

Something Seems Wrong

Fact-Checking

As journalists research topics, there may be times that some of the gathered facts appear to be inaccurate. Journalists and editors strive to present accurate information in their articles. Fact checking is an important job for journalists, editors and others asked to review stories. In this lesson students will be challenged to verify the accuracy of a variety of scientific facts.

“Scientific information is factually accurate . . . Students must pay attention to details, including ensuring the science is right . . . “

SciJourn Content Standards

Objective: Students will identify inaccurate facts and correct those facts using multiple and credible sources.

Time: 30 - 40 minutes

Background

Articles that contain inaccurate information misrepresent the science being described. Numerical data, the spelling of names, and the descriptions of discoveries and findings must be accurate to ensure the credibility of the author and of the publication in which the article is published.

Students may be asked to assess the accuracy of one another’s articles. Fellow authors can contribute to the reputation of the publication by fact checking for one another, *or*, a committee of students might serve as fact checkers.

In reading, the students have been advised to ask:

Does it look right? Does it sound right? Does it make sense?

It may be impossible to check every fact presented, but in asking these same questions of the scientific facts presented in articles, students might highlight questionable facts that should be checked.

Fact-checking requires a certain degree of prior knowledge on a given topic. Ideally, students who work in groups may be able to share their knowledge across a range of topics to better uncover inaccuracies within articles.

Getting Started

Remind the students of the questions they may have heard in elementary school to ask during reading.

- ~ Does it look right?
- ~ Does it sound right?
- ~ Does it make sense?

When reading scientific articles, these same questions should be asked about the science facts that are presented.

Addressing the Topic

Read aloud the facts listed below and ask the students to indicate if they are either: *accurate*, *inaccurate*, or *in need of further fact checking*. (In order to identify that facts are accurate or inaccurate, students should be extremely confident in their thinking. If not, the facts should be identified as *in need of further fact checking*.)

Write the following table on the board and tally results.

	ACCURATE	INACCURATE	TO BE CHECKED
FACT 1			
FACT 2			
FACT 3			
FACT 4			
FACT 5			

FACT 1 - The Earth is 35 million miles away from the Sun.

(By a show of hands, record the number of students in each column.)

FACT 2 - Each year, 23,000 people (11,000 men and 12,000 women) are diagnosed with pancreatic cancer.

FACT 3 - Entropy is a measure of the disorder of a system.

FACT 4 - Including its base, a heptagonal prism has 9 sides.

FACT 5 - Osmosis is the expression of opinions or judgments in a dogmatic way.

Do a web search with the class to check each fact or those with the most number of tallies in the *TO BE CHECKED* column. Listed below are web sites for each fact, some credible (.gov or .edu) and some questionable (.com or .org). When checking fact accuracy, at least 2 reliable sources of information should be utilized.

It is generally accepted that only one source is acceptable for information at an organization's website about that organization and/or the people who work there.

FACT 1 - Google *solar system size* and go to

<http://www.noao.edu/education/peppercorn/pcmain.html>

This is a .edu site and shows the actual distance of the earth from the sun. Also go to <http://nfo.edu/astro/size.htm> to confirm the distance.

FACT 2 - Google *pancreatic cancer* and look for a .gov site. Explain that the government maintains medical statistics and a .gov site might provide credible numbers. Down the page is Pancreatic Cancer Home Page - National Cancer Institute. Click the site which is

www.cancer.gov/cancertopics/types/pancreatic. On that page is a definition of pancreatic cancer and the estimated new cases. For the year 2010, the number of estimated new cases was 43,140. Explain that FACT 2 did not specify a year which is problematic since the number of new diagnoses may change significantly from one year to another. Differentiating between the diagnoses men and women requires a bit more digging. At the bottom right of the page is the heading Statistics. Click Cancer Fact Sheet: Cancer of the Pancreas.

The National Cancer Institute's SEER fact page appears (the National Cancer Institute is part of the U.S. National Institutes of Health (NIH) - a highly credible source for medical information. Because of its credibility as a primary source, the NIH does not need to be corroborated. The number of diagnoses are differentiated by men and women. FACT 2 is incorrect.

FACT 3 - Google *entropy* and go to the Wikipedia* page near the top of the search. Examine the definition and compare it with FACT 3. At the bottom of the page are numerous external links which can verify the information. The site for Frank L. Lambert is an .edu site at Occidental College, Los Angeles <http://entropysite.oxy.edu/>. This and other sites may provide credible definitions of *entropy*.

FACT 4 - Google *heptagonal prism* and go to

http://www.korthalsaltes.com/model.php?name_en=heptagonal%20prism

which is among the first sites listed. Point out to the class that this is .com site and ask if it might be reliable. Since the number of sides of a heptagonal prism is basic information that can be verified by merely

examining one, this site and one or more others that agree can be considered reliable. On subsequent pages are .edu sites that can also be used to aid credibility.

FACT 5 - Google *osmosis* and go to the Wikipedia* entry. Upon reading the definition there appears to be nothing about “opinions or judgments”. Ask the class if this indicates that FACT 5 is incorrect. Explain that for some words there are multiple definitions. Further down the list on the Google search is <http://physioweb.med.uvm.edu/bodyfluids/osmosis.htm>, an .edu site that might add more information. Nowhere will be found a definition concerning opinions or judgments. In this case, the greater the number of sites checked the more likely it is that FACT 5 is incorrect.

* Often students are told that Wikipedia is *not* a reliable source of information. However, the reliability of entries can be judged by the references listed at the bottom of Wikipedia articles. Direct students to look for and go to dot - gov and dot - edu sites in order to obtain further information.

EXTENSIONS

Several articles are available at the website with altered facts for additional practice in fact-checking. Search *fact checking*.