



Writing Science for a General Audience



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Today, we'll talk about science writing for a non-expert audience in general and writing press stories in particular.

While many of the principles are the same for all writing tasks (tailor your message for your audience, organize your narrative logically, use persuasion), writing for a general audience—the people who read print or electronic news—has particular challenges. We'll talk about them today.

We'll also talk about the journalistic writing style, which is quite different from standard scientific or journal-article style, but which is also a useful tool to have in your writing arsenal. In the course of your career, you will need to use this style when interacting with the news media, with the general public, and with funding agencies.

The first step—know your audience



Analyze your audience—who's going to be reading the story?

What will be interesting to the reader?

What will make him read beyond the headline?

The first step in writing *anything* is to think about who will read it. Put yourself in your audience's shoes. What would your reader find interesting? What would she like to know more about? What words or concepts is he not going to understand?

Write like a journalist



Answer the *W* and *H*
questions:

Who? What? Why?

When? Where?

How?

What is the *news*?

Why is it *news*?

Focus on facts, but make it
engaging

What is the actual *news* that you are trying to communicate?

Keep your report very factual.



Stories that interest people (think “sell newspapers”) incorporate one or more of the following elements:

Impact—will this discovery affect people’s lives? other work?

Timeliness—is the work new?

Prominence—does the story involve a well-known person or field?

Proximity—will local people care?

Conflict—are the results controversial? do they upset previous beliefs?

Weirdness—are the results unexpected or strange?

Currency—is the report related to some general topic that people are already talking about?

Use **one** of these elements to set the overall direction of your story.




Present the most important and engaging information (the “lead”) in the first sentence of the first paragraph.

Add additional details in subsequent (short) paragraphs.

The inverted pyramid style comes from newspaper reporting, where an editor might have to chop off the last paragraphs of a story to get it to fit on the page.

Assume not everyone (anyone?) will read every word, down to the last period. Can the reader get the basics of your story from the first three paragraphs?

One of the biggest differences between journalistic writing and academic writing is the treatment of “introductory” material. In newspaper writing, you grab the reader’s attention first, give him or her the basic facts, and **then** provide the “background” information. In conventional scientific writing, you provide the background information (including what a whole lot of other people have already done) first, and **then** tell the reader what you did.



Write like a journalist

Start with a strong “lead”
(*lede* to a journalist)

Use very short paragraphs

Use direct quotations

Explain your terms

Example of a strong lead:
“Paul E. Debevec may be the only research professor whose laboratory subjects have included Charlize Theron and Will Smith.” M. Parry, “And the Academy Award Goes to...a Computer Scientist,” *The Chronicle of Higher Education*, February 7, 2010.

Start your story with a strong “lead”—an interesting fact that will grab the reader’s attention—in the first sentence. Expand on the lead in the next one or two sentences.

More examples of strong leads:

“Not all bubbles are round. In fact, a new laser-based technique has been developed to make square bubbles, donut bubbles, and V-shaped bubbles.” “Bubbles Break Spherical Mold,” *Physical Review Focus*, 19 January 2010; <http://focus.aps.org/story/v25/st2>.

“Two scientists believe they’ve solved a mystery that’s defied explanation for more than 400 years. The phenomenon known as milky seas, once thought to be folklore, may be real.” *ScienceDaily*, July 2, 2006; http://www.sciencedaily.com/videos/2006/0707-uncovering_the_mysteries_of_the_seas.htm. (Also has a very cool video...)

““Don't panic,” Douglas Adams might have said. Author of the sci-fi novel *Hitchhiker's Guide to the Galaxy*, Adams advised “don't panic” whenever facing invaders. What Adams might not have known is that the inner space of the oceans conceals aliens every bit as resourceful as any that might lurk in outer space.” Cheryl Dybas, “Hitchhiker’s Guide to the Deep” (http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=124468&org=NSF)

Another place where you’ll use a strong lead is in your statement of purpose for graduate school applications. So get some practice in writing them.

Use very short paragraphs—one or two sentences per paragraph.

Use direct quotations. (N.B. Direct quotations are **never** used in journal articles.)

Explain your terms; use minimal jargon. (Think about your audience—of non-physicists.)

Next, write an attention-grabbing headline



**Keep your headline very short—<8 words;
if necessary for explanation or context,
provide a longer subhead**

Capture the key point of the story

A 7th-grader should understand the words

**Capitalize the first word and proper nouns;
everything else is lower case**

Omit “a,” “an,” and “the”

Engage the reader from the first word—make him or her want to keep reading.

NOT a good* headline:

**Deglaciation data opens
door for earlier first
Americans migration**

**Most news stories are text only;
you have to paint an engaging,
meaningful picture using only words**

***Not even the author's mother is going to read this story,
although she may lie and say she did**

Here's an example of an awful headline (not even the author's mother is going to read this article, and *nobody's* going to parse out what it means on the first reading):

Deglaciation data opens door for earlier first Americans migration

(<http://news.science360.gov/obj/story/32bd61cc-8900-4e63-9807-396377378031/deglaciation-data-opens-door-earlier-first-americans-migration>)

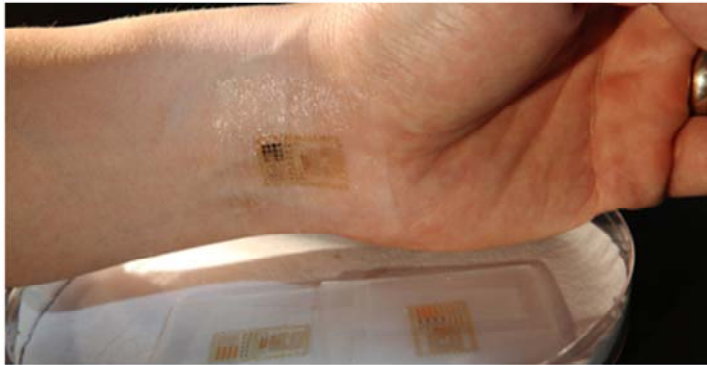
The missing apostrophe, punctuation's #1 endangered mark, is a rant for another day.

Here's an example of a great headline:

Smart skin

Electronics that stick and stretch like a temporary tattoo

(http://news.illinois.edu/news/11/0811skin_electronics_JohnRogers.html)



An ultrathin electronic patch, as stretchable as human skin, is applied to the wrist for electromyography and other measurements. *Courtesy John Rogers.*

Another good headline:

Researchers use nanotechnology to harness power of fireflies

(<http://news.science360.gov/obj/story/1948bcc1-6434-49e8-aa9b-b11da4a3b801/researchers-use-nanotechnology-harness-power-fireflies>)

I personally think the title could be shortened: “Fireflies power nanotechnology”

My version puts the most interesting word [*fireflies*] first as well.

Seven rules for good headlines:

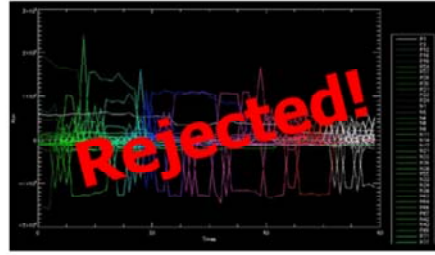
1. Keep it short
2. Frontload keywords
3. Use active verbs
4. Make it a complete thought
5. Accurately reflect the content of the story
6. “Clear” trumps “clever”; avoid ambiguity, insinuations, and double entendres
7. No jargon



What about pictures?



Joanna Bridge getting ready for a night of star-gazing in Bozeman



An algorithm to track pole consistency was developed

People like to see photos of people

What will be interesting to the reader?

Be sure to provide a caption for each photo

Give credit to the photographer or the source

If you include a photograph, make sure it is visually interesting and understandable to the person reading the article.

For press releases, send photos as separate attachments in .jpg or .tif files. Supply only very high-resolution images (min. 300 dpi; 600 dpi is better); print media cannot use low-resolution web images. Webmasters can reduce the resolution for web use, but printers cannot enhance resolution for print.

Crop out unnecessary detail in images.

Photos that include people are inherently more interesting than photos of equipment.

If you include a photo, indicate the name of the file and provide the text of the caption after the ### at the end of the release.

It is a courtesy to provide a photo “credit,” i.e., the name of the photographer who took the photo.

If you use an image from another source for this exercise, you **MUST** provide the source of the figure.



People want to find information in news reports *immediately*. If they cannot find something interesting and meaningful in <15 s, they'll move on to the next story.

Limit text to one "main idea" per paragraph, and make it the first sentence.

Keep paragraphs short (at most, three sentences). Restrict to half the word count (or less) compared with conventional academic writing.

For news articles that will go on the Web:

Break up the text with call-out boxes and content-rich (not cute) subheadings—make it scannable.

Use typeface variations, columns, and short paragraphs to break up text into scannable chunks.

Highlight key words to make them visible (bold, italic), but *don't* underline text to highlight it. Readers expect underlined words to be hyperlinks..

Underline hypertext links. Don't indicate links with color alone (not accessible).

**Increase your credibility and the
value of your message**



Tip: Be factual and balanced; readers detest hyperbole.

Factual, precise writing—avoid bragging and “marketese.” Users detest promotional writing style having boastful, subjective claims; users want the straight facts, no exaggeration. (“Urbana mom earns \$7784/wk in her spare time”)

Writing a news story in 8 steps

- 1. Analyze your audience—who's the reader?**
- 2. Use a standard press-release template**
- 3. Write the "lead"—make the reader want to keep reading (learn more)**
- 4. Answer the five *W*'s and the *H* (who, what, where, when, why, and how)**
- 5. Acknowledge the funder**
- 6. Write the headline—brief, clear, engaging**
###
- 7. Identify the writer and add contact information and additional sources**
- 8. Get the interviewee's permission**

Double space your document.

Put your suggested headline at the top of the page in bold. Capitalize the first word and any proper nouns ; make everything else lower case. Omit "a," "an," and "the"; frontload the interesting words.

Indicate the end of the "story" by ### centered on a separate, following line. That's the universal signal to reporters, editors, and typesetters to "stop printing here."

Show your draft copy to your interviewee and get his/her permission to disseminate the story.

Add names or websites where a news reporter or editor can get additional information if she thinks it's a really interesting story (or it's a slow news day.) The contact details must be complete, detailed, and specific to this particular news story.

Always acknowledge the funder

For federally funded research, use this language:

This work was supported in part by the <name of funding agency> under grant number <>. The opinions, results, and conclusions presented are those of the researchers and may not represent those of the <name of funding agency>.

Get the funding information from your interviewee at the time of the interview

If the work has been funded by a federal grant, the principal investigator (PI) is required *by statute* to acknowledge the agency any time the work is publicized or disseminated.

Have your interviewee check your story

Never, ever write or say publicly *anything* about somebody's research that he or she has not seen and approved



...ever!

As a student researcher, you may never publicize or disseminate your work without the explicit permission of your adviser.

When you get to be the grown-up, never, ever publish or present results that your co-authors or collaborators have not seen and approved.

Science is a collaborative, communal, social endeavor. Lone rangers do not fare well long-term in physics.

FOR IMMEDIATE RELEASE

Put your headline here
Add a subheadline if additional clarification is needed

<mm/dd/yy> - Urbana, Ill
two additional sentences here

Tell your story in short paragraphs.

<Your name's> summer research was funded by National Science Foundation Grant No. 1062690 and <add any grant your adviser tells you to here>. The opinions, results, and conclusions presented are those of the researchers and not necessarily those of the National Science Foundation.

About the "Research Experiences for Undergraduates" Program: The Research Experiences for Undergraduates (REU) program of the National Science Foundation supports active research participation by undergraduate students in science, technology, engineering, and mathematics. The Department of Physics at the University of Illinois at Urbana-Champaign has hosted annual summer REU student participants since 1993 |

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Contact: Siv Schwink, Communications Coordinator, Department of Physics, University of Illinois; sschwink@illinois.edu

For more information about the <name of your research group, e.g., The Ha Group>, see <<http://bio.physics.illinois.edu>>.

For more information about the Department of Physics at the University of Illinois at Urbana-Champaign, see <http://physics.illinois.edu>.

Indicate any embargo

Headline and subhead

Date and place

Funding acknowledgment

"The End"

Contact and additional information

Refer to the annotated example posted on the course website.

To recap:

Consider your audience

Write like a journalist—emphasize the “news”

**Use the inverted pyramid paradigm to
organize your story**

Devise a strong headline

Omit “a,” “an,” and “the”

Get approval from the interviewee

Acknowledge funding



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NOTES: