



Using news in the science classroom

Image courtesy of Marco Costa



Marco Costa

Fernanda Veneu-Lumb and Marco Costa show how news reports – even inaccurate ones – can be used in the science classroom.

Image courtesy of Fernanda Veneu-Lumb



Fernanda Veneu-Lumb

News is available to us everywhere, all the time – in newspapers and magazines, on television and via the Internet – and this includes science news. Some scientists complain about the accuracy of scientific information in the media and for this reason, some teachers are reluctant to use it in the classroom. However, we'd like to encourage teachers to do exactly this, for two reasons.

1. There are some very good and accurate science stories in the media.
2. Looking for mistakes in scientific news can be the starting point of a classroom activity.

We will begin by illustrating some of the differences between news reports and research articles, then offer some ideas for using science news in the classroom. Although we talk mostly about newspaper articles, you could equally well use other sorts

of popular science reports: magazine articles, podcasts or video clips of the television news, for example.

Getting started

News reports generally follow an established pattern. In the first paragraph, you will find all the information you need to understand the story: who, what, where, when, why and how.

Let's look at an example from the BBC website^{w1}.



- ✓ General science
- ✓ Ages 10-19

Most science teachers probably already use recent news in lessons to motivate students; this article highlights the importance of scientific reporting and offers advice on how to do it 'scientifically'. It considers different ways of writing and interpreting science news and offers a list of questions for any classroom situation.

The article could be used simply with younger students (ages 10-13): one student could give a two-minute report about a scientific topic he or she has read about in a newspaper or journal or seen on television, after which the class could have a short discussion about the topic. This could create more interest in science outside school.

Additionally, the article could be used to teach more advanced students (ages 13-19) how to write their own reports about some breaking science news. Using the Internet to check the accuracy of the topics reported in the news and comparing the contents with the original article should become a regular part of science lessons.

Friedlinde Krotscheck,
Austria

REVIEW

Frankfurter Allgemeine Zeitung

ZEITUNG FÜR DEUTSCHLAND

Lokführer wollen drei Stunden streiken



How cities drive plants extinct

By Matt Walker, Editor, Earth News
An international team of botanists has compared extinction rates of plants within 22 cities around the world. Both Singapore and New York City in the US now contain less than one-tenth of their original vegetation, reveals the analysis published in Ecology Letters. However, San Diego, US and Durban, South Africa still retain over two-thirds of their original flora....

Matt Walker, Earth News editor, describes the results of an international study involving scientists from various countries. Did you notice that the main information is available in the first paragraph?

This is one of the biggest differences between news articles and other types of text. In scientific research articles, for instance, the results and conclusions are presented in separate sections, towards the end. Even in the abstract, the short version of the scientific paper, the structure follows the same pattern: introduction, methods, results and conclusions.

Let's take a look at how the same story was presented in a scientific journal – in the abstract of an article published in Ecology Letters (Hahs et al., 2009).

A global synthesis of plant extinction rates in urban areas

By Amy K Hahs, Mark J McDonnell, Michael A McCarthy, Peter A Vesk, Richard T Corlett, Briony A Norton, Steven E Clemants, Richard P Duncan, Ken Thompson, Mark W Schwartz, and Nicholas SG Williams

Plant extinctions from urban areas are a growing threat to biodiversity worldwide. To minimize this threat, it is critical to understand what factors are influencing plant extinction rates. We compiled plant extinction rate data for 22 cities around the world. Two-thirds of the variation in plant extinction rates was explained by a combination of the city's historical development and the current proportion of native vegetation, with the former explaining the greatest variability. As a single variable, the amount of native vegetation remaining also influenced extinction rates, particularly in cities > 200 years old. Our study demonstrates that the legacies of landscape transformations by agrarian and urban development last for hundreds of years, and modern cities potentially carry a large extinction debt. This finding highlights the importance of preserving native vegetation in urban areas and the need for mitigation to minimize potential plant extinctions in the future.



As you can see, the abstract finishes with the conclusions: ‘the importance of preserving native vegetation in urban areas and the need for mitigation to minimize potential plant extinctions in the future.’ You could discuss the differing structures of news and scientific articles with your students, including which style they prefer and why.

Another difference between news stories and scientific articles is that, in news reports, some of the facts may be presented as quotes by people involved in the subject. Let’s read a bit more of the news story:

“The rapid and ongoing growth of cities and towns significantly threatens global biodiversity,” says Dr Amy Hahs, a scientist working at the Australian Research Centre for Urban Ecology at the Royal Botanic Gardens in Melbourne, Australia.

This explains why Hahs and her collaborators came together to try to understand the threat and how it could be minimised.

Another important point to observe in news stories is who is doing the ‘talking’ in the text: researchers, politicians or members of the public? Why? Is there a further point of view that is missing? Whose?

Many researchers complain about

distortions in news reports: that the information presented is wrong or that the scientists are misquoted, for example. As a teacher, you could try to identify such problems in a news report, using your own knowledge of the subject. Or you could ask your students to look for distortions, searching for accurate information on the Internet.

Where can you find the accurate information? Start by looking again at the beginning of the news report; the original information source is generally there. In our news example, the information is taken from a research article published in the journal *Ecology Letters* (we examined the abstract of this article, above). Many scientific journals charge for online access to their articles, but access to the abstracts, and sometimes to older articles, is free. Furthermore, open-access journals^{w2} (for example, *PLOS Biology*^{w3}) offer free access to the full text of all of their articles.

Other sources for news reports might be scientific organisations such as universities, NASA^{w4}, the European Space Agency (ESA)^{w5} or other EIROforum organisations^{w6}. On their websites, you should be able to find the original information (for example, in a press release – information provided especially for journalists and checked by the scientists involved) and compare it to the news story. Many organisations’ websites have a

section for journalists (sometimes called the press or media centre), and access is free.

By comparing the news report and the original research article (or press release), you can not only see the difference in how the article is structured and the data presented, but also consider differences in the writing style.

Trying it out: using news in the classroom

Here are some suggestions for how to examine and compare news and scientific articles in the classroom.

1. What is the story about (e.g. a piece of research, a discovery or a scientist’s statement)?
2. Where did the story come from (which country, what sort of organisation)?
3. Who did the journalist quote (e.g. scientists or politicians), if anyone? Where are they from?
4. What was the involvement of the scientists quoted? For example, were they commenting on someone else’s research or on their own?
5. Did the scientist work alone or as part of a group?
6. By examining the news report, is it possible to tell who funded the research? If this information cannot be found in the text, why do you think it is not there?
7. What was the source of the information? This is an important issue

if you want to find out more about the subject.

8. Has the topic of the report been published in a peer-reviewed scientific journal (see Raphael, 2007)? If so, which one? Do you think this information is important? Why or why not?
9. Were you familiar with the subject before reading the story? If you were, does the text contain new information for you? What, if anything, conflicts with what you knew or thought before?
10. Try to find the original source of the information and check the details. Did you find any mistakes? If so, what kind of mistake (wrong information, wrong explanation, other kinds of mistake)? How would you rewrite this part, to correct the mistakes you found?
11. Who do you think this text was written for (e.g. students, teachers, researchers or the general public)? What makes you think that?
12. What was the journalist's / newspaper's aim in writing / publishing this article? Purely to provide information? Or is there an ulterior motive, such as scaremongering, a political aim, or trying to sell more newspapers?
13. Find a news report from a different newspaper on the same science story and compare them. Does that help you to answer some of the previous questions?
14. If the news story is about research results or a discovery, try to convert it into a scientific article, and then compare it to the original source.

References

- Hahs AK et al. (2009). A global synthesis of plant extinction rates in urban areas. *Ecology Letters* **12**(11): 1165-1173. doi: 10.1111/j.1461-0248.2009.01372.x
The abstract of the article is freely available from the Wiley Interscience website:
<http://www3.interscience.wiley.com/journal/118545752/home>
- Raphael E (2007) Developing a teaching resource on peer review. *Science in School* **5**: 70-73.
www.scienceinschool.org/2007/issue5/peer

Web references

- w1 – The full article is available on the BBC website:
(<http://news.bbc.co.uk>) or via the direct link:
<http://tinyurl.com/yah6a5v>
- w2 – Many open access journals can be searched and accessed through the Directory of Open Access Journals: www.doaj.org
- w3 – *PLOS Biology* is an open-access, peer-reviewed general biology journal. See: www.plosbiology.org
- w4 – To learn more about NASA, the US National Aeronautics and Space Administration, see: www.nasa.gov
- w5 – The European Space Agency (ESA) is a member of EIROforum, the publisher of *Science in School*. For more information about ESA, including press releases about recent ESA developments, see: www.esa.int
- w6 – EIROforum, the publisher of *Science in School*, is a collaboration between seven European inter-governmental scientific research organisations. To learn more and read the recent press releases from the seven organisations, see: www.eiroforum.org

Resources

- When searching for press releases, AlphaGalileo is a good place to start. You can search the online database of thousands of press releases and other material on recent European developments in science, technology, health and other fields. See:
www.alphagalileo.org
- The American science society, AAAS, runs a similar online, global news service for scientific topics, Eurekalert. See: www.eurekalert.org
- To learn more about how news stories are written, see the website of the Media Awareness Network (www.media-awareness.ca) or use the direct link:
<http://tinyurl.com/d3hwss>
- If you enjoyed this article, you might like to browse the other teaching activities that have been published in *Science in School*. See:
www.scienceinschool.org/teaching

Fernanda Veneu-Lumb is a Brazilian science journalist. She began writing for the media in 1992, when she was still at college. Her experience interviewing scientists led in 2009 to a PhD on different perceptions of human life and how these views could be used in science lessons.

Marco Costa is a Brazilian chemical engineer with a PhD in biosafety education. He works in biosafety, has a professorship in scientific methodology at Fundação Oswaldo Cruz (Oswaldo Cruz Foundation), Brazil, and develops new strategies for science teaching.

