



Standard #: SC.912.N.1.4

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Identify sources of information and assess their reliability according to the strict standards of scientific investigation.

General Information

Subject Area: Science

Grade: 912

Body of Knowledge: Nature of Science

Idea: Level 3: Strategic Thinking & Complex Reasoning

Standard: [The Practice of Science](#) -

Date Adopted or Revised: 02/08

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

Content Complexity Rating: [Level 3: Strategic Thinking & Complex Reasoning](#) - [More Information](#)

Date of Last Rating: 05/08

Status: State Board Approved

Related Courses

Course Number	Course Title
2001350:	Astronomy Solar/Galactic (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2020910:	Astronomy Solar/Galactic Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000310:	Biology 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000320:	Biology 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000330:	Biology 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2022 (current), 2022 and beyond)
2000430:	Biology Technology (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
3027010:	Biotechnology 1 (Specifically in versions: 2015 and beyond (current))
3027020:	Biotechnology 2 (Specifically in versions: 2015 and beyond (current))
2003340:	Chemistry 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003350:	Chemistry 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003360:	Chemistry 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2001310:	Earth/Space Science (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2001320:	Earth/Space Science Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000380:	Ecology (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2001340:	Environmental Science (Specifically in versions: 2015 - 2022 (current), 2022 and beyond)
2002480:	Forensic Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2017, 2017 - 2022 (current), 2022 and beyond)
2002490:	Forensic Sciences 2 (Specifically in versions: 2014 - 2015, 2015 - 2017, 2017 - 2022 (current), 2022 and beyond)
2002400:	Integrated Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002410:	Integrated Science 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002420:	Integrated Science 2 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002450:	Integrated Science 3 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000390:	Limnology (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2002500:	Marine Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002510:	Marine Science 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002520:	Marine Science 2 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002530:	Marine Science 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003400:	Nuclear Radiation (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2020710:	Nuclear Radiation Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)

2003310:	Physical Science (Specifically in versions: 2015 - 2022 (current), 2022 and beyond)
2003320:	Physical Science Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003410:	Physics 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003600:	Principles of Technology 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003610:	Principles of Technology 2 (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2002540:	Solar Energy Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002550:	Solar Energy 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2002330:	Space Technology and Engineering (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2000800:	Florida's Preinternational Baccalaureate Biology 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003800:	Florida's Preinternational Baccalaureate Chemistry 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
1700300:	Research 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
1700310:	Research 2 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
7920011:	Access Chemistry 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
7920015:	Access Biology 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
7920020:	Access Earth/Space Science (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
7920025:	Access Integrated Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
2000315:	Biology 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000500:	Bioscience 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000510:	Bioscience 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000520:	Bioscience 3 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002405:	Integrated Science 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2020 (course terminated))
2002425:	Integrated Science 2 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2020 (course terminated))
2003345:	Chemistry 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003500:	Renewable Energy 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003838:	Florida's Preinternational Baccalaureate Physics 2 (Specifically in versions: 2015 and beyond (current))
7920022:	Access Physical Science (Specifically in versions: 2016 - 2018, 2018 and beyond (current))
2001341:	Environmental Science Honors (Specifically in versions: 2016 - 2022 (current), 2022 and beyond)
2001330:	Meteorology Honors (Specifically in versions: 2016 - 2019, 2019 - 2022 (current), 2022 and beyond)

Related Access Points

Access Points Number	Access Points Title
SC.912.N.1.In.1:	Identify a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Identify a scientific question 2. Examine reliable sources of information to identify what is already known 3. Develop a possible explanation (hypothesis) 4. Plan and carry out an experiment 5. Gather data based on measurement and observations 6. Evaluate the data 7. Use the data to support reasonable explanations, inferences, and conclusions.
SC.912.N.1.Su.1:	Recognize a problem based on a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Recognize a scientific question 2. Use reliable information and identify what is already known 3. Create possible explanation 4. Carry out a planned experiment 5. Record observations 6. Summarize results 7. Reach a reasonable conclusion.
SC.912.N.1.Pa.1:	Recognize a problem related to a specific body of knowledge, including life science, earth and space science, or physical science, and do the following: 1. Observe objects and activities 2. Follow planned procedures 3. Recognize a solution.

Related Resources

Lesson Plans

Name	Description
Help Behind-the-Scenes at a Museum as a Citizen Scientist:	Students will learn about the importance of biodiversity research collections (specifically, herbaria), the types of data that their specimens hold, the process of digital data creation about the specimens, and the online publishers of that digital data. Students will act as citizen scientists and transcribe labels of plant specimens then explore the research value of the data that they create.
Investigating the pH of Soils:	In this activity students will conduct research then test the effects of adding products to soil. Students will learn about soil pH, what factors affect the pH of soil and how important it is to the growth of plants. Students will learn to use reputable resources to support their findings. Students will be expected to write a detailed lab report that thoroughly explores the concept while integrating the data from their investigation.
Cleaning Up Your Act:	Cleaning Up Your Act Model Eliciting Activity (MEA) provides students with a real world engineering problem in which they must work as a team to design a procedure to select the best material for cleaning up an oil spill. The main focus of this MEA is to recognize the consequences of a catastrophic event, and understand the environmental and economical impact based on data analysis. Students will conduct individual and team investigations in order to arrive at a scientifically sound solution to the problem.

Original Student Tutorial

Name	Description
Evaluating Sources of Information:	Learn how to identify different sources of scientific claims and to evaluate their reliability in this interactive tutorial.

Perspectives Video: Expert

Name	Description
Library of Scientific Plant Samples: Step inside an Herbarium:	Listen as Dr. Austin Mast describes how and why an herbarium collects, maintains, and distributes plant samples for scientific research. Download the CPALMS Perspectives video student note taking guide .

Perspectives Video: Teaching Ideas

Name	Description
Crowd-sourced Herbarium Data Transcription:	Listen closely as Dr. Austin Mast explains how students can help scientists by transcribing data from real herbarium plant samples. Related Site: Notes from Nature Download the CPALMS Perspectives video student note taking guide .
Using the Encyclopedia of Life as a Source for Science Information:	Dr. Jeff Holmes from the Harvard University Museum of Comparative Zoology discusses the Encyclopedia of Life as a teaching resource and as an example of reliable information. This video was created in collaboration with the Okaloosa County SCIENCE Partnership including the Smithsonian Institution and Harvard University. Download the CPALMS Perspectives video student note taking guide .
Current Events:	This teacher has an idea about how to bring higher-level reading skills to science class. Download the CPALMS Perspectives video student note taking guide .

Text Resources

Name	Description
"Top Ten Things to Know About Stem Cell Treatments":	This informational text resource is intended to support reading in the content area. The reading passage is a Top Ten list by the International Society for Stem Cell Research intended to educate the general public about the myths and realities of stem cell treatments.
"Forget the Placebo Effect: It's the 'Care Effect' that Matters":	This informational text resource is intended to support reading in the content area. This article published in Wired magazine explains how caring is an important variable when measuring the effects of different medical treatments on patients' well-being.

Tutorial

Name	Description
Not All Scientific Studies are Created Equal:	Every day, we are bombarded by attention grabbing headlines that promise miracle cures to all of our ailments -- often backed up by a "scientific study." But what are these studies, and how do we know if they are reliable? David H. Schwartz dissects two types of studies that scientists use, illuminating why you should always approach the claims with a critical eye.

Video/Audio/Animation

Name	Description
Citizen Science:	In this National Science Foundation video and reading selection lab ecologist Janis Dickinson explains how she depends on citizen scientists to help her track the effects of disease, land-use change and environmental contaminants on the nesting success of birds.

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Parent Resources

Perspectives Video: Teaching Idea

Name	Description
Current Events:	This teacher has an idea about how to bring higher-level reading skills to science class. Download the CPALMS Perspectives video student note taking guide .