

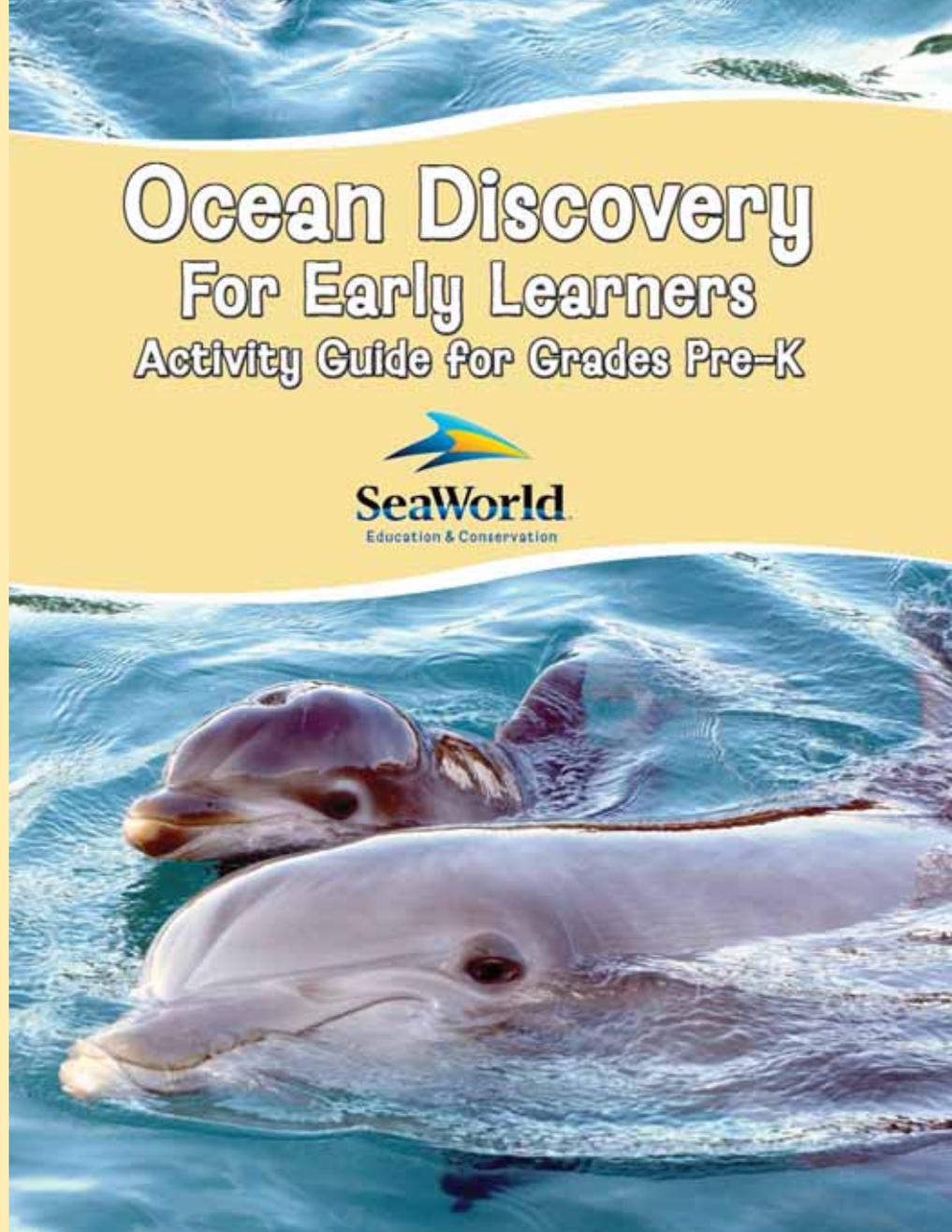
Ocean Discovery For Early Learners Activity Guide for Grades Pre-K



Education &
CONSERVATION

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Ocean Discovery for Early Learners

Grades Pre-K

A SEAWORLD PUBLICATION

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To the Teacher...

This activity guide was developed at SeaWorld to help you teach your students — in an active, hands-on way — about marine animals and the ecology of the ocean. Our goal is to integrate science, mathematics, language and literacy, and art. SeaWorld curriculum supports the California Preschool Learning Foundations (see below for details).

Worksheets and coloring pages in this guide were designed to be photocopied and given directly to students to complete. Crafts, creative play, and labs will require extra materials to complete.

Connections to California Preschool Learning Foundations

Worksheets, crafts, and activities are designed to meet the following learning foundations as established in *California Preschool Learning Foundations Volumes 1 and 2*.

Social-Emotional Developmental Domain

Self

5.0 Initiative in Learning

- 5.1 Enjoy learning and are confident in their abilities to make new discoveries although may not persist at solving difficult problems.

Social Interaction

2.0 Interaction with Peers

- 2.1 Interact easily with peers in shared activities that occasionally become cooperative efforts.
- 2.2 Participate in simple sequences of pretend play.

3.0 Group Participation

- 3.1 Participate in group activities and are beginning to understand and cooperate with social expectations, group rules, and roles.

Language & Literacy Domain

Listening & Speaking

1.0 Language Use and Conventions

- 1.4 Use language to construct short narratives that are real or fictional.

2.0 Vocabulary

- 2.1 Understand and use accepted words for objects, action, and attributes encountered frequently in both real and symbolic contexts.
- 2.2 Understand and use accepted words for categories of objects encountered and used frequently in everyday life.
- 2.3 Understand and use simple words that describe the relations between objects.

Mathematics Domain

Number Sense

1.0 Children begin to understand numbers and quantities in their everyday environment.

- 1.3 Identify, without counting, the number of objects in a collection of up to three objects (i.e., subitize).
- 1.4 Count up to five objects, using one-to-one correspondence with increasing accuracy.
- 1.5 Use the number name of the last object counted to answer the question, "How many..."

Connections to California Preschool Learning Foundations, continued

Algebra & Functions

1.0 Children begin to sort and classify objects in their everyday environment.

- 1.1 Sort and classify objects by one attribute into two or more groups, with increasing accuracy.

Measurement

1.0 Children begin to compare and order objects.

- 1.2 Order three objects by size.

Geometry

1.0 Children begin to identify and use common shapes in their everyday environment.

- 1.1 Identify simple two-dimensional shapes, such as a circle and square.

Visual & Performing Arts Domain

Visual Art

1.0 Notice, Respond, Engage

- 1.1 Notice and communicate about objects or forms that appear in art.
- 1.2 Create marks with crayons, paints, and chalk and then identify them.

2.0 Develop Skills in Visual Art

- 2.1 Make straight and curved marks and lines; begin to draw rough circle shapes.
- 2.2 Begin to create paintings or drawings that suggest people, animals, and objects.
- 2.5 Begin to recognize and name materials and tools used for visual arts.
- 2.6 Demonstrate some motor control when working with visual arts tools.

3.0 Create, Invent, and Express Through Visual Art

- 3.1 Create art and sometimes name the work.
- 3.2 Begin to draw figures or objects.

Drama

2.0 Develop Skills to Create, Invent, and Express Through Drama

- 2.1 Demonstrate basic role-play skills with imagination and creativity.

Physical Development Domain

Fundamental Movement Skills

2.0 Locomotor Skills

- 2.4 Begin to demonstrate a variety of locomotor skills, such as galloping, sliding, hopping, and leaping.

3.0 Manipulative Skills

- 3.2 Begin to show fine motor manipulative skills using hands and arms such as in-hand manipulation, writing, cutting, and dressing.

Perceptual-Motor Skills and Movement Concepts

3.0 Directional Awareness

- 3.1 Distinguish movements that are up and down and to the side of the body.
- 3.2 Move forward and backward or up and down easily.
- 3.4 Use any two body parts together.

Active Physical Play

1.0 Active Participation

- 1.1 Initiate or engage in simple physical activities for a short to moderate period of time.

Animal Diversity

Materials

- copies of animal cards (on pages 5–7) per student or student group

Introduction

Scientists classify animals into groups based on characteristics that they all share. The following groups of animals are classified based on the listed characteristics:

Mammals

- Have hair/fur*
- Are warm-blooded
- Give live birth to young
 - Nurse young
 - Breathe air

Fish

- Have scales
- Breathe underwater using gills
- Are cold-blooded
- Have fins

Birds

- Have feathers
- Lay eggs
- Are warm-blooded
- Have wings

Reptiles

- Are cold-blooded
- Breathe air
- Lay eggs
- Have scales

* Dolphins, whales, and porpoises are born with a few hairs around their rostrum. These hairs usually fall out shortly after birth.

Activity #1

1. Distribute copies of a set of animal cards to each student or student group.
2. Have students cut apart the cards and fold on the dotted line.
3. Discuss the characteristics of the animal groups listed above. Based on these characteristics, ask students to sort their animal cards into one of the four groups. Discuss results with students. Why did they classify them in the way that they did? Were they right or wrong?

Activity #2

1. Distribute copies of a set of animal cards to each student or student group.
2. Have students cut apart the cards and fold on the dotted line.
3. Ask students to sort the animal cards based on: how the animal moves (swim, walk, fly) or body coverings (feathers, scales, smooth skin).

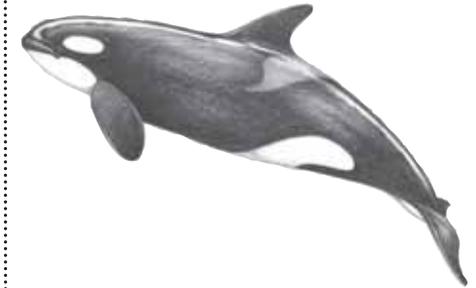
For your SeaWorld visit: Use the animal cards to make nametags for students.

How big am I? 16 to 22 feet long and 3,000 to 12,000 pounds. Males are much bigger than females.

Where do I live? all oceans of the world.

What do I eat? fishes, marine mammals, seabirds (such as penguins), and squids.

killer whale



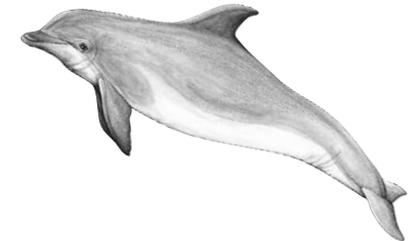
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How big am I? 6.5 to almost 13 feet long and weigh up to 440 pounds.

Where do I live? warm and tropical oceans worldwide.

What do I eat? fishes, squids, eels, and crustaceans such as shrimp.

bottlenose dolphin



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How big am I? 31 to 44 inches and weigh 150 to 410 pounds.

Where do I live? Atlantic, Pacific, and Indo-Pacific oceans; Gulf of Mexico and Mediterranean Sea.

What do I eat? sea grasses and algae (seaweed).

green sea turtle



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How big am I? up to 10 feet long and 350 pounds.

Where do I live? warm waters in the Atlantic and Indo-Pacific Oceans; Mediterranean Sea.

What do I eat? fishes, eels, crabs, lobster, and squids.

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sandtiger shark



How big am I? 57 inches tall and weigh almost 7 pounds.

Where do I live? South America and the Caribbean.

What do I eat? algae, plankton, crustaceans, and molluscs (shelled animals).

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Caribbean flamingo



How big am I? 44 inches tall and weigh 60 to 90 pounds.

Where do I live? Antarctica (South Pole).

What do I eat? squids, fishes, and crustaceans such as krill.

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emperor penguin



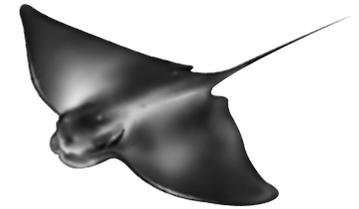
How big am I? 3 to 6 feet wide and weigh up to 181 pounds.

Where do I live? muddy and sandy ocean floors from Oregon to Mexico.

What do I eat? oysters, clams, abalone, and crabs.

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bat ray



How big am I? 5 to 8 feet long and weigh 242 to 881 pounds.

Where do I live? Islands and coasts from Canada (British Columbia) to Mexico.

What do I eat? squids, fishes, and octopuses.

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California sea lion



How big am I? 6.5 to 9.8 feet tall and weigh 331 to 1,433 pounds.

Where do I live? the Arctic (North Pole).

What do I eat? seals, walrus, and fishes.

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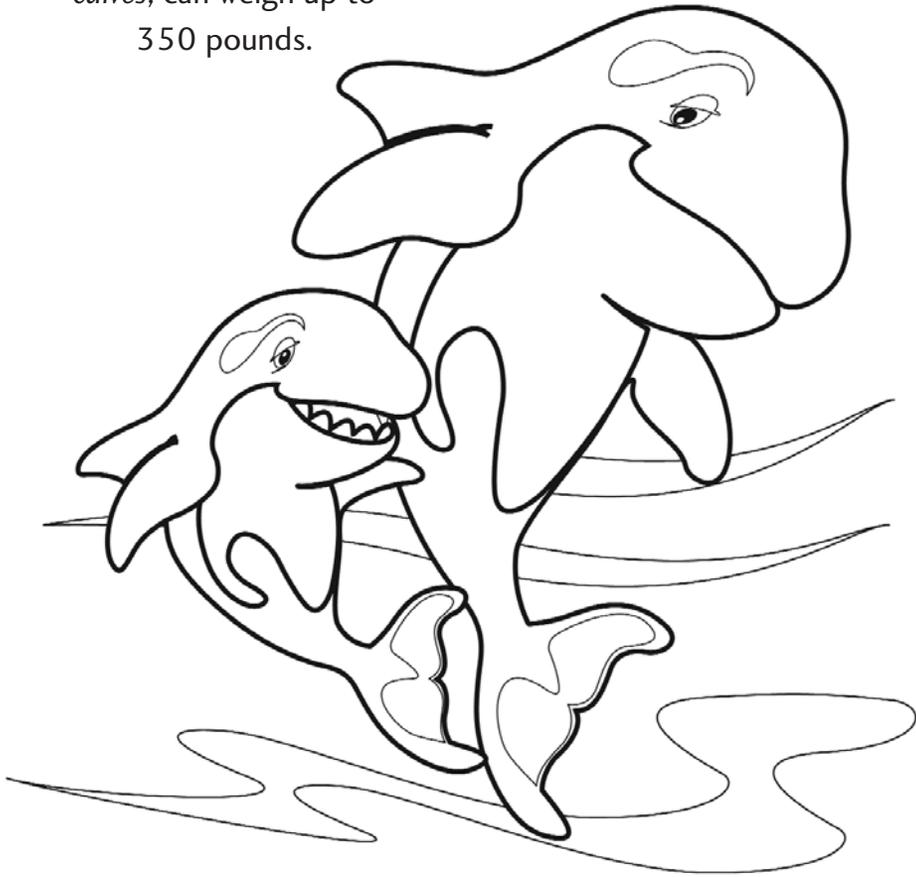
polar bear



Killer Whales

Name _____

Killer whale babies, called *calves*, can weigh up to 350 pounds.

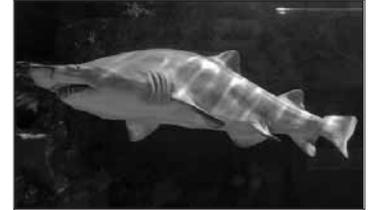


Ocean Animal Letters

Name _____

Draw a line from the animal picture to the letter its name begins with.

D



T



S

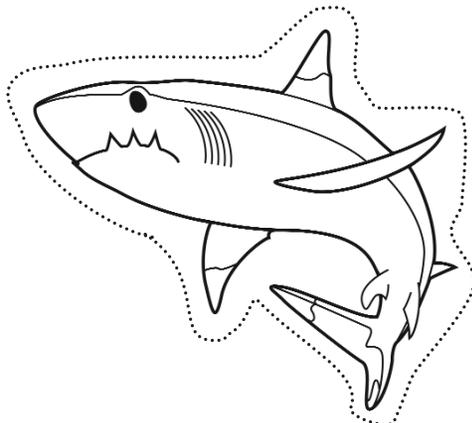
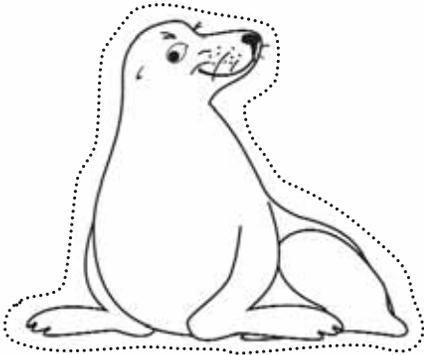
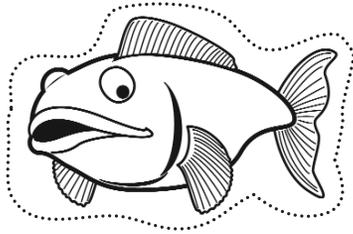
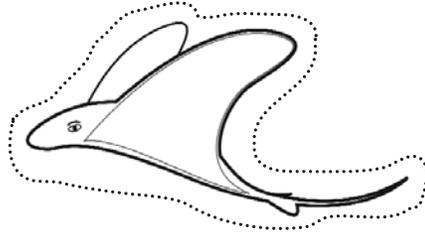
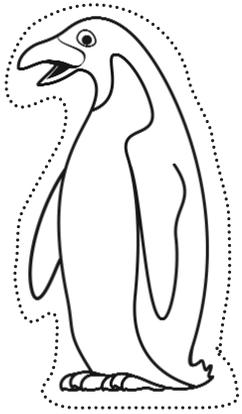


P



Cut and Paste

Color and cut out each animal on this page. Then paste them on the worksheet in the correct group.



Cut and Paste

Name _____

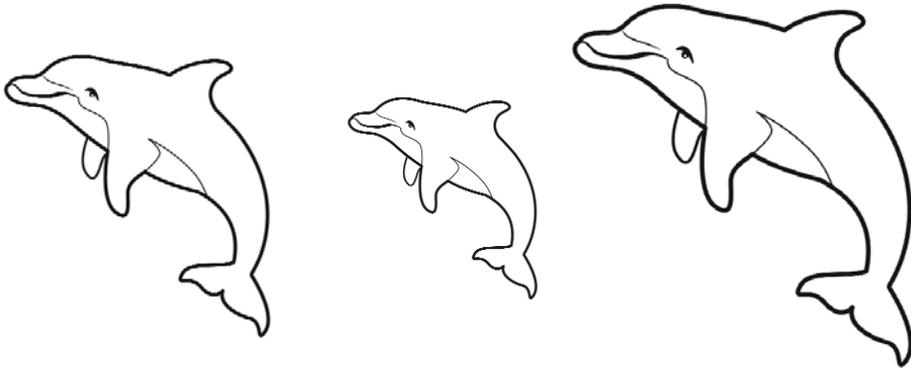
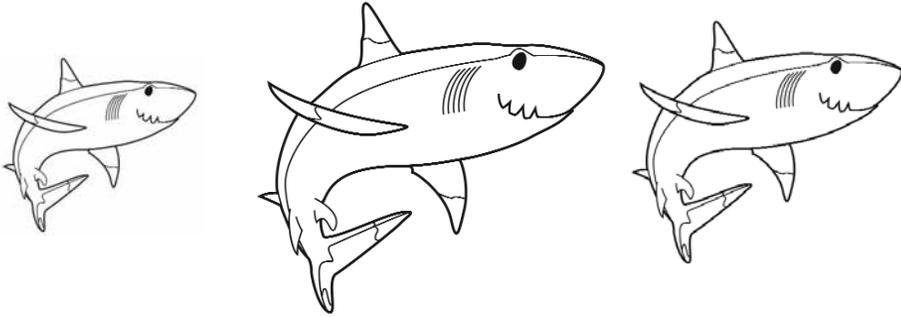
Animals that breathe under water

Animals that can walk on land

Small, Medium, & Large

Name _____

For each group of animals: Color the smallest one blue. Color the medium-sized one green. Color the biggest one red.



How Many Animals?

Name _____

Circle the correct number of animals. Color them when you are finished.

Circle 2 stingrays.



Circle 3 fish.



Circle 4 sea turtles.



Your Favorite Ocean Animal

Name _____

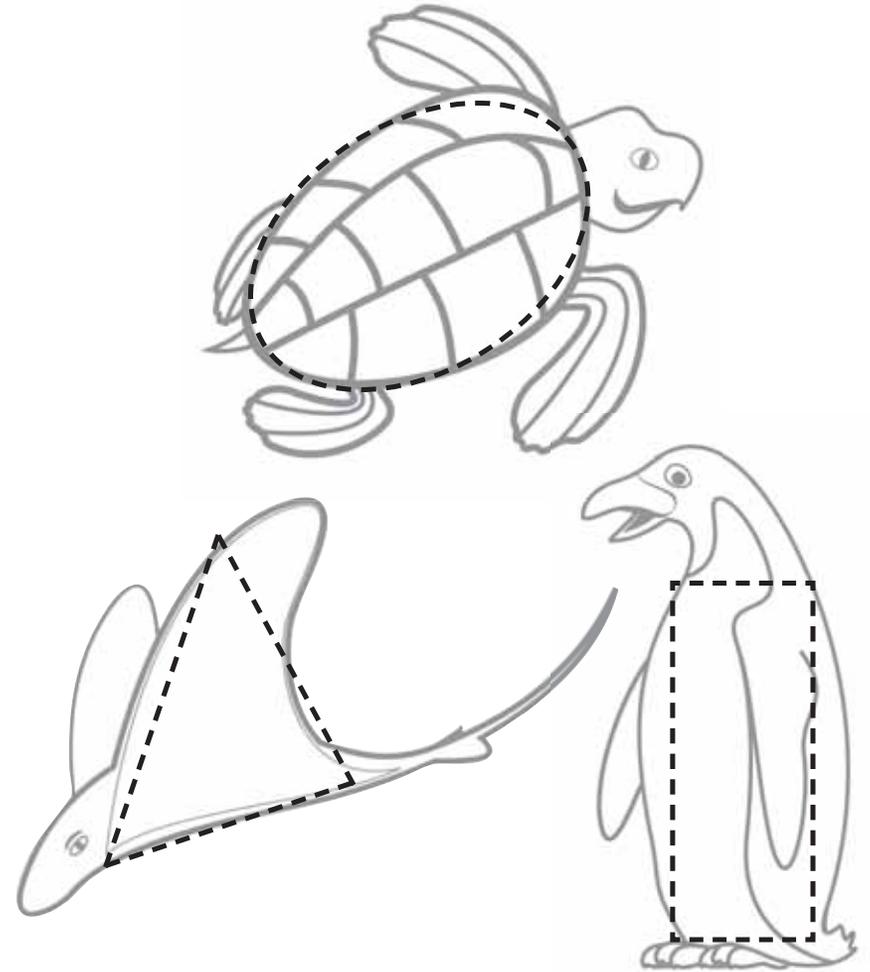
What is your favorite ocean animal? Draw and color it below.
Show your animal to a friend and tell them the animal's name.



Shapes in the Ocean

Name _____

Trace the shapes you find on each animal. Can you name them?



Dolphin Training Book

Materials

- copies of *I Train the Dolphin* book the next two pages (one per student)
- scissors
- stapler
- crayons or markers

Introduction

SeaWorld has trained marine mammals for more than 40 years. In a zoological environment such as SeaWorld, training animals aids in the care of animals; adds educational value for visitors; allows research that may not be possible in the wild; and provides animals with physical and mental stimulation. SeaWorld training is based on three building blocks — building a positive relationship, positive reinforcement, and target recognition.

The first step in animal training is to build a positive relationship with an animal. Trainers spend time with an animal to become more comfortable around it and observe its behavior.

When an animal performs a behavior that produces a positive result, the animal is likely to repeat that behavior. The positive result is called a positive reinforcer. Humans learn by the same principles. If student behavior is reinforced by attention and praise, students are likely to repeat the behavior. Training at SeaWorld is based on a variety of positive reinforcers including food, rub-downs, ice cubes, toys, and one-on-one time with a trainer. When an animal performs an unwanted behavior, the trainer uses a LRS — least reinforcing scenario. The trainer does not reinforce the animal for the unwanted behavior and after a brief period of calmness, the trainer provides the animal with another opportunity for reward.

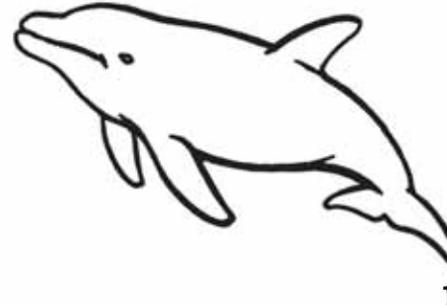
Complex behaviors are shaped through small steps. For example, when children learn how to ride a bicycle, most begin on a tricycle, then a bicycle with training wheels, and then a larger bicycle. To help shape behaviors, trainers teach animals to target. Trainers use their hands as a target: animals are trained to come to the trainer's hand, touch it, and await the next signal. When a behavior takes place away from the trainer, a target pole is used to direct the animal. Each time the animal touches the target, they are reinforced.

Animals are trained to associate a signal with each behavior they learn. When behaviors are done correctly, they must be immediately reinforced. To communicate to the animal they have performed a correct behavior and they will be reinforced, a trainer uses a bridge signal — to bridge the gap between behavior and reward. The bridge signal may be a whistle (for whales and dolphins) or the word "okay" for sea lions and otters.

Action

1. Give each student a set of book pages. Use the information above to talk about what is happening on each page.
2. Instruct students to color the pictures. On the final page they will draw himself or herself with a dolphin.
3. Have students cut apart the pages and assemble them into a book by stapling them.
4. Students can use the book to tell the story to their friends and family.

I Train the Dolphin



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I make friends with
the dolphin.

2

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I feed
the dolphin.

3

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The dolphin
touches the target.

4

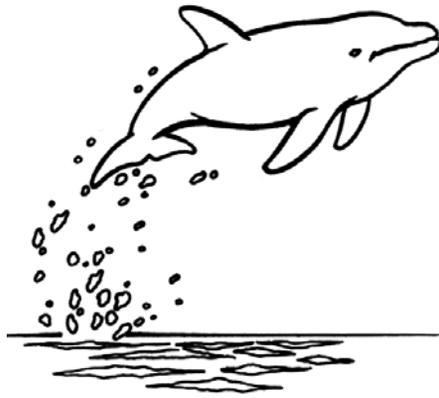
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The dolphin reaches higher.

5

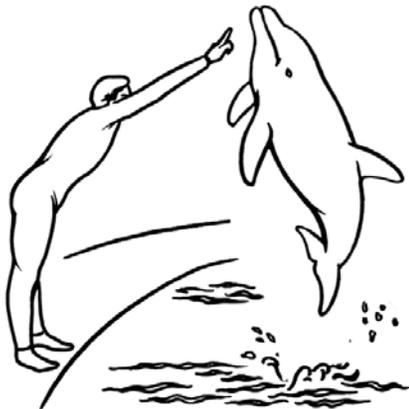
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The dolphin jumps up.

6

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I teach a signal to the dolphin.

7

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I train the dolphin.

8

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SeaWorld Scientists

Materials

- 2 recycled craft rolls per student (toilet paper rolls, or paper towel rolls cut in half)
- crayons, markers, or paint
- hole puncher
- yarn



Introduction

Science is the study and explanation of things that happen in nature and the universe. A scientist is the person who studies and discovers these things and helps teach us how the world works. One way scientists learn new things is by making observations. Your students can become scientists by making binoculars and exploring their surroundings. Outside the classroom, encourage students to look closely at plants, animals, buildings, and even the ground coverings. At SeaWorld, students can pretend to be scientists as they explore and observe animals in their habitats.

Action

1. Give each student two craft rolls.
2. Allow them to decorate the rolls using paint, markers, or crayons. Make sure they write their names somewhere on one of the rolls. Staple the rolls together.
3. Punch two small holes on the top/outer side of each roll. Help students string and tie yarn through the holes.
4. Students can role play being explorers and scientists.
5. Ask each student to share a story about what they discovered.

Polar Bear Mask

Materials

- pre-cut white paper plates. Cut out the center of the plate leaving enough room for the students' faces to show. Punch two small holes on the left and right edge of the plate.
- pre-cut white polar bear ears (2 per student; Ears should be "apostrophe" shaped and approximately 2.5 inches tall)
- elastic bands with metal tips (or yarn)
- white cotton balls (5 to 10 per student)
- black face paint (optional)
- liquid glue
- black crayons

Introduction

Polar bears are marine mammals that live in the Arctic. They can be found along coastlines, in the water, or on sea ice. Polar bears are the top *predator* of the arctic ecosystem and they have many *adaptations* to help them hunt and survive in their icy *environment*:

- They are completely covered in fur, except for their nose and foot pads, which are black. The fur is clear, allowing more sunlight to warm up their bodies (it appears white because of reflection).
- Large paws (up to 1 foot wide) help them easily walk on ice and snow. Each toe has a claw that is used for hunting, but also provides traction when running or climbing.
- Polar bears are strong swimmers.
- A strong sense of smell helps polar bears find prey, even if the *prey* item is under snow.

Action

1. Hand out one pre-cut paper plate to each student. Have them write their name on the back (the bottom of the plate) using crayons.
2. Give two ears to each student. Have them draw and color in black circles on one side of each ear. Glue the ears to the top of the plate, with the black circles facing the front.
3. Have students spread/stretch their cotton balls apart to create "fur." Ask them to glue the fur around the front of the plate.



4. Once glue is dry, secure the mask on each student with an elastic band through the small pre-punched holes. Using face paint, paint the students' noses black so that when they wear their masks they will look like polar bears. Students can role-play being polar bears: paws to walk on ice and their noses to smell for food.

What Do I Feel Like?

Materials

- faux fur (2 pieces of each; one to stay dry and one to get wet)
- craft feathers
- sand paper
- fabric or ribbon with overlapping sequins
- craft foam, rubber or Model Magic®
- photos of a sea lion, polar bear, shark, fish, and dolphin (optional)

Introduction

Animals that live in the ocean might have scales, fur, feathers, or just smooth skin. Body coverings must protect the animal from extreme conditions including: cold and warm saltwater, rocks and sand, predators, wind, ice, and snow.

fur: Many marine mammals (sea lions, polar bears, and sea otters) are covered with short, dense fur. The fur keeps them warmer in cold waters and can also be waterproof.

feathers: All seabirds are covered with feathers. Some *molt* (or lose) feathers year-round; others (like penguins) lose them all at once.

scales (sharks): Shark scales share the same structure as teeth and are often called "dermal denticles (skin teeth)." As the shark grows larger, it grows more scales. When rubbed from head to tail, shark skin feels smooth. When rubbed in the opposite direction, it feels rough.

scales (fishes): Fish scales are platelike and overlapping. They vary in size, shape, and color. As the fish grows larger, the scales grow larger too.

smooth skin: Some marine mammals (whales, including dolphins) do not have fur or hair on their bodies. Their smooth skin makes them faster swimmers (hair would slow them down).

Action

1. Set up five stations for students to visit:
 - fur – One piece of dry faux fur and one piece of wet faux fur.
 - feathers – A handful of feathers for students to feel, and a single feather to examine closely.
 - scales (sharks) – One piece of sandpaper.
 - scales (fishes) – One piece of material/ribbon with overlapping sequins.
 - smooth skin – A wet piece of craft foam, rubber, or Model Magic® will demonstrate the slickness of a dolphin's skin.
2. After students have visited each station, ask some follow-up questions: Which animals have rough skin? What does a dolphin feel like? Which type of animals have feathers?

Shark

Name _____

How many small fish can you find?



Sharks are covered with scales. Their skin feels rough like sandpaper.

Animal Actions

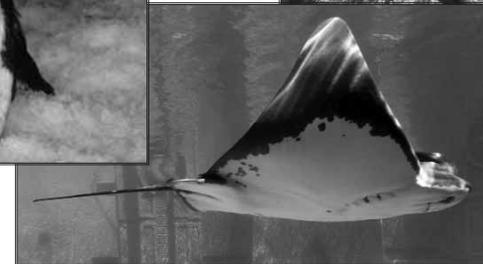
Materials

- Animal cards or pictures of animals

Introduction & Action

Students can role play the behavior of marine animals. Here are some suggestions:

- For dolphins, hands and arms become *flippers*, feet become *flukes*, and noses become *blowholes*. ("Slide" them up to the top of the head). Role play swimming, jumping, spinning, hunting together, squeaking, and whistling.
Dolphins make sounds using their blowhole, not their mouth. To demonstrate this to students, start by filling a balloon with air. Then slowly let air out while squeezing and stretching the opening. Changing the amount of air you let out and the shape of the opening will change the sound. This is similar to how dolphins make sounds as air passes through their lungs.
- For sea lions, hands and arms become long flippers, feet become hind flippers, nostrils can open and close. Role play swimming, jumping, crawling on rocks, and barking.
- For penguins, hands and arms become flippers, feet become webbed, and clothing becomes feathers. Role play swimming, hopping out onto ice, waddling on land, and waving flippers.
- For stingrays, hands and arms become fins (put hands on head and stick elbows out to sides), and feet become tails. Role play swimming, digging up food, and hiding in the sand.



Relay Races

Penguin Relay Race

Materials: a large plastic egg

Like other birds, penguins lay eggs. Some species such as the Humboldt, Magellanic, and little penguins nest in underground burrows. Adélie's, chinstraps, and some other species use stones, plants, and other materials to build nests. Some species never build nests. King and emperor penguins *incubate* a single egg on top of their feet. Male emperor penguins incubate the egg for 62 to 66 days during the harsh Antarctic winter. In emperor and king penguins the egg is pear-shaped, with one end tapering almost to a point. With this shape, if an egg falls off the feet of a parent bird, the egg rolls in a circle instead of away from the parent.

Action

1. Discuss with students how emperor and king penguins incubate their eggs.
2. Take students outside to a large, open area. With cones or chalk, mark a start and end point.
3. Divide students into equal teams and have them line up at the starting point.
4. At "GO!", the first person in line waddles or hops to the end point while holding the egg. Once they make it back to the start point, they must pass the egg off to the next person in line.
5. The race continues until the last team member makes it back to their team with the egg safely on top of their feet.
6. Back in the classroom, discuss the relay with students. Was it easy being a penguin parent?



Filter Feeding Relay Race

Materials: 2 slotted spoons, 4 small buckets, medium to large beads (enough to fill two buckets halfway)

Whales are divided into two groups; Toothed whales, such as dolphins and killer whales, have teeth which they use for grabbing and tearing food. Baleen whales, such as gray whales and blue whales, do not have teeth. Instead they have baleen plates, which look like giant, fringed combs. To eat, baleen whales take a huge gulp of water and then close their mouths pushing the water back out. Small fishes and tiny animals such as krill get trapped in the baleen. In this activity, students will practice filter feeding like baleen whales.

Action

1. Take students outside to a large, open area. Fill two buckets halfway with beads and then add water. Place the empty buckets a short distance away.
2. Divide students into equal teams and have them line up at the starting point.
4. At "GO!", the first person in line uses the slotted spoon to filter beads out of the bucket. They must walk to the opposite bucket and drop the beads in.
5. The race continues until all of the beads have been transferred between buckets.



Education & CONSERVATION

Based on a long-term commitment to education and conservation, SeaWorld strives to provide an enthusiastic, imaginative, and intellectually stimulating atmosphere to help students and guests develop a lifelong appreciation, understanding, and stewardship for our environment. Specifically, our goals are...

- To instill in students and guests of all ages an appreciation for science and a respect for all living creatures and habitats.
- To conserve our valuable natural resources by increasing awareness of the interrelationships of humans and the environment.
- To increase students' and guests' basic competencies in science, math, and other disciplines.
- To be an educational resource to the world.

Ocean Discovery for Early Learners

Grades Pre-K

PART OF THE SEAWORLD EDUCATION SERIES

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SeaWorld Educational Resources

Books are available in SeaWorld gift shops or through the SeaWorld Education & Conservation Department.

Call (800) 25-SHAMU and press 4, for more information. Or email us at SWC.Education@SeaWorld.com.

Funbooks

Journey to Atlantis Funbook.

Wild Arctic Activity Book.

Shamu's Funbook.

Penguin Funbook.

Bottlenose Dolphin Funbook.

Sea Turtle Funbook.

Ray Funbook.

Grades Pre–3

Penguin March.

This is a Dolphin.

SeaWorld Preschool Funbook. Activities & Songs.

Vocabulary

adaptation – the modification of a species, occurring as a result of natural selection. Adaptations enhance a species' ability to survive.

baleen – parallel plates, composed of keratin, that grow down from the upper jaw of a baleen whale for filtering food from the water.

blowhole – the opening to the lungs of a whale, similar to a human's nostrils.

environment – the total surroundings and forces that act upon an organism, including other plants and animals as well as physical factors such as light, heat, weather, and soil.

fin – a winglike or paddlelike appendage of an aquatic animal that helps the animal steer, swim, or maintain balance.

flipper – a broad, flat limb supported by bones and adapted for swimming.

flukes – the horizontal lobes of the tail of a whale, dolphin, or porpoise, made of connective tissue (not bone).

incubate – to apply heat to an egg, either by an adult bird or artificial means (such as an incubator).

invertebrate – an animal without a backbone.

molt – to shed and replace the outer layer of feathers, hair, skin, or hard outer skeleton.

plankton – tiny plants and animals that drift in oceans, lakes, ponds, and rivers.

predator – an animal that eats other animals.

prey – *n*: an animal eaten by another animal.



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