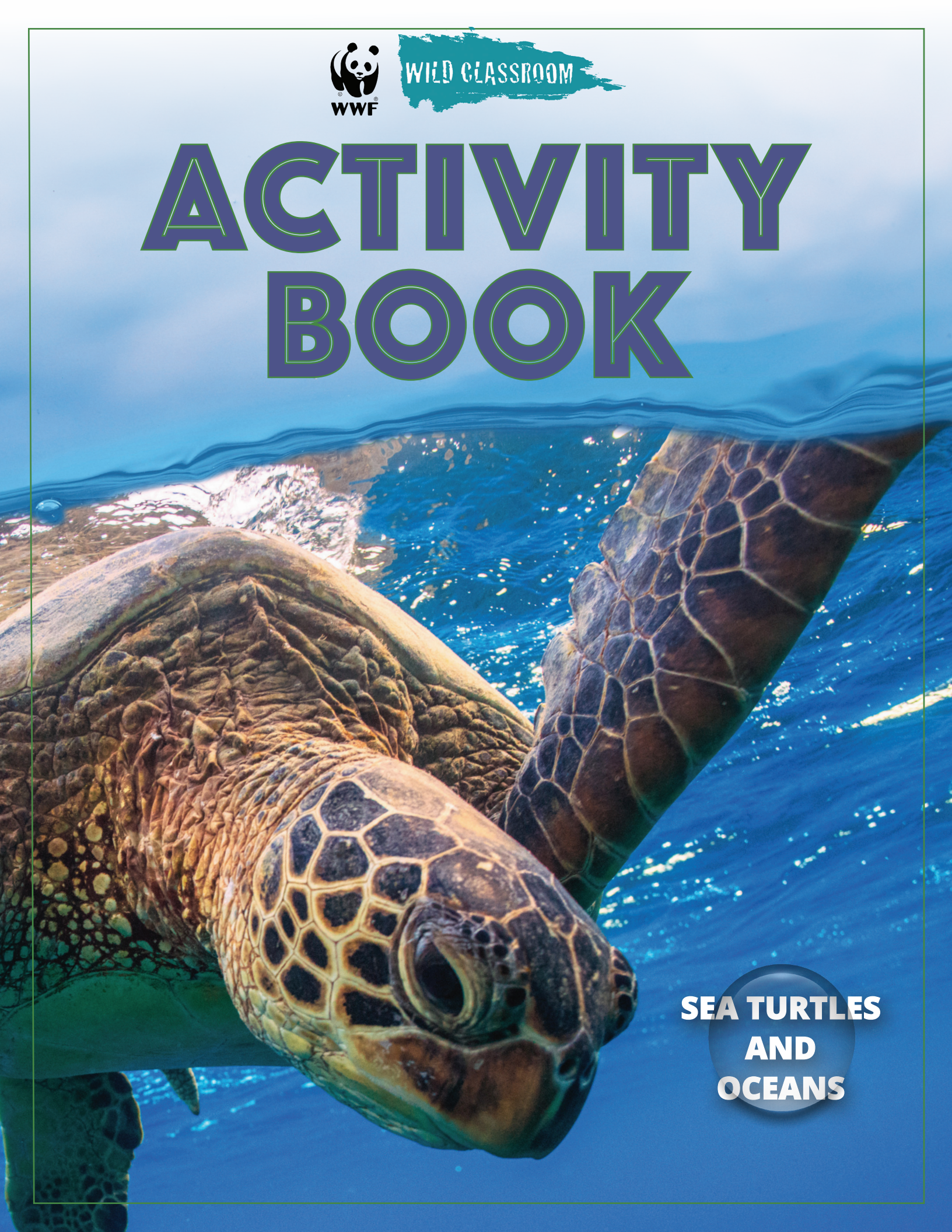
WWF

WILD CLASSROOM

ACTIVITY BOOK



SEA TURTLES AND OCEANS

My name is Michele Kuruc and I am WWF's vice president for ocean policy. The ocean is a biologically diverse place filled with spectacular ecosystems and an astonishing array of wildlife, such as the sea turtle. But our blue world does so much more: It regulates our climate, produces half the oxygen we breathe, powers the water cycle, and sustains the lives of billions of people. No matter where you live, you are connected to the oceans.

In this activity book, you can learn all about sea turtles, ocean habitats, and how human actions impact the marine environment. We hope it will inspire you to do your part to protect our oceans!

LEARN MORE ABOUT SEA TURTLES AT

worldwildlife.org/turtles

CONTENTS

TURTLEY AWESOME WORD SEARCH

See if you can find the sea turtle and ocean-themed words below.
Circle or highlight them when you spot them!

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

BYCATCH
HATCHLING
PLASTIC
CLIMATE CHANGE
LEATHERBACK
FISHING
BEACH
CORAL
JELLYFISH
REPTILE
MIGRATE
NESTING
TAGS
OCEAN
SHELL

GET TO KNOW YOUR SEA TURTLES!

Leatherback
Leatherbacks are the largest of all the sea turtles and they're named after their leathery-looking shell. Their diet consists primarily of jellyfish. One of the most migratory of the turtle species, they cross the Atlantic and Pacific Oceans. **Status: Vulnerable**

Loggerhead
Named for their large heads, these turtles have powerful jaws that help them crack open hard-shelled prey, like clams and sea urchins. **Status: Vulnerable**

Green
These turtles are named for the greenish color of their cartilage and fat. The only herbivorous sea turtle species, they mostly eat sea grass. **Status: Endangered**

Olive Ridley
The name of these sea turtles is tied to the olive-green hue of their shell. They are currently the most abundant of all sea turtles and are found in oceans worldwide. **Status: Vulnerable**

Flatback
Flatback turtles feed on crabs, mollusks, and other crustaceans. Their small populations are found mainly in the waters around Australia and Papua New Guinea. **Status: Not enough data**

Hawskbill
Hawksbills have colorful patterned shells that make them valuable on illegal markets. They feed mainly on sponges by using their narrow, pointed beaks to extract their food from crevices in coral reefs. **Status: Critically Endangered**

Kemp's Ridley
The smallest of the sea turtles, Kemp's ridleys have restricted ranges and are found primarily in the Gulf of Mexico. Their narrowly defined nesting area and the onshore threats to their nests put them at risk. **Status: Critically Endangered**

Learn more at worldwildlife.org

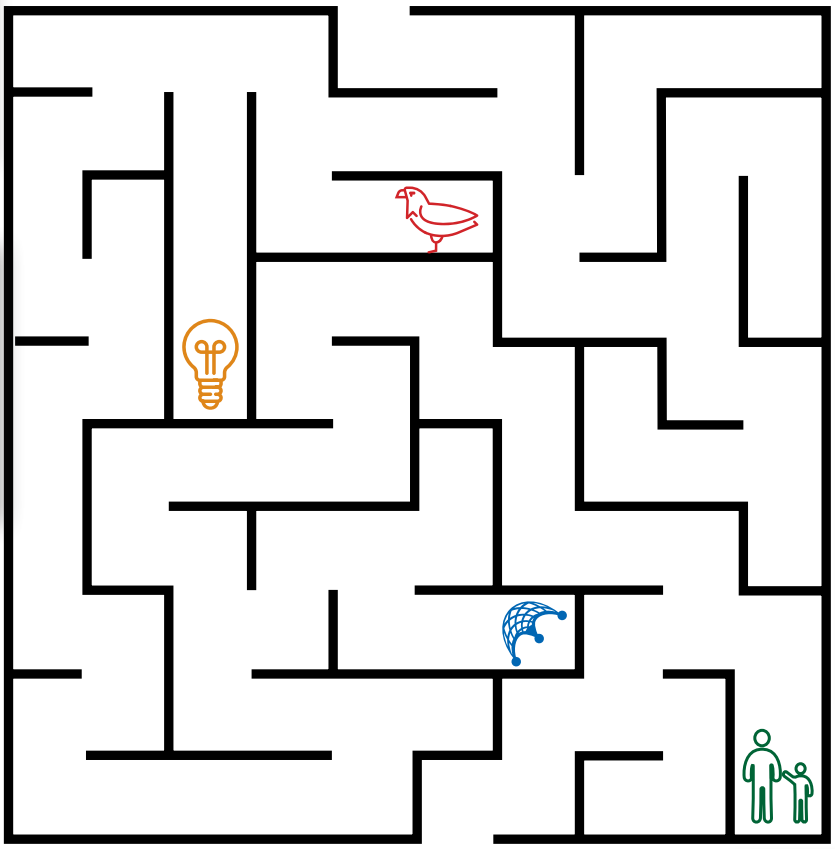
SEA TURTLE HATCHLINGS

A Journey From the Beach to the Sea

Once born, hatchlings must fend for themselves, making their way from their onshore nests to the water while avoiding all the dangers around them. Few hatchlings will survive their first year of life due to natural challenges (like predators) and threats caused by humans, such as pollution, bycatch, and climate change.

Can you get the hatchling safely from its nest to the ocean? Watch out for threats along the way!

START



FINISH

Predators like seagulls, crabs, and dogs can disrupt a turtle hatchling's journey to the sea.

Lights from buildings and cars can disorient hatchlings, causing them to travel away from, instead of toward, the waves.

Bycatch—the accidental capture of a marine species in nets meant to target some other species—is a frequent threat to sea turtles. Entanglement in a net can severely injure or kill sea turtles.

When **humans** disturb sea turtle nests, they can damage the hatchlings' chance of survival.

Photo, top © Roger Leguen/WW

Answers on page 20

BENEATH THE SURFACE

The ocean is so big that it covers 71% of the Earth's surface, and in some places it is miles deep. Scientists know that the average depth of the ocean is 2.3 miles (around 12,000 feet), but there are many parts that are shallower or deeper.

The ocean is generally divided into three depth zones, based on the amount of sunlight that reaches them. Different types of species are found in each zone, with some species able to survive in multiple zones, depending on which best meets their needs for things like food, space, and temperature.

Sunlit zone

- receives lots of sunlight, which allows marine plants like phytoplankton and algae to carry out photosynthesis
- many marine animals that depend on plants as a food source live in this zone
- some species that live here: dolphins, sea grass, stingrays

Twilight zone

- receives minimal sunlight, so photosynthesis cannot occur
- with little light available, species here have adapted to find food—and avoid becoming food—by developing characteristics like large eyes and see-through or reflective bodies
- some species that live here: jellyfish, sea sponges, krill

Midnight zone

- complete darkness, extremely cold water, few food sources, and little oxygen
- species in this zone have made strange adaptations to survive: giant teeth, gaping mouths, long feelers, and even the ability to produce light
- some species that live here: anglerfish, giant squid, midwater shrimp

HOW LOW CAN THEY GO?

Using the hints below each species, guess which of the three zones is the ***deepest*** zone they ever dive to.

VAQUITA

Vaquita are cetaceans and are related to dolphins and porpoises.

LEATHERBACK SEA TURTLE

The unique design of a leatherback's shell helps it be the deepest-diving sea turtle.

GREAT WHITE SHARK

Great whites usually hunt at night, since their large eyes make it easy to see in the dark.

BELUGA WHALE

Belugas hunt together in pods, feeding in both shallow and deep water.

SEA LION

Sea lions "haul out" onto rocks and then feed and cool off in the water.

MARINE IGUANA

The only lizards in the world that go into the ocean, marine iguanas love to eat algae.

WALRUS

After diving into the chilly Arctic waters looking for food, walruses rest on sea ice.

BLUEFIN TUNA

Bluefin tuna have sharp vision that helps them see prey from far away in dark waters.

EMPEROR PENGUIN

The deepest-diving seabird, the emperor penguin loves to eat krill and small fish.

Answers on page 20

Technology in Conservation:
TURTLE TECH

Check out these cool tech projects that help protect sea turtles.

NEST SURVEYS

Female sea turtles lay their eggs in nests they dig in the sand; then they leave. During the three-week incubation period, scientists can monitor the temperature of the sand, which determines the gender of the turtles.

Warmer sand results in more females, so to help maintain a good balance between males and females, scientists work to preserve beaches that are the right temperature to produce males.

They also record the number of eggs that did not hatch and think about how to improve nesting areas to increase hatchling numbers.

ID TAGS

Scientists use tools to attach titanium tags to sea turtle flippers while the turtles are on the beach nesting. These tags have ID numbers that get recorded in a database.

When the turtles come ashore again, these tags help scientists make estimated population counts and monitor reproductive rates.

© Peter Denton/WWF

LED FISHING NETS

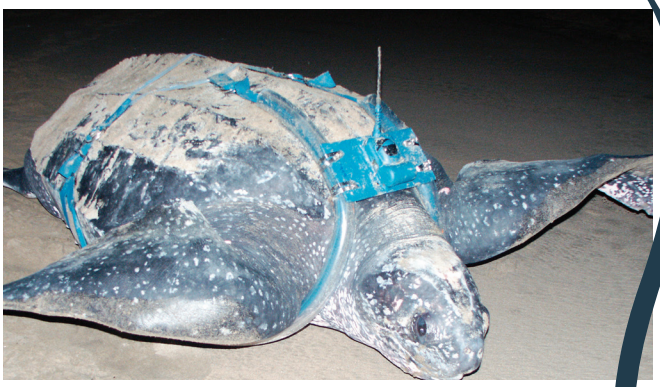
Every year, thousands of sea turtles are accidentally killed when trapped by fishing gear that is meant to catch some other species—they become bycatch. Gillnets tend to entangle anything that meets them, causing species like sea turtles to drown.

Scientists have created new nets fitted with LED lights. As sea turtles mature, they outgrow the attraction to light that they had as hatchlings. Having LED lights on fishing nets repels sea turtles and reduces bycatch by up to 70%.

© Matt Twombley/WWF-US

SATELLITE TAGS

We know very little about the journeys sea turtles take while traveling the ocean, so researchers are using satellite tags to track them. The tags are attached to the turtles' backs and do not hurt them; they collect information that will help conservationists protect sea turtles by creating protected marine areas, reducing interaction with fisheries, and addressing threats to nesting beaches.



© Tanya Petersen/WWF

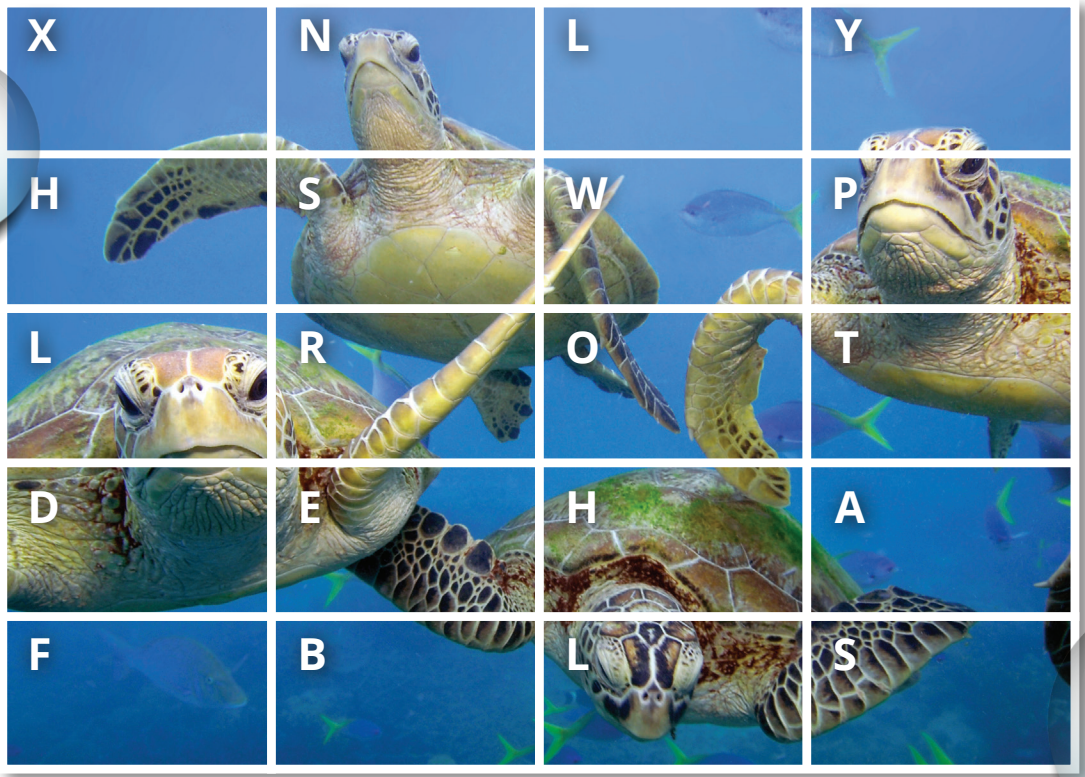
Nest survey photo © Jonathan Caramanus/Green Renaissance/WWF-UK

Learn more at worldwildlife.org

WHAT'S SO FUNNY?

To discover the answer to the joke, fill in the blank below each puzzle piece in the answer rows with the letter found in the matching puzzle piece in the picture grid.

WHAT TECHNOLOGY DO SEA TURTLES USE TO TALK WITH EACH OTHER?



ANSWER:

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

Answers on page 20

MEET the SCIENTIST

Antarctica is full of fascinating wildlife, including penguins, seals, and whales. All of these species rely on krill—a tiny crustacean that lives in and around sea ice. Unfortunately, climate change is causing much of the sea ice in Antarctica to rapidly disappear, affecting krill and all of the species that depend on it.

Chris Johnson, a marine scientist at WWF, works to make sure the oceans surrounding Antarctica are protected so that wildlife will have some breathing room in which to adapt to changing conditions.

What's your favorite part about your job?

Working with our science partners in the field. We get to use some really cool technology to study whales and other wildlife, like digital tags and drones that are giving us new insights into their amazing lives.

What inspired you to become a marine scientist?

I always loved the oceans and watching Jacques Cousteau documentaries as a kid. As an adult, I was fortunate enough to meet Dr. Roger Payne, the scientist who discovered that the vocalizations of humpback whales are actually songs! Dr. Payne invited me on a five-year research trip to study whales and ocean pollution. After that, I was hooked!

Describe one really cool project that you worked on.

With WWF, I get to work in Antarctica every year studying humpback and minke whales. We use a small inflatable boat called a Zodiac to search for the whales and get close to them. Despite it being very cold, it's a lot of fun searching for whales. Humpbacks tend to be very curious and often approach the boat.

What's the hardest part about your job?

The toughest part of the job is advocating to protect marine habitats and animals that most people have never seen. I have to swap my wetsuit for a suit and tie and talk with policy-makers and government officials about why our oceans are important. You have to be creative and passionate, and never give up! This is why the voice of young people is so important.

How could I become a marine scientist?

If you are passionate about studying and protecting our oceans and wildlife, seek out people who can provide advice; there is always more than one pathway. Don't be afraid to reach out and ask questions via email or social media. As a marine scientist, you never stop learning.

A Day in the Life of a

MARINE SCIENTIST

Marine scientists like Chris are working all over the world to help protect ocean habitats and species. Use your imagination to fill in the story below as if you were a marine scientist for a day. Then enjoy reading your story to your friends!

Today we headed out on the open ocean to study _____. My crew and I
(plural noun)

took a _____ boat that is made to travel through _____ seas. Because
(adjective) (adjective)

the weather is _____, we had to pack plenty of _____. Our trip will
(adjective) (articles of clothing)

take _____ days, so we brought lots of _____ to eat. As we approached
(number) (type of food)

our first destination, I put on my _____ and got ready to _____
(something you wear) (verb)

into the water. It's important not to disturb the environment, so we had to

_____ _____ under the water. The ocean was filled with all
(verb) (adverb)

sorts of beautiful _____ and _____. All of a sudden, my teammate
(plural noun) (plural noun)

_____ signaled me to look. "_____!" I exclaimed.
(friend's name) (interjection)

Right in front of us was a _____. I tried not to _____ as it
(type of animal) (verb)

swam by. I had never seen such a _____ creature before—its eyes
(adjective)

were _____ and it was covered in _____. It must have been _____
(color) (plural noun) (number)

feet long! Slowly, I reached for my _____ , but I realized I had left it on the
(noun)

boat. My heart was racing! As the animal _____ away, my team and
(verb)

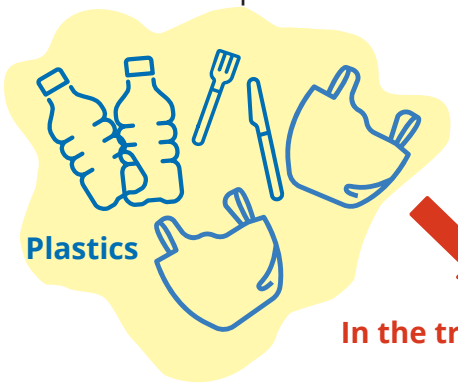
I returned to the boat to record what we had seen. We can't wait for our next

ocean expedition—and next time, I won't forget my _____.
(noun)

Photo © Tom Vierus/WWF-US

What Happens to **Your** Plastic?

We have all been told that we should recycle plastic, but what happens if we just throw it away? The truth is, even if we live hundreds of miles from the coast, the plastic we throw away can make its way into the ocean. Let's find out how.



Recycled

Plastic is made into new products for a second use—or third, or fourth…

In the trash

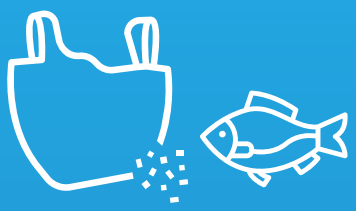
Rainwater gets into the landfill and causes toxins from the plastic to seep into the groundwater, which will make its way through freshwater systems and eventually to the ocean.

On the ground

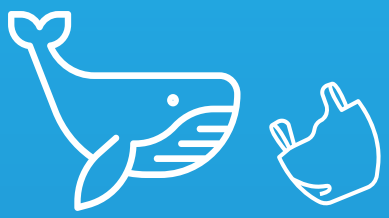
Rainwater and wind can carry trash into rivers, streams, and drains—even directly into the ocean.

Illegal dumping and **improper waste disposal** are also big contributors to ocean pollution.

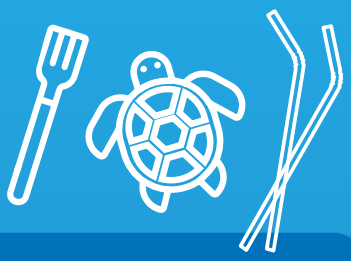
Once in the ocean, plastics take hundreds of years to decompose. In the meantime …



Plastics break down into microplastics, which are particles smaller than 5 millimeters. These can be eaten by fish, which humans then consume.



Animals like whales and turtles accidentally eat plastic bags, which cannot be digested. The animals feel full even without eating, so they starve as a result.



Plastic straws and forks have been found lodged in the noses of marine animals like turtles.

Learn more at worldwildlife.org

ARTS & CRAFTS

ONLY JELLY IN THE BELLY

Scientists have discovered that many sea turtles have eaten plastic bags. Why do turtles make this mistake? The plastic bag looks like their favorite food: jellyfish. Keep some plastic out of the ocean by creating a jellyfish made of plastic recycled from your home.

Supplies

- A variety of cleaned, reused plastic items: bowl, fruit/yogurt/snack cup, grocery bag, bottle
- Scissors
- Tape or white glue
- String
- A paper clip or button
- Poster paint, tempera paint, permanent markers—any coloring material that sticks to plastic

Directions

1. Use scissors to punch a hole in the bottom of a bowl or cup. This object will be the body of your jellyfish.
2. If desired, color the outside of the bowl or cup with paint or markers (jellyfish come in a variety of colors).
3. Cut the string to a length that will work well for hanging the jellyfish once it's completed. Tie one end of the string to a paper clip or button. Thread the free end of the string through the hole you made, so that the paper clip or button is inside the bowl or cup.
4. To create the tentacles for the jellyfish, color a plastic bag or bottle and cut it into strips. Then tape or glue each strip so it hangs from the inside of the bowl or cup.
5. Once the glue dries, pick up your bowl or cup by its string and check out your jellyfish.

OUR NEED FOR THE SEA

Oceans cover **71%** of the Earth's surface, making them an important part of our lives. Whether or not we live close to the ocean, we are all connected to it in many ways.

Our climate

Oceans help regulate climate by absorbing the sun's heat and circulating it around the world via currents.

Our water supply

The rain and storm systems that originate in the ocean give us rainfall to grow our plants and freshwater to brush our teeth.

Our transportation

Oceans are shipping highways for travelers and for worldwide trade in material goods.

Our oxygen

Oceans provide half the oxygen that we breathe. Oxygen comes from photosynthetic organisms like seaweed.

Our food

Around 3 billion people rely on wild-caught and farmed seafood as a primary source of protein.

Our communities

The ocean, and marine life such as sea turtles, have long been culturally and spiritually significant. For eons, people have relied on the services the ocean provides, making these connections part of the fabric of countless communities.

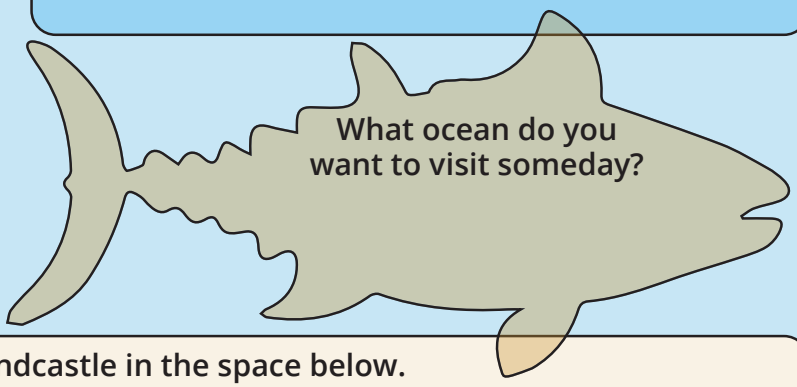
Learn more at worldwildlife.org

MY OCEAN LOG

Oceans play a part in all our lives. Fill in these boxes with details that describe your own personal connection to the ocean.

What is your favorite marine animal? Draw a picture here.

What ocean do you live closest to?



Design your own sandcastle in the space below.

What would you do on your perfect day at the beach?

When you're thinking of the ocean, what comes to mind? List five or more things below.

What sounds would you hear at the ocean?

What scents would you smell at the ocean?

HABITAT SPOTLIGHT:
THE MESOAMERICAN REEF

The Largest Barrier Reef in the Western Hemisphere

Located in the Caribbean Sea, the Mesoamerican Reef stretches 700 miles and touches the coasts of Mexico, Belize, Guatemala, and Honduras.

One to 2 million people depend on the reef's resources for their livelihoods.

The reef is home to the hawksbill, loggerhead, green, leatherback, and olive ridley sea turtle.

Over 60 types of coral form the reef, providing food and shelter for hundreds of marine species.

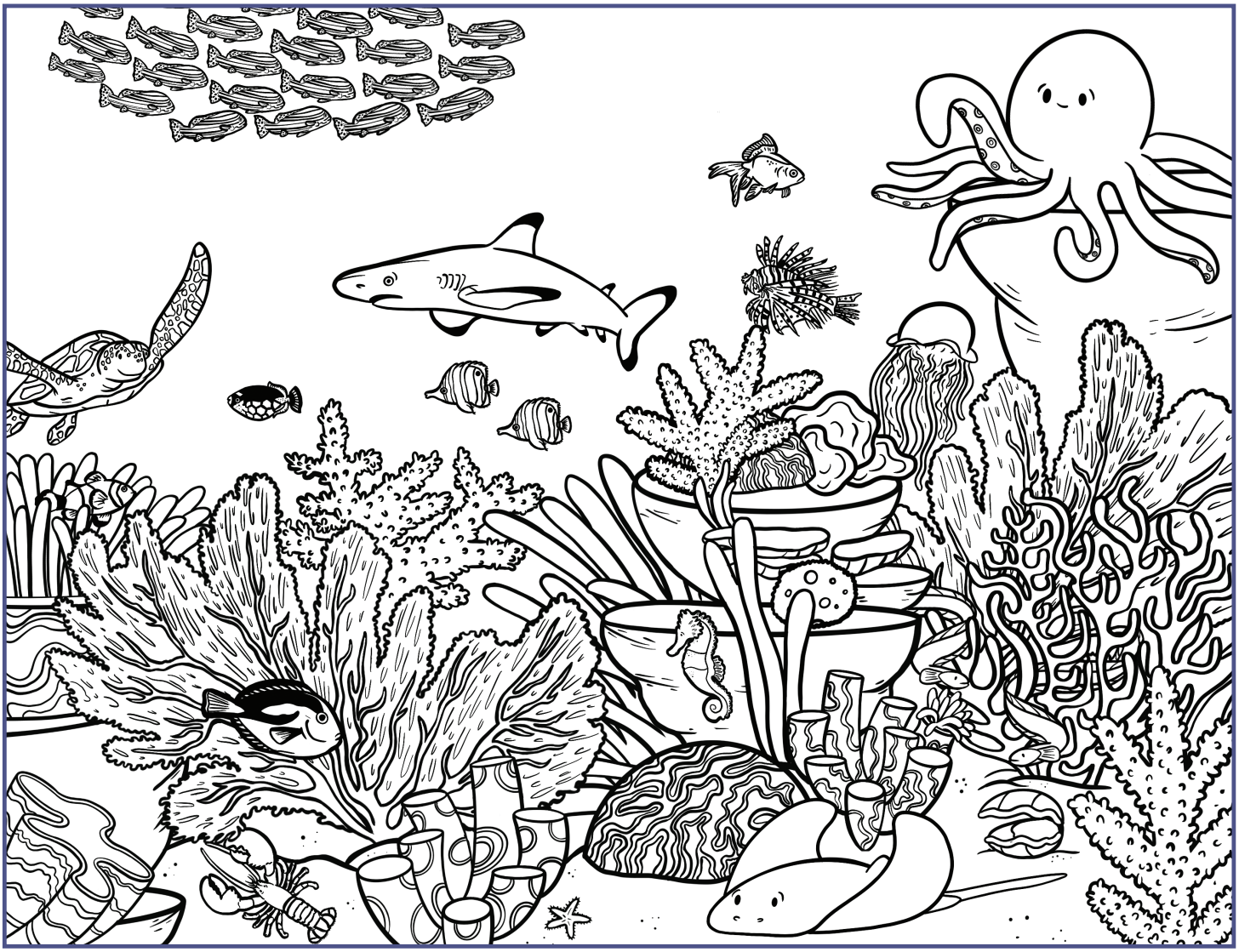
Runoff from inland agriculture pollutes the water and damages the reef.

Rising water temperatures due to climate change cause coral bleaching, which is devastating to the wildlife that depends on the reef.

WHAT'S HIDING IN THE CORAL REEF?

Coral reefs are biologically diverse places of wonder and beauty. They are found all over the world and provide habitats for many marine animals. They play an important part in marine ecosystems by supporting about 25% of all marine species.

Can you spot the different types of marine animals in the coral reef below? Unscramble the words to find the names of some of the creatures.



RLTUTE	LACM	HRSAK	PEGNSO	RASESHEO
_ _ _ _ _ _	_ _ _ _	_ _ _ _ _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _ _ _

GITSNYRA	BLTRSOE	ELE	POTCOUS	SAFSHTIR
_ _ _ _ _ _ _ _	_ _ _ _ _ _ _	_ _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _ _

Answers on page 20

SEA TURTLE FACTS

While sleeping or resting, sea turtles can **hold their breath** underwater for as long as four to seven hours.

All sea turtle species except the leatherback have **hard shells.** The shell of the leatherback is soft and feels like leather—hence its name.

Some sea turtles **migrate thousands of miles** across entire oceans between feeding and nesting grounds.

Sea turtles typically live up to **50 years** or more.

A sea turtle's **diet** can consist of sea grasses, jellyfish, sponges, sea urchins, sea anemones, mollusks, or crabs and other crustaceans.

The **smallest sea turtle** species—the Kemp's ridley—can weigh as little as 75 lb., while the largest—the leatherback—can weigh up to 1,500 lb.

Sea turtles have existed on Earth for over **100 million years**.

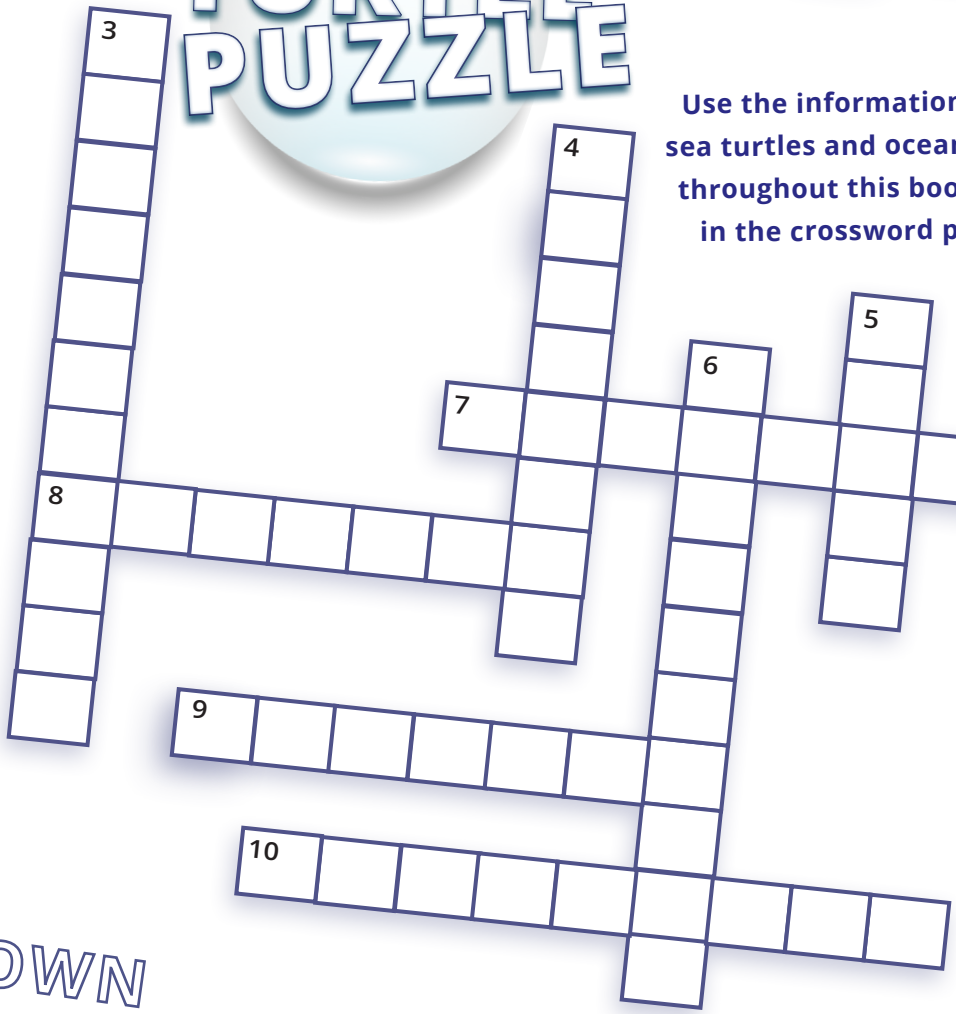
Male sea turtles rarely leave the ocean, while females come ashore to lay their eggs—usually on the **same beaches** where they themselves were born.

Green turtle © Jason O'Rourke

Learn more at worldwildlife.org

SEA TURTLE PUZZLE

Use the information about sea turtles and oceans found throughout this book to fill in the crossword puzzle.



ACROSS

2. Sea turtles can _____ thousands of miles across oceans to feed and nest.
7. Sea turtle ancestors were around at the time of these early reptiles.
8. When marine creatures are accidentally caught in fishing nets, they become _____.
9. One threat to sea turtles is rising sea temperatures due to _____ change.
10. Sea turtles will often eat plastic bags because they confuse them with this favorite food.

DOWN

1. When baby sea turtles emerge from their eggs, they're called _____.
3. This species of sea turtle is the largest and can dive up to a mile deep.
4. The ocean depths are divided into three zones, based on the amount of _____.
5. A female sea turtle will travel back to the same _____ where she was born to lay her eggs.
6. These habitats provide shelter and food to many marine species, including sea turtles.

Answers on page 20

HOW **YOU** CAN HELP SEA TURTLES & THEIR HABITATS

Watch your trash

Be aware of how you dispose of your trash. Always throw litter in proper waste containers. Litter on the ground—especially by rivers or on beaches—is likely to end up in the ocean, where sea turtles can get tangled up in it or mistake it for food. When you're finished using a plastic product, always attempt to either recycle it or dispose of it properly.

Help out at nesting beaches

When you leave the beach, knock down sandcastles, fill holes, and remove everything you brought. Leveling the sand makes it easier for sea turtle hatchlings to get to the ocean. Make sure to turn off lights near nesting beaches, as artificial lights confuse turtle hatchlings.

© WWF-Malaysia/Mazidi Abd Ghani

Be aware of the illegal wildlife trade

Never buy souvenirs or other products made from endangered animals. Sea turtle shells may show up carved into jewelry or hair combs, and you can find all kinds of animal skins, eggs, and fur for sale. Watch out for products made of coral as well, as many coral reefs are endangered.

Buy and eat certified seafood

Next time you are buying seafood at the grocery store, look for packaging with the Marine Stewardship Council (MSC) logo. This logo means that the product was caught using responsible fishing methods that reduce bycatch.

CERTIFIED SUSTAINABLE SEAFOOD MSC www.msc.org ™

Spread the word

Share with your friends and family what you have learned about sea turtles and protecting oceans. Together start a movement in your school or community to reduce how much plastic is used.

Shell comb © WWF-US/Keith Arnold; Child © istockphoto.com

Learn more at worldwildlife.org

ARE YOU AN EXPERT?

Now that you have learned about sea turtles and oceans, put your knowledge to the test!

1. ***How many sea turtle species are there? List them here.***

2. ***Many marine animals live in the _____ ocean zone, because they depend on plants as a food source.***

   a) Sunlit
   b) Twilight
   c) Midnight

3. ***Name one thing you could do to reduce the amount of plastic that you use.***

4. ***What threats do hatchlings face when they're making their journey from the nest to the ocean? (Circle all that apply.)***

   a) predators
   b) other hatchlings
   c) lights from buildings or cars
   d) holes in the sand

5. ***Coral reefs are an important home to many marine animals. Name three threats facing coral reefs today.***

   a) _____

   b) _____

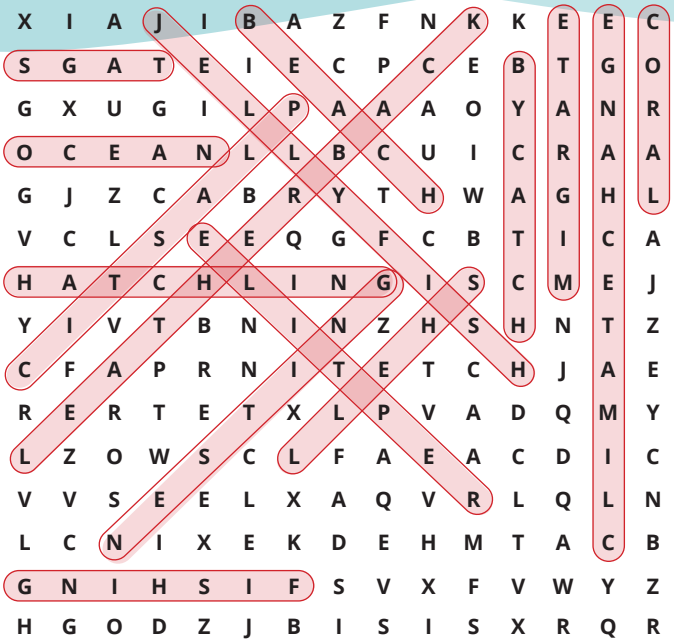
   c) _____

6. ***What percentage of the Earth's surface is covered by oceans?***

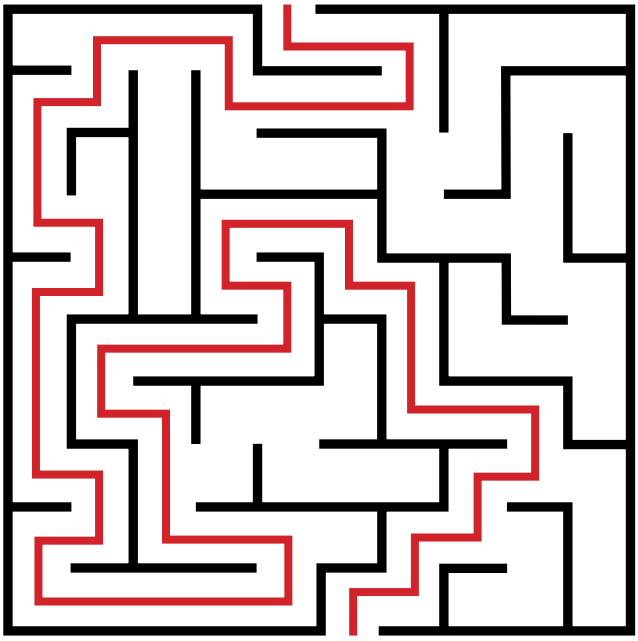
   a) 67%
   b) 84%
   c) 59%
   d) 71%

ANSWER KEY

Word Search



Sea Turtle Hatchlings Maze



How Low Can They Go?

Vaquita = sunlit (S)
Leatherback sea turtle = midnight (M)
Great white shark = midnight (M)
Beluga whale = twilight (T)
Sea lion = sunlit (S)
Marine iguana = sunlit (S)
Walrus = sunlit (S)
Bluefin tuna = midnight (M)
Emperor penguin = twilight (T)

What's So Funny?

Shell phones

What's Hiding in the Coral Reef?

Turtle
Shark
Seahorse
Lobster
Octopus
Clam
Sponge
Stingray
Eel
Starfish

Crossword

Across

2. Migrate
7. Dinosaurs
8. Bycatch
9. Climate
10. Jellyfish

Down

1. Hatchlings
3. Leatherback
4. Sunlight
5. Beach
6. Coral reefs

Are You an Expert?

1. 7 – leatherback, loggerhead, green, flatback, hawksbill, Kemp's ridley, olive ridley
2. A
3. Possible answers: Use reusable bags and water bottles, buy products made of recycled material, say no to plastic straws and lids, buy products with minimal plastic packaging
4. A, C, D
5. Possible answers: Climate change, pollution, coastal development, destructive fishing practices, coral harvesting
6. D

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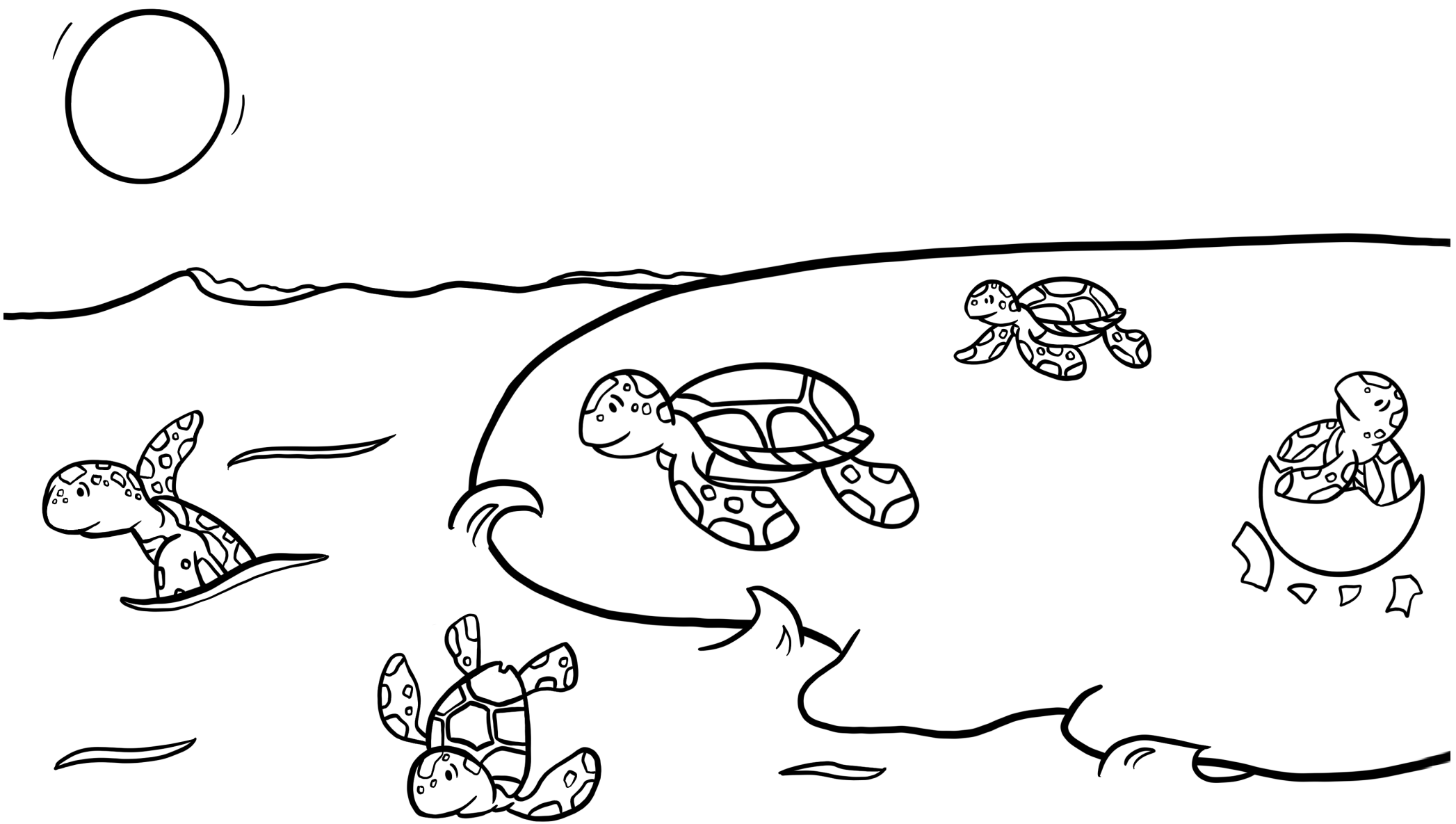
Color the hatchlings on their way to the sea.



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