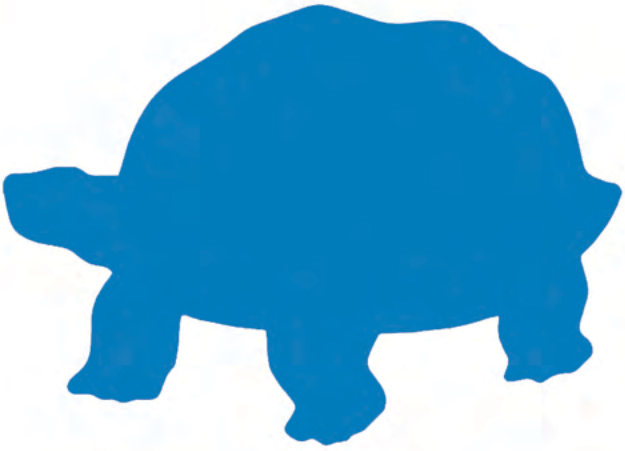
Talkin' About Turtles



Reptiles Vol. 2
Wonder Workbook

CHICAGO ACADEMY OF SCIENCES | PEGGY NOTEBAERT NATURE MUSEUM

Fast Turtle Facts

- We take care of a lot of different types of turtles at the Nature Museum! In addition to several subspecies of box turtles, we have Blanding's turtles, spotted turtles, a red-eared slider, a musk turtle, a spiny softshell turtle, a red-bellied cooter, an alligator snapping turtle, a false map turtle, a Mississippi mud turtle, and a red-cheeked mud turtle!
- Turtles can live for a long time! Blanding's turtles live to between 60 and 70 years. The average lifespan for a box turtle is 60 years. Alligator snapping turtles can live 100 years or more!
- Blanding's turtles do most of their eating in the water. Why? They have a very hard time swallowing if their head isn't under water!
- Alligator snapping turtles get very, very big! Female alligator snapping turtles' shells typically measure two feet long by the time they reach adulthood. Male snapping turtles get even bigger. Some male alligator snapping turtles have been measured at two and a half feet long (just the shell) and more than 200 pounds!

- Alligator snapping turtles are ambush predators. That means they stay hidden until their prey gets close enough, and then grab it super-fast before it gets away. (That's why they're snapping turtles!) T they need to be able to camouflage with their environment.
- Snapping turtles live in wetlands like marshes, swamps, lakes, and rivers. They spend most of their time underwater, and adult snapping turtles are usually found in the deepest part of whatever water they're in. They prefer slow-moving water with muddy bottoms, fallen logs, and lots of places to hide.
- Pancake is our spiny softshell turtle. His shell is softer than other turtles! It's still made out of bone, like all turtle shells, but the bony plates underneath the shell don't go out all the way to the edges, and there are no hard scutes (scales) on top of the shell to make it rigid, like a box turtle.

Image Investigator

Summary: Students observe an image and create an accompanying story to construct an explanation as to what might be going on in the image.

Grade Range (suggested): K-5

Materials:

- An image or video
- Image Investigator worksheet

ENGAGE

1. Tell students that today we will be looking at an image/video to try to understand what might be happening in it, and uncover the story that it is telling.

PREPARE TO EXPLORE

2. Introduce the image/video you will be looking at. Ask students to look closely at the image for a minute or two or watch the video once or twice.

EXPLORE

3. Once students have had a minute to look at the image or watch the video, ask them "What is going on here?" The goal of this activity is to guide your student's thinking and understanding as to what is going on in the image/video. Avoid inserting information--let students look closely and reason out their responses, rather than by discussing the facts.
4. Follow up the first question with, "What do you see that makes you say that?" to encourage students to back up their explanation with evidence from the image. This step can be repeated many times, having students build on their own ideas.
5. When a train of thought comes to an end, ask "What more can we find?" to pull out more evidence or to continue to build the explanation.

REFLECT and SHARE

6. Now that your students have thought about the image/video and what might be going on, have them write a story that explains it using the worksheet. They can use words and/or pictures to tell their story.
7. Have students share their story with someone!

Extensions and Variations:

- Use the same graphic organizer, but look at a different image or video. It could be related to any content!
- Take all of the stories your class creates and put them together in a book to share!

Image Investigator

Use words and/or pictures to tell a story about what you observed.

Investigador de imagen

Resumen: Los estudiantes observan una imagen y crean una historia que la acompaña para construir una explicación de lo que podría estar pasando en la imagen.

Rango de grado escolar (sugerido): K-5

Materiales:

- Una imagen o video
- Hoja de trabajo del Investigador de Imágenes

Engranar:

1. Diga a los estudiantes que hoy veremos una imagen / video para tratar de comprender lo que podría estar sucediendo en él y descubrir la historia que está contando.

Preparar para explorar:

2. Presente la imagen / video que estará viendo. Pida a los alumnos que observen detenidamente la imagen durante un minuto o dos o que vean el video una o dos veces.

Explorar:

3. Una vez que los estudiantes hayan tenido un minuto para mirar la imagen o ver el video, pregúnteles "¿Qué está pasando aquí?" El objetivo de esta actividad es guiar el pensamiento y la comprensión de su estudiante sobre lo que está sucediendo en la imagen / video. Evite insertar información: permita que los alumnos observen detenidamente y razonen sus respuestas, en lugar de discutir los hechos.
4. Siga la primera pregunta con: "¿Qué ves que te hace decir eso?" para alentar a los estudiantes a respaldar su explicación con evidencia de la imagen. Este paso puede repetirse muchas veces, haciendo que los estudiantes desarrollen sus propias ideas.
5. Cuando un tren de pensamiento llega a su fin, pregunte "¿Qué más podemos encontrar?" para sacar más evidencia o continuar construyendo la explicación.

Reflexionar y Compartir:

6. Ahora que sus alumnos han pensado en la imagen / video y lo que podría estar pasando, pídales que escriban una historia que lo explique usando la hoja de trabajo. Pueden usar palabras y / o imágenes para contar su historia.
7. ¡Haga que los estudiantes compartan su historia con alguien!

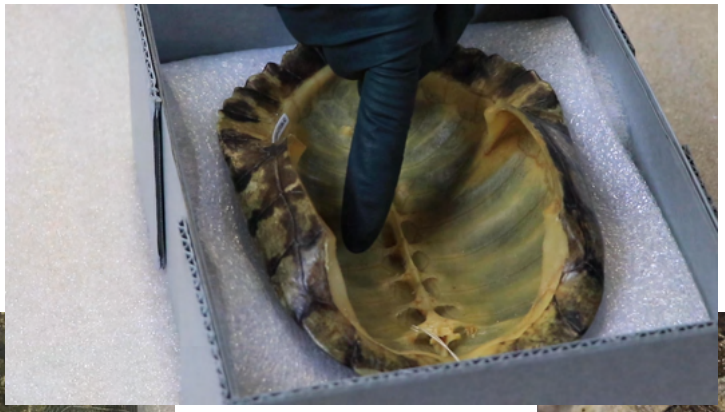
Extensions and Variations:

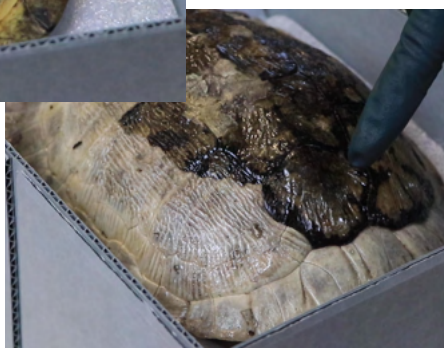
- Utiliza el mismo organizador gráfico, pero mira una imagen o video diferente. ¡Podría estar relacionado con cualquier contenido!
- ¡Tome todas las historias que crea su clase y compártalas en un libro para compartir!

Investigador de imagen:

Use palabras y / o dibujos para contar una historia sobre lo que observó.

Drawing from the Museum's Collections





Draw/Label:

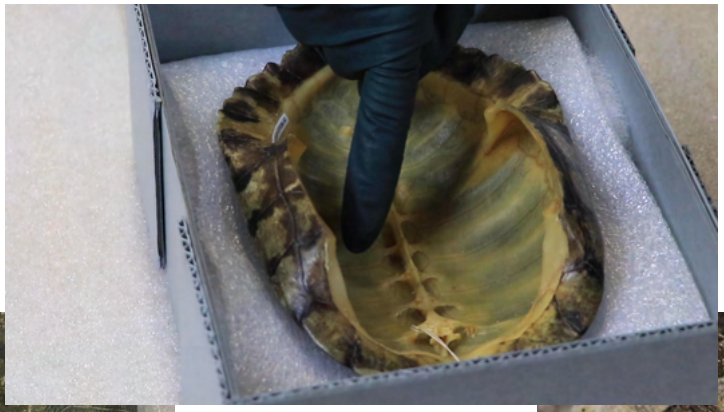
Use pictures and words to show what you notice about **ONE** of the specimens on this page.

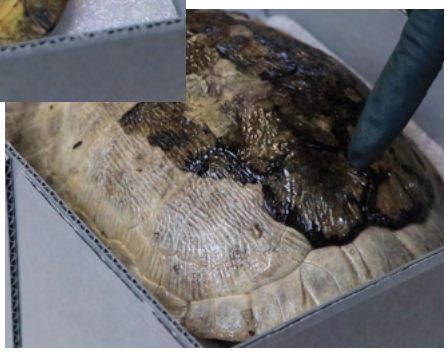
Think:

What can you learn about this organism from observing the specimen?

What questions do you have about this specimen?

Dibuja de la Colección del Museo





Dibuja/Etiqueta:

Usa dibujos y palabras para mostrar lo que notas sobre **UN** espécimen en esta página.

Piensa:

¿Qué puedes aprender sobre este organismo al observar la muestra?

¿Cuáles preguntas tienes sobre este espécimen?

Q&A with Lalainya Goldsberry

Lalainya Goldsberry is the manager of living collections at the Nature Museum. In addition to overseeing the care of all of the animals that live in our Look-In Lab, she also works closely with our Blanding's turtle hatchlings as part of an ongoing Blanding's turtle restoration program. This time of year is an impactful and important time for Blanding's turtles. Let's find out why!

Animal caretaker Lily Barajas, manager of living collections Lalainya Goldsberry, and Forest Preserve District of DuPage County's Dan Thompson during a Blanding's turtle release.

Q: What are the current and future plans for the Blanding's turtle conservation work?

A: We currently have 113 one-year-old turtles. On Thursday, August 20, 98 of them were released while 15 will stay another year. We will receive 120 2020 hatchling turtles soon and will continue to support the Forest Preserve District of DuPage County's Blanding's turtle "head-start" program by rearing the turtles for a year.

Q: Why is this important?

A: Blanding's turtles are threatened or endangered in most states where they occur. They are endangered in Illinois. The main reasons for this are issues such as habitat loss, road mortality, and predators. "Head-starting" allows for the eggs to hatch and the hatchling turtles to be safe when they are at their most vulnerable. In the wild, up to 90% of Blanding's turtle nests are destroyed by predators such as raccoons (the main culprit), skunks, opossums, and minks!

Q: What is your favorite part of this work?

A: The best part of this work is when the turtles are released–having spent a year feeding, cleaning, weighing, measuring, then finally microchipping and notching their shells for identification–then seeing these turtles placed in the wild and swim off. It's a lot of fun to watch the very young hatchlings in their first month eat. They are placed in tackle boxes, each turtle in its own section, and offered food with a pipette (blood worms are always a favorite!).

Studying Animal Mouths

Observing an animal's body can tell us so much about its life! But some animals can be hard to observe up close in nature. That's where collections come in! Museums, like the Nature Museum, preserve plants and animals for scientists to observe. Their observation can help them answer their science questions!

Today, we'll take a look at some of the specimens from the Nature Museum's collection. These are all different animal skulls. ***What can the structures of the skulls help us understand about the food these animals might eat?***

Let's do a sort to help us find out!

Print the card sort on the following pages or just use the letters and numbers on the photos to do a digital version!

First, do some observations of the different skulls. What do you notice about each skull? What shape is their head? What do their teeth look like? Ask your scientist to do an open sort. Sort the skulls into categories for their own choosing!

Then, look at the kinds of foods that these animals eat. What do you notice about these foods? What kind of teeth might be helpful for eating these foods? Ask your scientist to do an open sort. Sort the foods into categories for their own choosing!

Match them up - match a number with a letter! What foods go with which animal? What makes you say that? Be sure to support your ideas with evidence from your observations!

What other wonderings do you have? What might you need to observe to help you answer your questions?

Notes for leading your naturalist:

Here we are thinking about explaining ideas and using evidence! The science is happening in the thinking and the conversation -- so don't get too caught up on right and wrong.

Want to know more though? Depending on the age of your kiddo, you could do more research together to solve any mysteries or just talk about what you notice and think!

Answer Key: Truly this sort could be done in a few ways! This is a set of answers we saw: *1-D ; 2-C ; 3-F ; 4-A ; 5-B ; 6-E*

Opossum **1**

Eastern Cottontail **2**

Coyote **3**

Common Snapping Turtle **4**

Pond Slider **5**

Bullfrog **6**

A

B

"Clover" by falonleighyates is licensed under CC BY 2.0

C

D

E

"Rabbit rabbits eating grass dandelions" by watts_photos is licensed under CC BY 2.0

F

Let's Meet Some Blanding's Turtles

If you've been to the Nature Museum, you've probably seen the adorable smiling Blanding's turtles we work with every day. Let's get to know this species a little better!

We care about Blanding's turtles because they are endangered in Illinois, so we're going to take a behind-the-scenes look at some of the work our biologists do to help these turtles out.

Our Blanding's Turtle Lab is where our biologists take care of many baby Blanding's turtles. These baby Blanding's turtles are part of a conservation program with the Forest Preserve District of DuPage County. We take care of the baby Blanding's here at the Nature Museum for up to two years. Once they're large enough, they get released back into the wild into DuPage County.

Blanding's turtles are semi-aquatic, so they need a mix of water and dry areas with plants. The habitat we've created in the Blanding's Lab is very similar to where they would live in the wild. Baby Blanding's turtles are very small and their shells are pretty soft. These baby Blanding's turtles are only a few inches long. This means that they're an easy snack for predators like foxes, coyotes, and raccoons. By being raised at the Nature Museum, we're able to protect them from predators.

We also give them a varied diet of lots of proteins, such as insects and larvae, fish, superworms, mealworms, earthworms, and crayfish. They're able to grow larger and stronger after being raised here at the Museum than they would on their own. There's also reduced competition for food at the Museum, since we make sure each baby Blanding's turtle has enough to eat.

This is Bob the adult Blanding's turtle. As you can see, he's a bit bigger than the baby Blanding's turtles that we saw in the lab. A unique feature of Blanding's turtles, and one way that we can identify them, is by looking at their Blanding's turtle smile. So, if you look closely at his mouth, you can see it almost looks like he's smiling.

Bob is a turtle we have at the Museum for education. He's very used to doing programs and being handled. We can't release him into the wild, however, we can learn a lot about him by watching him and sharing him with all of our guests. Let's take a closer look at Bob.

Since Bob spends so much time swimming around, what do you think he likes to eat? Blanding's turtles are predators so they are very good at hunting their food. Bob is pretty good at chasing down fish to eat them. Blanding's turtles are also omnivores. What does this mean? It means they do eat other animals, but they can also eat plants. Bob loves to eat worms, crayfish, crickets, and other bugs. While they're babies, they mostly eat meat, but adults, like Bob, will eat aquatic plants and algaes too.

Do you notice the patterns and colors on his shell? Why do you think he looks like this?

We can see Bob pretty easily now, but in the wild, the colors and patterns on a Blanding's shell help them to camouflage, or blend in, so they can easily hide in dark water with lots of plants. While Bob's shell is very dark, he has bright colors on his neck and on his belly.

Blanding's turtles have a type of camouflage called counter shading, so while their backs are dark, the bottom of their neck and underneath their shell is very light. This helps them to hide from predators in the sky, such as hawks or eagles, and it also helps them to hide from predators that might be swimming below. If a hawk or an eagle is circling above and looking down at the water, Bob's dark shell will help him blend in with the dark water below. If an animal underneath the water is looking up at Bob, they're going to see his bright yellow neck and the bright yellow bottom of his shell. This will look like sunlight coming through, so Bob is protected from the top and the bottom.

What are some things you notice about our baby Blanding's turtles?

What are some things you notice about Bob?

What do you wonder about Blanding's turtles?

Meet a Box Turtle!

Say hello to Kennicott the box turtle! Kennicott was named after Robert Kennicott, a 19th century naturalist and one of our founders. He has been at the Nature Museum since October 2010.

Have you ever wondered why box turtles are called box turtles? It's because they can close their shell up entirely, just like how you close a box. Box turtles, like Kennicott, can tuck their head, arms, and legs entirely inside of their shell, then the bottom of their shell, called the plastron, has a hinge that goes right across the middle. They're able to move that hinge, just like how you open and close a door, to close the bottom of their shell up so that nothing can get inside.

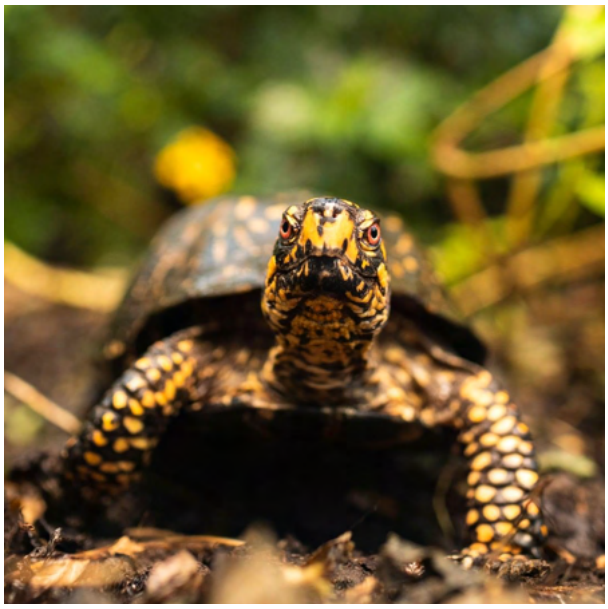
What do you think a box turtle's shell is made of? Box turtle shells are actually made of their bones. Their ribs are very wide and flat and fused together. You can see down the middle of their back the ridge of their spine. On top of their ribs, their shell is covered in a layer of keratin, which is the same stuff your hair and fingernails are made of. If you feel your fingernails, you'll feel that it's hard, and maybe even a little bit flexible. This helps strengthen the turtle's shell and also is what gives it their color and pattern.

Where do you think Kennicott lives? If we take a close look at his feet, we can figure it out. He doesn't have webbed feet like an aquatic turtle that swims around. Instead he has very long claws, these claws are good for digging. **What do you think he likes to dig for?** Well, he'll dig for two reasons. One is to make a nice burrow to hide in or to sleep in. He'll also use them to dig up his food.

What do you think Kennicott likes to eat? It might surprise you, but you could like some of the same foods as Kennicott. He's an omnivore, which means he eats meat, plants, and fruit. He likes to eat strawberries, bananas, blackberries, lettuce, blueberries, and apples. He also gets tasty worms to eat.

What colors and patterns do you notice on Kennicott? You might notice that he has lots of bright orange and yellow dots, along with some darker patches all over his shell and his skin. These colors and patterns help him to blend in in a place like a forest. As the light scatters through the leaves of a tree, it makes lots of different shadows on the ground. Kennicott's colors and patterns resemble these shadows, so it helps him hide from predators.

Let's compare two turtles! Take a look at Kennicott and Harrison:



Write down two similarities you see:

Write down two differences you see:

Do you think Harrison and Kennicott are both box turtles? Why or why not?

What else do you wonder about box turtles?

Exploring Turtle Anatomy

Let's learn more about turtles by taking a look at some really interesting specimens from our herpetology collection!

What is herpetology?

Herpetology is the study of reptiles and amphibians. Our herpetological collection has over 22,000 specimens that are used for scientific research, as well as education.

A lot of people don't realize this about turtles, but their shell is actually part of their skeleton. So the fun children's stories that talk about turtles being able to leave their shell aren't actually correct. Turtles are physically attached to their shells and cannot leave them. Let's keep exploring and find out how they are attached!

Here, we have a pond slider specimen that actually was found around North Pond, around the Nature Museum. A turtle shell is actually comprised of the carapace, which is the top part, and the plastron, which is under its tummy.

The top part of the shell, the carapace, these are actually comprised of modified rib bones. The underside is called the plastron and that protects its underbelly.

You can see some different kinds of coloration on this shell. The lighter colored part is the bony part of the shell. The bony part of the shell is actually protected by what are called scutes, which are this darker color. This is a layer of keratin that protects the turtle's shell. Land turtles, like the pond slider, all have these protective scutes covering the carapace. And this one you can see is missing several across the top of its carapace.

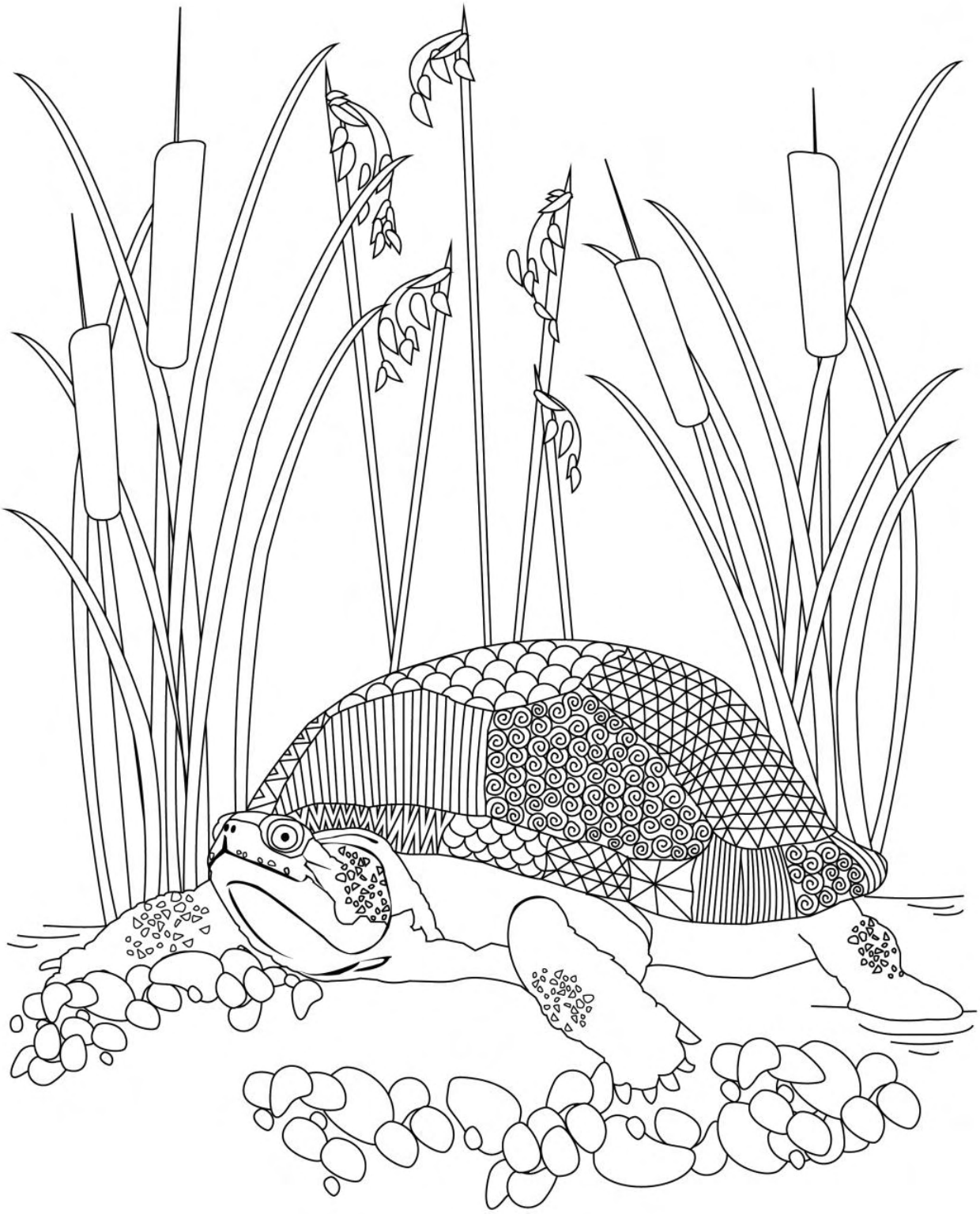
This is another pond slider specimen. This one was also collected around North Pond at the Nature Museum, but this one does not have the plastron, so you can see on the inside.

The line running down the middle of the shell is its spinal column. How is your skeletal structure set up? Your spinal column runs all the way down your back and that gives your body its framework. It's kind of like the architectural skeleton of your body. A turtle is actually fused to its shell, because the turtle shell is actually part of its skeletal system.

If you take a close look, you can see these little suture points where bone comes together. A suture point is these little tiny divots that are actually where one bone gets fused into another one. We have them on our skulls, for instance. Babies are born with their skull plates kind of malleable and then as they grow, they fuse together and they form sutures on our skulls. So that's exactly the kind of thing that you're looking at here on a turtle's carapace.

What do you still wonder about turtles?

What are some other things you know about turtles?



Blanding's Turtle (Emydoidea blandingii)

This regionally endangered yellow-chinned turtle spends a lot of its time in water, but is known to travel long distances over land. It matures slowly, not until age 14 to 20, and can live up to 80 years or more.

Featured Plants: Softstem Bulrush (Schoenoplectus tabernaemontanij and Broad-leaved Cattail (Typha latifolia).

Neighborhood Species

Species name:

_____

Description (color, size, etc.):

_____

_____

_____

_____

_____

_____

_____

Diet:

_____

_____

Habitat (where did you see it?):

_____

_____

Behaviors (what was it doing?):

_____

_____

_____

Drawing and research done by: _____

Neighborhood Species

Species name:

_____

Description (color, size, etc.):

_____

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_____

_____

Diet:

_____

_____

Habitat (where did you see it?):

_____

_____

Behaviors (what was it doing?):

_____

_____

_____

Drawing and research done by: _____

My Observations

I'm observing_____.

I notice:

(use words and drawings to describe what you're observing)

I wonder:

(write all the questions you have about what you're observing)

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Story Time Graphic Organizer

Story Time Book Title: _____

Use words and pictures to share about
a main idea in the story you read.

Describe some adventure or exploration that happened.

How is nature involved in the story?

As you were reading the story, how did you feel?

Does the story give you any ideas in your own life?

After reading the story, what do you wonder?

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Box Turtle Puzzle

Make your own box turtle puzzle! Cut out the image below and carefully cut along the puzzle piece lines to create individual pieces. Using this image as a guide, see how quickly you can fit the pieces back together. Tip: Paste the paper to a cereal box or another piece of cardboard before cutting out the pieces to make your puzzle even sturdier.

Guiding Questions: What box turtle body parts can you identify in this puzzle? How many can you name? Can you name them as you put them together? What do you notice about the box turtle?