



**Sewee Earth Stewards – Students for Conservation**

**ES Week 2-Alligators  
Pre Lesson 1**

**“You Might See Some Alligators”**

**Objective:**

1. To introduce students to alligators
2. To prepare students for guest presentation by Walt Rhodes of SC Department of Natural Resources

**Materials needed:**

Video: Life on Earth – Victors of the Dry Land

Pamphlet: Welcome to Our State... You Might See Some Alligators Here (1 copy per student)

Book: Never Kiss An Alligator

**Procedure:**

1. Watch the 10 minute selection from **Life On Earth – Victors of the Dry Land** that shows crocodiles on the Nile.
  - a. Explain that alligator behavior is very much like what is shown here; however, the animals look different. Alligators have broad, rounded noses while crocodile snouts are longer and skinnier. Alligators' lower teeth don't show when their mouths are closed. Crocodiles' lower teeth do show when they close their mouths. Also, crocodiles are more aggressive and move faster than alligators.
  - b. Crocodiles are only found in one state in the US – Florida. They live in very tropical areas, so Florida is the only state with appropriate **habitat** for them.
  - c. Alligators are found in the Southeast US, including South Carolina. Their range only extends northward into parts of North Carolina. Since they are **cold-blooded** animals, they cannot exist where the waters freeze in the winter, so South Carolina is a perfect **habitat** for them.
2. Give each child a copy of **Welcome to Our State... You Might See Some Alligators Here**. Post a copy in the room as well. Read parts of the pamphlet together. Emphasize safe behavior around alligators.
  - a. Summarize the page “Sustainable Success Story”. Discuss the ideas conveyed in the terms “sustainable-use management” and “agricultural and **urban encroachment** on its **habitat**.”
3. Have students read Never Kiss an Alligator and other source books to one another.
4. Tell students that Walt Rhodes from the SC Department of Natural Resources will visit the students at the next group session. Walt is a biologist who is an expert on alligators. He manages the Alligator Program for the entire state of South Carolina.
  - a. Help students collect questions about alligators to ask Walt.
  - b. Have students prepare questions for Walt about his career.

**Optional**

Have students construct a Venn diagram to compare and contrast alligators and crocodiles.

Alligators

Crocodiles



**Sewee Earth Stewards – Students for Conservation**



**Sewee Earth Stewards – Students for Conservation**

**ES Week 2-Alligators  
Lesson 1**

**Alligators in South Carolina  
Walt Rhodes of the SC Department of Natural Resources**

**Objective:**

To give students information about alligators in our state and the research that is being done.

**Materials:**

Student journals  
Questions prepared in class  
Alligator slide

**Procedure:**

Walt Rhodes will discuss alligators in our state and the research work he does.

Students should be prepared to ask questions they have prepared if Walt does not answer them in his presentation.

They should also ask the questions about his career.



## Sewee Earth Stewards – Students for Conservation

### ES Week 2-Alligators Lesson 2

#### Alligator Activities

##### Objective:

1. To use student interest in alligators for activities in math and language arts.
2. To use measurement tools.
3. To increase their vocabulary.

##### Materials:

1. Examining an alligator's head.
  - a. Alligator skull (brought by Sewee Center)
  - b. Diagrams of head and skull
  - c. Measuring tape
2. Measuring alligators
  - a. Mounted alligator (brought by Sewee Center)
  - b. Measuring tapes (inches and centimeters)
  - c. Growth chart (included here)
3. Math with alligator eggs
  - a. 9 "alligator nests" with number of "eggs" as indicated. Use lima beans in baggies as the nests. It helps to color code the beans so they won't get mixed up with other bags. Number of "eggs": 25, 39,40,41,45,45,45,47,51.
  - b. White board
  - c. White board pens and eraser
  - d. Post-it notes
4. Alligator – Up close and personal
  - a. Live alligator from the Sewee Center
  - b. Flashlight
5. Alligator on the Escalator
  - a. 10 copies of poem "Alligator on the Escalator"

##### Procedure:

Class will start with student readings from the swamp written the previous week.

Class Leader will then explain today's lesson. Students will be divided into 5 groups and will have a chance to spend 15 minutes at each of the 5 stations. We will learn more about alligators through study of an alligator skull, a mounted alligator, alligator nests, a live alligator and a poem about alligators.

Before we start, however, the Leader will read "The Alligator and the Hunter" to the class. This is a story told by the Choctaw Indians who lived in many areas of the Southeast and South Carolina. The story shows they had a very good understanding of how to use and enjoy the riches of the earth without using them up. This gives us all an example of how Earth Stewards should live.



## Sewee Earth Stewards – Students for Conservation

### Alligator Activity Stations:

#### **Examining an Alligator Head:**

Ask students to make observations about what they find most striking as they look at the skull.

Show openings to the internal ear, eye sockets, and **nare** (nostrils).

Explain how alligator eyes, ears, and **nare** are in the top of its head. The alligator can see, hear, and smell while swimming or floating at the surface of the water because of this.

Each of these senses is very good. Alligators can see well at night. Their eyes have a thin layer of cells at the back that collect and reflect dim light. Biologists count alligators by shining flashlights over the water as they cruise at night looking for pairs of “red eyeshine”. When only the head of the alligator is visible, it is still possible to estimate its body length. You would first approximate the distance between the eyes and the nose in inches. Every inch is indicative of about one foot to total alligator length.

Question: If the distance between the eyes and the nose of an alligator is about 8 inches, how long is this alligator? (8 feet)

Ask students to estimate the length of this alligator when it was killed.

Alligator teeth are extremely hard and sharp. Alligators swallow their prey whole if possible. They can tear off pieces of bigger prey to be able to swallow, but they never chew their food.

Question: What shape are they? (cone) Why would they be that shape? (Helps them to “stab” into food sources, yet have the power to break bones)

As an alligator grows, its new teeth push out the old ones. The teeth are hollow so that the new tooth has room to emerge before the old one falls out. A fifty year old alligator may have had as many as 60,000 teeth in its life.

Ask students to estimate the number of teeth in the upper and lower jaws.

Have a volunteer count the teeth (there are 40 on each).



## Sewee Earth Stewards – Students for Conservation

### Measuring Alligators:

Explain that this alligator was once alive. It was found on a beach sick and soon died, so it has been mounted for us to use.

Feel the alligator's skin. How could you describe it? (**leathery, shiny, scaly**) The hard scales are called **scutes** and are made of the same material as our fingernails (**keratin**).

Show the belly. This is the skin that people use to make into shoes, belts, wallets or purses.

The alligator population had diminished so significantly in SC by 1964 that the alligator season was closed. The alligator was protected under Federal Law from hunting in 1966. Now in SC, they are no longer biologically threatened, but it is still protected since the endangered crocodile is so similar in appearance. It is still illegal to hunt alligators in SC, but there is a small harvest program on private lands. Owners have to get permission to take a certain number of animals each year.

Alligators that are dangerous to humans are called **nuisance** alligators. People call the state Department of Natural Resources if they think an alligator is a threat. The Department gets about 700 calls a year and harvests about 250 nuisance alligators yearly. The hides are sold and part of the profit is used to run the state Alligator Program.

It is illegal to feed alligators. Why? (**they lose their fear of humans and approach them expecting to get food**) People and pets should never swim where alligators live.

Using alligator length to estimate age:

Biologists have learned that alligators grow about 1 foot a year for the first 5 years of life, then their growth slows so that at age 23 males are about 10 feet long and females are about 8 feet long.

Now, let's use the Alligator Growth Curve chart to estimate age. If an alligator is about 4 feet long, how old would it be? (**5 years – Note: use this as an opportunity to learn converting inches to feet**)

Estimate the length of this mounted alligator. Now ask for volunteers to use the measuring tapes to measure this specimen. So how old was this alligator when it died? (**10 or 15 years old**)

Closer look:

Check out the feet of this alligator. What difference do you see between the front and back feet? (**The back feet are webbed and have 4 toes, the front feet are not webbed and have 5 toes**). Do all the toes have claws? Have the students describe the bottom of the feet. Ask them to describe how an alligator moves – on land and in the water.



## Sewee Earth Stewards – Students for Conservation

### Math with Alligator Eggs:

Facts about Alligator nests: The female builds her nest in June in a secluded area near water. The nest is a mound made from mud and plants. Alligator nests are about 2 feet high and 6 feet in diameter.

Alligator eggs are about 2 ½ inches long and 1 ½ inches wide. Female alligators lay from 20 to 70 eggs and cover the eggs with nesting material (grass, mud, twigs). The eggs are **incubated** by the warmth of the sun and the heat generated by the **decomposition** of the nesting material.

The eggs that reach the higher temperatures ( > 91 degrees) become males. These eggs are usually in the top part of the nest. Those eggs with a lower incubation temperature ( < 85 degrees) become females, and are found at the bottom of the nest. Eggs found in the middle of the nest and that reach temperatures between 85 and 91 can become male or female.

Fire ants, raccoons, rats, and storms can destroy the eggs before they hatch. Those that survive hatch after incubating about 65 days.

Hatchlings are about 10 inches at birth and weigh about 2 ounces. They stay near the nest in a group called a pod. They eat insects, small fish, and frogs.

### Activity:

Introduction: Scientists often count what they see. They look at totals in different ways to see if they can find patterns. We are going to count the “eggs “ in our nests and find different kinds of averages.

1. Group students into at least 9 groups and give each group an “alligator nest”. Ask the students to count their alligator eggs and write their total on a post-it note. Have each group put their post-its on the white board, then have one student arranged them in order from smallest to largest. (Number of eggs = 25, 39, 40, 41, 45, 45, 45, 47, 51)
2. One way that scientists look at numbers is to find the difference between the largest and the smallest numbers. That difference is called the **RANGE**. The range of these numbers is \_\_\_\_\_ (**51-25 = 26**)
3. Another way is to find the number that is in the middle of the list when the numbers are arranged in order. The middle number is called the **MEDIAN**. The median of these numbers is ( **45**).
4. The number that occurs the most times is called the **MODE**. In our nests, the mode is (**45**).
5. Another way to look at these numbers is to find the **MEAN**. The mean tells you how many eggs would be in each nest if each held exactly the same as all the other nests. One way to find the mean is to **Add all the nest totals, then divide by the number of nests. The mean for these nests is 42 – sum of 378 divided by 9 nests.**



## Sewee Earth Stewards – Students for Conservation

### Alligator – Up close and personal:

This alligator is a permitted resident of the Sewee Center. We had to obtain a special permit to have him for educational purposes. Since you cannot capture an alligator from the wild, we had to get him from an alligator farm in Florida. If we are no longer able to keep him, he will go back to that farm to live. Since he has always been fed by humans, he cannot live in the wild as he is too **acclimated** to us. Remember, it is illegal to kill an alligator without permission from the state. The fines for breaking the law are \$1,000 to \$5,000 or a year in jail.

Let the students touch the alligator and possibly watch him walk. Give them 3 minutes to observe him, then ask them to record what they notice, using the best descriptive words they can. This part should take no more than 5 minutes. Then ask 3-4 students to share their descriptions with the group.

#### Facts to share with students:

Only young alligators have the yellow striping for **camouflage**. When they hatch, they are about 10 inches long and already have little sharp teeth. In the wild, alligators grow about 1 foot a year until they are 5 years old. This alligator has not grown that way – Why? (**he has been contained in an aquarium, he prefers to eat only crickets – not fish which would accelerate his growth**). Alligators can live to be 60 to 70 years old.

The mother alligator carries her babies in her mouth from the nest to the water's edge. She protects them from the late summer when they are hatched, until the following spring. When a baby makes its sound (like a "yurk, yurk"), the mother comes to get it.

Alligators are **ectothermic** which means they are **cold-blooded**. They can't regulate their body temperature from within. They can't shiver to warm up, nor do they have fat, fur or feathers to give them insulation. Their body temperature goes up or down with the outside temperature. When alligators need to warm up, they lie in the sun to soak up its warmth. If they are too hot, they go into the water to cool off. Alligators are inactive and don't eat much from October through February to save energy. Adult alligators don't eat very frequently – maybe only 8 times a year.

Shine the flashlight at the alligator's eye. What shape is the pupil in bright light? **Vertical slit**. The nostrils and ears have flaps over them to keep the water out when they submerge. The eyes are also protected by a special transparent eyelid that protects the eye, but allow the alligator to see under water.



## Sewee Earth Stewards – Students for Conservation

### Alligator on the Escalator:

Have each student read the poem, then talk about it.

Does it have end rhymes? Is there a pattern to these?

What long 'e' sounds end lines?

Are there long 'a' sounds within the poem?

What is the "big idea" of this poem?

How does the author get us to visualize the alligator?



**Sewee Earth Stewards – Students for Conservation**

**ES Week 2-Alligators  
Post Lesson 1**

**Post-Alligator Activities**

**Objective:**

To continue talking about the role of alligators in our world.

**Materials:**

Story: “ The Alligator and the Hunter”

Story: “Death in the Lake”

**Procedure:**

Have one of the students read “Death in the Lake” to the others. Talk about what the author is telling us. Was he sad? Is he mad? What did he learn? What should we learn about being around water with alligators?

Have another student read “The Alligator and the Hunter” to the others. What does this story teach us? How should we treat the animals we encounter in the wild? What is the “moral” of this story?



**Sewee Earth Stewards – Students for Conservation  
Alligator Vocabulary**

<b>Acclimated</b>	to be use to a new climate or environment
<b>Cold-blooded</b>	having body temperature that changes with surrounding air or water
<b>Nare</b>	nostrils
<b>Scutes</b>	Hard scales found on alligators skin
<b>Keratin</b>	protein substance that makes up hair and nails
<b>Nuisance</b>	an act, thing, or person causing trouble
<b>Incubated</b>	to heat so as to hatch or grow
<b>Decomposition</b>	to break down or decay
<b>Range</b>	difference between the largest and smallest numbers in a group of numbers
<b>Median</b>	the middle number; when a group of numbers are in order from least to greatest
<b>Mode</b>	the number that occurs the most times in a group
<b>Mean</b>	the sum of a group of numbers, divided by the amount of numbers
<b>Camouflage</b>	coloring that hides and animal by making it blend in with its surroundings
<b>Ectothermic</b>	cold blooded; body of animal has temperature of its surroundings



## Sewee Earth Stewards – Students for Conservation

### Curriculum Standards

ES Week 2  
Alligators

#### Reading/English Language Arts

##### I. Reading/Literature

- The student will read and learn the meanings of unfamiliar words and phrases.
  - Use knowledge of root words, prefixes, and suffixes.
  - Expand vocabulary through listening, reading, and writing words which reflect both general knowledge and specific subject-related vocabulary.
- The student will continue to read and demonstrate comprehension of a variety of literary forms including fiction, nonfiction and poetry.
  - Describe the characteristics of free verse, rhymed, and patterned poetry.
  - Describe how author's choice of vocabulary and style contribute to the quality and enjoyment of selections.
  - The student will demonstrate a growing independence in selecting systems of structure, semantics, and phonics combined with prior knowledge to read increasingly more difficult print.
  - The student will read for sustained periods of time.
  - The student will select books for personal reading interests.
  - The student will understand text in terms of its historical and cultural context and relate to other content areas.

##### II. Listening

- The student will listen, draw conclusions, and share responses in subject-related group learning activities.
  - Participate in and contribute to discussions across content areas.
  - Summarize information gathered in group activities.
  - Follow multi-step oral directions.

##### III. Speaking

- The student will use effective nonverbal communication skills.
  - Maintain eye contact with listeners.
  - Use gestures to support, accentuate, or dramatize verbal message.
  - Use facial expressions to support or dramatize verbal message.
  - Use posture appropriate for communication setting.

##### IV. Writing

- The student will write for a variety of purposes to describe, to inform, to entertain, and to explain.
  - Choose planning strategies for various writing purposes.
  - Organize information.
  - Use vocabulary effectively.
  - Vary sentence structure.
  - Revise writing for clarity.
  - Write several related paragraphs using an effective introduction, body of the paper, and conclusion.



### **Sewee Earth Stewards – Students for Conservation**

- Edit final copies for grammar, capitalization, spelling, and punctuation, especially the use of possessives and quotation marks.
- Write legibly.
- Use available technology.
- The student will keep journals and write drafts in English language arts classes and other disciplines to understand and record experiences and ideas.
- The student will publish in a variety of formats, such as stories, poems, and plays.
- The student will write for sustained periods of time.

### **Mathematics**

#### **V. Measurement**

- Understand the structure and use of nonstandard and standard (U.S. customary and metric) systems and express answers in the appropriate form.
  - The student will add, subtract, and convert units of measure within the metric and U. S. customary systems and express answers in the appropriate form.

#### **VI. Probability and Statistics**

- Construct, read, and interpret tables, graphs, and charts.
  - The student will read and interpret tables, graphs, and charts.
  - The student will find the mean and mode of a set of data.

### **Science**

#### **VII. Inquiry**

##### **□ Process Skills**

- Observe
  - Use the senses and simple tools to gather information about objects or events such as size, shape, color, texture, sound, position, and change (qualitative observations)
- Classify
  - Compare, sort and group concrete objects according to two attributes.
- Measure
  - Use standard (U.S. Customary and Metric) to estimate and measure mass, length, area, perimeter, volume and temperature to the nearest whole unit (quantitative measurements).
- Infer
  - Explain or interpret an observation based on data and prior knowledge.
  - Discriminate between observations and inferences.
- Predict
  - Use prior knowledge and observations to identify and explain in advance what will happen.
  - Discriminate between inferences and predictions.

#### **VIII. Life Sciences**

##### **□ Populations and Ecosystems**



### **Sewee Earth Stewards – Students for Conservation**

- Distinguish among the roles organisms serve in a food web (producers, decomposers, consumers, prey and predators).
- Describe an organism by its niche in an ecosystem.
- Explore and identify career opportunities in natural resource/environmental/marine science.