Tiny Builders

Name: _____

Did you know that the oceans are home to some of the most interesting builders? They are coral polyps. Coral will only grow in warm, shallow ocean waters. The water must be clean and less than 100 feet deep. Coral grows best near the shores of small tropical islands. Each coral organism produces a hard shell, which joins with the hard shells of other coral organisms. Together, they form reefs just below the surface of the water.

It takes thousands of years for these reefs to grow. Coral reefs form in the warm ocean waters near southern Asia and Australia. They also form on the eastern coast of Africa and both coasts near Central America. The largest coral reef in the world is the Great Barrier Reef near Australia. It is more than 1,260 miles long.

The reefs and the coral growing on them require sunlight to grow and flourish. Many different types of coral grow on them. These ocean communities are very sensitive. They can be killed by changes in the environment, which cut off sunlight or pollute the water. Coral polyps feed when they gently push plankton into their mouths with their tentacles. These tentacles filter food out of the water. There are thousands of different coral species. These include brain coral, elkhorn coral, and sea fans. Some coral have stinger cells. They even attack each other in order to expand their territory.

More fish and other species of sea life live in or near coral reefs than in any other part of the ocean. Some of these species include clown fish, sea anemones, angelfish, butterfly fish, sea urchins, puffer fish, and moray eels. Christmas-tree worms live in holes in dead coral. The crown-of-thorns starfish suck coral polyps out of their shells. All of these creatures form a special community where many species survive. Would you like to explore these underwater habitats?

What Did You Learn ?

1. Which of the following is not a species of coral?

Ⓐ sea fan
Ⓑ brain coral
Ⓒ sea urchin
Ⓓ elkhorn coral

2. What do coral eat?

Ⓐ sea urchins
Ⓑ plankton
Ⓒ clown fish
Ⓓ starfish

3. Where are coral reefs located?

Ⓐ in ocean water more than 1,000 feet deep
Ⓑ near the Arctic waters
Ⓒ in shallow oceans near islands
Ⓓ near Greenland

4. Coral reefs are occupied

Ⓐ only by a few creatures.
Ⓑ only by fish.
Ⓒ by a huge number of species.
Ⓓ only by coral.

5. Which creatures would you like to see on a coral reef if you got to visit one? Why?

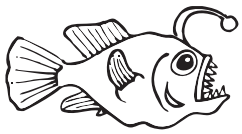
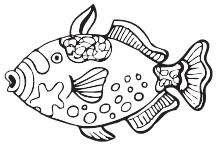
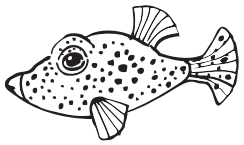
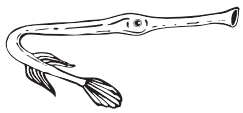
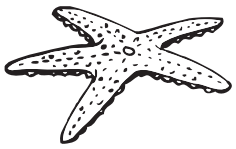
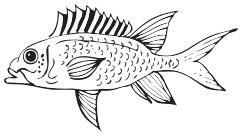
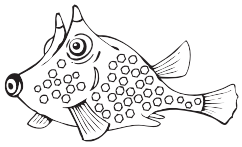
_____

_____

Colorful Communities

Name: _____

Directions: Read the descriptions and respond to the questions below.

Anglerfish lies camouflaged on seabed and uses long lure to catch prey 	**Clown Triggerfish** a fish that looks like a clown swimming along the reef 	**Yellowtail Parrotfish** uses a beak-shaped mouth to scrape algae and coral 	**Trunkfish** spotted fish with a long mouth that can extend forward 	**Trumpetfish** a trumpet-shaped fish that can be three feet long 
Purple Queen groups of these fish contain far more females than males 	**Sea Star** a five-armed creature that eats coral and shellfish 	**Squirrel Fish** a red-headed fish that has large eyes and hides under ledges and in caves 	**Honeycombed Cowfish** a 20-inch-long fish with an intricate design 	**Unicorn Fish** above its mouth is a horn that grows longer with age 

What Do You Think ?

1. What advantages do you think colorful fish would have by living on the equally colorful coral reef? Consider how they get food and how they protect themselves.

_____

_____

_____

2. Which of the fish described above would you like to keep in an aquarium? Why?

_____

_____

What Am I ?

I am a fish that resembles a musical instrument? I am a . . .

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Underwater Math

Name: _____

Directions: Use your knowledge of math to solve these problems. Write your answers in the ovals.

1. A starfish can weigh up to 11 pounds and live from 3 to 35 years. How many pounds would 10 of the heaviest starfish weigh altogether?

2. A common octopus can weigh between 6 and 22 pounds. What is the difference in weight?

3. A potbelly seahorse can be as long as 32 centimeters. A queen triggerfish may grow 61 centimeters long. What is the difference in lengths?

4. An organ pipe colony of coral may be a meter wide. A single organ pipe coral may grow to 3 millimeters. A meter is 1,000 millimeters. About how many single organ pipe coral could grow across next to each other in that colony?

5. An anglerfish can vary in length from 8 inches to about 3 feet long. What is the difference in length expressed in inches?

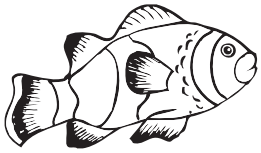
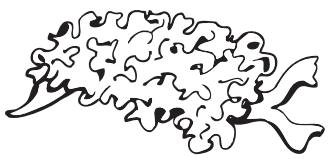
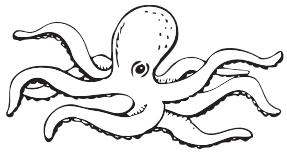
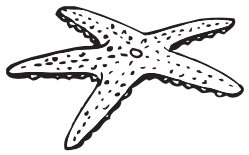
6. The back fin of a seahorse may flutter 35 times per second. How many times could it flutter in a minute?

7. An orange clownfish may lay up to 1,500 eggs during each spawning period. How many eggs could a female lay in 4 spawning periods?

An Odd Menagerie at Sea

Name: _____

Directions: A menagerie is a collection of things. Look at this collection of animals described below. Then use what you have read to place these coral-reef creatures in the appropriate category on the chart below.

Brain Coral In its shape and design, this coral looks like the human brain. 	**Butterfly Fish** This fish features a large eye-shaped spot and an unusual shape. 	**Clownfish** These orange and white fish escape danger by swimming among poisonous sea anemones. 
Elkhorn Coral Resembling an elk's antlers, this coral provides a home for many sea creatures. 	**Lettuce Leaf Sea Slug** Because it is often green and full of folds, this shell-less sea snail looks like a certain vegetable. 	**Octopus** This eight-legged coral-reef occupant can camouflage itself to look like a bunch of rocks. 
Sea Fans These coral look like small fans moving in the water. 	**Seahorse** One of the smallest fish on the reef, this creature looks like a tiny horse. 	**Starfish** If this creature — which is not actually a fish—loses an arm, it can regrow it. 

Coral-Reef Fish	Coral	Other Animals on Coral Reefs

Answer Key

Unit 1

Creatures That Glow in the Dark! (page 7)

1. B
2. D
3. D
4. B
5. Accept appropriate responses. Students should mention that animals living in the ocean depths might need bioluminescence the most.

The Colors Under the Sea (page 8)

White/Yellow: lantern fish, sea lily, viperfish

Red/Pink: goblin shark, gulper eel, loose jawfish

Green/Blue: comb jellyfish, vampire squid

What Am I?: sea lily

Amazing Deep-Sea Math (page 9)

1. 28 inches
2. 1,800 feet
3. 2,300 feet
4. 8
5. 120

How Did You Do It?: The length of two vampire squids (at 6 inches each) = 1 foot. Therefore, 60 × 2 = 120.

All Kinds of Animal Adaptations (page 10)

Accept reasonable responses. Possible answers:

Animal	Adaptation	How Is This Useful?
Lantern shark	glowing dots in its mouth	attracts prey to eat
Zebra	stripes	camouflage
Camel	hump	stored fat converts into water
Kangaroo	pouch	keeps babies close
Rattlesnake	rattle	warns away threats
Crocodile	powerful jaws	for defense and food
Polar bear	all white	camouflage
Walrus	long tusks	defense

Word Study (page 11)

Accept appropriate responses.

Unit 2

Tiny Builders (page 12)

1. C
2. B
3. C
4. C
5. Accept appropriate responses.

Colorful Communities (page 13)

1. Accept appropriate responses. Students should mention camouflage in their answers.
2. Accept appropriate responses.

What Am I?: trumpetfish

Underwater Math (page 14)

1. 110 pounds
2. 16 pounds
3. 29 centimeters
4. about 333
5. 28 inches
6. 2,100 times
7. 6,000 eggs

An Odd Menagerie at Sea (page 15)

Coral-Reef Fish: butterfly fish, clownfish, seahorse

Coral: brain coral, elkhorn coral, sea fans

Other Animals: lettuce leaf sea slug, octopus, starfish

Word Study (page 16)

Accept appropriate responses.

Unit 3

One Way Nature Recycles (page 17)

1. D
2. A
3. A
4. D
5. Accept appropriate responses.

Decomposers that Get a Bad Rap (page 18)

Accept appropriate responses.

Earth's Garbage Disposal (page 19)

1. C
2. C
3. B
4. A
5. Accept appropriate responses.

Scavengers vs. Decomposers (page 20)

List 1: scavengers

List 2: decomposers

List 3: decomposers

List 4: scavengers

List 5: decomposers

The Clean-Up Squad (page 21)

Accept appropriate responses.

Word Study (page 22)

Accept appropriate responses.