Writing well at work

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This training course covers many of the principles of how to write well at work and produce better documents. It doesn't cover everything there is to know about this topic, but will be a helpful introduction to the ideas.

If you'd like me to review the document you produce during this course, or any document for that matter, please send it to greg@thinkwrite.com.au

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Writing well

When we write well, we produce good documents that help organisations communicate and function better. Good documents are both

- effective – they achieve purpose, and

- efficient – they are written and read quickly.

Documents both clarify and share thinking. Writers craft ideas into words, transferring notions in the mind into words on a page (or screen) so that the ideas are available for all to see and respond to.

Documents that are written well and communicate effectively are not a "nice to have". They are an essential component of successful organisations. Investing in better communication always has a positive pay off.

Documents as conversation

It's helpful to see documents as conversations, conversations between writer and reader. Thinking of a document as a conversation transforms the way we approach writing. Writing really is talking to people – it is much more than capturing thoughts.

Writing transfers knowledge, ideas and thoughts over time and space. We can store ideas and send them to someone else who may be at a different location, or reading at a different time.

Documents help discussion, consultation and dissemination

Good documents can aid the discussion process, allowing people to express ideas thoughtfully while giving the reader time to reflect and carefully consider a response. Documents sit alongside face-to-face meetings and dialogue, working to capture and refine ideas, and allowing those not in a meeting to be involved. They are a vital part of the idea generation and dissemination process – if they are written well.

Poor writing generates confusion and sometimes chaos.

Poor documents can get in the way of communication and can cause an organisation to malfunction. For some organisations, poor writing is a source of great inefficiency – documents are reviewed and re-written by successive layers of management as they pass up the chain of command.

Poor expression of ideas can cause confusion as readers guess what the writer intends to say. Long and boring documents may give the impression of thorough communication, but the reality is that many are not read, or not understood.

Consider a writer who spends 15 minutes writing a document, and then a dozen readers each spend 10 minutes deciphering what was said (and maybe calling the writer to clarify). This communication has cost the organisation a total of 135 minutes. However, if the writer made a greater effort to be clear, perhaps spending 30 minutes writing the document, so that each reader needed only 2 minutes to understand the message, the total communication cost would only be 54 minutes.

A worse situation may be when the reader misunderstands what the writer was trying to say. As a result they may do something that they shouldn't do, or not do something they should do. The consequences could be significant.

Write to engage

Writers write for a mix of three reasons – to entertain, to persuade or to share knowledge. When we write at work our purpose is to impact the attitudes, thinking or behaviour of readers in some way.
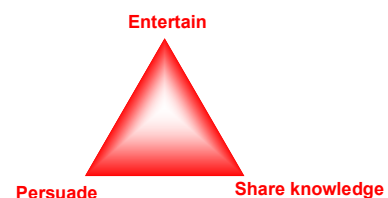
Most business and government writing sits along the 'persuade / share knowledge' axis; often towards the persuasion corner – getting someone to do something. For example; getting the minister to take a particular view, getting your boss to approve a plan, getting the community to be on side, getting a customer to buy, etc.

Some business writing aims to share knowledge. (Storing knowledge shares it, for use in the future.) Knowledge sharing documents include procedure manuals, research papers and reports.

There is no reason writing cannot also be entertaining, or at least engaging, even though the majority of writing in business and government is to persuade or share knowledge. It is much easier to read something that is entertaining than boring. If reading is a pleasure, or at least easy, readers are more likely to be engaged and read to the end.

To engage readers, documents should be reader focussed. Seek to write to:

- answer readers' questions and meet their needs

- touch their hearts and minds

- be accessible. Readers should be able to easily find the information, and when they find it, be able to understand and use it easily.

> What is written without effort is, in general, read without pleasure.
> Samuel Johnson

The act of writing

Good writing strives for clarity and contact

Clarity

Good writing communicates clearly without ambiguity. The reader should pick up your intended meaning without modification. To do this you need to organise your thoughts in a manner that makes sense to your readers, and use language they will understand.

Your writing must be precise and accurate. However, the degree of precision needs to match the readers' needs: sometimes it is fine to write 'germs' instead of Staphylococci.

Contact

Good writing is aimed at the reader. They should understand that what you are saying is important and of use to them. Expressing your thoughts clearly and in familiar language helps make contact with your reader. It's also important to understand their viewpoint and the things that are important to them. Write from a perspective they can relate to.

> It's never enough to be complete and accurate .....
> you must **communicate**.

Writing makes thinking more precise

Have you ever had the experience of reading a part of a document, a paragraph or a sentence, and then having to re-read it to understand what it said? When you read something that is difficult to follow, if you can't sort out the thoughts that are being presented, you may be reading something that has been put together without much thought.

> Poor writing is generally the result of poor thinking

Elaborate and lengthy prose is often the result of poor thinking. Imprecise thinking is the root of bad writing. It is not possible to write well without thinking well.

When we write, we think. When we start writing, we come up with new ideas that were only just germinating, hidden in the back recesses of our minds. Once they are expressed in word (or diagram) we can see them for what they are and then start to shape them into something useful.

think
writing down my thoughts helps make my thinking more precise.

write
when I see my thoughts clearly on paper they are easier to build on.

The recursive nature of writing and thinking means that it is extremely rare to write a document perfectly, or even well, on the first draft. It is important to allow sufficient time – soak time – for ideas to become fully formed and communicated.

> I write to find out what I'm talking about.
> Edward Albee

However, difficult text can sometimes be the result of too much thinking. The writer packs the text very densely with thoughts. The reader encounters them in a few seconds, but it may have taken the writer months to get their head around the ideas. (A particular problem in research and academic papers.) So, think about how your readers will encounter ideas.

As a general principle

There is no such thing as good writing, only good re-writing.

> Reading maketh a full man;
> Speaking a ready man;
> Writing an exact man.
> Bacon

Make it easy for the user

User (reader) based communication has at its core a desire to make information easy to find and easy to understand. Write to meet your users' needs; answer the questions they have. Think about the benefit readers' will receive from investing time reading your writing.

Don't dump everything you know on them. User based communication is very different to the information dump approach — "I'll tell you all that I know and you figure out what you need from that." Surprisingly, such a cumbersome approach is still common, particularly in internal documents.

> "I didn't have time to write a short letter, so I wrote a long one instead."
> Mark Twain

One of the most helpful things you can do for your reader is to write a short rather than a long document. Take all the detail you know and organise, summarise and condense it. Provide the big picture; only dive into detail when it is essential to make a point.

Readers appreciate well-crafted documents that condense and organise material. In developing communication like this, the writer does some of the thinking for the reader. As the author you are well placed to do this. You are the expert.

Writing for the user increases the likelihood that the material will be read, understood and acted on. It's worth the extra effort.

Maximum meaning | Minimum reading

The writer is responsible

Making sure the message is received is the responsibility of the person initiating the communication. Getting a document read is the responsibility of the writer, not the reader. Getting a document understood is the responsibility of the writer not the reader. Getting the message acted on is the responsibility of the writer.

Get your facts first, then you can distort them as you please. Mark Twain

This is a turn around from the way we often view written communication. Traditionally the reader is considered responsible for reading and understanding. If they don't understand, they are judged to be lazy or unintelligent.

The written word has the potential to have a much greater impact than talking, but it must be read. It can't be absorbed without effort. So making a document easy to read is a key task of a writer.

CAPTAIN OBVIOUS **Writing is only effective when it is read.**

Reader, audience, user?

We can use these terms interchangeably. However, it's best to think about the person reading your document as a 'user'. Functional documents (the focus of this course) are documents that help people do something. In this sense the reader is a user of the document.

Considering the reader as a user means thinking about your document as a tool. That changes your approach to writing. It's no longer about presenting information; it's about presenting information in a manner that somebody can do something with it.

> Readers must be prepared to do some work from time to time, naturally, but they also have the right to expect that things are not made needlessly difficult for them. No subject is so elusive or challenging that it cannot be rendered reasonably clear and enjoyable for an audience. The failure to do so means only one thing, ultimately: the writer doesn't care about his audience, being enclosed in a mere ego-trip.
>
> Richard Palmer, Write in Style

Define your purpose

Developing effective communication starts by being very clear about the purpose of the document. Ask 'Why?''. Why am I writing this? Why will the user read this? What do you want to achieve, both for your organisation and your reader?

Your purpose will depend on the type of organisation you are and how you relate to your readers. In business, the ultimate purpose is to make a profit. But there are other important things like ensuring employees work safely, protecting the environment and your reputation. A business will have other objectives related to increasing market share, keeping quality on track, or improving the skills of its employees. Effective communication works to support all these objectives.

the needs of the user

both needs come together in an effective document

the needs of the organisation
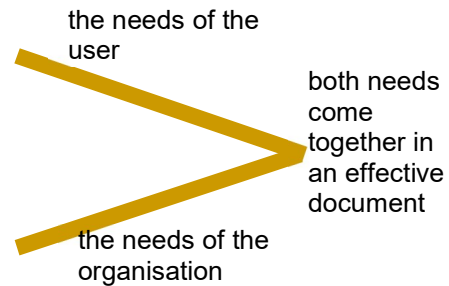
For a government agency or not for profit organisation, purpose will be more related to fulfilling mission. That mission may be to provide good roads or to administer taxes fairly or to provide care services. These organisations also have subordinate objectives that are related to their higher purpose.

Think through:

- Why is this initiative or message important?
- Is this communication part of a broader process?
- What you are hoping to achieve?
- What do you want users to do in response to this message?

Ask "WHY?" to drive up to purpose

Ask "HOW?" to drive down to detail

Purpose

HOW?

WHY?

Detail

Why will the reader read this?

It's important to have a good answer to the readers' question "Why should I invest my time in reading this?"

In some circumstances you may be able to compel users to read because of some form of power you have over them. In these situations clarity, as defined by the reader, is particularly important.

In other situations you will need to convince your reader early on that reading your words will give them a benefit of some kind. Perhaps knowledge they wish to have to bring them benefit or satisfaction.

As a result of reading this, I want …..

Traditional models of communication emphasise a shared understanding of content as the goal of communication. A message is formulated by one party, coded into media (speech, text, images) transmitted, decoded by the receiver and reformulated as an idea. Feedback and re-transmitting continues until both the sender and the receiver have the same idea. That is, the aim is a shared understanding.

In business and government effective communication must go beyond shared understanding and transmitting ideas. The aim is influence; impacting thinking, attitudes and behaviour.

Your ideas   **understood by others**   **and acted on**

The simplest way of testing any communication piece is to look at your audience. Are they doing what you wanted them to do? Are they moving towards doing what you want? Of course, to make that judgement you must first know what you want them to do.

It may be useful to imagine your reader picking up the document for the first time. Imagine what might be going through their mind. How will they react to your words? What could stop them from acting the way you want? What could you do about it?

Having a clear picture of the desired impact of your document is vital. Writing down the goal of your document will help you clarify it. Some examples:

- As a result of reading this proposal I want Mr Smith to employ an additional worker.

- As a result of reading this paper I want the minister to approve additional spending.

- As a result of reading this brochure I want commuters to catch the bus one day a week.

- As a result of reading this response I want cabinet to introduce legislation that will prevent coal exploration in the xyz valley.

- As a result of reading this answer I want the media to stop questioning me.

Why do I need to write this?

What do I want to happen as a result of this document?

What could happen if I don't write this?

As a result of reading this I want _____

to

Understand your users

If you are going to orient everything to the reader, you need to know them.

These questions are worth thinking through before you start any writing project:

- What are the users' needs, attitudes and desires?

- What is important to your readers?

- What do readers fear?

- What do users already know, or think they know?

- What do readers think of you?

- How would you like this document impact your relationship with the reader?

The questions below may help you further understand your audience. Choose the questions that will provide the most helpful insight for the document and readers.

Subject-matter questions

- What is the reader's existing knowledge of the subject matter?

- How did the reader learn about this? on-the-job training? formal education?

- Does the reader have personal interests outside work that might help them understand the subject?

- What could happen if the reader does not understand the document?

Attitude questions

- Is the reader enthusiastic? curious? worried? hostile? afraid?

- What are their fears or concerns?

- What are their desires or dreams?

- What's really important to them?

- What emotions drive them?

Personal Characteristics

- What is the reader's level of schooling and reading ability?

- What is the reader's experience in reading similar material?

- Do the readers fall into a particular socio-economic class or culture that may affect how they react?

Language questions

- Is the reader a native speaker of English?

- How comfortable are readers with written English?

- Will the reader know specialised terms used?

- Does the reader learn better from text or graphics?

- What is the reader's familiarity with using reference tools, such as indexes, headers and footers, tables of contents, online search systems?

Context questions

- What do they think about your organisation?

- What else is happening in the reader's world that may influence them?

- What is the impact of your communication on the reader's job?

What are your reader's needs, desires, fears?

What's important to them?

What do they know or think they know about this?

What do they think of you or your organisation?

What will your users use this document for?

Persona – a useful design tool

A persona is a fictional character you create to better understand users. Give them a name, and describe their characteristics. If you are writing for a broad audience you may need a few personas, but probably no more than five or six.

Personas provide a shared vocabulary; an easy-to-remember shorthand way of thinking about users. Personas help you develop a greater understanding of users, their goals and behaviours, positioning users at the centre of the design process.

Personas simplify design decisions. It's easier to design and write for a "real" person. By imagining you are writing to a single person – the persona you've developed – your writing will become simpler and more directed. It will become the sort of thing real people will want to read.

Define the key message

What should your reader remember, even if they forget everything else? – that's your key message. Writing this key message helps you focus on the material that you absolutely must include, and the emphasis you should give to it.

Consider "How will your reader respond to this key message?" Your answer to that will guide how your document is structured and your information presented.

The lift door statement.

Imagine what you would say if you only had a few seconds while the lift travels between the ground and second floor. When circumstances force us, we can usually find one short statement about which we would be willing to say: "It's all right if my reader reads nothing else." That is the lift door statement; the rest of your document provides the supporting information.

Your key message: (about 20-30 words in up to 3 sentences)

How will your readers likely react to this?

Constructing a document

One of the hardest things to do is to sit in front of a blank sheet of paper or a computer screen trying to compose a document from scratch. Professional writers often start a new document by editing an old one – even if the content is unrelated.

> Writing is easy. All you do is stare at a blank sheet of paper until drops of blood form on your head.
> Gene Fowler

Generate content

Mind mapping is a powerful tool to generate and articulate ideas. Usually, two mind maps are helpful when developing a communication piece.

Use diagrams, shapes or symbols – not just words
Don't worry about word choice, grammar or spelling.
Don't worry about sequence
Don't try to work out details
Don't be neat

Map 1: Everything you know about the topic.

You won't include everything from this map in your document, but it will allow you to see the landscape of what could be included. It may prevent you from missing some really important content.

Map 2: What the user would like to know about the topic.

Consider what users already know, or think they know. Think about questions they are likely to have. Include 'political' questions as well as content questions.

Make judgements about content

Bringing these two maps together will start to define the content to include. Don't include more than is useful to the user, but don't leave important bits out either. If in doubt, it is best to include content and provide a mechanism for the user to ignore less important content if they would like to.

Map everything you know about the topic

Map the questions the user is likely to have

Organise content for users

In business and government, readers read for a reason. Knowing this reason, the questions readers have in their mind while reading, will help you write in a way that is helpful to them. Documents provide the knowledge needed to support or guide a course of action.

Users need to find information quickly and then easily understand what they read. There are no hard and fast rules about organising a document, but keep these ideas in mind.

> The pen is the tongue of the mind.
> Miguel de Cervantes

Move from the known to the unknown

Readers find it easier to assimilate new information if it can be linked to knowledge they already have. (This is more a principle of learning than of writing.)

> From the known to the unknown
>
> From the familiar to the unfamiliar
>
> From the simple to the complex

Use a logical structure

Organise information in a way that makes sense to the user. The logic that you use will depend on the subject. You can organise content chronologically, geographically, hierarchically, in order of importance or in many other ways. What's important is that your document structure makes good sense to the reader.

Treat topics in proportion to their importance

The location of a section, and its size, send the reader subconscious messages suggesting how important an idea is.

Try not to use appendixes.

Put tables, photographs, and the like in the body where each one is discussed if you can. Limit appendixes to optional information.

Questions to help you organise your document.

How will the reader discover this information?

- Will they be looking for an answer to a specific question they have, or just reading for interest?

- What are they likely to be doing when they go looking for information?

What will the reader do with the information?

- Do they need to follow a procedure you are describing?

- Do they need to combine this information with other information? Where will they get this from?

How can I organise this in a way that makes sense to my reader?

- How are the ideas related?
  (In general, it is best to start with the 'big picture' before moving into detail.)

- What do my readers already know about this topic?

- How can I organise this into less than 7 'chunks'?
  (Use headings to separate the chunks, use paragraphs to further organise the chunks.)

- What can I safely leave out?
  (Readers find it tiresome to wade through text that has little relevance to their interest or needs.)

> Just tell me what you've gotta tell me, clear and straight, and get to the point fast.
> John Wayne (in The Sands of Iwo Jima)

Divide information into digestible chunks

Organising content into bite sized chunks – small units of information – helps your readers. Too much information can cause readers to stop reading. Allow your readers time to get their head around an idea before moving to the next thought. Writers chunk content by using paragraphs, headings, chapters, sections, indents.

Group smaller chunks of related information to create larger chunks or units of thought. It's often easier for readers to comprehend and remember a handful of large chunks of information rather than many smaller chunks. Around 5 to 7 sections works best. In longer documents use sub-sections, 5 to 7 at each level.

Use a 'point first' or pyramid structure

Business readers are predictable. They usually read for information, not for pleasure. They are constantly under pressure from other demands that compete for their time.

The thoughtful writer tries to convey as much information as possible, accurately and as clearly as possible, in as little reading as possible.

Business reading is different to reading a novel. Don't try to hold your readers in suspense. Get to the point fast. Often a reliable headline is all readers need. Readers are eager to put your document aside as soon as they decide they have all they need.

What is the one statement about which a writer would be willing to say: "It's all right if my readers read nothing else". That should appear at the beginning. And if it does, it may be truly all right if the reader reads nothing else.

In wanting to stop early, the reader is not lazy or irresponsible; it is simply that the reader is reading only for information, is busy, and is eager to receive important information quickly, then move on. [1]

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[1] Much of this material adapted from <u>Put it in writing</u>, A Joseph

It is always easier to grasp an argument if you are told the conclusion first.

If you are not told the conclusion first, you have to follow a string of facts or assertions without knowing where the argument is going. Once you hear the conclusion, you then need to link backwards to the justifications and facts.
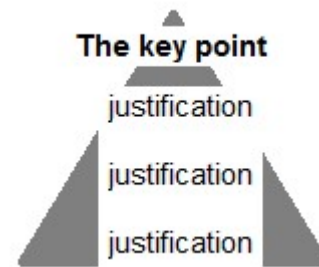
'Point first' is easier to understand because, from the beginning, what you are trying to justify is clear and the reader can make a judgement about each point you make.

Never, ever set aside some important new information for a dramatic ending. The pyramid structure, with its most important information up front and followed by supporting information, encourages thoughtful readers to stop when they think they have had enough. Encouraging (or tempting) readers to stop early then introducing important information at the end may be deceptive.

Use point first in sentences and paragraphs too. Make the first sentence in a paragraph the topic sentence. It introduces the paragraph and gives an overview. Each new idea takes a new paragraph.

Putting the conclusion at the beginning is the opposite of our natural tendencies. Poor writers tell things in the order they learned them. This is a diary, not a letter or report.

Some writers resist the notion that the reader may not read every word, especially if they want every reader to be impressed with their good work. But it is much better to hear "Just tell me your conclusions. I don't need the details because I'm sure your work is reliable."

Exception 1: **Resistant readers**
If the reader is likely to be resistant to your message, consider walking them through the reasons for your recommendation before telling them what it is.

Exception 2: **Scientific publications**
Over the years scientists have established a fixed structure to present their findings. In this case, the abstract can provide 'point first' information and lead readers into finding further detail. The established structure will let readers interested in 'method' or 'results' find that information quickly.
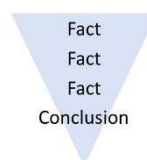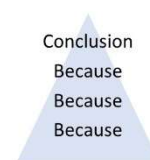
However, if you are presenting scientific findings to a lay audience, use the point first structure.

Exception 3: Fixed templates

Some organisations use a fixed structure to communicate and consider issues. Introducing a different document structure could cause confusion.

However, you can still incorporate 'point first' thinking by organising paragraphs well – organise both the order of the paragraphs in each section, and the order of the sentences in each paragraph.

"If the reader gets all the important information in the first few lines, why write pages of support?"

We write the rest to give readers confidence--to explain how we arrived at those key points in the overview statement. But even if the reader chooses to read only the overview information, they will be comforted by the presence of supporting documentation. Take it away, and hard-to-convince readers may not trust the important information up front.

When you have nothing more to say, just stop. There is no need for a summary or wrap-up statement at the end. A pyramid structure encourages most readers to stop early and so many readers will never know how you ended.

The executive summary is read first, but written last

The executive summary is the most important section of documents. The summary is the first thing the reader reads after the title, and in many cases (if it is informative enough) the only thing. It should not be longer than one or two pages.

The summary should contain the conclusion – not concluding remarks but the conclusion arrived at as a result of the work or thinking being discussed. That may be the last thing the writer learned while doing the work, but it is the first thing most readers want or need to know.

Recommendations may be part of the conclusion, so they can be included in the executive summary. If the recommendations may surprise or upset readers, briefly state the reasons for them in the summary.

Layer information to provide users with choice

Layer information by providing different types of documents.

Provide opportunities for your readers to select the amount of detail they wish to read. Busy executives may be happy with an overview or fact sheet, while scientists will probably want to examine reasoning in great detail.

You may need to provide more than one document on the same topic for different purposes and audiences. For example, a fact sheet, discussion paper or detailed report.

Layer information within a single document

Carefully using headings, paragraph styles and sidebars can separate different types of information. You can layer information within a document by using different formatting styles that direct the reader to 'big picture' information or to detail.

Outline of your document

Headings – helping the reader scan

A good title can be immensely informative, and a bad one can cause information to go wasted. The title should be a highly condensed version of the whole topic, so it should quickly tell the subject and, if possible, the conclusion.

Readers don't read: they scan

Generally, people don't read all the words on a page, especially a web page. They quickly scan, looking for words that indicate that the content may be of interest to them, or a link that may be more interesting.

(An exception is lower literacy users who don't have the skills to scan. They may struggle through the entire page word by word.)

Headings break up the text and provide relief for readers. As a rule of thumb, try to have at least one sub-heading on every page.

Use talking headings

Talking headings capture the main point of the content that follows, and give the reader the choice of reading the content in greater detail, or of moving on to the next point.

Talking headings provide users with information without the need to read the complete text. When constructed well, readers should be able to get the gist of a document just by reading the table of contents.

Bucket heading: Poisonous mushrooms
Talking heading: Ten people sick after eating poisonous mushrooms.

Bucket headings provide navigation information only; they tell the reader where to find a bucket of information about the topic. Talking headings provide both navigation and content information.

Talking headings prepare the reader for the material that follows. They allow a busy reader to skim the document and pick up the gist without having to dive into detail until they need to. A reader can pick up the main ideas and conclusions by simply reading the headings.

> Developments must meet all existing standards
>
> Developments must demonstrate pollution avoided or minimised
>
> If can't meet neutral or beneficial impact, consider offsets

Headings like 'Introduction' and 'Conclusion' are functionally useless. They just mean 'this is the beginning' and 'this is the end' – they may provide location information for the reader, but they don't deliver content. These headings may be useful for the writer as the document is being constructed – they provide buckets to dump information – but they are rarely useful in a final document.

Avoid pseudo talking headings

A heading like 'Why we have a new strategy' is wordy and conversational but contains no content. It is not a talking heading because it does not convey information; only location information.

A talking heading would be something like 'Our new strategy is a response to funding changes'.

Talking headings for your document

Other organising structures

A good structure for proposals:

Situation	What's happening now?
Complication	In what ways is this inadequate?
Focussing question	Where do we need to focus our efforts?
Solution	Your proposed solution

A typical marketing structure:

Bait	Attractive young people pumping petrol.
Problem	Over 80% of lead in the air of our cities comes from car exhaust
Solution	If every car used Shell Half-Lead, air quality will improve dramatically.
Pay-off	Just as good for your car. Better for the air.
Call to action	Go well. Go Shell.

The 5 Ps – good for presenting a proposal:

Position	Overview
Problem	Specifically, what's wrong
Possibilities	Some ideas on how to fix this.
Proposal	But this is the best option
Packaging	And this is what we should say

When answering a question:

Point	Statement in reply to question
Reason	Supporting argument for your answer. Starts with 'That's because…' or 'The reason is …'
Example	A brief story to illustrate the point

Question & answers

Structuring a document by using questions and answers can work in some cases. However, you need to be sure that the questions you are asking are genuine questions in the mind of the user, and not fabricated questions that you wish the user would have so that you can tell them something.

> Any intelligent fool can make things bigger and more complex... It takes a touch of genius --- and a lot of courage to move in the opposite direction.
> Albert Einstein

Reports – a special case

A report is an answer to a question.

Someone, will have asked you to write a report; to provide some information on some matter. Your starting point for the task should be to clarify the question. Ask "Why is this information needed? How will it be used?" It's helpful to agree this question with the person requesting the report. Defining the question sets expectations and defines and constrains your investigation.

When writing your report, consider layering the information in the following way. (If you have a fixed report structure, just providing your executive summary in this structure can be helpful).

The question you are answering.

Clearly articulating the question at the beginning of the report sets expectations for readers. It tells them what they can expect to find in the report, and what won't be there. Some readers will read the question you are answering and decide not to read any further – they may not be interested.

Why the question needs to be answered.

Set the context of the question and answer; describe the consequences of not having this knowledge, and the actions that can be taken if the matter is known. Often this will be a discussion about risk: eg. we need to know the condition of the machine so that we can predict how long it will last, and what maintenance tasks should be done now.

Give your answer

This is the most important section in your report, so don't hide it until the end. Don't keep your readers in suspense. Many readers will not read past this; it will be all they need.

Include 'so what?' content if appropriate. Your investigation may uncover information that suggests a particular course of action. Or there may be a number of options that your reader should consider.

Other information you found

Often when investigating a matter you will find other information that is important and interesting, but not directly relevant to the question. It's worthwhile including this.

How you answered the question.

Describe the technique you used and the tests that you conducted. This content gives your readers confidence that the question has been investigated properly and that your answer is reliable. It gives readers the opportunity to repeat your investigation and confirm your conclusions for themselves.

Present your data

Use graphs, tables, photos to describe how data supports your conclusions

Writing plainly

Impress people with your thinking, not your language

Big words and complex sentence structure can be used to generate an impression of being 'educated'. Some writers deliberately make text difficult to understand to create an air of mystique and to emphasise the distance between their intelligence and that of the reader. They use big words and 'formal' sentence construction. This pretence gets in the way of communication. And sometimes difficult writing is used to cover up a lack of knowledge.

> The source of bad writing is the desire to be more than a person of sense - to be thought a genius. If people would only say what they have to say in plain terms, how much more eloquent they would be.
> Samuel Taylor Coleridge

The writer's job is to tell as much as possible, as accurately and clearly as possible, in as little reading as possible. The reader should not be forced to work harder than necessary to receive and understand your ideas.

The curse of knowledge

Sometimes poor writing is not deliberate, it's just because we know the subject so well. Experts have had years of immersion in the logic and conventions of the subject, so they speak abstractly, summarizing the wealth of concrete data in their heads. But novices, who aren't privy to the underlying meaning, hear only opaque phrases.

Experts forget how difficult it has been to acquire knowledge, and to them, they now see much of their knowledge as 'obvious' or 'common sense'. Once we know something it's hard to imagine not knowing it. We have difficulty sharing it with others because we can't readily re-create their state of mind.

A good writer works hard so that the reader won't have to

Always the reader. He or she is the only reason we write.

Only the user can truly evaluate a communication device. As far back as 320 BC Aristotle said: "One must consider also the audience … the reader is the judge." If a reader or user thinks it is unclear or difficult, then it is. It doesn't matter how much work you've put into it, or how good you think it is.

> "If something is well written the reader will be able to give his whole attention to what the writer is saying. But he will not be able to if it is badly written, because some of his attention will be taken up with sorting out the muddle. A good writer sorts out his own muddles. He considers his readers. He remembers that they are giving him their attention, and he is careful not to waste any of it. (O.M. Thomson in The Craft of Writing, 1981)

See http://www.communications.tas.gov.au/channels/publishing/publications/plain_language_in_communication_guide

1. Prefer clear, familiar words

The reader reads the words, not the mind. The reader should never have to guess at a meaning, encounter ambiguity or be forced to interpret an expression.

Two guiding rules:

1. Use words that are familiar to your audience

2. Use just enough words to get the message across clearly

Prefer small words over large ones

Usually, small words are better understood and more specific. The reader will boil things down to their simplest meaning – they know that 'in the vicinity of' means 'near', 'prior to' means 'before'. The writer should provide the simplest word so that the reader does not have to dig around for the meaning. Good business writing should be easy reading.

Thoughtful writers do not use *facilitate* when they could use *help, utilise* when they could write *use, endeavour* instead of *try,* or *sufficient* when they could write *enough.*

Large words are often imprecise. Does *subsequently* mean *next, later* or *therefore*? Does *indicated* mean *proved* or *suggested*? What about *parameters*?

We could all live full lives without the word *paradigm.*

When you come right down to it, there is no law that says you have to use big words when you write or talk.
There are lots of small words, and good ones, that can be made to say all the things you want to say, quite as well as the big ones. It may take a bit more time to find them at first, but it can be well worth it. For all of us know what they mean.
Some small words, more than you might think, are rich with the right feel, the right taste, as if made to help you say the thing the way it should be said.
Small words can be crisp, or sharp, or brief, or terse. They go straight to the point.
Small words can dance, or twist, or turn, or sing, with a charm all their own. They are the grace notes of prose. You know what they say the way you know a day is bright and fair - at first sight.
And you find, as you read or as you hear, that you like the way small words can catch large thoughts and hold them up for all to see and hear.
They are like rare stones in rings of gold, or joy in the eyes of a child. Small words can make you feel, as well as see; the cold deep dark of night, or the hot salt sting of tears.
Big words can bog down and get in the way of what you want to say. Small words move with ease to say what you mean.
For those who teach, and for those who learn, small words are links in the chain. There is not much, in all our work, that small words will not say - and say well.

from Training and Development in Australia, 1974.

Words to avoid

Inflated words: terminate, accede to, domicile, supplementary, promulgate

Trendy expressions: proactive, flavour of the month

Archaic words: indenture, hereto, hereafter, encumbrances, aforesaid. Archaic words are words which were part of the written language many years ago but are now obsolete. People still use them to try to make their writing sound "official", but the reader is alienated.

Foreign phrases: interalia, prima facie, ceteris paribus, mutatis mutandis, carte blanche

"Shall" is obsolete and imprecise. It can be an obligation or a prediction – 'You shall go to the shops' (obligation); 'I shall go to the shops' (prediction). Use 'must' or 'will' instead.

> The chief virtue that language can have is clearness, and nothing distracts from it so much as the use of unfamiliar words.
> Hippocrates

> Short words are best, and old words, when short, are best of all.
> Winston Churchill

Replace these words with words no longer than two syllables.

abandon	_____	component	_____
fundamental	_____	participate	_____
abolish	_____	demonstrate	_____
illustrate	_____	proportion	_____
accomplish	_____	discontinue	_____
indicate	_____	regulation	_____
accumulate	_____	encounter	_____
institute	_____	remittance	_____
adequate	_____	endeavour	_____
liquidate	_____	repudiate	_____
beneficial	_____	enumerate	_____
utilise	_____	severance	_____
characteristic	_____	expedite	_____
neutralise	_____	subsequent	_____
commitment	_____	fabricate	_____
objective	_____	terminate	_____
compensation	_____	fluctuate	_____
obligate	_____	verify	_____

Technical terms

Jargon, technical terms and acronyms are often useful and can capture big ideas efficiently. If your audience can cope with them, use them. But don't use them to show off knowledge or to try to educate people who don't know the subject well.

Explain technical terms when they are first used if some of your readers may not be familiar with them. You could use brackets within the text, a footnote or a sidebar. Include a glossary at the back of the document if there are lots of technical terms.

> Omit needless words. Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts.
> William Strunk, Jr.

Conditional statements

Use 'if/then', not 'where' or 'should' or 'in the event'.

'Where' & 'should' have multiple meanings. 'In the event' is unnecessarily wordy.

'If' starts the condition. 'then' separates the condition from the consequence. It may be omitted if obvious.

Usually start the condition with 'if'. That way if it doesn't apply readers can skip the consequence. 'If it is raining, then take an umbrella.' rather than 'Take an umbrella if it is raining.'

Avoid double negatives

Double negatives are sometimes used for emphasis, but can easily be confused. They can slow down readers, particularly if they are scanning. Avoid phrases like: not unlikely, not unintelligent, it wasn't uninteresting, you ain't heard nothing yet.

Clutter phrases

Writers sometimes use two or three words when one will do. The result is a document that is longer than necessary, and usually an annoyed and frustrated reader. The reader is forced to unclutter the document so they can understand what it says.

> Every sentence, every word has to fight for its life.
> Crawford Killan.

Brief expression better emphasises an idea than lengthy expression. Needless words dilute emphasis.

due to the fact that _____

made up his mind _____

prior to, in advance of _____

best of health _____

on the part of _____

with the exception of _____

the absence of _____

the question as to whether _____

draw your attention to _____

in order to _____

filled to capacity _____

in spite of the fact _____

the month of May _____

put in an appearance _____

at this time _____

in short supply _____

in the majority of instances_____

a percentage of _____

did not remember _____

ahead of schedule _____

great majority _____

for this reason _____

in close proximity _____

personally reviewed _____

serious crisis _____

subject matter _____

contingent upon _____

a number of _____

bring to a conclusion _____

connected together _____

end result _____

in the direction of _____

in the foreseeable future_____

advanced warning _____

not in a position to _____

a small number of _____

enclosed herewith _____

without further delay _____

time of day _____

mutual cooperation _____

merged together _____

at a later date _____

ask the question _____

general public _____

plan in advance _____

desirable benefits _____

breakdown situation _____

full and complete _____

circulate around _____

first and foremost _____

in this day and age _____

brown in colour _____

regular weekly meetings_____

on a daily basis _____

2. Prefer the active voice over passive voice

Sentences written in the active voice tend to be more direct and easier to follow. They are usually more personal than sentences in the passive voice because they include references to human "agents" (participants doing the action). Using personal pronouns and the active voice is an effective way of reducing the "distance" between the writer and the reader in communication.

The period for payment has been extended until July 30.

Instead, write.

We have extended the period for payment until July 30.

The passive voice conceals some of the information – who was involved. Sentences written in the active voice tend to be more direct and easier to follow. The 'agent' (the participant doing the action) is placed before the verb:

We will send your receipt next week.
(agent) (verb) (thing acted upon) (circumstance)

The active voice shows readers who is doing what.

The order of the sentence is reversed when written in the passive voice. The 'agent' is no longer the subject of the sentence; instead 'the thing acted upon' is placed in the subject position. For example:

Your receipt will be sent next week.
(thing acted upon) (verb) (circumstance)

Notice how the 'agent' can be omitted from sentences written in the passive voice. It avoids stating who is responsible and keeps documents impersonal.

Readers like to know who they are dealing with. They can soon lose the thread of the message if they cannot quickly grasp who is responsible for what.

Choose active or passive verbs depending on emphasis

The passive voice does have a place and should not be eliminated entirely. Use the agentless passive -

- when the agent is unknown:

  The car was stolen around midnight.

- when the agent is unimportant:

  The debris was moved to allow the cars to pass.

- when you wish to deliberately conceal the agent:

  The report was submitted two weeks late.

If you need to you can get the 'agent' back into a sentence simply by using the active form of the verb. This forces you to include the 'agent' at the beginning of the sentence:

We have extended the period of payment.
(agent) (verb) (thing acted upon)

Emphasis determines the words that you use. Make whatever you want to emphasise the subject of the sentence. It provides clues to the reader about the material that will follow.

Writers should use the passive voice in good faith. This is active, emphasises writers, and the document will further discuss writers.

The passive voice should be used in good faith. This is passive, emphasises the passive voice, and the document will further discuss the passive voice.

Improve the following by writing in active voice:

E-mail is being used to inform staff employed by the Commission concerning the strategy being adopted under MAP 2010.

A decision has been taken by the board that a reduction should be effected in the salaries paid by the Commission to its officials.

Use the active voice in scientific writing

from Robert A. Day (1998) How to Write and Publish a Scientific Paper, pp. 209-10.

In any type of writing, the active voice is usually more precise and less wordy than is the passive voice. Why, then, do scientists insist on using the passive voice? Perhaps this bad habit is the result of the erroneous idea that it is somehow impolite to use first-person pronouns. As a result, the scientist typically uses such verbose (and imprecise) statements as "It was found that" in preference to the short, unambiguous "I found."

Do not be afraid to name the agent of the action in a sentence, even when it is "I" or "we." Once you get into the habit of saying "I found," you will also find that you have a tendency to write "S. aureus produced lactate" rather than "Lactate was produced by S. aureus." (Note that the "active"

statement is in three words; the passive requires five.)

You can avoid the passive voice by saying "The authors found" instead of "it was found." Compared with the simple "we," however, "the authors" is pretentious, verbose, and imprecise (which authors?).

from Jan A. Pechenik (2004) A Short Guide to Writing About Biology, 5th ed., pp. 97-98)

The passive voice is often a great enemy of concise writing, in part because the associated verbs are weak. If the subject ("Rats and mice," in the following example) is on the receiving end of the action, the voice is passive:

Rats and mice were experimented on by him.

If, on the other hand, the subject of a sentence ("He," in the coming example) is on the delivering end of the action, the voice is said to be active:

He experimented with rats and mice.

Note that the active sentence contains only 6 words, whereas its passive counterpart contains 8. In addition to creating excessively wordy sentences, the passive voice often makes the active agent anonymous, and a weaker, sometimes ambiguous sentence may result:

Once every month for 2 years, mussels were collected from 5 intertidal sites in Barnstable County, MA.

Whom should the reader contact if there is a question about where the mussels were collected? Were the mussels collected by the writer, by fellow students, by an instructor, or by a private company? Eliminating the passive voice clarifies the procedure:

Once every month for 2 years, members of the class collected mussels from 5 intertidal sites in Barnstable County, MA.

Similarly, "It was found that" becomes "I found," or "We found," or, perhaps, "Karlson (1996) found." Whenever it is important, or at least useful, that the reader know who the agent of the action is, and whenever the passive voice makes a sentence unnecessarily wordy, use the active voice:

Passive:
Little is known of the nutritional requirements of these animals.

Active:
We know little about the nutritional requirements of these animals.

Passive:
The results were interpreted as indicative of. . . .

Active:
The results indicated. . . .

Passive:
In the present study, the food value of 7 diets was compared, and the chemical composition of each diet was correlated with its nutritional value.

Active:
In this study, I compared the food value of 7 diets and correlated the chemical composition of each diet with its nutritional value.

Note in this last example that it is perfectly acceptable to use the pronoun "I" in scientific writing; switching to the active voice expresses thoughts more forcibly and clearly and often eliminates unnecessary words.

3. Use verbs, not nouns made from verbs

The species is making a return to populated areas, uses 'return' as a noun. It's better to use a verb instead. *The species is returning to populated areas.* Similarly, a sentence like *We gave them warning that they would need to create an increase in available credits* uses 'warning', 'need' and 'increase' as nouns, and the sentence is more difficult than it needs to be. *We warned them that they need to increase available credits* is better.

One of the major ways of making text easier to understand is to replace abstract nouns (nouns like 'verification', 'identification', 'performance', 'encouragement', 'authorisation') with the equivalent verb. An abstract noun is frequently followed by a verb which is devoid of meaning. Changing the noun to a verb eliminates this problem.

Write *You must comply* rather than *Compliance with these regulations is vital.*

Write *We could explain this* rather than *A possible explanation is that there is*

Write *When you renew this policy* rather than *Upon renewal of this policy*

Avoid noun strings

Noun strings – groups of nouns 'sandwiched' together
are common in government and business writing.
Readability suffers when three words that are ordinarily
separate nouns follow in succession. Once you get past
three, the string becomes really tough. Squashing nouns together turns all the
nouns, except the last, into adjectives. However, many readers will think they've
found the noun when they're still reading adjectives, and will become confused.

Eliminate descriptive words that aren't essential, or describe the function or
relationship by using more words. For example, instead of *surface water quality
protection procedure development* write *developing procedures that will protect the quality of surface
water*.

> Any simple idea will
> be worded in the most
> complicated way.
> Malek's Law

Nouns	Verbs		
acquisition	acquire	discussion	discuss
action	act	encouragement	encourage
administration	administer	expectation	expect
application	apply	implementation	implement
appointment	appoint	improvement	improve
approval	approve	institution	institute
assessment	assess	investigation	investigate
assistance	assist (or help)	notification	notify
authorisation	authorise	performance	perform
cessation	cease	provision	provide
consideration	consider	reduction	reduce
coordination	coordinate	requirement	require
decision	decide	suggestion	suggest
determination	determine	utilisation	use (avoid 'utilise')

Re-write these sentences:

Through the introduction of measures aimed at the creation of employment, it is the intention of the Commission to facilitate the positive evolution of the economic and social situation.

_____

_____

A request will be made to a firm of consultants to carry out an evaluation of the resources needed to ensure the feasibility of the performance of these tasks by the research centre.

_____

_____

Clearing of native vegetation, with the associated destruction of habitat, has been identified as the process that represents the greatest single threat to biodiversity in NSW

_____

_____

XYZ has responsibility for implementation and evaluation of the compliance and enforcement strategy.

_____

_____

Strategic investigations and prosecutions will be undertaken to demonstrate to illegal operators that the Food Authority is committed to identifying and prosecuting serious non-compliant behaviours.

_____

_____

_____

4. Write short, point first sentences

Long sentences can confuse readers even though they may be grammatically correct. In general, the shorter the sentence, the clearer the meaning.

> **One thought, one sentence.**

People read all the way to the full stop before pausing to absorb what they have read, so long sentences put an enormous strain on their memories. With time and patience, readers can make sense of them but it takes a lot of hard work. It's hard to pick up the logical flow because the reader's short term memory is severely strained. Long sentences unnecessarily increase the cognitive load you place on your readers.

> The two main things to be remembered about sentences by those who want to make their meaning plain is that they should be short and should have unity of thought
> Greenbaum & Whitcut

Readers should not have to work hard. It is your responsibility to be clear - it is not the responsibility of your readers to make sense of your writing.

The longer the sentence, the harder it gets for the reader to retain the basic idea. There is a limit to the number of individual items the brain can process simultaneously. But making all sentences short would be monotonous. The solution is to blend well-controlled longer sentences with occasional short ones.

People write long sentences because they think they should:

- pack related ideas together
- add qualifications and modifications to simple ideas

There is no need to do this. You can develop ideas and keep them together by writing well-controlled sentences and paragraphs.

How to shorten long sentences

To shorten sentences begin new ones where the original sentence starts a new clause. The words "and", "but", "because", "if", "or", "unless" are often good places to break a sentences.

- Sort out the different ideas.
- Have only one or two ideas in each sentence.
- Put the qualifications, conditions and explanations into separate sentences.

Good writing almost always averages between 15 and 20 words per sentence. Do not write all sentences within these limits, however, because that would create a style so dull it would bore the average reader. Mix them up. Although probably unaware of it, readers feel comfortable with the changing pace, changing mood,

they experience when the sentences are occasionally as short as 3 or 4 words or as long as 30 or 35.

Rewrite this 71 word sentence:

The objective of this policy is to create and establish management standards for all assets under the management and control of Council to a reasonably safe standard and condition which is, in fact, the highest standard and condition that Council has determined it can reasonably afford in all of its circumstances and having regard to all of its statutory obligations and financial, economic, environmental, aesthetic, social or political factors or constraints.

_____

_____

_____

_____

_____

Point first

It's nearly always better to have the point that you want to make at the beginning of the sentence – that's where readers start reading! Often this is involves making subtle choices about emphasis.

Write *"Without further information the draft submission cannot be approved."* if you want to emphasise the lack of information.

Write *"The draft submission cannot be approved without further information."* if you want to emphasise rejecting the submission.

Re-write these sentences by changing the order of the points:

Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems.

_____

_____

_____

Where there is little infiltration, natural ventilation or mechanical ventilation, the air exchange rate is low and pollutant levels can increase.

While there will be an ongoing key role for species-specific plans to bring high profile species back from the brink of extinction, most recovery outcomes depend on integrating the necessary protective actions with the mainstream processes that decide the fate of habitat.

Keep participants and actions together

Readers find it harder to follow sentences which have one or more elements interposed between the participants and the action. They also find it difficult when elements are added between parts of a verb. The solution is often to move the obstructionist clause or phrase to the beginning or the end of the sentence.

The management, for reasons of safety, and in view of the circumstances which are unavoidably associated with a manufacturing enterprise such as ours, wishes to remind all personnel that no person, unless accompanied by a duly authorised company officer, is permitted within these premises.

It is better to write

Nobody can be on these premises unless they are accompanied by an authorised company officer. This is because we want to keep people safe. Our manufacturing enterprise has some risks that people need to be aware of.

Listing

Sometimes you need to keep various ideas together so that your readers can see the connection between them. Here you can use a longer than normal sentence but break it up with bullet points.

I agree

- *to pay by instalments of $30 each month*
- *to pay the first instalment on 1 May*
- *to pay the following instalments by the first day of each month*
- *to pay the final instalment by 31 Dec 2020.*

Force your readers to recognise related or similar ideas by using similar grammatical structures - especially in

Everything should be made as simple as possible, but not simpler
Albert Einstein

listing formats. This is partly a matter of pleasing the ear - readers may find it jarring when the expectation of a parallel structure is not fulfilled - and partly a matter of improving the force of the expression.

Rewrite this

The technicians (1) solved the two-dimensional heat transfer problem by use of a finite element method, (2) have identified a set of three liquid crystal blends, (3) have obtained an estimate for w by direct measurement of the width, and (4) developed a method for combining the colour mappings.

Parallel structures

Highlight the equivalence of ideas by expressing them in parallel structures.

> Simplicity is the ultimate sophistication.
> Leonardo da Vinci

There are a number of jobs available, such as firefighting, tending shrubs and tress, and as an overseer of the public parks.

Is better as

There are a number of jobs available such as fighting fires, tending shrubs and trees, and overseeing the public parks.

Using the same structure makes it clear that the writer is talking about the same sorts of things. Using different structures destroys the sense of parallel between ideas. Parallel structure is powerful when combined with lists.

Processes and procedures

When describing a process or procedure, order clauses in the sentence so they reflect chronological order. Readers find it easier to process information if the order in the sentence reflects the order in which things happen.

The patient is to lodge this form when completed with the Department of Health in the capital city in which he resides.

Instead, write:

When you have completed this form, lodge it with the Department of health in the capital city where you live.

Rewrite this

The signalman at B may accept the train by reversing his accepting lever, but before so doing he must comply with the Regulations contained herein, and ensure that the line on which the train is to run is clear to the prescribed clearing point, and that the points over which the train is required to run are in the correct position.

_____

_____

_____

_____

5. Use conversational style as a guide

You are writing to people!

Be wary of deliberately distancing yourself from people by the way you write. Even bureaucratic organisations are designed, maintained and populated by people. Documents impact people. Address the reader directly whenever possible and especially when you are writing a letter. Use personal pronouns - "you" for the reader and "we" for your organisation. Use "I" if you are specifically referring to yourself.

> "Most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in language comprehensible to everyone."
> Albert Einstein

For example, instead of '*The applicant must provide his or her mailing address*', write '*You must provide your mailing address*'.

If you use impersonal language for explanations, your readers are less likely to get the message and if they do, they will be offended by the coldness of the tone. People like to be addressed personally.

This does not suggest writing in slang or being careless. Writing should be more precise than conversation because the writer has more time to choose words and build sentences carefully – and the reader has more time to examine carefully for meaning and to notice faults; he or she will usually ignore a little carelessness in casual conversation but will not forgive that same carelessness in print.

Imagine the reader sitting across the desk. What will you say to them?

Rewrite this

This return form must be signed by the licence holder. Even if help is received in the completion of the form, the licence holder must sign it and lodge it with this office. Once the return has assessed, the licence holder will be sent a notice of assessment. Staff at the Department are available for consultation should further explanation be necessary.

Fogging

Readers' senses can be dulled by long sentences, long words, negative words, 0r abstract or 'hard to picture' words.

When all four of these occur together, the combination overloads the reader's thinking processes.

..constant degree of control	*…constant control*
the mechanism by which credits are to be distributed	*the mechanism used to distribute credits*
..during the refuelling of motor vehicles	*.. during refuelling motor vehicles*
…agreed that consideration be given to proposing the development of a set of guidance and decision support tools	*… agreed to consider proposing a set of guidance tools*
This type of scheme has the potential to significantly reduce the costs associated with gaining improvements in water quality in the catchment.	*This type of scheme may significantly reduce the costs of improving water quality in the catchment*
In order to achieve a successful outcome from this program it is considered necessary to have the support of the local Councils in areas where the program will be implemented.	*Support from local councils is needed for the program to be successful.*
The financial services sector, through its own activities and the influence it has over other activities can impact whether funds are directed toward activities that hinder or help the environment. Influence can be exerted through more rigorous consideration of environmental risk in financing, the adoption of environmental criteria in investment strategies, and the integration of environmental issues into insurance products.	*Financial institutions exert their influence by:* ▪ *rigorously considering environmental risk when financing* ▪ *adopting environmental criteria when developing investment strategies, and* ▪ *integrating environmental risk into insurance products.*
We are making the request that you provide payment in a timely manner	*We ask that you pay promptly*
We tried on two separate occasions to bring the variables to a minimum	*We tried twice to minimise the variables.*
Beginning this year and continuing indefinitely into the future, distribution of dividends will be made on an annual basis.	*From now on, dividends will be paid annually.*

At this moment in time, in the absence of a sufficient amount of data, we can only provide an approximation of the results.	*Currently, we don't have enough data, so we only have approximate results.*
The police are now of the suspicion that the fire was intentionally set.	*The police suspect arson*
The waste site must be watched in a careful way on an ongoing basis.	*Watch the site continually.*
Pursuant to the provisions of law stated in the aforementioned section, the Metropolitan Police Department is hereby authorised and directed to conduct a full and complete search of the premises.	
Discharges of these hazardous substances occur through spills when loading vehicles, spills and over-spills when filling the tanks, leaks from supply pipes and pipe joints, rust holes and cracks in the seams of the tanks themselves.	
The objective of this endeavour is to develop a commercialization strategy for solar energy systems by analysing factors impeding early commercial projects (i.e., SOLAR ONE) and by identifying the potential actions that can facilitate the viability of the projects.	
Enormous mining companies are both continuing operations at old gold mines, such as the case of the Homestake Mine in Sofala, near Bathurst, which has operated continuously since 1877 and is continuing to increase its operations, and opening new gold mines, often in very disturbing locations, such as the proposed, and for now, postponed, New World Mine, whose proposed location was about 2.5 miles from the border of Blue Mountains National Park, near Mt Victoria.	
The recent identification of high concentrations of aged urban pollutant haze in the Arctic Basin suggests the possibility of climate modification through the interaction of the haze with solar radiation. The presence of the absorbing aerosol layer over a high-albedo surface will lead to an enhancement in the absorption of solar radiation by the atmosphere and surface system. This additional heating will manifest itself as an increase in the temperature of the atmosphere and an increase in the rate of ice melt in the spring.	

Writing style

Paragraphing

A paragraph packages together related ideas. The paragraph is a basic building block to chunk related ideas into different container sizes. Paragraphs help the reader organise ideas and create a memorable mental model of the information you are conveying.

Various chunk and container sizes

- Heading 1
- Heading 2
- Heading 3
- Paragraph
- Sentence
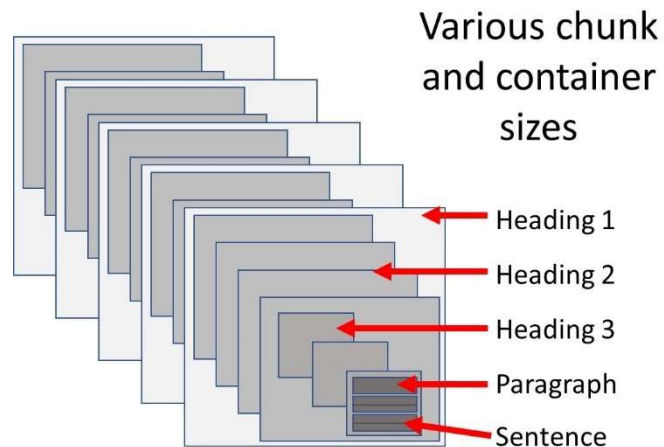
Paragraphs don't just organise ideas, they explore them. A good paragraph starts with a central idea, and then expands or explains the idea in more detail.

Each paragraph should have one main topic, and this will be in the opening or overview sentence. Ideally it should raise a question or some expectation in the mind of the reader which the remainder of the paragraph addresses.

It's usually best to organise paragraphs 'point first'. Having your main point in the first sentence of a paragraph helps your readers make sense of the following sentences so they can quickly assimilate the information. It also makes it easier for users to scan the content – by reading just the first sentence in each paragraph they will pick up a sense of your argument.

Paragraphs can be as short as a single sentence. A single sentence paragraph stands out and is a good way to highlight an idea. But use single sentence paragraphs sparingly; otherwise your writing will become choppy.

For general readers, it's good to keep your paragraphs to five or six lines long. The break between paragraphs gives the reader some visual relief as well as helping them get their minds around a single idea. For specialist audience, especially when writing about a complex idea in more detail, paragraphs can be longer. The overriding principle is to start a new paragraph when you move to a new idea.

Only number paragraphs if you are describing a sequential process, or if you need numbers as a way of referencing content (as in some legal documents).

Grammar and punctuation

Punctuation is a tool that helps writers emphasize tone and control the flow of what is written. It tells readers what their eyes and ears would tell them if they were having a face to face conversation. Good punctuation removes ambiguity in our words and helps readers understand what we are really saying.

See the Snooks & Co, *Style Manual* (produced for the Australian Government) for more detail about punctuation and how to use it.

Full stops. Use them frequently to stop your writing becoming long winded. If you can't speak a sentence in a single breath, likely it is too long.

Capital letters. Only use capitals at the beginning of a sentence or heading, for the names of people, or for titles of specific things or entities.

Apostrophes. Use apostrophes in contractions (don't, can't, it's, wouldn't) and to indicate ownership. (Tom's book, bikers' rights).

Commas. Only use commas when necessary – be wary of overuse. Use commas to

- separate thoughts in a sentence
- for clarity
- to separate items in lists. eg high, long, wide.
- around additional information. eg The driver, despite looking down the road, pulled out in front of him
- to link long clauses.

Semi colon. Similar to, but stronger than, the comma. Use to link clauses that could be separate sentences, but that have a closer logical link.

Colon. Use a colon for separate thoughts in a sentence that amplify, summarise or contrast.

Dash. Use for additional or contrasting information that flows from a clause. They can give a real touch of the speaking voice in writing – but use sparingly.

Writing for the web

Users don't read – they scan

Users scan the web to find content that is useful to them. They rarely read each page in detail – there just isn't time. (exception – poor readers without scanning skills may read in detail, hoping to find what they are looking for)

Make it easy for users by

- Structuring content point first
  Users are more likely to read content at the top of the page. Content in the middle or at the bottom of a page is often skipped.

- Use meaningful talking headings
  Well-crafted headings, displayed in a distinctive font, help users quickly see what content is on a page so they can locate what they are interested in.

- Use simple familiar words
  Simple language reduces the cognitive load as users scan.
  Exception: if users are looking for a specific technical word, use it. Try to use it in a heading so that it can be easily found.

- Short paragraphs
  Reading or scanning on a screen can be more difficult than paper. Paragraphs of 2-4 lines provide ideas in quickly digestible chunks.

- Control line length
  A single line of text spreading across an entire 70cm screen is very hard to read. Web design should restrict line length to around 50 characters.

On the web, every page is page one

A user can enter a web page from many places – links, search engines etc. It is difficult to pick up the context of information when entering a page this way.

The web is different to a paper document. Books and leaflets give a physical indication of where the information fits in relation to what surrounds it.

A book is usually structured in a linear hierarchy. A website can be structured this way but doesn't need to be. Navigation structure can be more like a mind map, following a path of related ideas.

So, it's important to provide a way for users to discover context if they need it. You can do this by

- providing descriptive links to related information. Say more than 'click here'; give a brief description of the content to user will encounter.

- repeating some information on multiple pages – a useful redundancy. Do this sparingly because it will frustrate users who visit multiple pages.

- include menu structures with talking headings

- use 'breadcrumbs' to show hierarchy.

Search engine friendly

Most users enter sites from a search engine, so think about the words and terms that users may be searching for when landing on your site.

Use these words throughout the text and in headings. Use them in a natural way, not contrived or repetitive. Most search engines use algorithms to give good search results for more natural language structures.

Writing for social media

The principles of writing in plain language apply when writing for social media; in fact they become more important.

Social media is different to mass media. In social media people have opted in to receive your message. You already have their attention and they want the information you provide. The opt in process may also segment your audience into specific interest groups, so your message can be tightly targeted. Social media is most effective when content relates to a particular interest or a specific group of people.

Users receive multiple messages from multiple sources every day, so make messages relevant, useful and interesting.

- Relevant – people should think 'this matters to me'. Consider tailoring by time, geography, interests.

- Useful – the content should help people see things in a new way, change behaviour or learn something.

- Interesting – tap into curiosity with unique and unexpected (but relevant) content. It is more likely to be shared.

Use a writing style that is

- Action oriented. Direct readers to take some type of action. Use verbs like 'learn', 'watch', 'join'.

- Friendly and conversational; a professional yet casual tone.
  Use contractions (can't, don't, haven't). Use personal pronouns (I, we, you) But don't use 'text speak' (UR for you are, 4 for for)

- Point first. Your message should be clear from the first line. There is little opportunity to develop a comprehensive argument in a 140 character tweet.

Writing longer documents

Longer documents are likely to have multiple chapters and so multiple entry points.

It is unlikely a user will read the entirety of a long, technical document. Writers may need to provide context material at the point of entry. This context information may be repeated throughout the document, but it is a useful redundancy.

It's important to 'layer' content so that the user has the choice to skip the material if they have read it elsewhere. Consider using sidebars, footnotes or even a different style font to identify content that provides context but that is not the focus of the section.
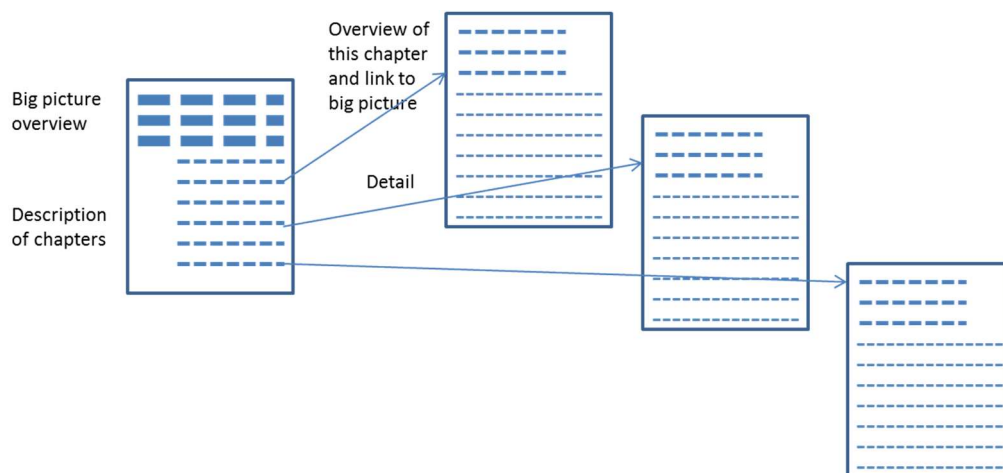
An overview at the beginning of a document can provide the big picture of the entire document. Below that a description of each section and how it relates to the big picture can be helpful. That description may be repeated at the beginning of each section to provide context for users that jump straight into the section.

Different authors

It's common for a number of authors to collaborate when writing a large document. It's helpful to agree on the structure of each section, and even workshop the headings (talking headings) that you will use before writing starts.

Users generally cope with different writing styles OK, but they do struggle when they encounter different organisation structures as they move from chapter to chapter.

Writing myths

These are rules you may have heard; feel free to break any of them.

- Never use personal pronouns in writing

- Don't use contractions

- Don't end sentences with a preposition.
  "That is a rule up with which I will not put."

- There's no such thing as a one-sentence paragraph

- Don't begin a sentence with 'And', 'But' or 'Because"

- Don't put a comma before 'and'

- Don't split infinitives.
  The department wants to more than double its budget

Overcoming writers' block

Writers block, the inability to put coherent words on a page is usually caused by:

> People have writer's block, not because they can't write but because they despair of writing eloquently.
> Anna Quindlen

- a desire for perfection straight away

- the anxiety of deadlines, or

- insufficient information

The biggest mistake is to insist on getting it right at the first draft. Writing is a process that clarifies thinking, so as you write you will find better ways of expressing ideas.

Some helpful strategies to overcome writers' block:

- Jotting down ideas and phrases as they occur; free writing

- Start in the middle

- What I really mean is ....

- Satisficing

- Copying out good text

- Set a routine, goals and deadlines

- Remove distractions; close the door

- Take a break; get some exercise

- Work on more than one project at once

- Talk it through with someone

- Use a different writing style, or hold your pen differently.

Editing, reviewing and testing

There is no such thing as good writing, only good re-writing.

You may need to edit multiple times as you write. Ernest Hemingway rewrote the last page of 'A Farewell to Arms' 39 times – he struggled to get the words right.

Reviews can be costly

Moving a document back and forth through the editing and review process can be costly. Costs include:

- the reviewer's and author's time – increases the cost of document production

- opportunity costs – while a document is being refined it is not achieving its intended purpose, potentially delaying beneficial action

- frustration of both the reviewer and the author. This frustration can impede overall work performance and potentially sour working relationships.

So, be sure that the benefits of changing a document outweigh the overall costs. Perfection or correctness for its own sake is not of value. In some cases, it may be helpful to take a risk management approach – as: "what is the risk if the change is not made?"

Edit for content

- What is this about? Is the message clearly stated?

- Why should my reader be interested? What should they do about it?

- Is all the information the user needs provided? Is assumed knowledge reasonable?

- Are the questions the user is likely to have answered? (check mind maps.)

- Is there any non-essential information that could be deleted?

- Is the information accurate? Can opinion or findings be backed up if required?

Edit for structure

- Will the structure make sense to the user?

- Is the document structured 'point first'?

- Are talking headings used? Can the user get the gist by reading through the headings?

- Is there at least one heading on each page?

- Do the headings describe the content under them well? Can the user rely on them to navigate the content?

- Is information appropriately layered?

- Are related ideas placed together?

Edit for style

Words

- Are the words familiar to the user? Is the simplest word used?

- Are verbs rather than nouns used?

- Are personal pronouns appropriately?

Sentences

- Is the average sentence length 15 – 20 words?

- Can any sentences be split? (Hint: search for 'and', 'but', etc)

- Is there usually one thought to each sentence? Are sentences written 'point first'?

- Is there variety and a pleasing rhythm in sentence length and structure? (Hint: read text aloud)

- Is active voice used more than passive voice?

- Are commas and other punctuation marks correctly placed – no ambiguity?

> All good writing sounds equally good when read aloud; and all good talking will read well if transcribed.

Paragraphs

- Do paragraphs start with a 'point first' topic sentence?

- Are most paragraphs less than 6 lines long?

- Does each paragraph cover a single idea?

Leave your ego at the door.

Having your work reviewed by somebody else can be very threatening. Your writing is an expression of your thinking, and so when somebody suggests your writing can be improved, by implication they are suggesting that your thinking can be improved. That is uncomfortable for most of us. **But good writing isn't about you, it's about your reader.** Anything that delivers a better document for your user is good.

Having your work reviewed

Peer review is a useful way of improving the quality of documents. Consider:

- Who will review your work?

- Why them?

- What do you want the review to accomplish?

When you send a document to be reviewed by a colleague it is helpful to be specific about the type of feedback you would like. For example, do you want comment about the document structure, the tone you have used, or about the accuracy of the information contained. (Never expect a reviewer to correct your spelling or grammar – do that yourself before it leaves your desktop.)

Reviews by people in more senior positions allow your document to be viewed from a different perspective. They are not correcting your work; document reviews are an opportunity for the organisation to think together.

Reviewing someone else's work

Reviewers should think about how a document can be improved rather than just rubber stamping it 'okay'. If you are asked to review a document, be sure to understand the intent – that is, understand why the writer has developed this piece of communication and what they hope will achieve. Then, put yourself in the place of the reader and ask:

- Do I understand what this is about straight away?

- Which sentences did I re-read to understand?

- Does the logic flow?

- Is the language appropriate to the user? Is the language consistent with the organisation's style?

When reviewing a document it is best to ignore matters of personal style – different writers word things in different ways. Focus on the usefulness to the reader and whether the document is fit for purpose. Leave your ego at the door: it doesn't really matter if you would have said it differently, what matters is whether the user will understand. Strive to add value to the thinking and communication process.

Testing your document

Is it useful, usable and desirable?

Three tests for all the communication products:

1. Is it useful? Will it help the user achieve a worthwhile purpose? Does it contain information that is valuable?

2. Is it usable? Is it easy to read and use; can meaning be extracted quickly? Is the information logically structured from the users' perspective?

3. Is it desirable? Will it draw users in and encourage people to engage with the message? Does it please the senses; is using the product a pleasant experience?

Testing with users

Ultimately, readers are the only people who can tell you whether your writing is good or bad. If possible, test your document on a sample of your target audience. Ask them questions to see if you have effectively conveyed your message.

You can only ever know that your communication is working by testing it.
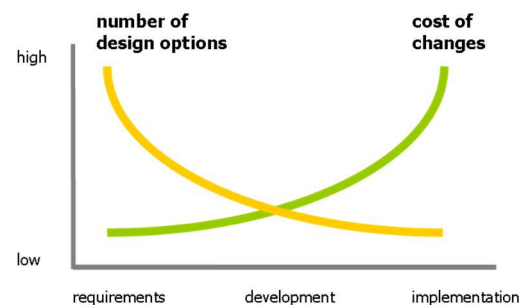
Make user testing part of the writing/design process

Testing should not be left to the very end, but be integral to developing a document. Testing ideas early provides insights into users' needs and preferences, helping you develop more useful communication products.

Typically, unstructured methods are used towards the beginning of the development process to explore what users need from the communication; and more structured types of tests are used towards the end of the process to ensure that the communication is useful, usable and attractive.

Useful tests can be done with just a handful of users. The insights gained from one test can be rapidly implemented into the next version of the communication, and this in turn can be tested to gain further insights. While testing does require some effort, it is not necessarily costly nor does it slow down the production process too much.

Questions to ask at the beginning of the writing/design process:

- What do you currently think about ……?

- What additional information do you think you need?

- How will you use this information?

… there is never enough time or money to do it right, but there is always enough to do it again.

Questions to use during drafting

- Does this grab your attention?

- Does this document look as though it will cover all your questions?

- What parts are you unlikely to read?

- Does the order make sense to you?

Questions to use when your document is nearing completion:

- What do you think this is about?

- Where would you start reading this document?

- Reading through the table of contents, what sections interest you?

- After reading the first page, what is the next thing you are likely to do?

- Do you think there is any information about xyz in this? Where would you go to find it?

- What do you think the writer wants you to do after reading this?

Designing a test

It is always best to test with real users performing real tasks that the communication is designed to assist with. However, useful results can be gained by testing with people who share some of the characteristics of the target audience. If this is not possible, even testing with work colleagues or family can be useful.

If you are not watching real users do real work, then you are making it up!

Consider:

- Can users find the information they need?

- Can users accurately extract meaning when they find information?

- Will users want to use this communication piece? Do they see this as important?

The testing method chosen depends on the stage in the development process, the nature of the users, and the nature of that content. Testing methods include (in the order generally used in the writing process):

- Focus groups

- Walkthroughs

- Think out loud

- Structured interview (protocol testing) "As you read, tell me all the thoughts feelings, questions or comments that are springing into your mind."

- Questionnaires and rating sheets

Writing persuasively

The components of persuasion haven't changed since Aristotle's day.[2]

Ethos

The character of the person delivering the message. It's about your reputation - what you are known for. It involves your qualifications - are you credible on this matter that you are talking about. Ethos establishes trust and confidence in your audience. This is probably an area of strength for many in business or government. However, think about the reputation you have with people outside if your communication is for the general community.
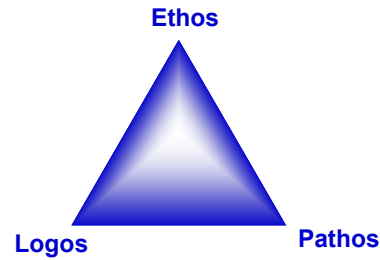
Logos

Logic, rational argument and reasoning. Following through an argument based on established scientific principles. This is the work of the mind. This also is often an area of strength for those in government and business.

> Man is a talking animal and he will always let himself be swayed by the power of the word.
> Simone de Beauvoir

Pathos

Passion. The feeling or commitment you have to the subject you are presenting. Passion is the power that makes things happen. Anybody who has achieved anything really great has had a measure of passion. This is the work of the heart.

Passion is often hidden in business and government writing. Dulling passion comes from a desire to be objective and evidence based. But being objective does not mean you cannot be passionate. They are not mutually exclusive.

If you have a good idea, if you want to change the way things are done, inject some passion. Of course you will need to back up your case with solid logic and rational argument. But it is passion that provides power in the workplace.

Appeal to both sides of the brain

People act or make decisions for emotional reasons, and then seek to justify their position with rational reasons.

Appeal to the 'right brain' by

- using word pictures
- using metaphor
- telling stories

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[2] Many of the ideas here come from <u>Persuading Aristotle</u>, Peter Thompson, 1998

Appeal to the 'left brain by

- using statistics and reputable studies

- citing experts and credible sources

- developing a logical flow of thought based on facts.

Use concrete examples and tell stories

Keep your reader from guessing what you mean by using examples, brief stories and comparisons.

Abstract writing discusses ideas and concepts that are often hard to picture. It can be difficult for the reader to find useful links to the idea the writer has because the idea is vague. So, readers often make an educated guess at what the writer is trying to say. A concrete example can clarify meaning and make your writing more memorable. Concrete examples are particularly useful when the ideas are new to people.

Using examples will make your text longer. However, it is more likely to achieve its goal of communicating if it contains some concrete material.

Write with respect

Never have the tone "I'm right and you're wrong." People usually come to a position by rationally reviewing the information they have available. When trying to persuade, respectfully present new information so readers can think it through for themselves.

End with an open door

Most people tend to stay loyal to their initial point of view. A single piece of paper, no matter how well written, may not be sufficient to sway an entrenched mind. Persuasion sometimes takes time and multiple presentations of your view – some in writing, some verbally and some in pictures. Keep the door open; maintain communication so that your audience can understand and assimilate your message.

Communicating without words

Graphics in a document can add power to the words you have written. Some people pick up information better from graphic material than they do from words, and for others a good graphic helps them make sense of the text quickly. So including graphics can increase the span of your audience and the effectiveness of your document.

Page layout

The usability of a document can be greatly impacted by the layout and design of the page. Well written text may be rendered almost useless if the design does not suit the content, or if it is hard on the eye. Some basic layout ideas:

- Use a clear, well defined font of suitable size. Usually a serif font is good for print (eg. Times Roman) and a sans-serif font for screen (eg. Arial, Verdana).

- Keep line lengths reasonably short. Provide good white space around paragraphs. NEVER USE ALL CAPS – it's harder to read.

- Display different types of information in a different way. Headings should look different to text, and different levels of headings should look different. This provides a visual clue to the document structure.

Illustrations can help tell the story

Visual devices are sometimes a very helpful way of communicating ideas. 'A picture is worth a thousand words' – if it's a good picture! A combination of words and pictures can reach a wider audience; both those who think in words and those who think in pictures.

Illustrations help break up a page and provide visual relief. A full page of text can be pretty confronting, especially for low literacy users. However, illustrations must be more than just eye-candy; they need to help explain or illustrate the story you are telling, or at least provide some context. Consider engaging a skilled information designer to draw complex ideas in pictures.

Flowcharts can explain processes

Flowcharts can be an excellent way of communicating a process, if they are well designed and executed. Flowcharts:

- Clarify and summarise complex processes
- Explain relationships
- Help people understand and remember

Graphs and tables for numeric information

The ability to comprehend numeric information varies across the population – there are people who are 'good with numbers' and people who aren't. It is important to convey numeric information in the simplest possible way, unless you are confident that your audience can handle some degree of complexity.

Numbers communicate ideas related to quantity. The ideas are often easier to comprehend when there is a visual correlation between the number and the quantity it is representing. The difference between 4 & 7 is not clear from the shapes of the numerals on the page – the shapes must be read and interpreted. But if they are graphed, their relative size is clearer – the quantity of ink on the page gives a visual clue to the actual quantities the numbers represent.
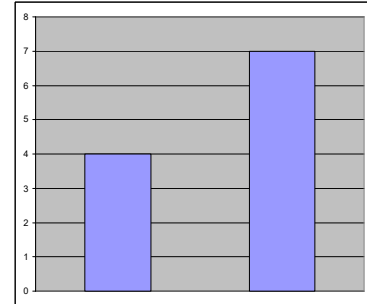
Tables are not as effective as graphs when conveying numerical information. That's because the numbers in tables must be read, like text, and then the significance of the numbers understood. This requires a good mathematical mind.

However, tables are effective when presenting precise information or for looking up values. Design them so they are both pleasing to the eye and easy to scan.

Use captions to make a point

Don't waste your captions with inane cross-reference type information. Use them to tell the story. Use a strong 'point-first' title (headline) and a 2 or 3 line paragraph.

Some readers may scan a document by looking at the pictures and reading the captions underneath them. Carefully selecting graphic material and including information rich, point first captions can communicate the ideas very succinctly.

Photographs provide reality

Photographs can convey an entire scene to an audience in an instant and quickly tell the story. You can take your audience with you, helping the text come alive. Often a photo can take the place of a lengthy description – you can present a lot of accurate detail in a single shot.

A striking photograph can focus attention in a way that words and other graphics cannot. You can also use photographs to tap into your reader's emotions.

Photographs must focus on the point being made. Visually busy photographs, with extraneous background material, can be distracting.

Suggested resources

Eagleson, R.D.	Writing in Plain English (1989) Australian Government Publishing Service
Palmer, R	Write in Style (1993) Routledge
Cutts, M	Oxford Guide to Plain English (2004) Oxford University Press
Asprey, M	Plain Language for Lawyers (2004) The Federation Press
Fugere, B., Hardaway, C., Warshawsky, J.	Why business people speak like idiots (2005) Free Press
Minto, B	The Pyramid Principle (1981) Minto International
Booher, D & Hill, T.T.	Writing for Technical Professionals (1989) John Wiley & Sons
McKenzie, Margaret	Australian Handbook for Writers and Editors (2004) Woodslane Press
Kostelnick, C & Roberts, D	Designing visual language: Strategies for professional communicators Allyn & Bacon
Pinker, Steven	The Sense of Style (2014) Penguin Random House
Snooks & Co	Style Manual (2002) John Wiley & Sons Australia

www.thinkwrite.com.au
www.plainlanguage.site
www.userfirstdesign.com.au

CLEAN AIR SOCIETY OF AUSTRALIA & NEW ZEALAND
(Incorporated in New South Wales, ABN: 83 608 131 901)

Indoor Air Fact Sheet

Of the hundreds of air pollutants covered by US laws, only ozone
and sulphur dioxide remain more prevalent outdoors.
(Source: Ott and Roberts, Scientific American. February 1988)

The National Health and Medical Research Council (NHMRC) defines indoor air as any non-industrial indoor space where a person spends a period of an hour or more in any day. This can include the office, classroom, motor vehicle, shopping centre, hospital, caravan or home.

Unhealthy indoor air quality is reportedly costing the community an estimated $12 billion a year. By contrast, there is no national framework, such as the National Environment Protection Measure (NEPM) ambient air quality standards and no national body that has overall responsibility for indoor air.

Recently, a growing body of scientific evidence has indicated that indoor air can be more seriously polluted than outdoor air. In addition, research indicates that on average people spend approximately 90 per cent of their time indoors. Thus, for many people, the risks to health may be greater due to air pollution exposure indoors than outdoors. Of greater concern is that the people who may be exposed to indoor air pollutants for the longest periods of time are often those most susceptible, which include the very young, the elderly and the infirm.

What Causes Indoor Air Problems

Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems. Inadequate ventilation can increase indoor pollutant levels to rise, by not allowing in enough outdoor air to dilute indoor emissions and by not carrying indoor air pollutants out of the building.

There are many sources and types of indoor air pollution. These include:

- cigarette smoke (eg. particles, PAH's, nicotine and aldehydes);
- flueless gas and kerosene heaters and flueless gas stoves (eg. carbon monoxide, carbon dioxide, nitrogen dioxide and formaldehyde);
- wood stoves and fireplaces (eg. particles, carbon monoxide, nitrogen dioxide and PAH's);
- treated and reprocessed wood products (eg. aldehydes, terpenes, ketones and aromatic hydrocarbons);
- synthetic building materials and furnishings, including carpet, vinyl flooring and drapery (eg. alkanes, aromatic hydrocarbons, ketones and chlorinated hydrocarbons);
- biological contaminants such as bacteria, moulds, mildew, viruses, animal dander, cat saliva, house dust mites and pollen;
- insecticides, fungicides and herbicides;
- households products including paints, varnishes, waxes, cleaning solvents, disinfectants, deodorants, hair sprays, polishes, room fresheners, adhesives and hobby products (eg. ammonia, chlorine, alcohols, aldehydes, alkanes, alkenes, acrylates, aromatic hydrocarbons, esters, ketones, terpenes and chlorinated hydrocarbons);
- leaded paint removal (eg. particles and lead);
- asbestos and synthetic mineral fibre (SMF) containing materials (airborne asbestos and SMF fibres).

Peak emission of these materials into the air is often associated with activities like vacuuming, cleaning or cooking. High temperatures and humidity levels inside can also increase concentrations of some pollutants.

The relative importance of any single source depends on how much of a given pollutant it emits and how hazardous those emissions are. In some cases, factors such as how old the source is and whether it is properly maintained are significant. For example, an improperly adjusted gas stove can emit significantly more carbon monoxide, a highly toxic gas, than one that is properly maintained and adjusted.

How Does Outdoor Air Enter a House or Building

Outdoor air enters and leaves a house by infiltration, natural ventilation and mechanical ventilation. Outdoor air flows into the house through openings, joints and cracks in walls, floors and ceilings and around windows and doors. In natural ventilation, air moves through open windows and doors. Air movement associated with infiltration and natural ventilation is caused by air temperature and pressure differences between indoors and outdoors and by wind. Finally, there are a number of mechanical ventilation devices, such as fans which are vented to the outdoor, that that intermittently remove air from bathrooms and kitchens. In commercial buildings such as shopping centre, forced ventilation aims to achieve an appropriate air exchange rate.

The rate at which outdoor air replaces indoor air is described as the air exchange rate. Where there is little infiltration, natural ventilation or mechanical ventilation, the air exchange rate is low and pollutant levels can increase.

Building a new home provides the opportunity for minimising indoor air quality problems. Careful attention to building materials and air change rates can ensure levels of indoor air contaminants are minimised.

Indoor Air and Health

Health effects from indoor air pollutants may be experienced soon after exposure or, possibly, years later. The likelihood of immediate reactions to indoor air pollutants depends on several factors. Age and pre-existing medical conditions are two important influences. In other cases, whether a person reacts to a pollutant depends on individual sensitivity.

Immediate effects will be dependant on the pollutant but may include symptoms such as irritation of the eyes, nose, and throat, headaches, dizziness and fatigue. Such immediate effects are usually short-term and treatable. Moving outdoors is one possible action. Longer term effects may include some form of respiratory disease or heart disease and can be severely debilitating. Anyone who feels they have been affected by poor indoor air quality should consult their doctor.

Six Steps to Better Indoor Air Quality

The report undertaken by the Indoor Special Interest Group outlined six steps for implementing a process of general improvement in indoor air quality. These are:

- Establish indoor air quality standards for the most common and serious pollutants;
- Collate existing information into a national database, establish knowledge gaps and fund research to fill these gaps;
- Establish a national body responsible for indoor air;
- Establish an evaluation/ monitoring mechanism;
- Create programs that will address the most serious problems;   and
- Commence a wide-ranging and comprehensive public education program.

Further Reading:
1. Indoor Air Quality in Australia: A Strategy for Action. FASTS (2002). Indoor Air Quality Special Interest Group of the Clean Air Society of Australia and New Zealand, FASTS Occasional Paper Series No 5, October 2002.
2. State of Knowledge Report: Air Toxics and Indoor Air Quality in Australia, Environment Australia (2001)
3. The Health of People and Communities. The Effect of Environmental Factors on the Health of New Zealanders, Public Health Advisory Committee, Wellington, New Zealand, ISBN 0-478-2551-9, (2002)
4. Health and Environment in Sustainable Development 5 years after the Earth Summit. WHO Geneva (1997)

> *"A pollutant released indoors is 1000 times more likely to reach*
> *a person's lungs than a pollutant released outdoors"*
> *WHO (1997)*

Prepared by: Indoor Air Special Interest Group June 2004