# Science News
## EDUCATOR GUIDE

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**December 5, 2020**

# Early American Women Hunted Game

SOCIETY FOR SCIENCE & THE PUBLIC

SN EDUCATOR GUIDE

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## About this Guide

In this Guide, based on the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas," students will learn about the discovery of an ancient American woman that is helping reshape scientists' ideas about the roles of women in hunter-gatherer societies. Then, students will discuss how evidence and reasoning are used to build a scientific argument.

**This Guide includes:**

**Article-based Comprehension Q&A** — Students will answer questions about the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas," which describes how a woman buried with hunting tools thousands of years ago is challenging scientists' ideas of ancient gender roles. A version of the story, "Early American women hunted game," can be found in the December 5, 2020 issue of *Science News*. Related standards include NGSS-DCI: HS-ETS1; HS-LS2.

> **Student Comprehension Worksheet** — These questions are formatted so it's easy to print them out as a worksheet.

**Cross-curricular Discussion Q&A** — Students will discuss how a scientific argument uses evidence and reasoning to support a claim. Then, students will compare that process with their own experience of constructing a personal argument. Related standards include NGSS-DCI: HS-ETS; HS-LS2.

> **Student Discussion Worksheet** — These questions are formatted so it's easy to print them out as a worksheet.

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## Article-based Comprehension, Q&A

**Directions for teachers**: After your students read the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas," ask them to answer the following questions. A version of the story, "Early American women hunted game," can be found in the December 5, 2020 issue of *Science News*.

**1. What new information did researchers uncover in the Andes Mountains of Peru?**

Researchers found the remains of an ancient woman buried with spearpoints and other hunting tools.

**2. Why is this discovery notable?**

The woman was buried about 9,000 years ago, which makes her the oldest known female big-game hunter in the Americas.

**3. What conclusion do the researchers make based on this and other discoveries?**

In ancient American hunter-gatherer societies, nearly as many females as males hunted large animals.

**4. After the recent discovery, what additional evidence was used to create the researchers' conclusion? Explain.**

The researchers reviewed evidence from 429 people buried at 107 ancient sites throughout the Americas. Of 27 people who were buried with hunting tools and whose sex was known, 11 were women and 16 were men. Based on that small dataset, researchers estimated that women made up 30 percent to 50 percent of big-game hunters, on average, in the ancient Americas.

**5. How have researchers typically viewed women in ancient hunter-gatherer societies? How is the finding challenging notions of ancient gender roles?**

Ancient women typically have not been thought of as hunters. Sharpened stones and other hunting items found in ancient women's graves were thought to be tools used for cutting or scraping rather than hunting. This view may have been influenced by the prevalence of male hunters in modern hunter-gatherer populations. The new discovery could lead scientists to revise ideas about women's contributions to ancient hunter-gatherer societies.

**6. What does archaeologist Ashley Smallwood say about the relationship between modern and ancient gender roles?**

Scientists shouldn't assume that modern gender roles apply to groups that lived long ago.

**7. What does archaeologist Patricia Lambert say about the researchers' findings?**

Lambert questions whether the small sample of ancient people the researchers examined accurately reflects how often women participated in hunts.

**8. What other discoveries may contribute to changing views of ancient gender roles? Explain.**

Other research has found evidence for ancient warrior women in California and Mongolia, and among Scandinavian Vikings.

**9. The following sentence from the *Science News* article contains a literary device: "The dominance of male hunters in modern hunter-gatherer populations has fueled a tendency to, in essence, give ancient men the spearpoint and ancient women the short end of the stick." What is the device? Rewrite the sentence so that it conveys the same information without using the literary device.**

The sentence contains an idiom. The dominance of male hunters in modern hunter-gatherer societies has fueled a tendency to overlook the possibility that ancient women could have also been big-game hunters.

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## Student Comprehension Worksheet

**Directions**: Read the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas," and answer the following questions. A version of the story, "Early American women hunted game," can be found in the December 5, 2020 issue of *Science News*.

**1. What new information did researchers uncover in the Andes Mountains of Peru?**

**2. Why is this discovery notable?**

**3. What conclusion do the researchers make based on this and other discoveries?**

**4. After the recent discovery, what additional evidence was used to create the researchers' conclusion? Explain.**

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## Cross-curricular Discussion, Q&A

**Directions for teachers:**

Have students begin the exercise by answering the question in the "Reflect on an argument" section. Then, ask them to read the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas." Another version of the story, "Early American women hunted game," appears in the December 5, 2020 issue of *Science News*. Ask students to work with a partner to discuss and answer all remaining questions. Have each pair share its answer to the final question with the class.

**Want to make it a virtual lesson?** Post the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas," to your learning management system. Pair up students and allow them to connect via virtual breakout rooms in a video conference, over the phone, in a shared document or using another chat system. Have each pair share its answer to the final question on a discussion board or during the next class's video conference.

**Reflect on an argument**

1. Think of an argument you had where you took a position on something. What was the viewpoint or position that you took? How did your past experiences influence your viewpoint or position? How did you explain your viewpoint or position? Did you support your viewpoint or position with evidence? What was the outcome of the argument? What, if anything, could you have done differently to impact the outcome?

*Student answers will vary.*

**Evaluate a scientific argument**

2. What is the claim, or assertion of something as a fact, made by the scientists as described in the *Science News* article?

*The researchers concluded that nearly as many females as males hunted large animals in the ancient Americas. On average, females accounted for between 30 and 50 percent of big-game hunters.*

3. What evidence, or scientific data, do the scientists use to support their claim?

*Scientists used new evidence gathered from five burial pits and existing evidence from 429 individuals buried across 107 sites to support their claim. The scientists found that 11 women and 16 men were buried with stone tools, which suggests those people were hunters.*

4. How did scientists use the finding as reasoning to support their claim?

*The 11 women and 16 men found buried with big-game hunting tools led researchers to estimate that females made up 30 to 50 percent of big-game hunters in ancient American societies.*

5. What points of uncertainty, or caveats, to the claim does the *Science News* article mention?

*The article states that the dataset used to make the conclusion is considered limited. The article also notes that the tools found buried with individuals don't indicate how often those people participated in hunts.*

6. What could scientists do to increase confidence in the claim? How could scientists go about that process?

*Scientists should search for new burial sites and collect more evidence. Then, they should evaluate the new, more complete dataset.*

7. Does the new claim challenge any previously accepted ideas? Were the old ideas rooted in evidence? Explain how the transition in thought occurred.

*This new conclusion challenges notions of gender roles in ancient hunter-gatherer societies. Many researchers originally thought that sharpened tools placed in ancient women's graves must have been used as cutting or scraping tools — not for hunting. This idea was not rooted in evidence, but instead was likely based on modern ideas about gender roles. Based on new and existing archaeological evidence from the burial sites, scientists concluded that ancient female big-game hunters were not outliers.*

8. Figures and diagrams can be used to present qualitative and quantitative evidence. Click on the link to the primary research article found at the bottom of the online *Science News* article "Female hunters of the early Americas," and look through the figures. Describe what each figure depicts and explain how the figure helps communicate the evidence and/or enhance the argument.

*Figure 1: Shows a map of the Peruvian burial site and individual graves. The figure helps readers visualize the locations and contents of individual graves at the site.*

*Figure 2: Shows remains and tools from the grave of a Peruvian female woman. The figure helps readers visualize how the woman was buried with the tools, how many tools there were and what the tools looked like. The quantity of tools buried with the woman could be used to reason that the tools were important and suggest the woman was a hunter.*

*Figure 3: Shows remains and tools from the grave of a Peruvian man who researchers say was a hunter. The*

*figure helps readers visualize how the man was buried with the tools. Comparing the figure with figure 2 could be used to reason that the Peruvian woman was also a hunter, as she was buried with many more tools than the man was.*

*Figure 4: Shows a map of ancient burial sites across the Americas. The figure gives readers a sense of how many females and males were buried with hunting tools. That there are roughly as many women buried with hunting tools as there are men buried with hunting tools could be used to support the researchers' claim.*

*Figure 5: Shows a graph of the probability of female participation in hunting big game according to various statistical models. This figure is providing a visual model of the statistics to help readers understand how the researchers arrived at their conclusion.*

**Compare and share**

9. Compare your personal experience with scientists' process for creating an argument. Which steps from the scientists' process did you follow and which steps did you skip when you built your own argument? Explain.

*Student answers will vary.*

10. What strategies for crafting a scientific argument do you think are relevant for enhancing a personal argument? What strategies do you think are irrelevant?

*Student answers will vary, but students could mention using new evidence to challenge previously accepted ideas, using evidence to support their claim and collecting more evidence as relevant strategies to enhance a personal argument. They could mention using figures to support their claim as an irrelevant strategy.*

11. Should personal arguments follow the process for creating a scientific argument? Are there cases where the scientific process doesn't work well for personal arguments?

*Student answers will vary, but students may include in their answers thoughts around supporting their viewpoint with evidence. A potential drawback may be the time required to gather evidence to support a claim. Students might also mention that the scientific process doesn't work well in cases where there is no objectively right or wrong answer. In some personal arguments, evidence doesn't provide a clear answer because personal opinions, preferences and moral viewpoints are at play.*

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## Student Discussion Worksheet

**Directions:** Begin this exercise by answering the question in the "Reflect on an argument" section. Then read the online *Science News* article "Female big-game hunters may have been surprisingly common in the ancient Americas." Another version of the story, "Early American women hunted game," appears in the December 5, 2020 issue of *Science News*. With a partner, discuss and answer the remaining questions. Share your answer to the final question with the class.

**Reflect on an argument**

1. Think of an argument you had where you took a position on something. What was the viewpoint or position that you took? How did your past experiences influence your viewpoint or position? How did you explain your viewpoint or position? Did you support your viewpoint or position with evidence? What was the outcome of the argument? What, if anything, could you have done differently to impact the outcome?

**Evaluate a scientific argument**

2. What is the claim, or assertion of something as a fact, made by the scientists as described in the *Science News* article?

3. What evidence, or scientific data, do the scientists use to support their claim?

4. How did scientists use the finding as reasoning to support their claim?

5. What points of uncertainty, or caveats, to the claim does the *Science News* article mention?

6. What could scientists do to increase confidence in the claim? How could scientists go about that process?

7. Does the new claim challenge any previously accepted ideas? Were the old ideas rooted in evidence? Explain how the transition in thought occurred.

8. Figures and diagrams can be used to present qualitative and quantitative evidence. Click on the link to the primary research article found at the bottom of the online *Science News* article "Female hunters of the early Americas," and look through the figures. Describe what each figure depicts and explain how the figure helps communicate the evidence and/or enhance the argument.

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11. Should personal arguments follow the process for creating a scientific argument? Are there cases where the scientific process doesn't work well for personal arguments?