2012-2013

Program Manual & Terrapin Care

Terrapins in the Classroom

NATIONAL AQUARIUM

Contacts

Laura Cattell Noll
Conservation Technician
lcattell@aqua.org
410.576.1508

Holly Fowler
Project Manager
hfowler@aqua.org
410.576.3851

National Aquarium
Conservation Department
Pier 3, 501 East Pratt Street
Baltimore, MD 21202-3194
Fax: 410-986-2356
www.aqua.org

Program Calendar

Date	Action
1 week prior to terrapin arrival	Set up tank and allow it to cycle
August	Hatchling terrapins distributed to classrooms
August - November	Rinse filter, clean the tank, and replace the water twice weekly (starting salinity: 1 Tbsp. of marine salt per 5-gallon bucket of new tank water); feed twice daily; replace the filter media cartridge every 2 weeks during tank cleaning, complete *Data Collection Sheet* daily; and report monthly (minimum).
Thanksgiving break	Continue to feed and clean terrapins over the long weekend. Teacher can take home and return after the break.
November-December	Continue with pre-Thanksgiving break care
Winter holiday break	Continue to feed and clean terrapins over the break. Teacher can take home and return after the break. You may feed the animals once daily during this vacation break only.
January-March	Continue with routine maintenance, except increase filter/tank cleanings and water replacement to three times a week. Reduce feedings to once per day when your classroom terrapin weighs more than 50g. Begin replacing one pellet meal each week with a varied live food item (clams, snails, worms, pill bugs, etc.).
April	Gradually increase salinity of water to 3 Tbsp. of marine salt per 5-gallon bucket of new tank water; replace pellet meals with live foods twice a week prepare for release.
April-May (TBD)	Return terrapins to NAIB for pre-release tagging and sexing by Dr Willem Roosenburg.
1-3 days later	Terrapins return to the classroom after PIT tagging and sexing procedures.
Early June	Terrapins released at Poplar Island.

Sample *Weekly* Calendar

Obviously, you'll need to plan your terrapin care around your busy classroom schedule, but this is an example for you and your students to follow.

Day	Morning tasks	Afternoon tasks	Assigned to:
Day 1	Feed pellets; record data	Feed liver	
Day 2	Feed pellets; record data	Rinse filter, clean the tank, and replace the water; Feed pellets	
Day 3	Feed pellets; record data	Measure terrapin; Feed pellets	
Day 4	Feed pellets; record data	Feed liver	
Day 5	Feed pellets; record data	Rinse filter, clean the tank, and replace the water; Feed pellets	
Day 6	Weekend	Weekend	
Day 7	Weekend	Weekend	
Day 8	Feed pellets; record data	Feed liver	
Day 9	Feed pellets; record data	Rinse filter, clean the tank, and replace the water; Feed pellets	
Day 10	Feed pellets; record data	Measure terrapin; Feed pellets	
Day 11	Feed pellets; record data	Feed liver	
Day 12	Feed pellets; record data	REPLACE filter cartridge, clean the tank, and replace the water; Feed pellets	
Day 13	Weekend	Weekend	
Day 14	Weekend	Weekend	

Again, weekend feedings are not necessary, but *school holidays* that are greater than a 3-day "long weekend" will require a teacher to feed/clean the terrapins.

List of Supplies

Item	Details	Suggested source	Estimated price
Fish tank	30-gallon (36"L x 12"W x 16"H)	Local pet shop	$50-60
Screen lid for tank	Metal or fiberglass (fits 30-gallon tank)	Local pet shop	$12-15
Marine salt	Instant Ocean®, 50-gallon bag	Local pet shop or That Fish Place Item #198140	$12.89
Repti Glo tropical lamp bulb	5.0 UVB, 26 Watt	That Fish Place Item #238695	$14.99
Ceramic heat-emitter	100 Watt	That Fish Place Item #204513	$19.99
In-Tank Power Filter	Tetra® Whisper 40i- 20-40 gal.	That Fish Place Item #205654	$21.49
Filter media cartridge replacements	Whisper® Bio Bag cartridges- Large 8pk unassembled	That Fish Place Item #241728	$11.99
Air thermometer	LCD air temp thermometer	That Fish Place Item #214842	$1.59
Aquatic thermometer	LCD water temp thermometer	That Fish Place Item #215247	$1.39
Submersible heater	Marineland Visi-Therm Deluxe Submersible Heater – 100W	That Fish Place Item #247255	$18.89
Dechlorinator	Genesis®, 4oz	That Fish Place Item #208974	$2.99
Plastic plants	Floating	That Fish Place Item #198300	$4.89
Basking platform	Floating secured with suction cups	That Fish Place Item #204585	$6.99
Zoo-Med Hatchling Aquatic Turtle Food (no substitutes)	Floating pellet, 1.6oz (Purchase quantity of 6-12 at a time and store extra in the freezer)	That Fish Place Item #204373	$2.39
Zoo-Med Aquatic Turtle Food	Floating pellet, 13oz	That Fish Place Item #204543	$6.89
Cuttlefish bone	Dispose of any plastic/metal holder	That Fish Place Item #212733	$1.69
Dip net*	Small, for cleaning debris	That Fish Place Item #212431	$0.99
Heat emitter fixture	Clamp lamp with porcelain socket (aka *brooder lamp*)	Local hardware store or That Fish Place Item #214774	$15.49
Electrical power strip	Heavy duty	Local hardware store	$10-15
Timer	Heavy duty (3 prong)	Local hardware store	$10.00
Cleaning supply bucket*	1 to 5-gallon bucket	Local hardware store	$2-4
Turtle holding bucket	1 to 5-gallon bucket or large shareware	Local hardware store	$2-4
Water bucket	5-gallon bucket	Local hardware store	$2-4
Tank cleaning sponge	For cleaning tank	Local hardware store	$1-2
Soft scrub brush	For cleaning tank	Local hardware store	$1-3
Vinyl gloves*	For cleaning tank	Local hardware store	$1-3
Vernier calipers	Metric, plastic	Carolina Biological Item #702647	$8.15
Scale	Metric, platform	Carolina Biological Item #962063	$17.95
Dry thermometer	Low range, Fahrenheit and centigrade	Carolina Biological Item #959877	$2.25
Antibacterial soap or disinfectant	For cleaning area around tank	Local pharmacy	$2-5
Antibacterial hand soap	For pre/post animal-handling	Local pharmacy	$1-3
Waterproof gloves*	For handling	Local pharmacy	$1-5

Tank Set-up Instructions

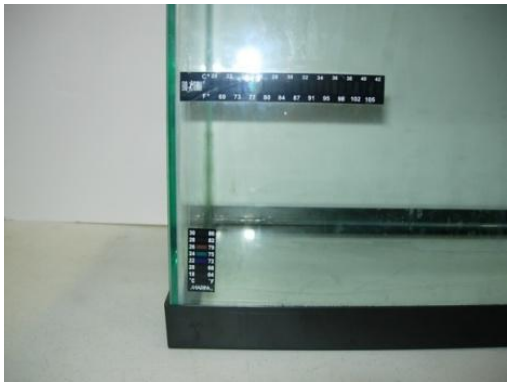
1. Clear an area to set up your tank. Your 30-gallon tank is 36" long and 12" wide, and should be placed within 6 feet of an electrical outlet. It may also be a good idea to place your tank near a sink or water source if you have one in your classroom.

2. Set up the light and the heat emitter:

- Place the ultraviolet light tube and the heat emitter within their respective fixtures. **Use only the Exo-Terra® 20 Watt *Repti Glo* 5.0 UVB tube and 100 Watt ceramic heat emitters recommended.** Terrapins cannot absorb calcium without ultraviolet-B light, and ceramic emitters provided the necessary amount of heat for terrapin health. Regular bulbs or tubes *cannot* be substituted.
- Using the manufacturer's directions set the timer to 5:00 AM (on) and 5:00 PM (off), and plug it into the electrical power strip (make sure the power strip is *ON*). The ultraviolet light fixture will soon plug into this timer.

- Your tank heater, filter, and heat emitter will plug directly into the power strip as well, but don't plug them in yet!
- We recommend plugging your power strip into a *Ground Fault Interrupter* (GFI) outlet for safety.

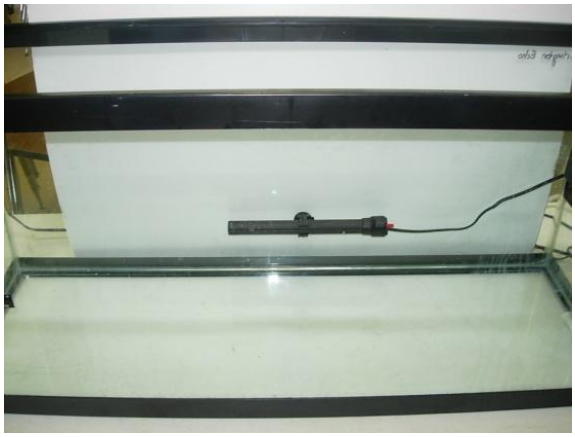
3. Attach the two thermometers to the front of the tank.



- Place the LCD air temp thermometer horizontally *above the water line* on the left side of the tank.
- Attach the LCD water temp thermometer vertically *below the water line* on the same side of the tank.

4. <u>Add water to the tank.</u> Fill your dedicated 5-gallon water bucket with warm tap water and add *5 drops of the Genesis® dechlorinator* and *1 Tbsp. of marine salt* to each bucket of water. It will take 3 buckets to fill your tank to the appropriate level (total of 15 gallons).

5. <u>Set the submersible heater at 78°F.</u> Attach it underwater to the rear wall of the tank. The entire heater should be submerged and never be *ON* when out of the water or during water changes. Plug your heater into the power strip so that it will be on 24-hours a day.



6. Filter installation.

- Assemble power filter according to manufacturer's instructions. Keep both the instructions and box for future use.
- Rinse the charcoal filter cartridge in **warm water** before placing in the filter unit to rinse off the carbon dust.

- Plug in your filter directly into the electrical power strip since it will need to be on 24-hours a day; you may need to fill it *(prime)* with a cup or two of water.
- Adjust the flow of the filter to the midway range.

7. Install the floating basking platform on the rear wall of the tank.

The platform should be partially submerged allowing easy exiting for the terrapin. If the turtle struggles to get out, consider adjusting the platform suction cups to a slight angle so one end is under the water. The platform is easily cleaned by scouring gently with a soft scrub brush.

8. Place the floating plastic plants in the water. This will provide cover for your terrapins to rest and hide. These plants are easily cleaned by scouring gently with a soft scrub brush.

9. Install the heat emitter.

- The heat emitter fixture should be securely positioned above this basking area 6-12" above the screen tank lid. Be careful that the heat emitter or fixture does not come in direct contact with the screen lid as it will either melt (fiberglass) or conduct heat (metal), which can harm the terrapin.
- Plug your heat emitter fixture directly into the electrical power strip since it will need to be on 24-hours a day.

10. Install the lid and ultraviolet light fixture.

- Place the screen lid on top of the tank.
- Place the ultraviolet light fixture on top of the lid and plug it into the timer you set in *Step 2*.

11. Let your tank run for a week (minimum) before obtaining your terrapin. Be sure your water and air temperatures are correct. Monitor daily!

If there are any questions about the methods or equipment that is confusing, please contact Conservation staff (see contacts) so that we can clarify or offer solutions.

GOOD LUCK* AND *ENJOY YOUR TERRAPINS!

General Care of Terrapins

This section is designed to give an overview of general care issues for terrapins. Water quality; salinity; basking and hiding sites; lighting; air and water temperature; feeding; and safety issues are all important to keep your terrapins healthy. If the proper care is provided for the terrapins it is essential for resistance to disease and will reduce the likelihood of them needing veterinary care.

Water Quality

Water quality is influenced by animal waste products, the amount of uneaten food items, and ultimately, the bacteria (germs) in the tank. Over time and as the tank water evaporates, these components become more concentrated, increasing the terrapin's potential for infection and reducing the water clarity. The tank is a closed system, so the only way to change any of these factors is to replace the water and clean the filter and tank surfaces.

A good rule is to replace the water after to rinsing the power filter media and cleaning the tank twice a week, increasing the frequency as your terrapins grow larger. **Do not use any detergents, chemicals, bleach, or vinegar. Use plain water and a dedicated tank cleaning sponge. Keep all turtle cleaning supplies separate from other classroom supplies so that they are not contaminated by mistake (keep them in your bucket). Wearing gloves will decrease your exposure to bacteria. Always wash hands well after handling terrapins and their housing elements.**

Remove uneaten food from the tank within 30 minutes after feeding. Uneaten food can foul the tank and provide added nutrients increasing bacteria growth. A small dip net can be utilized for this purpose.

In addition to rinsing the filter media cartridge thoroughly at each tank cleaning, replacing the entire cartridge every 2-weeks will help with maintain water quality over time.

Keep the tank out of direct sunlight. This will help keep algae from growing. Also, direct sunlight can heat the tank up to dangerous levels, especially in warmer weather.

Tap water is an appropriate water source; however, it may have levels of chlorine that might be irritating to the baby terrapins eyes before it dissipates into the air. Just to be cautious it is recommended to use a dechlorinator such as Genesis® (dose: *1 drop per gallon of water*) at each tank change to remove the chlorine/chloramines.

Remove your animal from the tank before beginning any cleaning effort and gently place it in a dedicated bucket. When removing your terrapins for tank cleaning or

transport, a small amount of clean water in their container (¼" – ½") will keep them hydrated.

Salinity

In the wild, terrapins can tolerate a wide range of salinity from fresh water to ocean water, and have complex physiological systems to thrive in a variety of ecosystems. The salt assists in preventing disease by restricting bacterial growth.

At the beginning of the project, use *1 Tbsp. of marine salt per 5-gallon bucket of new tank water* **(usually a total of 3 tbsp. per tank total or 1 ppt.). Do not add any additional salt when replacing evaporated water ("topping off the tank") since salt does not evaporate.**

In subsequent months, you will be instructed to gradually increase salt from 1 Tbsp. to 3 Tbsp. per 5-gallon bucket of tank water prepare your terrapins for life in the Chesapeake Bay.

Basking and Hiding Sites

Basking under the ceramic heat-emitter and ultraviolet-B (UVB) light is essential to terrapin health and a key factor in disease prevention. Basking sites provide a dry spot for terrapins to climb out of water, dry out their shells (reducing bacteria growth), fully absorb UVB light, as well as a place to rest so they do not drown. Floating plastic plants provide a hiding spots to provide a secure, resting place and reduce stress.

It is not recommended to use stacked rocks for basking purposes as they can become dislodged and crush animals. Floating basking platforms secured with suction cups (see *List of Supplies*) work well for this purpose without the risk of injury.

Use only the recommended materials for basking and cover. Other materials may alter water chemistry, releasing substances that are toxic to terrapins. If you want to put other objects in the tank, please check with us first. Turtles are good climbers, so it is important to set the tank up with the plastic cut-away guard so they cannot escape.

Lighting

A terrapin's shell is made up mostly of calcium. Terrapins need ultraviolet-B (UVB) light in order to absorb calcium from their food and maintain bone health and growth. Regular light bulbs and fluorescent tubes do not provide UVB light and will cause health problems for your terrapins.

The light we recommend is a 5.0 UVB tube made by Exo-Terra® specifically for reptile use. It is a 20 Watt lamp that works well in the suggested light fixture and

provides both UVB and visible light for the animal. Place the light fixture diagonally across your tank to provide the maximum amount of light (the screen top reduces some of the light, but is necessary for tank security). Set a timer from 5:00 AM to 5:00 PM and plug the strip-light fixture into it. [The 12-hour photoperiod approximates *summer* light levels to stimulate activity, appetite, and growth; dark "night" periods are also important to the health of turtles.]

The basking heat source is a 100 Watt ceramic heat-emitter also designed for reptile use. Due to the temperature output, the ceramic emitter should only be placed in a clamp lamp with porcelain socket (aka *brooder lamp*) and mounted at least 6-12" from the screen lid. The ceramic heat-emitter has a 5-year warranty and does not burn out. The heat-emitter should be on 24-hours a day to provide round-the-clock heating.

CAUTION: Make sure the students are well informed that these fixtures are hot to the touch, especially the heat-emitter (we recommend adding a warning label). Always unplug all fixtures and filters when changing the water to reduce electrical hazards. An electrical power strip provides an easy way to control all of the lights, heaters, and filters together.

Air and Water Temperature

Closely monitor the air and water thermometer strips mounted on your tank, and note both temperatures on your *Data Collection Sheet*. ONE EPISODE of suboptimal temperature can lead to disease. Power-outages pose a significant threat to your terrapins. Make your maintenance staff aware of your terrapins and the importance of restoring power to the tank as soon as possible. Have a back-up plan in place in the event of long-term power loss.

Air temperature in the tank should be 70 - 72° F **(never below 70° F). Be sure to position the tank away from drafts from air-handling systems and direct sunlight.**

Water temperature should be 78 - 80° F for terrapins **(always between 72-80° F). The heater must be kept on 24-hours a day. The submersible heater will keep the water warm enough and does get hot, so use CAUTION handling it. Never leave it on when out of the tank or when the tank is empty. *Use warm water for tank changes* to allow the heater to work quicker and prevent cracking the heater. Placing your terrapins back in cold water can cause respitory illness or shock.**

The basking area temperature beneath the ceramic heat-emitter should be 88 - 90° F at all times. **Use a "dry" thermometer to monitor basking temperature and record it on your *Data Collection Sheet*. This temperature will vary based on water level, as well as the position of your heat lamp. Make sure that the lamp is angled toward the basking platform; and if necessary, move the clamp closer or farther away to achieve the desired temperature on the platform surface.**

Feeding

Terrapins are carnivores. In the Chesapeake Bay, they feed on fish, clams, snails, crabs, grass shrimp, and any other type of meat they can find. They are fierce hunters and rip food to shreds with their sharp beaks.

In the classroom, feed your terrapins only the food recommended (*Zoo-Med*'s Hatchling Aquatic Turtle Food). Never feed them any other brand of turtle pellets found in pet stores, which will cause nutritional deficiencies. Give your terrapins a pinch of hatchling food pellets twice daily, as much as they will eat in 15 minutes or so. **Remove any uneaten food within 30 minutes to help keep the tank clean. Weekend feedings are not necessary, but *school holidays* that are greater than a 3-day "long weekend" will require a teacher to feed/clean the terrapins.**

Also offer your terrapin small pieces of liver twice a week (substitute liver for one of the regular pellet feedings) as it prevents vitamin A deficiency and eye problems. Fresh beef liver can be cut into small bite-sized chunks and frozen for storage; thaw pieces thoroughly before use.

Provide cuttlefish bones for your terrapins to gnaw upon. This provides an important source of calcium for shell development and helps sharpen their beaks.

As your terrapins grow larger, you may want to feed them in separate containers as they will defecate almost immediately after eating. In the Bay, terrapins survive for long periods of time without eating, and yours will be fine on weekends. On extended holidays, someone will need to feed them at least once a day.

Later in the project, we will instruct you to reduce the frequency of feeding and to begin introducing a variety of foods to your terrapins including small fish [avoid *goldfish*, which are too fatty; *rosy red minnows* work great], soft-shell clams, earthworms, snails, grass shrimp, and other diverse meals. We do not provide these foods, so you can ask your students to bring in items, or contact your local seafood market for items they cannot sell due to age/flaws. Many pet stores will be happy to give you bothersome snails which cause problems in their tanks.

Finally, your terrapins will appear to be happy to see you and your students, but remember that they only view you as a source of food. They will "beg" by swimming rapidly toward the glass and frantically paddle in the water. DO NOT feel sorry for them and give them food aside from their normal feeding schedule! Fast growth does not necessarily indicate a healthy turtle. Overfeeding can cause severe health problems and abnormal shell and organ development, and can be fatal to young terrapins. Also, an overweight terrapin will have difficulty escaping any predation once released.

Terrapin Behavior

Terrapins are naturally curious animals and enjoy exploring their environment. In their natural habitat, terrapins are somewhat social and have been observed feeding, basking, and hibernating in groups.

Although it is unlikely in this program, if you have more than one terrapin housed together, closely observe them for any signs of aggression toward one another. Terrapins normally co-exist in tanks well together, but may bite a tank mate, especially if one is considerably larger than the other. If biting occurs, separate the terrapins and contact us immediately to evaluate and treat for injuries. Tank dividers will be necessary to separate terrapins if problems persist. A terrapin's sharp beak can inflict a serious bite and can easily sever toes and tails.

Illnesses, Injuries and Medical Treatment

Terrapins can be susceptible to a variety of ailments. The most common illness is *Septicemic Cutaneous Ulcerative Disease* ("SCUD" or "shell rot"). SCUD is best prevented by good water quality, proper diet, and adequate basking with proper air and water temperature. Symptoms include *blotches or discolorations of the shell*, *lesions on feet/appendages,* and *lethargy*. Examine your terrapins for any abnormalities daily through the aquarium glass, and more thoroughly each week during measurement collections.

Abnormalities to look for include:

- **Dramatic pigmentation changes in a very short period of time on *head*, *skin*, *limbs*, and *shell***
- **Wounds or lesions on *head*, *skin*, *limbs*, and *shell***
- **Weakness**
- **Weight loss**
- **Inactivity or behavioral changes**

If you detect any injuries or abnormalities, fill out the *Hospital Admission Slip* and contact Conservation Staff *immediately* **for assessment (see contacts). If warranted, we will discuss in-classroom treatment or transfer of the terrapin back to the Aquarium for full examination and treatment. Any terrapin returned to the aquarium will remain in our care until cleared for release back to your classroom. Many ailments are normally treated with antibiotic injections and antiseptic scrubs.**

All terrapins will be thoroughly examined pre/post-tagging and prior to release at Poplar Island. Terrapins that have injuries or diseases will not be cleared for release.

Mortality in classroom terrapins is extremely rare. If mortality occurs, place the deceased terrapin in a container, refrigerate (do not freeze), and contact Conservation Staff (see contacts**).** ***DO NOT DISPOSE OF THE DEAD TERRAPIN*** **as a necropsy [an animal autopsy] will be performed on the specimen to determine cause of death.**

Safety Issues & Handling

Any reptile may carry *Salmonella* and is capable of transmitting germs to humans. Infants and adults with compromised-immune systems are the most susceptible for contracting animal-borne diseases, so be extra cognizant of good hygiene and potential for pathogen spread in the classroom. For more information on *Salmonella*, visit the *Center for Disease Control*'s website (www.cdc.gov/salmonella).

It is recommended that *kindergarten* students not have terrapin tanks in their classrooms, and students in *Grades 1 & 2* not handle their terrapins or participate in cleaning the tanks. If students in *Grade 3 or above* handle terrapins for data collection or tank cleaning, follow the cautions stated below.

Waterproof gloves may be worn while handling terrapins for measurements and tank cleaning. Even if gloves are worn, always wash hands thoroughly with antibacterial hand soap after handling the terrapins or coming into contact with their tank water and/or any equipment. Dispose of all turtle tank water in non-food use sinks (i.e. janitorial sink).Clean the sink and tank areas well with anti-bacterial soap or disinfectant [e.g., 2.5 Tbsp. household bleach per gallon water] after every tank cleaning or animal-handling event to avoid cross-contamination of classroom areas.

Also use caution for the terrapin's safety. Terrapins are a lot of fun to watch, and students will want to handle them. While handling is engaging for the students, it can be stressful for your terrapin. Consult the handout on *Proper Handling and Transportation of Turtles* to avoid injury. Hold the terrapin over a table so it will not get dropped. Terrapins are usually very gentle but are capable of biting if stressed. Please establish some ground rules with your students to minimize handling and utilize safe handling methods.

A Final Word

Terrapins are remarkably rugged, sturdy animals, and are well suited for life in the Chesapeake Bay. With consistent proper care, they will thrive in your classroom and engage your students like no other classroom lesson can.

Hopefully, these unique creatures will create a direct link to the Chesapeake Bay for communities within the Bay's watershed, so students will learn to respect the bay's headwaters and resources with more care. By teaching students actions such as conserving water, minimizing trash and upstream pollution, and reducing/reusing/recycling the earth's resources as much as possible will all help to ensure the future of their classroom "friend" and others that call the Bay home. Enjoy your terrapins, call or email if you need assistance or have questions.

Proper Handling and Transportation of Turtles

Reptiles, including turtles, are not the type of animals that one should hold unless absolutely necessary for routine care or health inspection purposes. Excessive or improper handling can be stressful to the turtles, and increase the chances for injury or illness. If you must handle a turtle, here are some guidelines to make the experience less stressful for the animal and safer for you.

Handling Turtles:

- **Pick up one turtle at a time using both of your hands placed on each side of the shell (carapace), between the front and back legs.** Never pick a turtle up by the tail as it can dislocate (separate) the bones in the tail.
- Most turtles are slippery, and healthy animals will wriggle, claw, and even attempt to bite the handler [wearing leather gardening gloves may protect hands from scratches], so **restrain the turtle gently, but firmly.**
- **Always hold the turtle at a height of no more than 3-6 inches above the work surface** (table, floor, bucket or sink). A fall from a greater height could injure the turtle.
- Avoid gesturing with hands while holding any animal; **move hands slowly and smoothly if holding a turtle.**
- **If you need to rotate the turtle to look at the bottom shell (plastron), slowly turn the turtle *head over tail* rather than to the side.** This will prevent the internal organs from twisting which can be potentially fatal. **When finished, return the turtle to the upright position by reversing the motion.** Do not maintain an animal on its back longer than absolutely necessary.
- **Set the turtle down or back into the water as gently as possible to avoid injury.** Remember that the turtle shell is living tissue, and is as sensitive as skin to pain and injury.

Transporting turtles:

- **For each turtle to be transported, use a rigid plastic tub with a securable lid that is slightly larger than the turtle** [Rubbermaid® or shareware containers work well], which restricts the turtle's movements so stress is reduced and injuries are less likely. Never put more than one turtle in each container because of the potential for bites and scratches.
- If a tub with a lid is used, **drill or melt (using a soldering iron) many air holes into the lid for ventilation before adding the turtle.** Be sure the holes are *smooth* on the inside.
- **Line the container with damp paper towels or shredded newspaper.** Be sure to add sufficient bedding to keep the turtle from moving around too much.
- After putting the turtle in the container, **securely tie or tape the container shut**. Be sure not to cover the ventilation holes!

- **Set the sealed container inside a Styrofoam cooler and pad with shredded or crumpled newspaper** so that the container doesn't shift around within the cooler. The Styrofoam box should also have 4-8 ventilation holes.
- **Keep the cooler within a temperature range of 65-80 °F at all times!** Excessive temperatures within the cooler can kill a turtle, and you must be responsible for providing the proper environment during transportation. Never set in direct sunlight or leave unattended in a car. If necessary, a towel can be draped over a box to shade from sunlight. When travelling by car, warm or cool the car in advance before setting the cooler inside.
- **On cold or excessively warm days, transport the animal between vehicle and building rapidly.** If the animal was exposed to any excessive temperature, allow the animal to slowly acclimate to the ambient room temperature before placing into tank water or the animal may drown.

Student Connections

Twice per semester, we ask that you report back to Conservation Staff about the ways that your students are connecting with their terrapin. This information really speaks to the heart of the program, and is essential for grant reporting and for seeking new sources of funding. We know that you are already working hard to connect your students with the terrapin; we just need a little more information about how you do that.

Step 1: Find ways to connect your students with your terrapin (see attached list of resources)

You do not need to plan a separate 'terrapin lesson'. Just find simple ways to incorporate the terrapin into your existing curriculum or classroom schedule. If another teacher uses the terrapin for a lesson or an activity, that counts too!

Examples of Student Connections:

- Science club cleans the tank once per week
- During story time, you read a picture book about terrapins aloud
- In Social Studies, student learn about how a bill becomes a law; the bill to ban terrapin harvesting is used as an example
- While learning about graphing, real data of the terrapins weight over time is used to practice
- Students learning how to measure practice weekly by measuring and recording the terrapin's size
- Each student learns about and profiles one plant or animal that lives in the Chesapeake Bay; the terrapin is used as an example
- In art class, students sketch the intricate designs on their terrapin's back
- When learning about food webs, terrapins and their prey/predators are used to practice
- Students learning about the nitrogen cycle, test the terrapin water for nitrogen content before and after cleaning the tank
- While learning about the State of Maryland, students learn that the terrapin is the MD state reptile and look-up how and why it became the state reptile as a homework assignment

Step 2: Report on how your students connected with your terrapin

For each student connection, please send a few sentences about the project, how the students were involved, how many students were involved and what you think they learned from the experience. Student quotes and personal stories are especially appreciated! Example of reporting on a student connection:

This month my students are learning about the classification of species. As a warm-up exercise, we discussed how terrapins are similar to and different from other reptiles. About 100 students completed a homework assignment about the differences between reptiles and amphibians. Now my students have a clear understanding of why terrapins are reptiles and what to look for when classifying species.

Terrapin Connection Resources:

Bay Backpack offers a searchable database of Chesapeake Bay-related environmental curriculum - http://www.baybackpack.com/index.cfm?page=app.resources

Project Wet (I have a hard copy available to borrow)- http://www.projectwet.org/

Terrapin egg survival activity - http://www.google.com/url?sa=t&rct=j&q=diamondback%20terrapin%20activities&source=web&cd=2&ved=0CFAQFjAB&url=http%3A%2F%2Fwww.ocvts.org%2Fbulletinboard%2Fbulletinboards%2Fmates%2Fdocuments%2FProject_Terrapin%2FLessons%2520and%2520Activities%2FDiamondback%2520Terrapin%2520Egg%2520and%2520Juvenile%2520Survivorship%2520Activity%252050.doc&ei=bDkZUOWGOqbk6QGHx4CgCA&usg=AFQjCNG7WmEFzT6Czov0vgJA-iqiH10q3g

Elementary:

Activities connecting to "A Day in the Salt Marsh" – a picture book available to borrow http://www.sylvandellpublishing.com/documents/TeachingActivities/Marsh_TA.pdf

Habitat Activity - http://www.bonnecherepark.on.ca/images/pdfs/turtles-activity1.pdf

Middle:

Baltimore Sun Article on the terrapin bill - http://www.cterrapin.org/newspaperarticle/070411mdsturtlefindssafewaters.pdf

Extensive curriculum materials on estuaries - http://estuaries.noaa.gov/Teachers/Home.aspx

Easy to read info on Diamondback terrapins - http://www.ncwildlife.org/Portals/0/Learning/documents/Profiles/diamondback_091611.pdf

Simple fact sheet - http://www.defenders.org/diamondback-terrapin/basic-facts

Terrapins and Climate Change activity - http://oceanservice.noaa.gov/education/pd/climate/activities/casestudies/eastcoastlinestudent.pdf

High School:

Extensive curriculum materials on estuaries - http://estuaries.noaa.gov/Teachers/Home.aspx

Info about terrapins - http://www.dnr.sc.gov/cwcs/pdf/DiamondbackTerrapin.pdf

A journal article written by the researcher we partner with each year- great for AP students - http://www.dtwg.org/Bibliography/Publications/PFau%20and%20Roosenburg%202010.pdf

Data Collection Sheet for Month of _________, 20__

School____

Teacher____

Terrapin Name___________________________ Terrapin Tag Number____________________

	Date	Weight (g)	Carapace length (cm)	Plastron length (cm)	Shell height (cm)	Shell width (cm)	Water temp (°F)	Air temp (°F)	Food eaten	Notes (behavior or appearance)
WEEK 1 DAY 1										
WEEK 1 DAY 2										
WEEK 1 DAY 3										
WEEK 1 DAY 4										
WEEK 1 DAY 5										
WEEK 1 DAY 1										
WEEK 1 DAY 2										
WEEK 1 DAY 3										
WEEK 1 DAY 4										
WEEK 1 DAY 5										
WEEK 1 DAY 1										
WEEK 1 DAY 2										
WEEK 1 DAY 3										
WEEK 1 DAY 4										
WEEK 1 DAY 5										
WEEK 1 DAY 1										
WEEK 1 DAY 2										
WEEK 1 DAY 3										
WEEK 1 DAY 4										
WEEK 1 DAY 5										
WEEK 1 DAY 1										
WEEK 1 DAY 2										
WEEK 1 DAY 3										
WEEK 1 DAY 4										
WEEK 1 DAY 5										

Remember to report the measurement for each month to Conservation Staff (see contacts).

HOSPITAL ADMISSION SLIP

Terrapins in the Classroom

Terrapin Name:	Date Called In:
School:	Teacher:
Email:	Phone:

Date Problem First Noted:
Brief Description of Problem/History:
When did the turtle last eat and what was consumed?
When was the last defecation seen?
Is the animal resting more than normal and where?
When was the last water change and filter cleaning?
Has the water been looking more cloudy than normal?
What are the most recent air and water temperatures?
Have there been any recent power outages?

✂----------

HOSPITAL ADMISSION SLIP

Terrapins in the Classroom

Terrapin Name:	Date Called In:
School:	Teacher:
Email:	Phone:

Date Problem First Noted:
Brief Description of Problem/History:
When did the turtle last eat and what was consumed?
When was the last defecation seen?
Is the animal resting more than normal and where?
When was the last water change and filter cleaning?
Has the water been looking more cloudy than normal?
What are the most recent air and water temperatures?
Have there been any recent power outages?