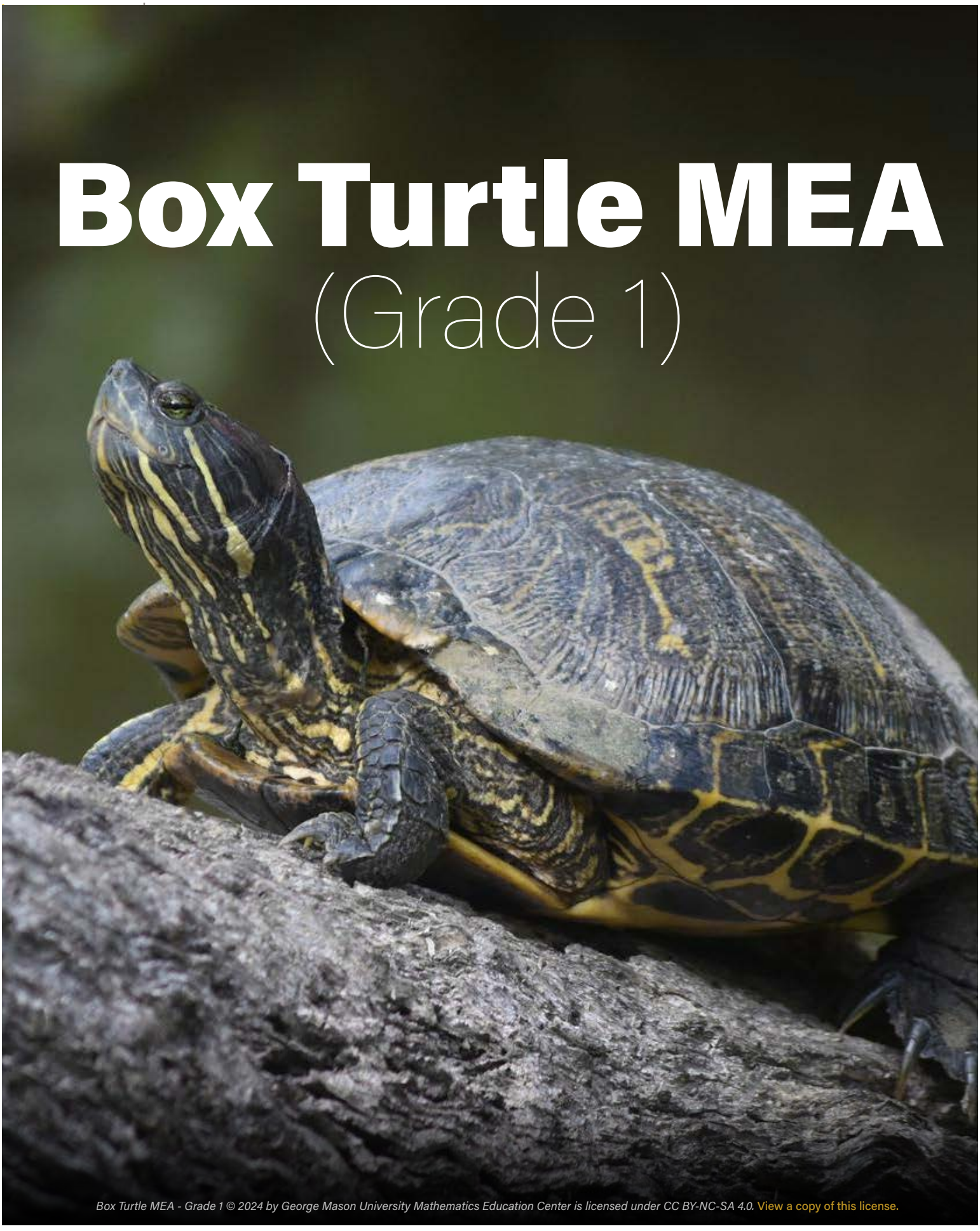
Box Turtle MEA
(Grade 1)



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Teacher Notes and Materials

LEARNING OBJECTIVES/GOALS

- Use observational data to create a process to sort images of turtle shells from Bull Run Regional Park into:
  1. Open categories based on observation of turtle shell images
  2. Refined categories based on perceived age of turtle shell images
- Make decisions about whether or not the processes meet the needs of the client.
- Clearly communicate a solution to the client.

Vocabulary

- Sort
- Compare
- Attribute
- Organize
- Similarities
- Differences
- Label

Relevant Standards

2023 Virginia Standards of Learning:
GRADE 1 MATHEMATICS

- **1.13** The student will sort and classify concrete objects according to one or two attributes.
- **1.PS.1a** Sort and classify concrete objects into appropriate subsets (categories) based on one or two attributes, such as size, shape, color, and/or thickness (e.g., sort a set of objects that are both red and thick).

2018 Virginia Standards of Learning:
GRADE 1 SCIENCE

- **1.1** The student will demonstrate an understanding of scientific and engineering practices by
  - **a)** asking questions and defining problems (ask questions and make predictions based on observations)
  - **b)** planning and carrying out investigations (identify characteristics and properties of objects by observations)
- **1.1** The student will conduct investigations in which
  - **a)** differences in physical properties are observed using the senses
  - **f)** predictions are based on patterns of observation rather than random guesses

2017 Virginia Standards of Learning:
GRADE 1 WRITING

- **1.12** The student will write in a variety of forms to include narrative, descriptive, and opinion.
  - **b)** Use prewriting activities to generate ideas
  - **f)** Write to express an opinion and give a reason

2017 Virginia Standards of Learning:
GRADE 1 COMPUTATIONAL THINKING

- **1.51** The student will categorize a group of items based on one or two attributes or the actions of each item, with or without a computing device.

Essential Question(s)

- How can we create a process that the Bull Run Regional Park Rangers can use to **sort** the turtles they find in the future?
- How can we create a process that the Bull Run Regional Park Rangers can use to **estimate the age** of the turtles they find in the future?

Student Groupings

Students should work in groups of 3 students. This will allow all students opportunities to engage in the activity.

Materials Required

- Box Turtle Lesson Google Slides
- Box Turtle Photo Set (Pictures labeled Student Photos A-M)
- Extension Box Turtle Photos (Pictures labeled Additional Photos #1-2)
- Magnifying Glasses
- Poster Paper

Learning Activities

This lesson can be integrated into the classroom in a variety of ways. Total time is approximately 80-130 minutes. Estimated times are provided for each part.

***Example:** The Scientific Observation Discussion and Box Turtle Information Slides can be completed in the science or language arts blocks. The Writing Response to Client Letter can be completed in the language arts block.

Sections	Google Slide(s)	Class Structure	Estimated Time	Compiled Time
Launch*	1-2	Whole Class	1 minute	1 minute
Scientific Observation*	3-5	Whole Class	5 minutes	6 minutes
Box Turtle Information*	6-12	Whole Class	4 minutes	10 minutes
Presentation of Client Letter	13-14	Whole Class	5 minutes	15 minutes
Initial Student Explorations	15-16	Student Triads	15-20 minutes	30-35 minutes
Gallery Walk	17	Whole Class	2-4 minutes	32-39 minutes
Initial Strategy Share	18-20	Pairs of Student Triads	5-10 minutes	37-49 minutes
Second Client Letter and Information on Aging	21-27	Whole Class	5-10 minutes	42-59 minutes
Second Student Exploration	28	Student Triads	15-20 minutes	57-79 minutes
Second Gallery Walk	29	Whole Class	2-4 minutes	59-83 minutes
Second Strategy Share	30-32	Pairs of Student Triads	5-10 minutes	64-93 minutes
Writing Response to Client Letter*	33	Whole Class	10-15 minutes	74-108 minutes

**Denotes an activity that can be completed outside the designated math block.*

Background Teacher Information



Common Name: Woodland Box Turtle

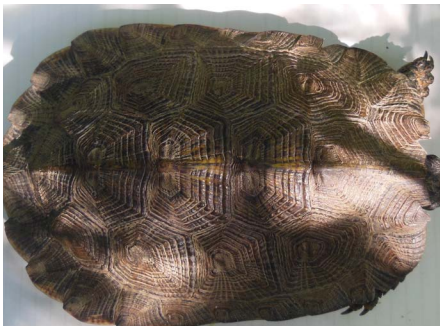
Scientific Name: *Terrapene carolina carolina*

Connection to Virginia: The word terrapene means "turtle" and comes from The Algonquin tribe. Remains of woodland box turtles are frequently found in archeological digs in Virginia. Native Americans used turtle shells for food containers and rattles.

The woodland box turtle is a species like no other. With a beautifully powerful shell and gentle demeanor, this shy creature is native to Virginia. Because of the wide range of temperatures, box turtles need to hibernate 3-5 months out of the year in order to stay alive. The woodland box turtle is found in many types of wooded areas, forests, swamps, and farmland. Box turtles do not make suitable pets. They do not like to be handled.

Appearance

The eastern box turtle is a small reptile, only about six inches in length. It weighs less than one pound. The top shell, or carapace, is said to look like a box. The carapace is brown with bright, visible patterns of orange and yellow lines, spots, or blotches. The bottom shell, or plastron, allows the turtle to hide its whole body for protection. The plastron is usually dark brown. The woodland box turtle has dark, scaly skin with yellow markings. Woodland box turtles have hooked upper jaws, and their toes are only slightly webbed. Males have red eyes, while females have yellow-brown eyes. Males are also larger than females.



Carapace (top)



Plastron (bottom)

Resources page on Eastern Box Turtle:
Virginia Department of Wildlife Resources

Predators

The eggs of the woodland box turtle are eaten by pet dogs, skunks, racoons, foxes and crows. Raccoons will sometimes eat young box turtles less than one year old. It is harder for raccoons to eat adults because box turtles have a hard shell. To defend themselves from attack from predators like rats and wild hogs, a box turtle can seal itself in its shell entirely. Once all four legs are protected, it will sometimes pop its head out to snap at the attacker.

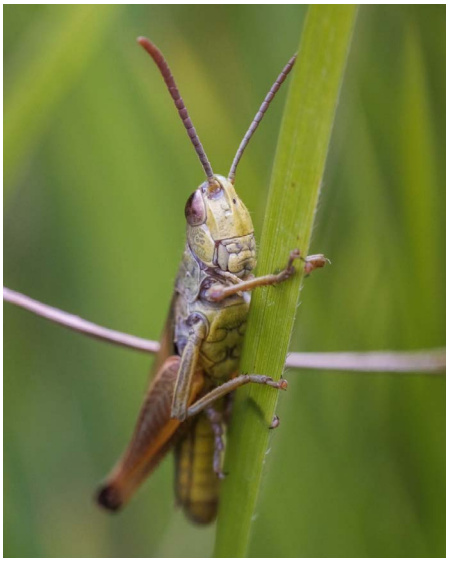


The greatest threat to woodland box turtles is humans, whose cars kill hundreds of these animals on Virginia's highways.

Diet

Box turtles are omnivores. They eat both insects and plants. When they are younger and still growing, they need extra protein in their diet. Slugs, cockroaches, crickets, and worms all make good meals for a box turtle. Insects are their most common prey because they are small and plentiful, but they will sometimes eat larger creatures when they have access to them. People have reported finding box turtles eating animals such as small rodents and birds that have been trapped or have died.

Box turtles also eat plants like lettuce, moss, and some grass. They will also eat fruits and berries close to the ground when they can find them. Sometimes box turtles will even eat mushrooms.



Behavior in the Wild

A common trait that many box turtles share is a deep connection to the location they were born in. Most do not travel far from the place of their birth. In fact, box turtles can spend their entire lives within 250 yards of the nests where they were born. A box turtle makes a mental map of its home territory and knows exactly where to find food throughout the year. If removed from its home, it will make every effort to return. It probably will succeed if moved less than a mile or two away. However, the box turtle will not succeed if it is moved more than two miles from its home.

Box Turtles are often found in groups. They are more active during the warmer months and may stay hidden during the hottest part of the day. Box turtles hibernate through the winter. They take shelter by burrowing up to two feet deep in dirt, mud, stream bottoms, stump holes, or mammal burrows.
Box turtles like to hide in logs and brush and will sometimes burrow into sand and mud. When the weather is too hot, woodland box turtles will seek shelter in pools of water, mud or damp ground. During winter, they hibernate and bury themselves in dirt under piles of leaves and grass. If the weather is too cold, a woodland box turtle can remain frozen for as long as 3 days without injury.



Health and Lifespan

The average lifespan for box turtles in the wild seems to be around fifty years. But some people have found box turtles that are over 100 years old. Nesting occurs late May to late July. Woodland box turtles lay 2-7 eggs every year.

What You Can Do to Protect Turtles?

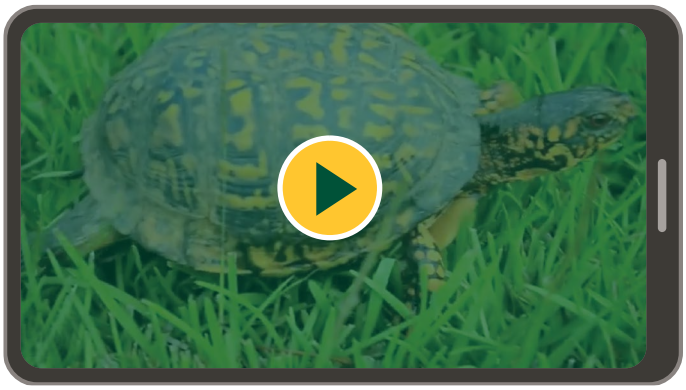
- Never remove a turtle from the wild.
- Help a turtle cross a road only if you can do so safely. Be sure to point it in the same direction that it was headed.
- Educate your friends and family about the importance of observing but not touching turtles in the wild.
- When visiting wetlands, walk carefully and stay on designated paths.
- Try not to use pesticides or bug spray. Throw containers away properly to ensure that they do not end up in waterways.
- Recycle to save natural resources, and do not litter. This will keep our parks safe and clean for animals.
- Send your observations to the Virginia Herpetological Society



Optional Videos & Readiness Questions

Box Turtle Moving On Grass

» PLAY



Box Turtle Climbing Log

» PLAY



Video Observation Readiness Questions

- What do you notice? What do you wonder?
- What do we already know from our reading passage? What connections can you make? What can you infer?
- What are you seeing or hearing?
- What can you observe about how these turtles are moving?
- What obstacles do they encounter? How do you think that affects them? Why do you think that/What makes you say that?
- How is the way the turtle is moving in _____ video different from/the same as the turtle moving in _____ video?

Letters from Ranger Terry

To:
Manassas City Public Schools First Graders

From:
Ranger Terry at Bull Run Regional Park

Subject:
Grouping the Box Turtle

Dear First Graders,

The box turtles in our area are in danger. Many trees are being cut down to build new homes. Without a place to live, box turtles could become endangered.

It is important to keep track of the turtles we have so we can determine how healthy our turtle population is. Each day we hike the trails and take pictures of all the turtles we see to keep track of the turtles over time. We take pictures of the carapace or top of the shell. We want to sort these pictures so it is easier for us to talk about them.

We are giving you the 13 pictures from yesterday's hike. Using this data:

1. Use your observations to sort the photos into groups that have similar characteristics.
2. Label your groups by creating headings.
3. Record your sort on poster paper so that another first grader or Bull Run Park Ranger can sort any turtles they see in the future.

Thank you for your help.

Sincerely,

Ranger Terry

To:
Manassas City Public Schools First Graders

From:
Ranger Terry at Bull Run Regional Park

Subject:
Aging the Box Turtle

Dear First Graders,

We just found out that we need to estimate how old the turtles are at Bull Run Regional Park to help monitor the health of our turtle population. We talked to some turtle scientists and they are still trying to figure out how to estimate the age of turtles. They shared some things they think are important, but would love your help coming up with new ideas.

Using the pictures you already have:

1. Use observation to sort the photos into groups of turtles that look to be about the same age.
2. Label your groups by creating headings.
3. Record your sort on poster paper so that another first grader or Bull Run Park Ranger can sort any turtles they see in the future.

Please write me a letter sharing what you learn. Thank you for your help.

Sincerely,

Ranger Terry

Student Photos



Turtle **A**



Turtle **B**



Turtle **C**



Turtle **D**



Turtle **E**



Turtle **F**



Turtle **G**



Turtle H



Turtle I



Turtle J



Turtle K



Turtle **L**



Turtle **M**



Additional Photo

Turtle 1



Additional Photo

Turtle 2

Formative Assessment

GROUP **1** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **2** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **3** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **4** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **5** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **6** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **7** Students:

Labels/Attributes	Categories (#)	Verbal Explanation

GROUP **8** Students:

Labels/Attributes	Categories (#)	Verbal Explanation