



INVESTIGATING CREDIBLE SOURCES ABOUT BEEF



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LESSON PLAN:

INVESTIGATING CREDIBLE SOURCES ABOUT BEEF

GRADE LEVEL: 6-8
TIME: ONE OR TWO
50-MINUTE LESSONS

MATERIALS

- Sticky notes (one per student)
- Computer or tablet and internet connection
- Informational Text: *Source Sleuth: How to Identify Credible Sources*
- Source Sleuth *Clue Cards*
- Source Sleuth *Evidence Sheet*

STANDARDS

CCSS.ELA-LITERACY.W.6.8
Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.

CCSS.ELA-LITERACY.W.7.8
Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

CCSS.ELA-LITERACY.W.8.8
Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

LESSON OBJECTIVES

- ✓ Students will understand why it is important to use credible sources.
- ✓ Students will learn strategies for identifying credible sources.
- ✓ Students will identify primary sources of information.
- ✓ Students will practice citing sources, paraphrasing data, and interpreting conclusions.

BACKGROUND INFORMATION

For many consumers, it's hard to determine whether an online source is credible or not. Since information on the internet can be created—or in some cases fabricated—by any user, it's easy to present false information as fact. So, how can we find credible sources, especially when it pertains to the food we eat?

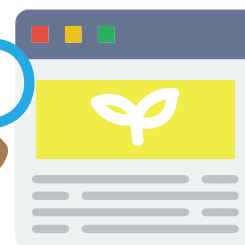
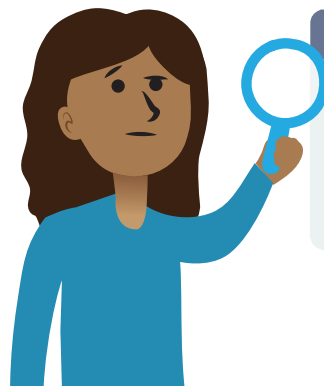
That's where the term *source sleuth* comes in. The word *sleuth* comes from the Old Norse word *sloth*, meaning “trail” and *sleuthing* is following a trail. For students to successfully identify credible sources, it takes both persistence and patience. In this lesson, students will learn strategies for identifying credible sources and do some sleuthing to determine the validity of information about beef production. They will practice citing sources, paraphrasing data, and interpreting conclusions.

PROCEDURE

Show students a fake or satirical article from the web, and present it as though it is true. Do your best to convince the whole class. It can be a fake news segment, an announcement about the “discovery” of a new animal species, or any topic your students will easily engage with. See links below for ideas.

Website	Description
molossia.org	Gives an extensive historical recount of the fictional country of Molossia.
Buydehydratedwatercom.weebly.com	Highlights the health benefits of consuming dehydrated water, including customer testimonials.
zapatopi.net/treeoctopus/	Encourages visitors to help save the Pacific Northwest Tree Octopus, which is bordering on extinction.

Once students are convinced, reveal the hoax. Explain that this example was given to demonstrate the need to view information with a critical eye. Although some websites feature fake news for humor, there are countless others that appear to be legitimate, yet publish fabricated information with the intent to deceive readers. Tell students that in this lesson they will learn strategies that will help them identify credible sources.





Write on the board: “Where does content on the internet come from?” Instruct students to write their idea on a sticky note and place it on the board. Read out some of the ideas to the class, grouping sticky notes with common ideas together. Emphasize that content can come from *any* one for *any* purpose. Use the fake article introduced at the beginning of the lesson as an example. Reiterate that virtually anyone can build a website and create “information” on the internet.

Distribute the informational text, *Source Sleuth: How to Identify Credible Sources*. Instruct students to read the text and answer the reflection questions. Decide how students should respond to the reflection questions—independent writing, small group discussion, video or audio recording, online discussion thread, class discussion, or chain note. Chain note is a strategy that begins with a question printed at the top of a paper. The paper is circulated from student to student. Each student responds with one or two sentences related to the question before passing it on to the next person.

Model the *Clue Card* activity. Use one of the *Clue Cards* to demonstrate how to dig deeper into a source. Show students how to locate key phrases from their card within a web page or document by using their keyboard’s find command (Control+F or Command+F). Encourage students to use a search engine to further investigate original sources cited in the document.

Divide the class into small groups of 2-3 students. Explain that each group will receive a *Clue Card* featuring a research inquiry related to food production. On the back of the card will be a clue—a website that will point them in the right direction. Students will investigate the clue, locate the information, and provide the requested evidence to support credibility. They will document their findings on the *Evidence Sheet* in the correct sections. Once they complete the first inquiry, they will exchange their solved *Clue Card* for a new card. Depending on the time allocation and students’ capabilities, you may assign a certain number of *Clue Cards* to complete in the remaining class time.

Educators may need to be flexible with the specific answers received; this is a challenging activity. Remember, the overall goal is for students to gain sufficient practice digging deeper into the sources they find in order to establish credibility. Answers may vary from the attached answer sheet.

At the end of the lesson, reflect on these questions:

- 1 What was hard about locating credible information?
- 2 How did you know the website “clues” provided were trustworthy? What did you observe that reassured you?
- 3 How would you finish this sentence? *Finding credible sources takes...* Explain your reasoning.

VARIATIONS:

- Assign the informational text, *Source Sleuth: How to Identify Credible Sources*, as homework prior to the lesson. Have students post their responses in a video discussion platform, such as Flipgrid or Viologues.
- Assign each group one card. At the end of the allotted time, have each group share their findings and demonstrate how they “solved” their inquiry on a projected monitor. Students complete the *Evidence Sheet* as they listen to their peers.

EXTENSION:

Now that students have experience in one particular sector of the agriculture industry, challenge them to apply the same strategies to research a controversial issue such as GMOs, animal care, food waste, conservation, and organic production. Visit usda.gov/topics for additional ideas and information. They can use the information they find to write an informative text or develop a presentation for their peers.



HOW TO IDENTIFY CREDIBLE SOURCES

For many consumers, it's hard to determine whether an online source is credible or not. Since information on the internet can be created—or in some cases fabricated—by any user, it's easy to present false information as fact. Credible sources are ones the reader can trust. When reporting on a topic, writers should always use a credible source. Citing non-credible sources can damage a writer's reputation by unknowingly broadcasting false information to his or her audience. So, how can we find credible sources, especially when it pertains to the food we eat?



Check that the source is up-to-date.

Materials published within the last ten years are typically considered up-to-date. If your paper is on a scientific topic, you would want even more recent information.



Examine the source's and author's credentials and affiliations.

Always research the background of any source you are considering using for your paper. Often, companies fund research with the hope of a desired outcome. This can still result in good research, but must be watched with a careful eye. Consider the author's credentials and affiliations.



Evaluate what sources are cited by the author.

Peer-reviewed sources set the highest standard for credible information—the review process subjects an author's scholarly work, research, or ideas to the scrutiny of others who are experts in the same field. Be skeptical if the author doesn't list sources. Always review the sources listed and make sure they stand up to scrutiny.



Determine if the publisher of the source is reputable.

Well-known publishers thoroughly check the facts of the information they are distributing. Usually, if the publisher is a large, widely-known magazine or journal, then it is a credible publisher.



Identify the web domain.

The last few letters of a website address reveal information about the credibility of a source.

- **Government or military websites (.gov or .mil)** are generally reliable sources. However, be skeptical of political sites intended to shape public opinion.
- **University websites (.edu)** typically present factual information. Still use caution, checking for credibility and authority.
- **Company websites (.com)** are often biased, but can still provide useful information about a particular company or industry.
- **Special interest websites (.org)** are sponsored by a professional organization. Not all organizations are reliable, and should be examined with some scrutiny.

AGRICULTURE INDUSTRY BOARDS

Many of the foods we eat are represented by agriculture industry boards, charged with the responsibility of educating consumers and driving demand for their product. Industry boards can provide a wealth of information—they present first hand knowledge about the agricultural product they produce. The Beef Checkoff Program is a producer-funded beef promotion and research program created through an Act of Congress—the Beef Promotion and Research Act of 1985. As such, the United States Department of Agriculture (USDA) has been given authority by Congress to oversee the Beef Checkoff Program. As part of its oversight responsibilities, USDA reviews and approves Beef Checkoff plans, projects, and budgets, and keeps a watchful eye over how the Beef Checkoff communicates with consumers. Even still, no website should be trusted one hundred percent without reviewing the sources listed and making sure they stand up to scrutiny.

WHY IT MATTERS

With internet research, we have nearly unlimited access to a wide range of topics. Today, responsibly consuming information comes with additional homework—carefully considering the validity and objectivity of the information at hand. Identifying credible sources is not easy, but it is an important life skill that will serve you well through your educational and professional careers. When you arm yourself with the tools to find credible and reliable information online, you are becoming a better-informed digital citizen. There is an old saying: “A lie makes it all the way around the world while the truth is still putting its shoes on.” Being deliberate and careful is sometimes counter-cultural but will prove to be beneficial to you individually and to our greater society.

REFLECTION QUESTIONS:

- 1 Why is it important for writers to use credible sources?
- 2 In what ways is it harder to find trustworthy sources of information?
- 3 Would you consider being able to identify credible sources as a life skill? Why or why not?



CLUE CARDS

Directions: Cut the paper into strips along the dotted lines, then fold each card along the solid line and tape to form a front and back.

Clue cards: Use the blank card included to create your own example.

FRONT

BACK

CARD 1

INQUIRY:

**WHAT IS THE TOTAL
NUMBER OF BEEF CATTLE
CURRENTLY IN THE U.S.?**

CLUE

Visit ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance

EVIDENCE

What agency compiles this information?
When was their most recent Cattle report published?

CARD 2

INQUIRY:

**WHAT IS THE LIFETIME
DIET OF GRAIN-FINISHED
CATTLE?**

CLUE

Visit beefresearch.org/programs/human-nutrition

EVIDENCE

What researcher established this data? According to his research, what percent of feed consumed in beef production comes from sources that might be available for human consumption?

CARD 3

INQUIRY:

**HOW DOES THE CARBON
FOOTPRINT OF U.S. BEEF
COMPARE TO GLOBAL BEEF?**

CLUE

Visit beefresearch.org/programs/beef-sustainability/tough-q-and-a

EVIDENCE

Which international organization originally reported this information? What three Greenhouse Gas Emissions were measured in the study?

CARD 4

INQUIRY:

WHAT PERCENT OF GREENHOUSE GAS EMISSIONS IN THE U.S. COME FROM CATTLE?

CLUE

Visit beefitswhatsfordinner.com/raising-beef/beef-in-a-sustainable-diet

EVIDENCE

What organization originally researched and published the data about greenhouse gas emissions? Paraphrase a statement about GHG emissions and beef production from the original report.

CARD 5

INQUIRY:

WHAT ARE THE HEALTH EFFECTS OF CONSUMING LEAN BEEF EVERY DAY?

CLUE

Visit beefitswhatsfordinner.com/Media/BIWFD/Docs/bold_fs_final_021412.pdf

EVIDENCE

What peer-reviewed journal published the study? Summarize the findings of the study.

CARD 6

INQUIRY:

WHO PROVIDES OVERSIGHT WHEN ANTIBIOTICS BECOME NECESSARY TO TREAT HEALTH CONDITIONS IN CATTLE?

CLUE

Visit embed.widencdn.net/download/beef/tf2ynl9cne/ABX_Infographic_2Pager_final11.10.17.pdf?u=q5atpk

EVIDENCE

What government administration provides guidance for beef production? Why does the FDA support the judicious use of medically important antimicrobial drugs in animal agriculture?

CARD 7

INQUIRY:

WHAT BENEFITS DO THE 10 ESSENTIAL NUTRIENTS IN BEEF PROVIDE TO THE HUMAN BODY?

CLUE

Visit beefitswhatsfordinner.com/nutrition/beef-faqs

EVIDENCE

What year was “The underappreciated role of muscle in health and disease” article published? How would you summarize the article?

CARD 8

INQUIRY:

WHY DO SOME RANCHERS USE
SUPPLEMENTAL HORMONES?

CLUE

Visit beefitswhatsfordinner.com/raising-beef/hormones

EVIDENCE

What journal published the related study?
Paraphrase the findings of the related study.

CARD 9

INQUIRY:

HOW DOES UPCYCLING RELATE
TO BEEF PRODUCTION?

CLUE

Visit beefresearch.org/programs/beef-sustainability/tough-q-and-a

EVIDENCE

What percent of feed consumed by grain-fed cattle is inedible by humans? What does NASEM stand for?

CARD 10

INQUIRY:

CLUE

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EVIDENCE

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EVIDENCE SHEET

CARD #1

INQUIRY:

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EVIDENCE A:

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EVIDENCE B:

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CARD #2

INQUIRY:

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EVIDENCE A:

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EVIDENCE B:

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CARD #3

INQUIRY:

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EVIDENCE A:

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EVIDENCE B:

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CARD #4

INQUIRY:

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EVIDENCE A:

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EVIDENCE B:

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CARD #5

INQUIRY:

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EVIDENCE A:

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EVIDENCE B:

.....



EVIDENCE SHEET

CARD #6

INQUIRY:

EVIDENCE A:

EVIDENCE B:

CARD #7

INQUIRY:

EVIDENCE A:

EVIDENCE B:

CARD #8

INQUIRY:

EVIDENCE A:

EVIDENCE B:

CARD #9

INQUIRY:

EVIDENCE A:

EVIDENCE B:

CARD #10

INQUIRY:

EVIDENCE A:

EVIDENCE B:



EVIDENCE SHEET

ANSWER KEY (ANSWERS MAY VARY)

CARD #1

Inquiry: 32 million

Evidence A: NASS—National Agricultural Statistic Service

Evidence B: July 24, 2020 (at the time of publication)

CARD #2

Inquiry: 11% grain, 89% human inedible forage, plant leftovers, biofuel, food industry byproducts

Evidence A: C. Alan Rotz

Evidence B: 10-15%

CARD #3

Inquiry: North American beef production systems have some of the lowest carbon footprints.

Evidence A: Food and Agriculture Organization of the United Nations

Evidence B: Methane (CH₄), nitrous oxide (N₂O), and carbon dioxide (CO₂)

CARD #4

Inquiry: 2%

Evidence A: EPA

Evidence B: Original text to paraphrase: From 1990 to 1995 emissions increased and then generally decreased from 1996 to 2004, mainly due to fluctuations in beef cattle populations and increased digestibility of feed for feedlot cattle. Emissions increased from 2005 to 2007, as both dairy and beef populations underwent increases and the literature for dairy cow diets indicated a trend toward a decrease in feed digestibility for those years. Emissions decreased again from 2008 to 2014 as beef cattle populations again decreased.

CARD #5

Inquiry: Lowering total and LDL “bad” cholesterol

Evidence A: The American Journal of Clinical Nutrition

Evidence B: Original text to summarize: The inclusion of lean beef or the partial replacement of carbohydrates with protein (including lean beef) in a low-fat diet significantly decreased TC and LDL cholesterol compared with in a HAD. These reductions were similar in magnitude to those observed for the DASH diet.

CARD #6

Inquiry: Veterinarians

Evidence A: The U.S. Food and Drug Administration

Evidence B: In order to minimize the development of antimicrobial resistance.

CARD #7

Inquiry: The nutrients in beef have an important role in muscle maintenance, weight management, and the prevention of chronic diseases. Iron, zinc and B vitamins play an essential role in developing and maintaining cognitive ability in children and adults.

Evidence A: 2006

Evidence B: Original text to summarize: Increasing protein or amino acid intakes may optimize muscle strength and metabolism and thereby improve health.

CARD #8

Inquiry: Using supplemental growth promoting hormones helps the beef community raise beef with fewer natural resources like land and water.

Evidence A: Journal of Animal Science

Evidence B: Original text to paraphrase: Withdrawing growth-enhancing technologies (GET), such as supplemental hormones, from U.S. beef production would reduce both the economic and environmental sustainability of the industry.

CARD #9

Inquiry: Cattle upcycle resources humans can't use directly into desirable and high-quality protein, micronutrients and products, like leather.

Evidence A: 90%

Evidence B: National Academies of Sciences, Engineering, and Medicine