold** fins on dotted lines.
- e. **Glue** or **tape** fins on either side of the whale's body.
- f. **Glue** or **tape** tummy on the bottom of the whale's body.
- g. **Glue** or **tape** the water spout on top of the whale.
- h. **Glue** or **tape** the baleen inside the tube at the whale's mouth.

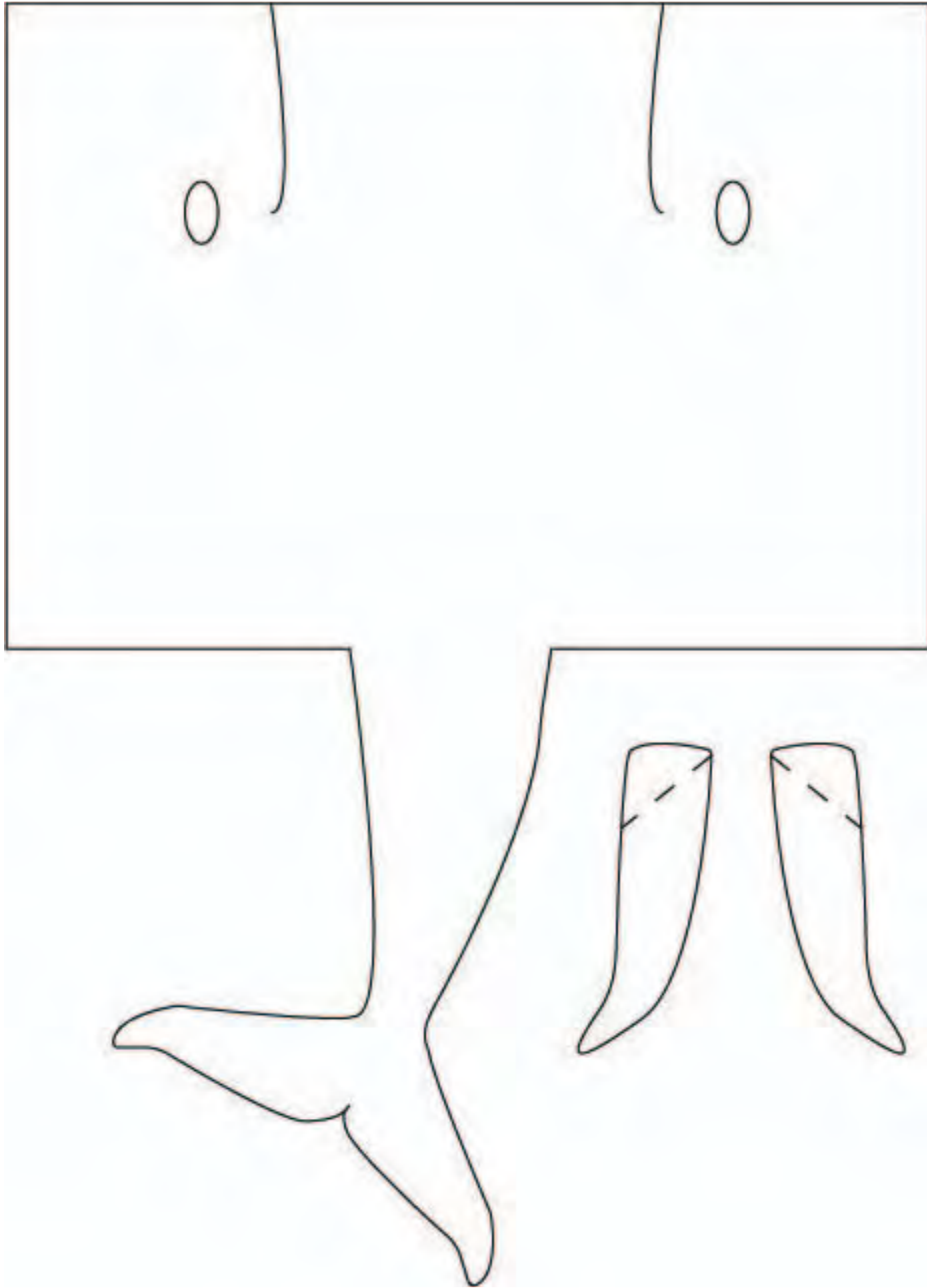


5. **Assemble** Mama Blue Whale

- a. **Wrap** the body with the face around a paper towel tube.
- b. **Glue** or **tape** in place.
- c. **Wrap** the body with the tail around the bottom of the paper towel tube.
- d. **Glue** or **tape** the tummy in the middle of the body.
- e. **Fold** fins on dotted lines.
- f. **Glue** or **tape** fins on either side of the whale's body.
- g. **Glue** or **tape** tummy on the bottom of the whale's body.
- h. **Glue** or **tape** the water spout inside the tube on the top of the whale.
- i. **Glue** or **tape** the baleen inside the tube at the whale's mouth.



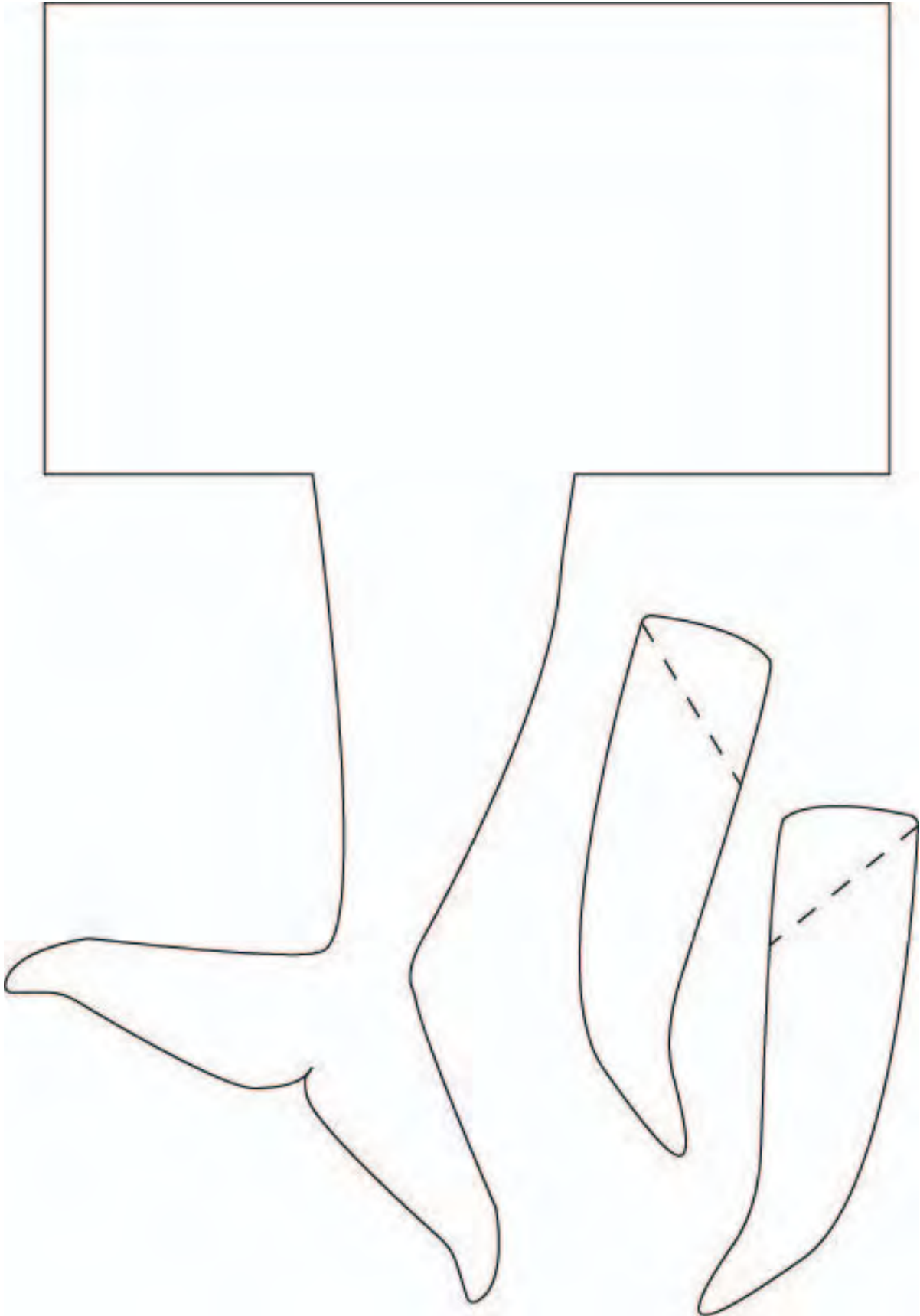
6. **Tell** a story about your whales!

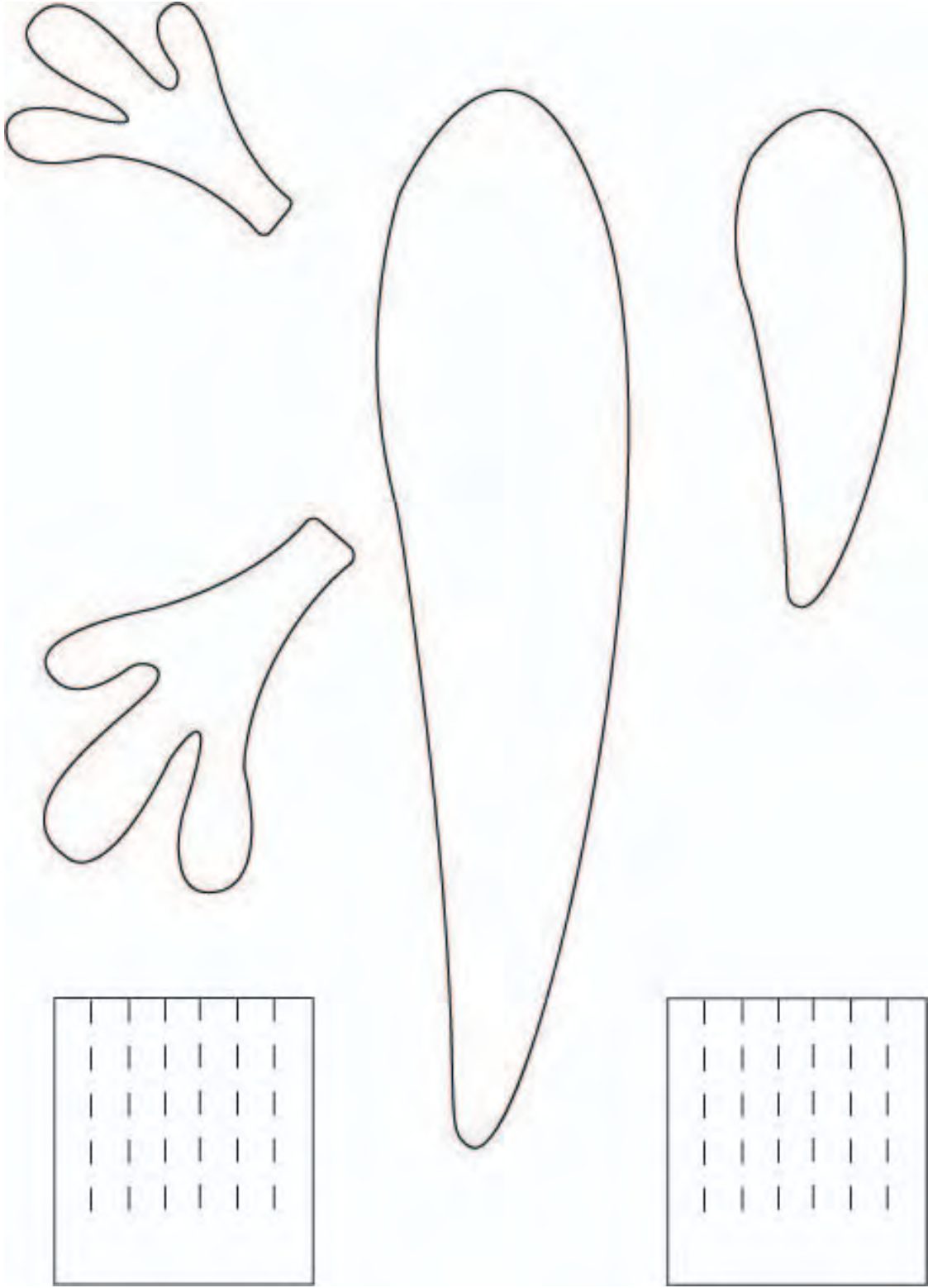




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Blubber Experiment

Whales stay warm in chilly ocean waters by having a layer of special fat called blubber which acts like a jacket. It traps the whale's body heat inside and keeps the cold out.

For this experiment you will create a plain hand mitt and a "blubber" hand mitt to compare in icy water. Feel the insulating power of blubber yourself!

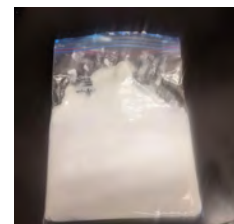
Materials

4 quart sized plastic freezer bags (to make 2 mitts)
Shortening (or any soft fat, like butter)
Duct Tape
1 large bowl
Water
Ice cubes
Timer



Directions

1. **Fill** one of the plastic bags about $\frac{3}{4}$ full with shortening and **squeeze** it gently to spread it evenly in the bag. This fat will act as blubber. Other marine mammals have blubber too, like polar bears and pinnipeds such as seals and seal lions. Blubber doesn't just keep these animals warm, but is an extra energy reserve for times when they are unable to find food.
2. **Insert** the second bag inside the first bag and **tape** the tops together. (For the best seal, insert the second bag inside-out and **zip** the tops of the bags together. Next, fold the top edge around the outside and **tape** it to the outside of the bag.)



3. **Repeat** step 2 (without the shortening) to create a non-blubbered mitt with the last 2 bags. In experiments, it's important that there's only one difference (the *variable*) between the things you are comparing. In this case, we use both a plain mitt (the *control* mitt) and a blubbered mitt (the *experimental* mitt) to see how the blubber affects the experiment.



4. **Fill** the large bowl with water and ice cubes.

5. **Insert** one of your hands into the blubber mitt and the other into the plain mitt then **dip** both in the icy water. Be careful not to let water inside the mitts!



6. **Compare** how your hands feel in each mitt.

- a. What differences do you notice between your hands?
- b. How long can you keep each hand in the ice cold water?
(Count or use a timer)



Experimento de Grasa de Ballena

Las ballenas se mantienen calientes en aguas frías del océano gracias a una capa de grasa especial llamada grasa de ballena, que funciona como un chamarra. Atrapa el calor del cuerpo de la ballena y mantiene el frío afuera.

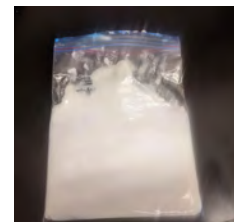
Para este experimento vas a crear un guante normal y uno de "grasa de ballena" para compararlos en aguas frías. Siente tú mismo el poder aislante de la grasa de ballena!

Materiales

- 4 bolsas plasticas para congelar de un cuarto medida (para hacer dos guantes)
- Manteca (o cualquiera grasa suave como mantequilla)
- Cinta adhesiva
- 1 tazón grande
- Agua
- Cubos de hielo
- Reloj automático

Instrucciones

1. **Llena** unas de las bolsas plásticas aproximadamente $\frac{3}{4}$ de manteca y **apretarla** suavemente para repartirla uniformemente en la bolsa. Esta manteca va a actuar como la grasa de ballena. Otros mamíferos marinos también tienen grasa de ballena, como los osos polares y los pinnipedos como las focas y los leones de mar. La grasa de ballena no solo mantiene a estos animales calientes sino también es una reserva de energía extra para los tiempos en que no pueden encontrar alimento.



2. **Meta** la segunda bolsa dentro de la primera y **pega** la partes superiores de las dos juntas. (para el mejor sellada, meta la segunda bolsa de revés y cierre las partes superiores juntas. Después, doblen la parte superior alrededor del exterior y **péguelo** al exterior de la bolsa.)
3. **Repita** paso 2 (sin la manteca) para hacer un guante sin la grasa de ballena usando las últimas 2 bolsas. En experimentos, es importante que haya solo una diferencia (la variable) entre las cosas que estás comparando. En este caso, usamos el guante regular (el guante de control) y el guante de grasa de ballena (el guante experimental) para ver como la grasa de ballena afecta el experimento.
4. **Llena** el tazón grande con agua y cubos de hielo.
5. **Meta** unas de tus manos en el guante de grasa de ballena y el otro en el guante normal y **mete** las dos en el agua fría. Tenga cuidado de no dejar que agua se meta dentro los guantes.
6. **6. Compara** cómo tus manos se sienten dentro de cada guante.
 - a. ¿Cuales diferencias notas entre tus manos?
 - b. ¿Cuánto tiempo puedes mantener cada mano en el agua fría?(Conte o use el reloj automático)

