

# INTERNATIONAL TURTLE & TORTOISE WEEK™

TTPG

## LEARNING ABOUT TURTLES

Your friends at the TURTLE and TORTOISE PRESERVATION GROUP and ZOO MED hope that you will enjoy this lesson plan about turtles. The information and activities below and in this packet will introduce children to turtles through fun facts, activities, books, a poem, and creative crafts.



### Basic Turtle Information

Turtles are reptiles. The term “Turtle” may refer to the *order* as a whole, but typically, “turtle” refers to aquatic or semi- aquatic species, and “tortoise” to land dwelling species. You may hear the term “terrapin” which refers to aquatic or semi-aquatic species which are generally small and live near coastlines (i.e. in fresh or brackish water). Terms for these animals may vary throughout the world. For example, in Australia, there are no native land tortoises, so the term “tortoise” is used to describe freshwater turtles and the term “turtle” is generally used to refer to sea turtles.

There are about 270 different types of turtles and tortoises alive today.

### Shells

Most turtles and tortoises have shells that protect them from predators. The shell is made up of bone and has overlying material called *scutes*. Scutes are made of keratin, the same material that makes up horns and finger nails. The top half of the shell is called the carapace and the bottom half the plastron. Here is an easy way to remember what each part of the shell is called: A “C”, for carapace, turned on its side forms the shape of the top half of a turtle’s domed shell. A “P”, for plastron, turned on its side forms the flat shape of the bottom half of the shell!

Turtle and Tortoise shells may be shades of brown, black, or olive green. Some turtle shells may have beautiful intricate patterns that incorporate different colors such as yellow, red, and green. Soft-shelled turtles have soft, leather shells that don't provide much protection from predators. Although the shell is made of bone, the bones are not completely fused together and the shell is covered in a leathery skin instead of hard, keratinized scutes. Since the shell doesn't provide them with much protection, these animals have learned to move very quickly to hide under rocks, logs, or bury under the sand to hide from predators.



## **Foods and Diets**

Different turtles and tortoises eat many of different kinds of diets. What turtles eat depends on their habitat. For example, Egyptian Tortoises are herbivores and eat mostly leaves and grass. These are the foods found in the (stark, harsh, dry) climate and habitat where this species is found. On the other hand, American Box Turtles are omnivores and eat a variety of plant and animal matter including worms, bugs, and berries. These species are found in a forest type habitat where this wide variety of food is available. Some sea turtles species that live in the open ocean are highly carnivorous, eating crabs, mollusks, shrimp, and jellyfish, while others that spend their time closer to the coastline specialize on seaweed and algae.

## **Brumation (hibernation) and aestivation**

Many species of turtles and tortoises hibernate, or brumate, in the winter. Aquatic turtles dig into the mud around a pond while other species of turtle or tortoise may wedge under a rotten log, pile of leaves or bushes in their habitat. Whether a turtle brumates or not is dependent on where the species is from. Brumation is triggered by a drop in environmental temperatures. When it gets cold outside, a turtle's metabolism slows down, so the animal will find a safe place (where it is protected from freezing temperatures and predators) and rest until the warm weather returns. In tropical regions, temperatures generally do not drop low enough to trigger brumation, so species from these areas do not hibernate (or brumate). The length of hibernation is also dependent on the location. Some places (like Russia) experience long, severe winters, so turtles and tortoises found there may spend 6 months or more each year brumating. In the southern part of the US, however, some species may only hibernate for about 3 months while the weather is very cold.

Another adaptation that some turtles and tortoises have developed is the ability to aestivate. Aestivation is similar to hibernation, but instead of resting while the weather is cold, animals go into a state of dormancy while it is very hot or in very dry conditions. Some aquatic turtles will burrow down into mud while their lake or pond dries up in the summer, only to emerge again when rains return and fill their habitat with water. African tortoises may aestivate by digging deep into the ground and staying hidden from extreme heat during the summer.

Turtles and tortoises are amazing animals because they have found so many different methods of surviving conditions in many different parts of the world. These adaptations are why we have such a great variety of species and they are all so unique!

## **Taxonomy and Scientific names**

Turtles and tortoises are in the order Testudines that includes both extant (living) and extinct species. The earliest known turtles date from 220 million years ago, making turtles one of the oldest reptile groups and a more ancient group than lizards, snakes or crocodiles.

Turtles are amniotes. Amniotes are a group of tetrapods (four limbed animals with backbones) that breathe air and lay their eggs on land rather than in the water. Many species of turtles live in

water, but all female aquatic turtles leave the water to lay their eggs. Amniotes included dinosaurs, many reptiles, birds and mammals.

### **Turtle and Tortoise Classification**

Kingdom: Animalia (animals – not plants)

Phylum: Chordata (animals with a back bone)

Class: Reptilia (Snakes, lizards, crocodiles, and turtles - Ectothermic animals with a backbone who breathe air with lungs. All reptiles have scaly skin that prevents them from drying out)

Order: Testudines (All turtles and tortoises)

Suborders: Pleurodia (Sideneck turtles)

Cryptodira (All other living turtles and tortoises)

Family: There are 14 extant (living) families in the Order Testudines

Genus: There are approximately 97 genera of Testudines

Species: There are approximately 300 different species of turtles, tortoises, and terrapins.

### **\*Learn more about Scientific Names on Page #5**

Like all other living reptiles, turtles are ectotherms — their internal temperature varies according to the ambient environment. Ectotherms are sometimes called poikilothermic or, less accurately, “cold-blooded.” A noted exception is the Leatherback Sea Turtle that has a high metabolic rate and a body temperature that is noticeably higher than that of the surrounding water.

When we think of the largest turtle or tortoise, many envision the giant tortoise of the Galapagos. The largest turtle or tortoise is actually the leatherback sea turtle and is aquatic. Leatherback Sea Turtles can have a shell length over 6 feet and reach a weight of 2,000 pounds.

In February 2011, the Tortoise and Freshwater Turtle Specialist Group published a report about the top 25 species of turtles most likely to become extinct, with a further 40 species at very high risk of becoming extinct (<http://www.iucn-tftsg.org/top-25-2011/> ). This list excludes sea turtles; however both the leatherback and the Kemp's Ridley would make the top 25 list. **Currently 134 tortoise and turtle species are officially regarded as threatened or endangered species.** Turtles and tortoises are the most endangered out of all the vertebrate species. The Asian species are the most endangered, closely followed by the five endemic species from Madagascar. Turtles face many threats, including habitat destruction and harvesting for consumption. The high extinction risk for Asian species is primarily due to the long-term unsustainable exploitation of turtles and tortoises for consumption and traditional medicine.

## MAKING YOUR OWN TURTLE - a craft project

Materials needed: Two hefty paper plates, brown or green construction paper, green paint, crayons or markers, googly eyes (optional), glue, and a black marker.

**Step 1:** Children can paint the bottom of both paper plates with green paint or decorate using markers, crayons, or colored pencils. Set aside and allow to dry.



**Step 2:** Trace and then cut out the turtle's arms, legs, tail and head from construction paper.



**Step 3:** After the plates have dried completely, glue the edges of the arms, legs, tail, and head to the top edge of one of the paper plates.



**Step 4:** Glue the first and second plate together so that the painted sides are facing out.



### Other Ideas for learning:

Have students label these turtle parts: Carapace, Plastron, Legs, Tail, Scutes, Head, Eyes, etc...



### Advanced Ideas:

Have students decorate the turtle to look like a specific species. Students can point out physical adaptations of their species, discuss the habitat, diet, and behavior of the species:



#### **Example: Fly River turtle**

- Grey, cryptic coloration is good for camouflage in river habitat
- Snorkel like nose for fully aquatic life
  - Flipper like feet for aquatic locomotion

## WHAT IS A SCIENTIFIC NAME?

A Scientific Name is the Official name for any organism. Around the world, plants and animals may have many different “common” names. A Scientific Name allows everyone to use the same name when discussing any particular species of plants or animals. Even insects, bacteria and humans have scientific names! A Scientific Name may also be called a “Latin” name. Each scientific name has at least two parts, the Genus and Species. Some have a third part - a subspecies. There is a very specific way of writing a scientific name.

Here are the rules:

- 1- The Genus is always capitalized.
- 2- The species and subspecies have only lower case letters.
- 3- The scientific name is always in italics or underlined.

This very special naming system allows scientists from all over the world to talk about animals and plants.

Plants and animals may get their scientific names in a number of different ways. Some are named after the people who discovered them. Others have names that, in Latin, describe something about the organism.

Here are some examples of scientific names:

Human	<i>Homo sapiens</i>
Domestic Dog	<i>Canis lupus familiaris</i>
Domestic Cat	<i>Felis catus</i>
Giraffe	<i>Giraffa camelopardalis</i>
Goldfish	<i>Carassius auratus auratus</i>

Here are some examples of why we need Scientific Names

Some animals are known by many different common names: Pink Belly Side Neck, Pink Bellied Short Necked turtle, Red Bellied Side Necked Turtle, Red Belly Short Neck Turtle ... but has only one scientific name: *Emydura subglabosa*.

A green iguana may actually be orange, and some people may call it a red iguana, but to be scientifically accurate, you can call it by its scientific name, *Iguana iguana*.

This turtle’s scientific name is *Carettochelys insculpta* but it is commonly known as a “Fly River Turtle” or “Pig Nose Turtle” and to the native aboriginal people in Australia, it is called “Warradjan”

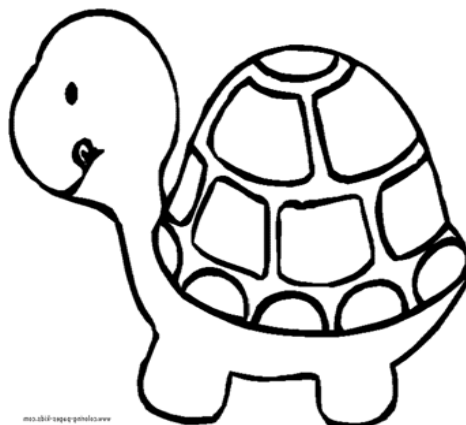
-  
-

### "The Little Turtle"

There was a little turtle.  
He lived in a box.  
He swam in a puddle.  
He climbed on the rocks.

He snapped at a mosquito.  
He snapped at a flea.  
He snapped at a minnow.  
And he snapped at me.

He caught the mosquito.  
He caught the flea.  
He caught the minnow.  
But he didn't catch me.



~poem by Vachel Lindsay - 1879-1931

#### More Information about the Turtle and Tortoise Preservation Group

The Turtle and Tortoise Preservation Group (TTPG) is a non-profit 501c3, founded in 1996 to help ensure survival of the world's turtle and tortoise species. The TTPG is open to all people interested in the welfare of chelonians. Individuals that maintain captive collections have a great responsibility to ensure their chelonians are properly cared for and maintained. Whether you are a member of the TTPG or not, we will help you fulfill this responsibility by providing information on the care and maintenance of turtles and tortoise species. For more information about TTPG visit us at: [www.ttpg.org](http://www.ttpg.org)

Zoo Med introduced the first American reptile vitamin in 1982 and never looked back! Today the company holds eight reptile product patents and nine aquatic product patents in the USA and internationally with more pending. Zoo Med's greatest accomplishment has been the invention of UVB lighting for reptiles, which took place in 1993 and became the standard the world over for zoos, veterinarians and the reptile hobbyist. The current range includes products for reptiles, amphibians, fish and birds. Zoo Med is actively involved in education and conservation and they sponsor dozens of reptile events across the country, including the International Herpetological Symposium, the National Reptile Breeders Expo, and the TTPG Conference on Captive Care and Breeding. For more information on Zoo Med, please visit: [www.zoomed.com](http://www.zoomed.com)

## Books About Turtles

Here are some great books about turtles to share with students:

*How the Turtle Got Its Shell* by Justine Fontes, Ron Fontes, and Keiko Motoyama [Golden Books, 2000]

*One Tiny Turtle* by Nicola Davies and Jane Chapman (Candlewick)

*Look Out for Turtles* by Melvin Berger and Megan Lloyd (Collins)

*Emma's Turtle* by Eve Bunting and Marsha Winborn (Boyd's Miller Press)

*A Sea Turtle Story* by Mary Maden

*Old Turtle* by Douglas Wood

*Old Turtle And The Broken Truth* by Douglas Wood and Jon J. Muth

*I'll Follow the Moon* (Mom's Choice Award Honoree and Chocolate Lily Award Winner) by Stephanie Lisa Tara and Lee Edward Fodi

*Yertle the Turtle* by Dr. Seuss (Random House)

Optionally, you can add math and manipulation activities as well as dramatic play and literacy activities to the lesson plan. Lesson plans that teach basic concepts should be simple and fun and engage children in developmentally appropriate activities. To further develop your lesson plans or for additional turtle related activities, visit these great sites:

<http://www.seeturtles.org/1352/classroom-resources.html>

Additional links for turtle and tortoise themed craft projects:

<http://www.dragoart.com/tuts/7995/1/1/how-to-draw-a-turtle-for-kids.htm>

Thank you to Carla Snuggs for the foundation of this lesson plan. Carla is a blogger and is a freelance writer from Southern California. She has a B.A. in early childhood education and a Master of Library and Information Science degree specializing in public librarianship and youth services.

**TURTLE TERMS**

- Aestivation- a period of animal dormancy in times of excessive heat and dry conditions
- Aquatic- an animal that spends most or all of its time in the water
- Basking- animals laying or perching exposed in full sun
- Brumation- like hibernation in mammals, reptiles may become lethargic, sometimes not moving at all for the cold season
- Bycatch- unwanted creatures that are caught in nets while fishing for another species
- Carapace- the back (dorsal) part of a turtle or tortoise's shell
- Carnivore- an animal that primarily consumes animal matter
- Chelonian- an order of reptiles containing all turtles and tortoises.
- Cloaca- a common chamber where excretory and reproductive organs empty
- Clutch- a group of eggs laid by a female at one time
- Conservation- careful protection and preservation of something such as natural resources and habitats
- Crepuscular- an animal that is most active at dawn and dusk
- Diurnal- animal that is active during daylight hours
- Dorsal- back side of an animal
- Ectothermic- an animal that gets its heat from its environment. Previously known as "cold blooded"
- Endemic- a plant or animal that is native or confined only to a certain region
- Hatchlings- baby reptiles that have just hatched from an egg
- Herbivore- an animal that consumes only plant matter
- Hibernaculum- a protected area where reptiles go to brumate
- Incubation- The time between when eggs are laid until the baby hatches.
- Nesting- a female reptile finding a suitable egg laying area and depositing her eggs

- Nocturnal- an animal that is active at the night
- Omnivore- an animal that consumes plant and animal matter
- Opportunistic- an animal that takes advantage of a situation such as abundance of a particular food item
- Pelagic- an animal that lives in the open ocean
- Pipping- the process of a hatchling beginning to break out of its shell
- Plastron- the bottom (ventral) portion of a turtle or tortoise shell
- Predation- when a predator (hunting animal) preys on or eats another animal.
- Scutes- horny plates on the shell of a turtle or tortoise
- Sexual dimorphism - visible differences between males and females of the same species.
- Terrestrial- an animal that lives on land
- Thermoregulation- maintenance of consistent body temperature by moving in an out of sun, shade, water etc...
- Vent- single opening of the cloaca where all waste and reproductive materials exit the reptile body
- Vernal pools- a seasonal body of standing water that usually forms in the springtime but dries up in warmer months

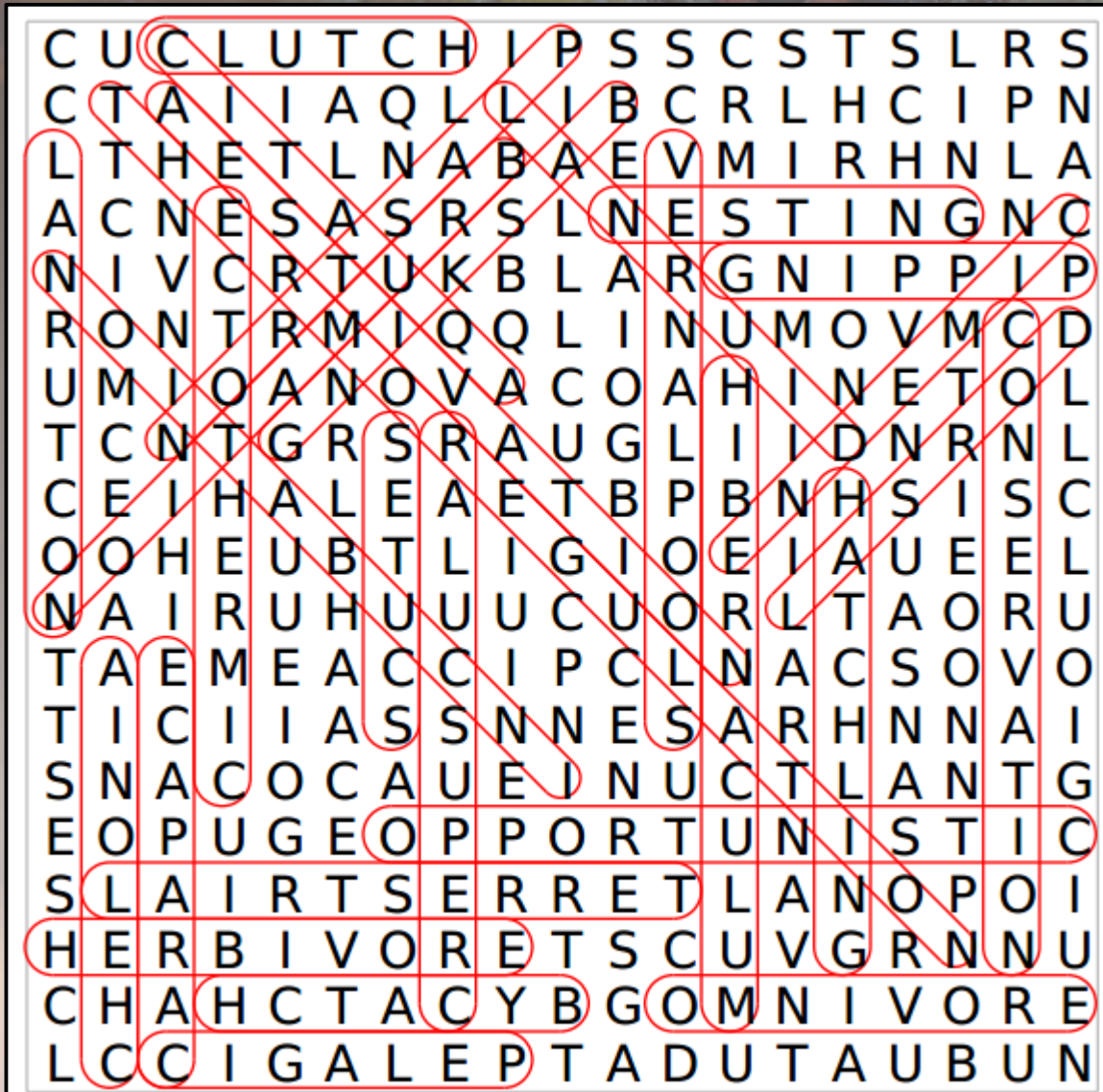




# Learning about Turtles



Word Search **KEY**



## Word List

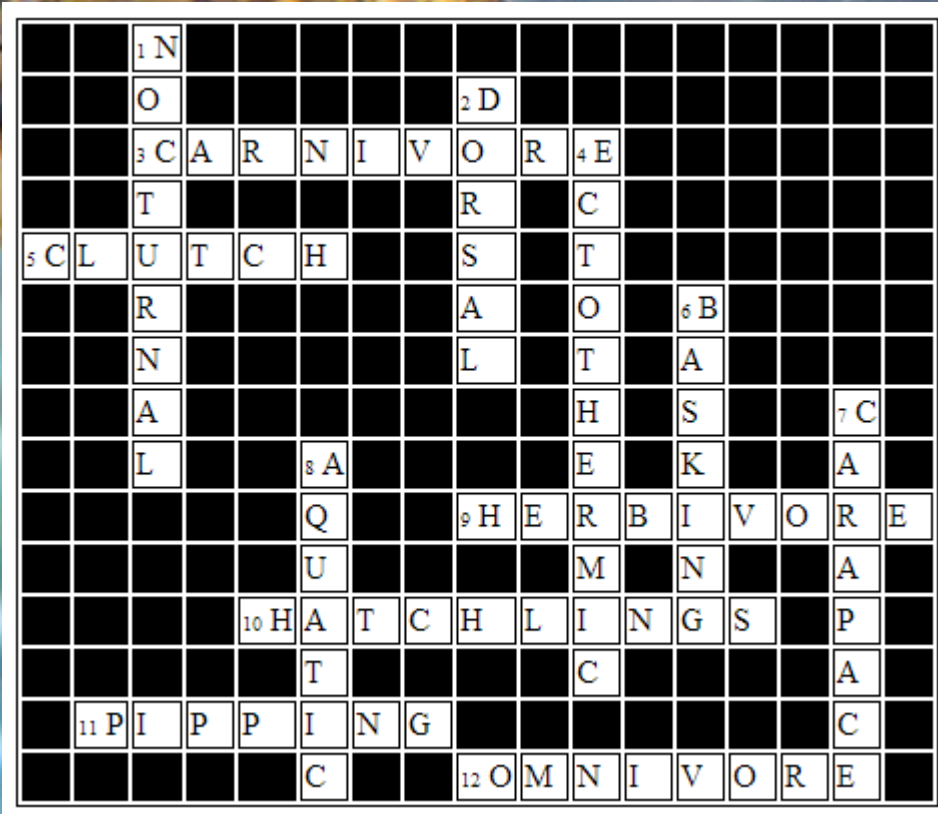
- |                  |              |           |          |
|------------------|--------------|-----------|----------|
| aestivation      | ectothermic  | aquatic   | diurnal  |
| conservation     | incubation   | endemic   | dorsal   |
| crepuscular      | herbivore    | bycatch   | nesting  |
| thermoregulation | terrestrial  | basking   | clutch   |
| vernal pools     | omnivore     | pipping   | scutes   |
| nocturnal        | chelonian    | plastron  | pelagic  |
| opportunistic    | hibernaculum | hatchling | carapace |



# Learning about Turtles



## Crossword Puzzle KEY



### Across

3. an animal that primarily consumes animal matter
5. a group of eggs laid by a female at one time
9. an animal that consumes only plant matter
10. baby reptiles that have just hatched from an egg
11. the process of a hatchling beginning to break out of its shell
12. an animal that consumes plant and animal matter

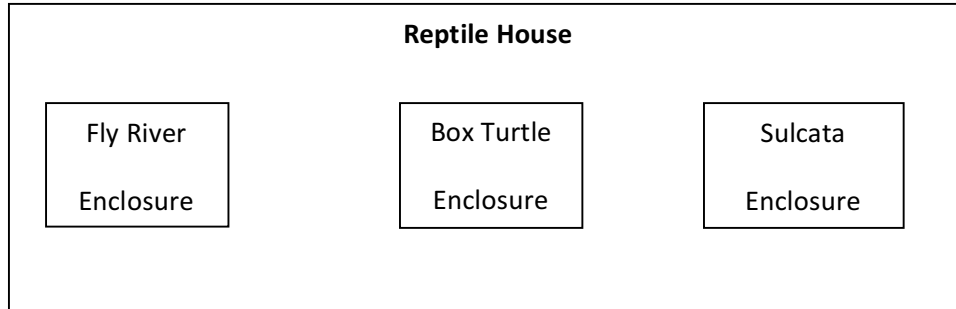
### Down

1. an animal that is active at the night
2. back side of an animal
4. an animal that gets its heat from its environment. Previously known as "cold blooded"
6. animals laying or perching exposed in full sun
7. the back (dorsal) part of a turtle or tortoise's shell
8. an animal that spends most or all of its time in the water



## Turtle Week Logic Puzzle KEY

On a class field trip, you got to visit the zoo! When you got to the reptile house however, the signs had all been mixed up. The keeper has asked you to re-order the signs and put the appropriate information on each animal's enclosure. The keeper likes puzzles, so here is the information she has left you with.



		Reptiles		
		Fly River	Box Turtle	Sulcata
Size	2 Lbs	-	0	-
	20 Lbs	0	-	-
	150 Lbs	-	-	0
Continent	Asia	0	-	-
	Africa	-	-	0
	North America	-	0	-
Habitat	Forest	-	0	-
	Savanna	-	-	0
	Water	0	-	-

1. The Forest Animal is not from Africa
2. The North American animal is the smallest of the three.
3. The Sulcata is the largest animal in the Reptile House.
4. The Fly River Turtle rarely ever leaves its aquatic habitat.
5. The Aquatic animal is from Asia
6. The African animal is to the right of the Box Turtle

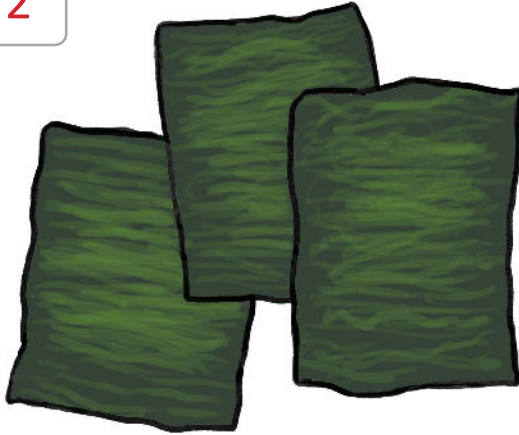
So, the Sulcata is found in the Savanna in Africa and weighs 150 pounds,

The Box Turtle is found in the Forest in North America and weighs 2 pounds,

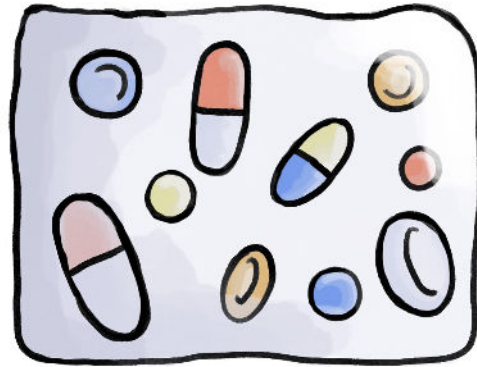
And the Fly River Turtle is found in the Water in Asia and weighs 20 pounds.

From "Nickel's Reef" (Story 1), number the steps (1-5) that the staff members perform to make Nickel's sushi.

2



1



4



5



3

