



## WRITING GUIDELINES

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*“In the middle of my undergraduate life, I turned to science writing and found it the perfect profession for anyone with a love of science and learning, but not the masochistic personality needed to conduct research. In my opinion, the best part of science writing is the ability to call up researchers, even Nobel laureates, and get them to explain how the world, our universe, and our bodies work. In essence, I get paid to be a perpetual student.”*

*John Travis, European News Editor, Science Magazine, Cambridge, UK*

*These notes are based on a presentation given by Michael Marshall, BlueSci alumnus and a reporter for New Scientist, with various additions from other sources and a few thoughts of my own. What follows is by no means an exhaustive manual of “how to do it”, just a few tips that might point you in the right direction, particularly if you haven’t done much writing before. As a general rule, the more experienced you are as a writer the more of the traditional guidelines you can ignore!*

*Tim Middleton, BlueSci President, October 2011*

## ORWELL'S SIX RULES FOR WRITERS

When it comes to writing advice, a good place to start is George Orwell's essay *Politics and the English language*, in which he provides six simple rules for all writers of English. If an author were to follow only six guidelines in their writings, these may well be the best six. As Orwell notes in his essay, simply following these rules won't make for good writing, but it is a step in the right direction. In particular, he is a vociferous critic of bad writing and the way that it has spread by imitation. He argues that writers must think for themselves and say what they have to say in the clearest way possible, without obfuscating their meaning with excessive verbiage!

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*"If you simplify your English, you are freed from the worst follies of orthodoxy. You cannot speak any of the necessary dialects, and when you make a stupid remark its stupidity will be obvious, even to yourself. Political language...is designed to make lies sound truthful and murder respectable, and to give an appearance of solidity to pure wind. One cannot change this all in a moment, but one can at least change one's own habits, and from time to time one can even, if one jeers loudly enough, send some worn-out and useless phrase into the dustbin where it belongs."*

*George Orwell*

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The six rules are as follows:

1. Never use a metaphor, simile, or figure of speech which you are used to seeing in print.
2. Never use a long word where a short one will do.
3. If it is possible to cut a word out, always cut it out.
4. Never use the passive voice where you can use the active.
5. Never use a foreign phrase, a scientific word, or a jargon word if you can think of an everyday English equivalent.
6. Break any of these rules sooner than say anything outright barbarous.

## GENERAL ADVICE FOR SCIENTIFIC WRITING

Remember your target audience. BlueSci is designed to be accessible to scientists and non-scientists alike, from bright school pupils to academic specialists, so bear this in mind when you start writing. How are you going to engage these people? Why should any of them care about what you've got to say? These questions are crucial and you should continue asking yourself them throughout the writing process.

Keep your writing lively. We don't want academic research papers and we don't want dry textbooks. Newspapers and popular magazines are the best guide for the sort of writing we're after. The BlueSci style guide also gives more detailed information about house conventions, typical spellings, how to deal with units of measurement and common grammar queries.

Many people feel more comfortable writing about their own area of expertise and we often receive articles about people's own research. Plenty of these articles are engaging, accessible and well written, but as a general rule it is preferable to cover a subject you're less familiar with. By doing so, you won't be tempted to make the piece too complicated and you'll also get the opportunity to do a little bit of reading on something new to you (one of the joys of a full-time career in science writing).

Take care to avoid overly technical language. Whenever you use a long word or piece of scientific jargon, think twice. Some words are indispensable (and in these cases make sure you adequately define the word in question), but very often the word can be replaced by something more readily comprehensible. It's often a good idea to ask yourself what you mean by a certain word: often, a word seems very familiar but on reflection you realise that you're not exactly clear how to define it. Also, if you only encountered that word during your university education then the majority of your readers have probably never seen it before. There is a balance to strike: don't over-simplify unnecessarily or patronise the reader, but make sure that your work is readily understandable by an intelligent non-scientist.

As Orwell stipulates in his rules, wherever possible, write in the active rather than the passive: "The scientists analysed the drug's effects," rather than, "Analysis of the drug's effects was carried out by the scientists". Passive sentences are longer and harder to digest.

Other pointers include:

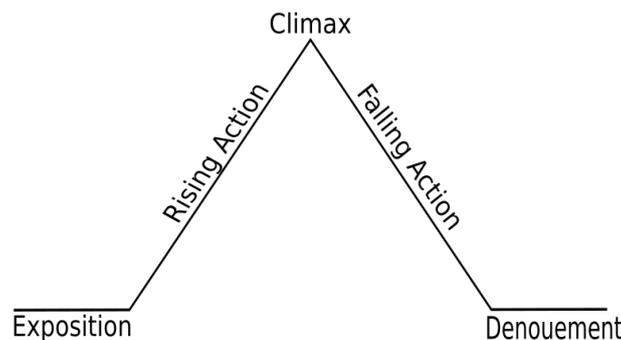
- Keep your writing simple and direct.
- Don't assume the reader knows—they probably don't.
- Make sure the prose flows smoothly.
- Keep parentheses to a minimum.
- Avoid clichés.
- Avoid vague and meaningless phrases, such as "many studies show that..."
- Don't be tempted to use colloquialisms.

- Avoid repeating the same words, unless you mean to do it deliberately for effect.
- Avoid abbreviations and initials wherever possible (unless the full name that the abbreviation replaces is cumbersome and irrelevant to the article).
- Avoid 'stacked modifiers' e.g. "functionally mature tryptase/chymase double positive connective tissue-type mast cells". People will completely lose track of what you're on about; split them up into many sentences, that is if you need all those words at all.
- Be careful of over-using dashes; consider colons, semicolons or separate sentences as alternatives.
- Lots of capitalised acronyms (e.g. NASA) look a bit messy on the page. Try using phrases such as "the team" or "the scientists" to get round this. Or, better still, name the leading researchers.
- Don't tell readers what they must think. Adjectives such as "outstanding", "amazing" or "spectacular" are superfluous; let the reader make up their own mind on the issue.
- Accuracy over precision. Say what needs to be said and include any interesting information, but be careful not to overload the reader with details just because you have them.
- Feature articles are not long news articles. Similarly, news articles are not short feature articles. Each has a specific style and structure.

## WRITING FEATURE ARTICLES

Feature articles need to have a story, or narrative, running through them; stories usually make much better frameworks than arguments or chains of reasoning. Try to construct a coherent narrative rather than simply assembling a string of facts. The article should have a clear beginning, middle and end. And there should be human interest: conflict, controversy, atmosphere, description, personality, quotations, interviewees, examples, anecdotes—something to engage people and make them interested in what you have to say.

One way of looking at stories is to consider Freytag's pyramid (shown below). Gustav Freytag was a German playwright and novelist who compiled what is seen as the definitive five-act dramatic structure. Pay attention to this structure when you're writing. The introduction needs to be intriguing; the middle section needs to develop ideas; the ending needs to sum up 'where we are'; and the whole piece must have a smooth narrative. A good narrative will include: an element of mystery, some misleading plot twists along the way and a final resolution.



Research is vitally important for feature articles. What is already known about the topic? You should be aware of the key writings and main controversies, so that you can offer a balanced article. Who would be good to talk to? What research is going on at the moment? What do you think about the issue? And why does this make an interesting story—again, why should your readers bother to listen to you?

You might also consider a headline, a strapline (subtitle) and potentially relevant pictures or diagrams. However, these are tasks for after you've done the bulk of the writing, not before. Don't start writing if all you have is a jazzy headline and no content. Also, don't worry about these too much—editors are there to help. That said headlines are a chance to be inventive. Make use of puns, wordplays (including interesting linguistic constructs such as alliteration) and cultural references. The headline doesn't have to explain exactly what the article is about—that's what the strapline is for.

Finally, does the writing flow smoothly? Sorting this out is primarily the job of the editors, but if you want to get your writing noticed then you must work on this. It's often best to leave an article for a day or two before going back and scrutinising it again.

## WRITING NEWS ARTICLES

News stories should be between 200 and 300 words. These aren't hard and fast limits, but anything shorter probably isn't detailed enough and anything longer probably isn't concise enough. Suitable stories include: recent research (i.e. recently published scientific papers), changes to science policy, changes to science funding, science education, new scientific products, or science events (such as conferences or outreach activities).

There is a danger with news stories of simply regurgitating press releases. After all, the final product you're aiming for is not dissimilar to a press release: eye-catching, pithy and crammed with the key points. But don't be tempted to follow the press release too closely. Try to do some (brief) background reading, including going back to the original literature, to find a new slant or some extra information. The best articles add a novel twist to the story that makes it stand out and draws people in. If you really want to flesh it out, contact the scientists involved for useful quotes and suggestions of potential applications of their work or images to accompany the piece—they are usually eager to help. Ultimately, simply re-writing a press release isn't a valuable use of your time!

A news story must cover a number of key facts. Who? What? When? Where? How? Why? Try to avoid too much on methodology, statistics or historical detail. Also, what makes the story newsworthy? Is it the biggest—or smallest? Does it affect lots of people—or a minority? Is it interesting timing, counter-intuitive, worrying, controversial or amusing? And remember: your own views aren't relevant when reporting news objectively.

For short news stories, particularly web-based ones, the headlines are very different to those used in print. They can still include puns and the like but they must also explain precisely what the article is about, especially since the headline is what will come up on search engines and RSS feeds. Similarly, the first sentence is vital. It must be eye-catching but it also has to summarise the entire story in an engaging and succinct fashion. A good example would be, "Regularly eating oysters increases the likelihood of turning bald before the age of 30 by as much as 50%". A bad example would be, "Cambridge scientists have recently published research studying the effects of an oyster diet on various physiological variables. Among the effects they found a tendency for people between the ages of 27 and 30 years old to go bald more quickly." The summary is often best when followed by a quote from one of the scientists involved before going into the background of the story.

Be careful not to extrapolate the results of a piece of research for the sake of a catchy headline or controversial article. And if you say this is the first time that something has been done, make very sure it is! Also, be careful with conclusions and deductions. The nature of science is to tell us about the state of the world. Conclusions about policy or behaviour are not implied *necessarily* by the science; such conclusions are also subject to social, economic and political considerations. All you can do is state that the scientific evidence *suggests* a certain line of action. If the researchers themselves suggest possible implications of their work, make sure you highlight that these are their own opinions.

Finally, if you're referring to a scientific paper, give the journal name in italics somewhere in the article (usually near the beginning or right at the end), and provide a reference. This will be included when the article is published to allow interested readers to find out more.

## INTERVIEWING TECHNIQUE

If at all possible, interview in person. That way you will get a much better feel for who they are, what they're trying to say and where they're coming from. Failing that, arrange to talk over the phone. Sending questions via email is a last resort (although it can be a useful addition if you come to write up your piece and realise there's just one more thing you wished you'd asked).

Make sure you are fully prepared with a clear idea of what information you want from the interview. It is a good idea to tell the interviewee when you arrange the meeting what sort of thing you want to talk about and what you plan to write. Also, come to the meeting with a prepared list of questions—perhaps even send them to the interviewee beforehand. Probe their views on: the scientific question, the broader context and implications, previous work, recommendations for the future, and who else you should talk to. You don't have to follow your pre-prepared questions rigorously—it is often a good idea to follow up interesting tangents—but they provide a framework for the conversation if you need it. And try to be systematic in your questioning. For example, go over past, then present, then future. Or ask questions about topic A and then about topic B.

Try to ask open questions such as “Can you tell me about...” or “How did X happen?” This leaves the interviewee free to tell you what is most interesting to them. Don't be afraid to ask apparently stupid questions. The only truly stupid question is an unasked question. You're probably not an expert in this person's field and shouldn't be expected to understand it in detail. Furthermore, if you don't understand something then your readers certainly won't. Don't be embarrassed if they're shocked that you don't know something.

Put opposing views in the third person, for example “Some people see this differently...” or “What would you say to people who argue that...” You needn't shy away from asking the difficult questions—they're often the most interesting—just be tactful about how you do it.

Recap and summarise the key points with phrases like “Let me make sure I've understood you...” or “So, in broad terms, what you're saying is...” Make sure you have fully understood the ideas and that you have the information you need to be able to write about the subject coherently.

Don't forget basic information on what an interviewee does, their name and their affiliation. Check spellings of names, titles, dates of birth etc. Again, don't be embarrassed to ask them or even call them back to check facts or quotes. Also, try to get a photograph of the interviewee and any interesting pictures from their research—these will be by far the best ways to illustrate your final article. Also, ensure you get direct permission from them to publish these images along with the article.

You may want to record the interview. This has the advantage of ensuring your quotes are word-perfect and allows you to listen to what the interviewee is saying and therefore have a more meaningful conversation. It also saves you from having to scribble. The disadvantages are that the interviewee may be intimidated, the room may be too noisy and it can take a long time to listen to it afterwards! If you plan to record the interview, make sure you ask first and find a relatively quiet location with minimal interruptions.