



CENTER for
AQUATIC
SCIENCES
at Adventure Aquarium

GRADES 6-8



THE biologist's DAILY ROUTINE

Adventure Aquarium biologists are required to check on all of the animals in the aquarium on a daily basis. They are working on a special project today, so we need your help to cover some of their duties. Use this log book to record your observations and interactions.

Today, **YOU** are an assistant biologist. As you travel through the aquarium, make sure you:



OBSERVE



THINK



TOUCH



READ



DISCUSS

Today's Date:

Assistant Biologist's Name:

Assistant Biologist's School:

Assistant Biologist's
Favorite Marine Animal:

Adventure Aquarium is home to many animals and they are here to remind you that animals in the wild need our help. As you travel around, think about what you can do to make a difference.





Start at Little Blue Beach

The biologists need to determine how much time the little blue penguins currently spend in the water. Today you will collect data on one penguin to see where it spends most of its time. You can also record other penguin behaviors that you see. Have your chaperone or a classmate help you time your observations.

Choose one penguin to follow for 5 minutes. Each minute take an observation and record what your penguin is doing using the letters from the chart below. After 5 minutes you should have 5 observations.



MY PENGUIN OBSERVATIONS

TIME	BEHAVIOR
EXAMPLE	L ST P
0 MINUTE	
1 MINUTE	
2 MINUTES	
3 MINUTES	
4 MINUTES	
5 MINUTES	

BEHAVIOR CHART

- L** On Land
- W** In Water
- ST** Standing
- SW** Swimming/Floating
- D** Lying Down
- P** Preening/Grooming
- E** Eating



In the example, the penguin would be standing on land, preening. What did your penguin spend most of the time doing?





Now head over to the Ocean Realm Exhibit



A water quality test is run daily to keep the animals healthy. Our biologists measure pH, ammonia, alkalinity and salinity.

You can use a refractometer to measure salinity – which is the amount of salt in the water. Salinity should be between 32 to 35 parts per thousand (0/00). Today’s reading is 26 ^{0/00}. Is the salinity too low, too high or just right?

Should we add salt (salinity too low) or add water (salinity too high)?



REFRACTOMETER



Next visit the Loggerhead Sea Turtle Hatchling Exhibit

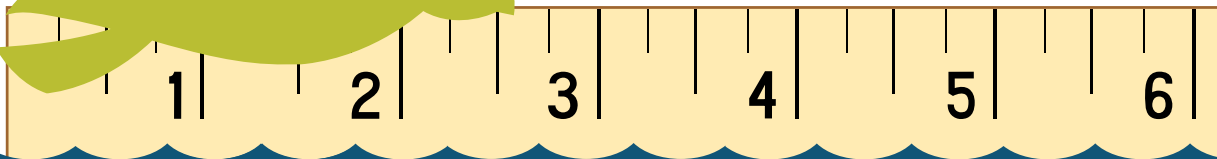
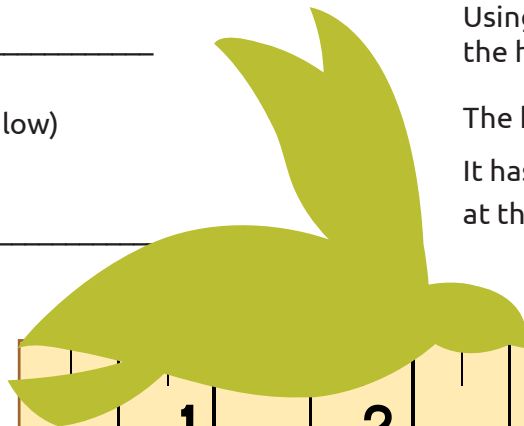
Our sea turtle hatchling will spend about 1 year at the aquarium, growing in size and learning to hunt for food.

The biologists are tracking its growth. When it arrived, it was 2.6 inches long. Our last rehab and release turtle was 14 inches was it was released into the ocean.

Using the ruler, estimate the current length of the hatchling.

The hatchling is now _____ inches long.

It has grown _____ inches since arriving at the aquarium.





Head outside to Penguin Island (weather permitting)



TODAY'S WEATHER: (CIRCLE ALL THAT APPLY)

- SUNNY
- FOGGY
- CALM
- WINDY
- RAINING
- DRIZZLING
- HOT
- FREEZING
- CLOUDY
- CLEAR
- BREEZY
- DRY
- SNOWING
- SLEETING
- WARM

BELOW FREEZING

African penguins have a layer of fat and densely packed feathers that help them withstand cooler temperatures. However, extreme temperatures can be uncomfortable for them. Their ideal range is 40 to 80°F.

Are the penguins outside today? _____

Do you think the penguins are enjoying today's weather? _____

Look around the penguin exhibit. What can they do if it gets too hot? _____

What can they do if it gets too cold? _____

Juvenile penguins are gray and their markings are less distinct than the adults.

How many juveniles are in the exhibit? _____

JUVENILE



How many adults are in the exhibit? _____

ADULT





Head up to the Dwarf Caiman Exhibit located in Lizzie's Lagoon

The dwarf caiman is fed twice each week. When it is time to feed the caiman, her food is always placed on the right side of her exhibit. She has been conditioned to hang out on the right side on days when she is being fed. On non-feed days, she can be found on the left side of the exhibit.

Look for the caiman and see where she is hanging out today. Is today a feed day?



Next visit Gill's Grotto and Creature Feature



These two touch areas are similar but have some key differences. Both represent tide pools but one is tropical and the other would be found in a much cooler region. The invertebrates and fish that live in each are adapted to different conditions. Place your hand in the water at each touch tank.

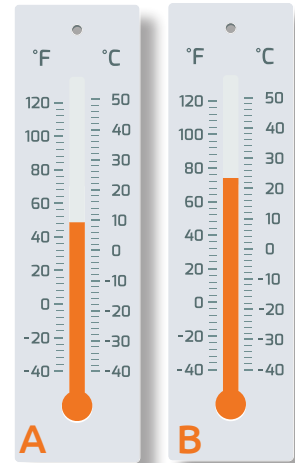
Which thermometer shows the temperature of Gil's Grotto?

Name one species found in Gil's Grotto? _____

Which thermometer shows the temperature of Creature Feature?

Name one species found in Creature Feature? _____

Which invertebrate is found in BOTH exhibits? _____





It's time to travel through the café to Hippo Haven

The hippos, Button and Genny, spend time in the water and on land, depending on the time of day. Are the hippos on land or in the water? _____

The hippos are mammals and need to breathe air, even when in the water. The biologists are trying to determine how long our hippos can stay underwater between breaths. If the hippos are in the water, choose one hippo and time how long she can hold her breath. (Button is smaller. Genny is larger and has bumps between her eyes.)

Hippo _____

Time _____

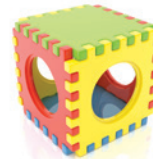


Continue to the Octopus Exhibit

The giant Pacific octopus is the most intelligent invertebrate, being able to learn to negotiate simple mazes, open jars, engage in play behavior and exhibit individual personalities. The biologists provide objects for the octopus to manipulate and keep him occupied.



Here are several enrichment items that the biologists give to the octopus. Circle the item you would like give to the octopus today. Why did you choose that item? _____



PUZZLE



ICE BLOCKS



JAR WITH LID



Your Final Destination: Shark Realm

The biologists help the aquarium veterinarian care for the animals to keep them healthy. It is important that you know the difference between the 3 species of shark that are in the Shark Realm Exhibit. Try to find all three and use the signs to find something unique about each species.



Sandbar Shark

UNIQUE FEATURE



Sand Tiger Shark

UNIQUE FEATURE



Nurse Shark

UNIQUE FEATURE

The biologists visually check the sharks each day for scrapes, growths and unusual markings. Take a few minutes to observe the sharks. Write down any unusual marks or growths that you see. What can cause our sharks to get cuts and scrapes?

SHARK SPECIES	OBSERVATION



Now that you've completed your rounds, here is one more thing for you to do.



SOME THREATS TO OCEAN ANIMALS:

- Pollution –
Especially Plastics
- Overfishing
- Climate Change
- Oil Spills

HOW CAN YOU HELP?

Name 3 things you can do to help protect our oceans and the animals that live there:

1. _____
2. _____
3. _____



ANSWER KEY

ZONE A

Little Blue Beach

- Answers will vary.

Ocean Realm

- Salinity is too low – we should add salt.

Sea Turtle Hatchling

- Answers will vary.

ZONE B

Penguin Island

- Answers will vary.
- Too hot – they can go in the water; too cold – they can go into their nest holes.
- Number of juveniles and adults will vary.

ZONE C

Dwarf Caiman

- Answer will vary.

Gill's Grotto

- Thermometer B. Species: scarlet cleaner shrimp, engineer goby, chocolate chip sea star, sea apple, banded brittle star, pebble collector urchin, dragon goby, feather tube worm, powder blue tang, tomato clownfish

Creature Feature

- Thermometer A. Species: California sea cucumber, ocre sea star, bat sea star, sculpin bullhead, green sea anemone, triton snail
- Sea stars are found in both exhibits.

ZONE D

Hippo Haven/Octopus

- Answers will vary.

Shark Realm

- Sandbar shark – tall dorsal fin; sand tiger shark – open mouth with needle-like teeth; nurse shark – nocturnal, lays on bottom.
- Observations will vary. Rubbing on rocks and shark interactions can cause cuts and scrapes.

CONTINUE THE ADVENTURE

The Center for Aquatic Sciences offers a variety of programs for the budding marine biologist. Visit www.aquaticsciences.org for more information.

- Summer Sea Camp
- Traveling Birthday Parties
- Deep Sleep Overnight Programs
- Scout Workshops
- Junior Marine Biologist Camp
- Outreach Traveling Programs
- Teen Marine Science Institute
- Educator Resources

EDUCATION STANDARDS

The activities in this booklet align with the following standards:

- PA 3.1 A1, A9; 3.1 B5; 3.1 C1; 4.5 C
- NJCCCS 5.1 A, B, C; 5.3 A, C, D
- NGSS LS1, LS2, LS3, LS4, ESS3

www.aquaticsciences.org





THE
biologist's²⁰¹⁶
DAILY ROUTINE

was created by

