

Climate change is turning sea turtle eggs female. What about alligators?

Source: Miami Herald (TNS)
By Alex Harris
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AVID's Critical Reading Process

This lesson will follow AVID's critical reading process and will utilize the following strategies:

1. Pre-reading
2. Interacting with the text
3. Extending beyond the text

AVID's WICOR® Methodology

This lesson uses the WICOR methodology. The WICOR icon will be used throughout the lesson to indicate when an activity includes WICOR methods.

Writing

Inquiry

Collaboration

Organization

Reading

Focused Notes

Essential Question:

How do readers isolate essential information and analyze text structure in order to increase comprehension?

Critical Reading Strategy Focus

Strategy details are available for download from the AVID Weekly matrix.

First Reading

- *Marking the Text:*
Circling and Underlining Essential Information
 - Identify and circle or underline information relevant to the writing task.

- *Common Core College and Career Readiness Standards*
 - *CCRA.R.1:* Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific evidence when writing or speaking to support conclusions drawn from the text.
 - *CCRA.R.8:* Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

Second Reading

- *Charting the Text*
 - Describe (or chart) what the author is doing in a paragraph or set of paragraphs.
- *Common Core College and Career Readiness Standard*
 - *CCRA.R.5:* Analyze the structure of texts, including how specific sentences, paragraphs, and large portions of the text relate to each other and the whole.

Reading Prompt: *In the article "Climate change is turning sea turtle eggs female. What about alligators?" Alex Harris illustrates how climate change uniquely impacts the breeding of certain species. As you read, circle key terms, bracket the names of experts cited in the text, and underline examples that the author uses to develop her claims. In the left margin, summarize what the text is saying. In the right margin, write what the author is doing in each chunk of the text.*

Estimated Preparation Time: 20–30 minutes

Estimated Instructional Time: 125 minutes

Recommended Pacing: 2 days

Using the AVID Weekly Resources

Before teaching this lesson, go online to AVID Weekly to access additional teaching tools. Find the following sections in the top navigation.

Teacher Resources

This page offers strategies and approaches that will help you prepare for the lesson, set expectations, and prepare for the reading.

Assessment Tool

This page offers general questions teachers can use to assess students' understanding and analysis of a reading.

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Instructional Model for AVID Teachers

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Pre-Reading

Developing Students' Understanding of the Subject (approximately 15 minutes)

Frayer Model

1. Have individual students, pairs, or small groups create a Frayer Model on a blank sheet of paper.
2. Ask students to do each of the following:
 - a. Section 1: Define *climate change*.
 - b. Section 2: Represent *climate change* nonlinguistically (no words or numbers).
 - c. Section 3: Provide examples of *climate change* that pertain to society and/or the world we live in today.
 - d. Section 4: Provide non-examples.

Building Vocabulary (approximately 10 minutes)

Build a Definition:

- Focus on the key concepts and vocabulary identified during this activity.
- Have students record the key concepts and vocabulary in their focused notes with at least three lines between each word.
- Next, assess students' prior knowledge of the words by asking them to quietly reflect on what each word might mean and write three words that might be used in the definition.
- Have students work in small groups where each student shares their three words individually. As a group, the students should decide on the three best words to include in the definition of each word.
- As a class, share the top three words from each group and vote with a quick show of hands to select three words most likely to be found in the definition of the word. At this time, students can be asked to look up the word and share the definition with their peers. Alternatively, students can read the selected text and add to the definition after reading it in context.
- Have students process the vocabulary terms. Some suggestions are to have students use the words in sentences of their own, search for the words or their synonyms within the text or other course materials, draw pictures or diagrams to expand on the definitions, or act out the words in a skit.

Key Concepts:

- gender
- climate change

Key Vocabulary:

- hypothesis (par. 2)
- sampled (par. 4)
- future temperature (par. 7)
- effects (par. 7)
- variable (par. 9)
- skew (par. 12)
- mechanism (par. 15)

Molloy, K., Arno, K., Martin, M., & Robinson, D. (2012). *The Write Path I Science: Teacher Guide* (p. 214). San Diego, CA: AVID Press.

Making Predictions (approximately 5 minutes)

Once students have had an opportunity to build prior knowledge through writing and speaking, they are ready to make some predictions.

- Hand out a copy of the article. Ask students to **survey the text**. Have them report on what they see. Are there subtitles? Is the text divided into sections? What is the length of the individual paragraphs? Have them scan the whole text to get an idea of its length.
- It's a good idea to have students **make predictions** before they read. Ask them to read the title and make predictions about the message of the text. You could ask, "What will this text be about?" You could also ask them to read the first and last paragraphs and make another prediction.
- **Take a look at the publication and author information.** You can discuss this information as a class, or you can have students discuss this information in collaborative groups. Why should students read this information? The publication date tells the reader when the text was written, allowing them to better understand the issues of the time in which the text was written. Author information can be useful, too. An author's personal and professional experiences can tell the reader a lot about the purpose of the text and the intended audience.

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Interacting With the Text



Instructions for the lesson are provided in this section. Use an overhead projector or document camera to model and support the following activities.

Numbering the Paragraphs (approximately 5 minutes)

Note: Students familiar with the "Marking the Text" strategy may be able to mark the text during their first read. If not, have students read the text once without marking or writing in the margins.

1. Go over the "Marking the Text" strategy with your students. (If you do not have a copy of this strategy, visit AVID Weekly and download a copy from the matrix.) Students should have copies of this handout on their desks, or the ideas from this handout should be available to them in some other way.
2. Begin with **numbering the paragraphs**. If students are not familiar with numbering paragraphs, model how to number individual paragraphs.

First Read: Circling and Underlining Essential Information (approximately 20 minutes)

Note: Depending on your students' skill level, you may want to work through a few paragraphs as a class. You might also reduce the amount of rereading students do by directing them to specific paragraphs that contain essential information. Consider having your students work in pairs as they learn how to circle and underline essential ideas in a text.

Circling Key Terms

3. Here are a few key words and names students should identify and circle.
 - a. Paragraph 1: "mid-August" and "400 baby alligators"
 - b. Paragraph 2: "hypothesis" and "climate change"
 - c. Paragraph 3: "generation" and "outnumber"
 - d. Paragraph 4: "decade," "sampled," and "totally female"
 - e. Paragraph 5: "31 Celsius (87.8 degrees Fahrenheit)"
 - f. Paragraph 6: "sex," "eggs," and "temperature"

- g. Paragraph 7: "future temperature" and "effects"
- h. Paragraph 8: "mini passive greenhouses"
- i. Paragraph 9: "variable"
- j. Paragraph 12: "skew"
- k. Paragraph 13: "long term effects"
- l. Paragraph 15: "mechanism"
- m. Paragraph 16: "Everglades"

You may find additional key terms in the text that are not included in the list above. Identifying these words will help students summarize the text either orally or in writing.

Underlining Essential Ideas

4. Here are some essential ideas students should identify and underline.
 - a. Paragraph 2: "Researchers will scoop up the newborns and tally them up: male or female? If professor Adam Rosenblatt's hypothesis is correct, most of the tiny reptiles wriggling out of their manmade nests will be female, thanks to climate change."
 - b. Paragraph 3: "In the Pacific Ocean's most important sea turtle nesting area, females outnumber males 116 to 1, National Geographic reported. More and more South Florida sea turtles are born female too..."
 - c. Paragraph 4: "In the last decade, seven of the 10 years..." and "...was totally female."
 - d. Paragraph 6: "That's because sea turtle sex is determined by the heat of the sand around them. Science has clearly shown that warmer nests mean more female sea turtles, but although alligator eggs also change sex depending on temperature" and "...there's no research on how alligators react to rising temperatures."
 - e. Paragraph 7: "Nobody has really looked at future temperature scenarios and climate change and their effects on crocodilians..."
 - f. Paragraph 9: "Rain also plays a big role in determining temperature for both alligator and sea turtle nests."
 - g. Paragraph 13: "The concern is if that goes too far in one direction..."

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- h. Paragraph 14: "But Rosenblatt cautions that just because alligator and sea turtle eggs both determine sex by temperature, it doesn't mean he'll see the same results sea turtle scientists do."
- i. Paragraph 15: "We don't exactly understand the mechanism for how the temperature different sex determination happens."
- j. Paragraph 16: "Higher temperatures do cause baby alligators to hatch faster, he said, and it makes adults grow slower."
- k. Paragraph 17: "There could be a future where the warming climate pushes the nation's alligator population north to cooler climates like Virginia."
- l. Paragraph 18: "You might see the population decline and start to disappear from the Everglades..."

You may want students to underline additional ideas that are not included in the list above.

Bracketing Expert Sources

- 5. Here are some expert sources students should identify and bracket.
 - a. Paragraph 1: "University of North Florida"
 - b. Paragraph 2: "Professor Adam Rosenblatt"
 - c. Paragraph 3: "National Geographic" and "South Florida Atlantic University Professor Jeanette Wyneken"

Second Read: Charting the Text

(approximately 20 minutes)

Note: Engage your students in pair-share and small group activities as they work through the paragraphs. Analysis of individual paragraphs may vary.

- 6. For this second read, have students chart the text. Use a graphic organizer like the following table or download the "Charting the Text" resource from the monthly AVID Weekly matrix and refer to the "Analyzing the Micro-structure" pages to help students organize their charting statements. To learn more about the "Charting the Text" strategy or to use the "Charting the Text" table, visit AVID Weekly and click the "Charting the Text" strategy link located at the top of the monthly article matrix.

Pars.	Say: What is this section about?	Do: What does the author do in the section? Begin with a verb.
1-3		
4-6		
7-8		
9-11		
12-13		
14-15		
16-18		

Extending Beyond the Text



Closing activities do not need to be process papers or writing assignments that go through multiple drafts. As students learn how to read more critically, give them opportunities to write brief analyses of what they read. These focused responses will help deepen their understanding of the texts they read while developing their academic writing skills. Writing or speaking exercises like the ones listed here can also serve as formative assessments, providing valuable feedback about what your students know and what they still need to learn.

- Have students write a one-page paper that addresses the writing prompt. (approximately 50 minutes)
Writing Prompt: Analyze the effectiveness of Harris' argument. Account for the key evidence and details she uses as support. What does the author hope to accomplish through her writing? Are her approaches practical? Explain.
- Engage students in one of the AVID Weekly lessons. Visit the AVID Weekly Teacher Resources page and click Resources in the left navigation. This page offers instructions on how to run Socratic Seminars, Four Corners Discussions, and other student-centered activities. (approximately 20-50 minutes)
- Engage students in a "Three-Part Source Integration" writing exercise. A Three-Part Source Integration is a statement that includes the title of the text, the author's name, author information, source material that is either paraphrased or directly quoted, and a brief statement explaining the significance of the paraphrase or quotation. The following is an example of a Three-Part Source Integration. (approximately 15 minutes)

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Sample Three-Part Source Integration:

In "Ethanol's Failed Promise," Lester Brown and Jonathan Lewis, two environmental activists, claim that food-to-fuel mandates are causing damage to our environment (par. 3). This is important because as America moves toward energy independence, it must be vigilant to ensure that new energy sources do not cause new problems.

- Encourage students to use their previous interactions with the text to complete the *NEWS* graphic organizer. *NEWS* helps students make personal connections to newspaper articles that make scientific claims. Students will determine the main newsworthy ideas in an article. The evidence supporting the claims presented in order will help them write a concise summary. Refer to the handout attached to this AVID Weekly lesson. (approximately 15–20 minutes)

Molloy, K., Arno, K., Martin, M., & Robinson, D. (2012). *The Write Path 1 Science: Teacher Guide* (p. 232). San Diego, CA: AVID Press.

NEWS

Title of Article: _____

Date of Publication: _____

Author's Qualifications: _____

N oteworthy	
E vidence	
W hat does this have to do with me?	
S cience connection	

Summary of Article: