

# Some Aspects of English in Technical Writing

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To succeed in a science and become an  
adequate practitioner in it,  
students must have ...

'better expression skills than are necessary for  
almost any other course or vocation.

Vagueness, ambiguity and inability to express  
clearly and succinctly are intolerable in a scientist.'

Towns (1990)

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## Common Convolutions of English in Technical Writing

Items 1 - 5 are after Lindsay (1995)

### ① Clusters of nouns (Germanic construction)



- “Leaf copper accumulation observations”
- “Amino acid digestion analyses”
- “Testis growth rate figures”
- “Wool filament quality parameters”
- “Plasma urea nitrogen concentrations”

Which are the word bases?

How many words are in the bases?

3

### ② Adjectival clusters

- “The non-nitrogen supplemented group”.
- “The maximum net returns above feed cost ration.”

### ③ Sentences beginning with subordinate clauses

“Thus, although there were too few plots to show all of the interactions which we sought [*subordinate clause*], under the conditions of the experiment [*subordinate phrase*], copper and zinc acted additively”.

*cf.* “Thus, copper and zinc acted additively under the conditions of our experiment although there were ....”.

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#### ④ Use of imprecise words

- “Considerable”
- “Quite”
- “Somewhat”
- “Very”
- “Rather”



#### ⑤ Use of double negatives

- “It is not uncommon”      “It is common”
- “It is unlikely it won't work”      “It is likely to work”

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## Helpful Rules in Organizing Your Writing

### The Power of Position (after Lindsay, 1995)

“Fleming, in 1929, discovered penicillin after a bacterial plate he was culturing became contaminated with a spore of the fungus *Penicillium*.”

#### Facts conveyed

- The discoverer of penicillin
- The date of the discovery
- The way it came to notice
- The name of the organism involved
- What it contaminated



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## Changing the emphasis

- **On antibiotics**  
“Penicillin was discovered in 1929 ...”
- **History**  
“In 1929, Fleming discovered ...”
- **Serendipity**  
“A chance contamination by ...”



The desired emphasis is placed first.

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## The tense

- The work reported is finished.
- Because of biological variations, it is not reasonable to expect the same results if the work is repeated.



The present tense is reserved for conclusions and generalizations which you believe are still valid at the time of writing.

The same rule applies when describing the work of others.

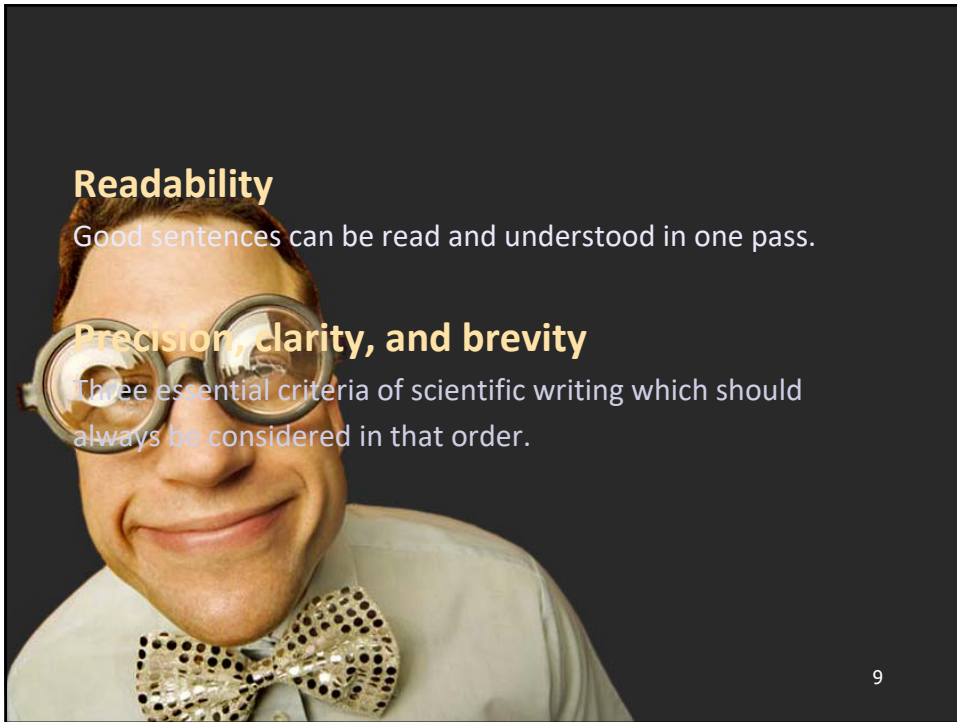
8

## Readability

Good sentences can be read and understood in one pass.

## Precision, clarity, and brevity

Three essential criteria of scientific writing which should always be considered in that order.



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## Consequences of brevity

[The Washington Post]

# CLASSIFIED

TUESDAY, DECEMBER 19, 2000

Used cars: Why go elsewhere to be cheated?  
Come here first.

Man, honest. Will take anything.

Dog for sale: Will eat anything  
and is fond of children.

Mixing bowl set designed to please a cook with  
round bottom for efficient beating.

For sale: Antique desk suitable for lady  
with thick legs and large drawers.

Lost: Small poodle – Reward. Neutered,  
just like one of the family.

Tired of cleaning yourself? Let me do it.

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## Hindrances to readability

### ① High average length of sentences

Advocates of “plain English” say 15 – 20 words  
(Seeley, 1998)

### ② Long words

Words of 3 or more syllables

Except:

Personal and place names.

Verbs over 2 syllables because of *-ing*, *-ed* or *-es*.

Plural nouns over 2 syllables because of *-es*.

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## Guides to readability

### The Fog Index (Gunning, 1952)

#### Procedure

- ① Take an approx. 100-word sample (including a sentence end).
- ② Count the number of sentences
- ③ Count the number of long words.

$$\text{Fog Index} = \left[ \left( \frac{\text{No. of words}}{\text{No. of sentences}} \right) + \left( \frac{\text{No. of long words}}{\text{Total no. of words}} \right) \right] \times 0.4$$

#### Readability

- 5 Easy
- 10 More difficult
- 15 Difficult
- 20 Very difficult

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## The Flesch/Flesch-Kincaid Readability Tests

Available as a tool in Microsoft WORD 2010<sup>®</sup>.

### Flesch Reading Ease

Score	
90 - 100	Easily understandable by an average 11 year old student
60 - 70	Easily understandable by 13 to 15 year old students
0 - 30	Best understood by university graduates

Reader's Digest  
Time

65  
52

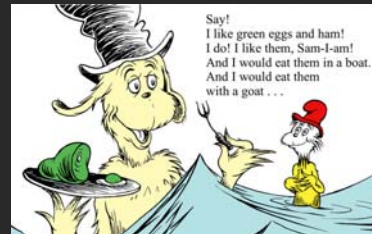


Readability Statistics	
Counts	
Words	194
Characters	1004
Paragraphs	6
Sentences	14
Averages	
Sentences per Paragraph	2.3
Words per Sentence	13.8
Characters per Word	5.0
Readability	
Passive Sentences	0%
Flesch Reading Ease	52.7
Flesch-Kincaid Grade Level	9.3

### Flesch-Kincaid Grade level

Score corresponds to a US grade level e.g. text scoring 8.2 is expected to be understandable to an average Grade 8 student (12 - 14 year olds).

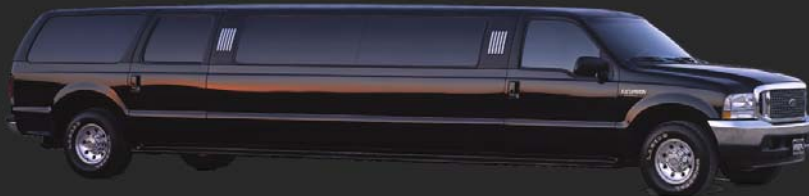
"Green Eggs and Ham" (Dr. Seuss) scores -1.3



## Paragraphing ¶

### Problems with paragraphs

- Too long: more than one topic (idea) expounded.



## Problems with paragraphs

- Too short: one topic dealt with in more than one paragraph.



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## Problems with paragraphs

- Poor linkage between paragraphs (topics).



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## Paragraphs are used



1. to break a large work so that it is easier to absorb.

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## Paragraphs are used

2. to group ideas in a work *i.e.* a paragraph should contain sentences expounding the same topic (homogeneity).

***Keeping one idea to one paragraph.***



“A paragraph is essentially a unit of thought, not of length”  
(Fowler, 1965)

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## Paragraphs are used

3. to present a logical progression of ideas (paragraphs).



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## A good paragraph has a

- **Topic sentence**

This leads the paragraph and gives the reader an idea of what the paragraph is about.

This is then supported by other sentences.

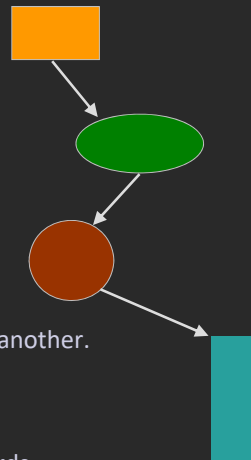
- **Summary or link sentence**

Used to emphasize the key point of the paragraph and/or prepares the reader for a related idea in the next paragraph (transitioning).

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## Coherence and flow

- Between paragraphs.
- Logical flow in ideas.
  - One thought following from, or flowing to another.
- Signs of paragraph coherence.
  - Repeated thematic elements; phrases; words.



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## Tone in writing

Remembering that:

- hypotheses are forever open to disconfirmation.
- science is **constitutionally provisional** and uncertain.

We can understand the use of “hedging”.

Hedging is central to effective argument in scientific writing (Hyland, 1996).



## What is hedging (Lakoff, 1972)?

“words whose job it is to make things more or less fuzzy” (Lakoff, 1972)

“Hedging is a rhetorical means of gaining reader acceptance of claims, allowing writers to convey their attitude to the truth of their statements and to anticipate possible objections”

(Hyland, 1996).

## The precise and the imprecise

Communication in science is normally precise

... yet, a scientific writer can choose not to be “explicit and precise” because there may be:

- inadequacy in the referred scientific claim(s),
- a desire to express “uncertainty about a scientific issue or reflect the state of knowledge”

Behnam *et al.* (2012)

### Commonly found hedges in research articles (Hyland, 1998)

Adjectives & adverbs	Verbs		
	Judgmental	Evidential	Modal
About	Assume	Appear	Could
Apparent(ly)	Estimate	Report	May
Approximate(ly)	Imply	seem	Might
Consistent (with)	Indicate		Should
Essentially	Predict		would
Generally	Propose		
Most	suggest		
Partially			
Possibly			
Presumably			
Probably			
Relatively			
Slightly			
(un)likely			

### Examples from papers

“This higher yield is **unlikely** to be due to substrate and pH factors alone as . . . .”

“Thus, it **could** be said that total population size in . . . .”

“This **suggests** that a physiological change affecting enzyme synthesis . . . .”

## Effect on citing

Care **must** be taken that hedges used in original writings **are not changed** when they are cited or paraphrased.

This has the potential of changing the uncertainty of past results.

## Punctuation: An example

### The comma



“A most difficult punctuation mark to use well.

... essential for clear writing ...

The person who has learned how to use commas has learned now to write.”

(Seeley, 1998)

## Punctuation

### Famous Commas (Bryant, 1983)

#### The fatal comma

Warrant signed by Alexander III:

“Pardon impossible, to be sent to Siberia.”

Changed by Czarina Fyodorovna by shifting the comma.  
The man was set free.



#### The blasphemous comma

In erroneous editions of the King James bible, Luke 23:32,  
in describing the other men crucified with Christ read:

“And there were also two other malefactors.”

A comma is missing.



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#### The million-dollar comma (Bryant, 1983)

Clerical error meant that an 1872 U.S. government tariff act listed  
duty-free items including:

“Fruit, plants tropical and semi-tropical.”

Import duty was lost for two years as importers successfully  
contended that all tropical and semi-tropical plants were exempted.  
The comma was in the wrong place.



#### The yuletide comma

There should be a comma in the title of this Christmas carol

“God bless you merry gentlemen.”

Where should the comma be placed?



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## The extra comma

Rogers vs. Bell Aliant (2006)



“Subject to the termination provisions of this Agreement, this Agreement shall be effective from the date it is made and shall continue in force for a period of five (5) years from the date it is made, and thereafter for successive five (5) year terms, unless and until terminated by one year prior notice in writing by either party.”

Rogers thought they had a minimum 5-year agreement. Bell Aliant tried to terminate the agreement before 5 years by giving a one year notice and was brought to court. At trial, judgment was in Bell Aliant’s favor because of the second comma.

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## The missing comma

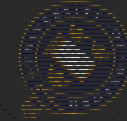
In a CV

“My interests include cooking dogs and interesting people.”

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## The Oxford comma (a.k.a. the serial comma)



A comma used before “and” or “or” to remove ambiguity.

### Book dedication

“To my parents, Ayn Rand and God.”

(Two people: *Ayn Rand and God*)



“To my parents, Ayn Rand, and God.”

(Four people: *Parents, Ayn Rand and God*)

### Sandwiches

“My favourite types of sandwiches are pastrami, ham, cream cheese and jam and peanut butter.”

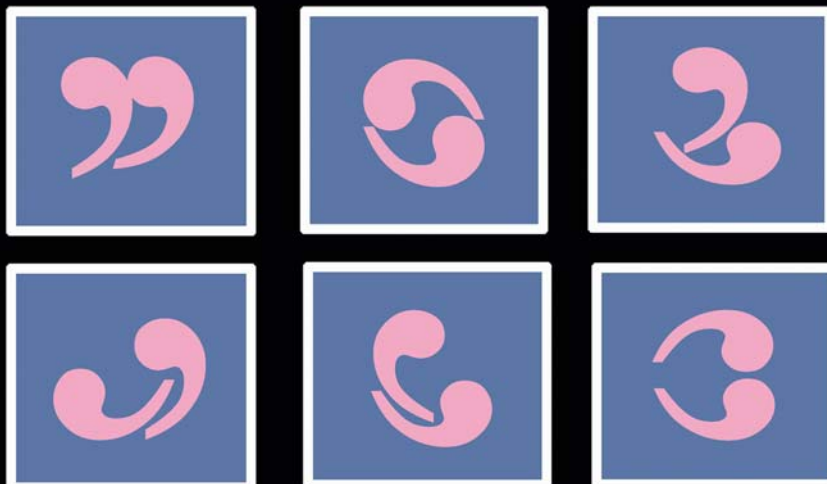
Is it *cream cheese and jam* or *jam and peanut butter*?



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## The gymnastic comma

(nothing to do with the matter at hand)



 COMMA SUTRA 

## Woman / Man

Punctuate this

“A woman without her man is nothing”

“A woman without her man, is nothing”

“A woman: without her, man is nothing”



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## A Dear John

Dear John,

I want a man who knows what love is all about. You are generous, kind, thoughtful. People who are not like you admit to being useless and inferior. You have ruined me for other men. I yearn for you. I have no feelings whatsoever when we're apart. I can be forever happy - will you let me be yours?

Jane

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## *A Dear John*

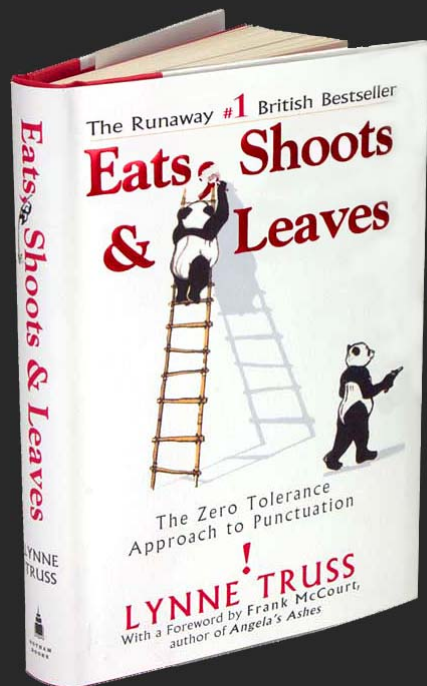
Dear John,

I want a man who knows what love is.  
All about you are generous, kind,  
thoughtful people, who are not like you.  
Admit to being useless and inferior.  
You have ruined me. For other men, I yearn.  
For you, I have no feelings whatsoever.  
When we're apart, I can be forever happy.  
Will you let me be?

Yours,

Jane

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Gun-toting panda

## Expression (After Conn, 1992)

### Proof-reading

“The French aristocracy were sitting on a volcano and thus they could not wee.”



### Spelling

“The French revolution would of been grate but Robespierre ruined it’s glorious aims with his rein of terror.”



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### Clarity

“For many years after the 1917 revolution the government of Russia depended on the organs of the secret police.”



### Meaning

“Vasco da Gama was a great sailor who circumcised the world with a 30-foot clipper.”



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## Consider . . .

### **Independent proof-reading**

It can be difficult to proof read your own document especially over a long gestation period.

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## Consider . . .

### **Maturing**

The written text will benefit from letting it “mature” *i.e.* left to sit for awhile before final re-work.

- Very possible you will look at the document with “different eyes”.
- Implies allowing for sufficient production time.

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## Newspeak

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### Some of *The Herald Sun's* Best Newspaper Headlines of 2000



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# Herald Sun



THURSDAY, OCTOBER 4, 2001 NEWS PICTORIAL TOMORROW 99c MAX 10 PAGE 70 \$1\* (incl GST)

- Gas watch for underground rail
- Police guard water supplies
- Evacuation plan for city, schools

## Stolen painting found by tree



**SENSORS** to detect chemical attacks may be fitted to Melbourne's underground rail network and key public sites in the battle against terrorism.

Police are also guarding Melbourne's water supplies from terrorist contamination, as Australia joins the world in detecting "war" from the air.

Security measures are being undertaken as US-led forces prepare for

By MARK DUNN, KELLY HYAN and KAMAH COGDON

War against their island attacks on New York and Washington and other attacks worldwide in Indian attacks recently hit London.

The Federal Government yesterday warned Australia could be a victim of terrorist reprisals.

"We don't have an identified threat to terror, at this time, but there is a chance for contamination and further in-

crease from the "unconventional" side," said Victoria's Emergency Services Commissioner, Steve Beggs.

The Herald Sun has learned VICTORIA Police has put its major resources, guns, including snipers and bomb experts, on 24-hour alert.

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VICTORIAN schools have received

orders to use US and are ready to enact evacuation plans.

MELBOURNE hospitals are checking big numbers and updating while preparing for large-scale evacuations.

SECURITY services are monitoring at least 1000 officers to help cover 220000 buses, flights, rail services, telecommunications companies and banks.

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MORE reports, Page 10-11  
"HACK" scare, Page 2

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## Iraqi head seeks arms



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www.heraldsun.com.au

THURSDAY, OCTOBER 4, 2001

NEWS PICTORIAL

TOMORROW 9PM MAX 19 PAGE 79 \$1\* (incl GST)

■ **Gas watch for underground rail**

■ **Police guard water supplies**

■ **Evacuation plan for city, schools**

## Kids make nutritious snacks



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## Panda mating fails; veterinarian takes over.



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## Two sisters reunited after 18 years at the checkout counter



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## Police begin campaign to run down jaywalkers



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## Miners refuse to work after death



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## Typhoon rips through cemetery; hundreds dead.



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**Herald Sun**

www.heraldson.com.au

THURSDAY, OCTOBER 4, 2011      NEWS PICTORIAL      TOMORROW PRICE MAX 10      PAGE 79      57c PER COPY

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# Police squad helps dog bite victim



**WAR ON TERROR**

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Police are also upgrading Victoria's water supplies from domestic substations to detection level. Many emergency plans for the city are in place.

Security measures are being undertaken as U.S. and U.K. forces prepare for

By MARK DUNN, KELLY HYAN and KATHARINE COGDON

has upped their terrorist alert levels on New York and Washington and other major cities in the United States.

The Federal Government yesterday warned Australia could be a focus of terrorist reprisals.

"We don't have an identified threat to Israel, as the U.S. and U.K. is not prone to retaliatory and further in

state room, for questioning posts," said Victoria's Emergency Services Commissioner Bruce Bacon.

The Herald Sun has learned.

VICTORIA Police has put its major terrorist groups, including al-Qaeda and Islamic extremists, on 24-hour alert.

MELBOURNE airport airports have increased its Arabic, Malay, Spanish, Indonesian and Thai officers under a directive from the Department of Transport.

VICTORIAN schools have expanded

steps to the US and are ready to start evacuation plans.

MELBOURNE hospitals are stocking up supplies and preparing for large-scale operations.

SECURITY services are providing an extra 1000 officers to help meet 2011-2012 tasks, through non-union, multi-national companies, and banks.

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"SHACK" stars, Page 2**

**THE AUSTRALIAN AGE**

18° 14°  
Melbourne      19° 20°  
Sydney

**DAILY LIFE**

HOME   NEWS & VIEWS   LIFE & LOVE   HEALTH & FITNESS   FOOD   FASHION   BEAUTY   PEOPLE

You are here: Home » **Miss World removes bikinis**

### Miss World removes bikinis !!!

June 7, 2011, 4:22PM  
Cathy Dumas



Each has chosen a playlist of 20 songs in this strange pitch at the youth vote."

**DAVID STACKY**

**PHOTO GALLERIES**

- Understanding why beauty contests are so controversial
- 12 of the most beautiful women in the world
- Great Aussie bikini babes
- Miss World beauty pageant: What you need to know
- Miss World's return to form

**Miss World removes bikinis**

That's a bikini in sight. But it's a surprise?

It's as strange as skinny swimwear, but contestants at this year's Miss World beauty pageant will not wear bikinis in the parade in a bid to avoid causing offence in Muslim-majority Indonesia, organisers have confirmed.

The 127 women taking part in the September contest on the island will swap bikinis for more conservative attire, such as traditional sarongs, for the beach fashion section. Miss World Organisation chairwoman Julia Morley said: "I don't want to upset or get anyone in

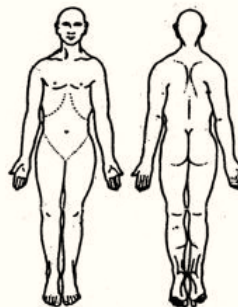
**DAILY STYLE**

... and doctors too ...

PEMERIKSAAN FIZIKAL :

Suhu Badan: ..... Kadar Denyutan Nadi: ..... Kadar Pemafasan: ..... Tekanan Darah: .....

She has no rigors or shaking chills, but her husband states she was very hot in bed last night.



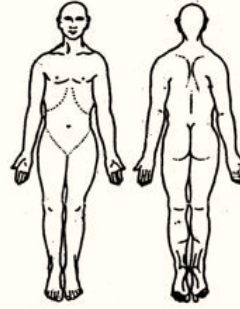
Tandakan kesan-kesan fizikal yang penting pada rajah di atas, dan senaraikan penemuan tersebut.

PENYIASATAN MAKMAL & KEPUTUSANNYA

PEMERIKSAAN FIZIKAL

Suhu Badan: ..... Kadar Denyutan Nadi: ..... Kadar Pemafasan: ..... Tekanan Darah: .....

On the second day the knee was better and on the third day it disappeared.



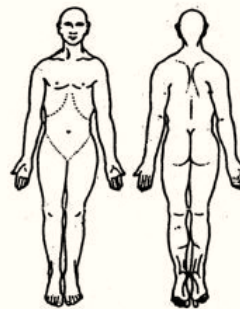
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PENYIASATAN MAKMAL & KEPUTUSANNYA

PEMERIKSAAN FIZIKAL

Suhu Badan: ..... Kadar Denyutan Nadi: ..... Kadar Pemafasan: ..... Tekanan Darah: .....

By the time he was admitted, his rapid heart had stopped, and he was feeling better.



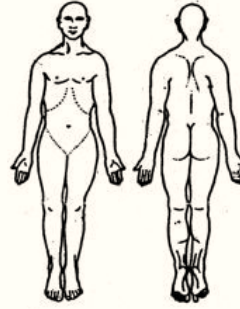
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PENYIASATAN MAKMAL & KEPUTUSANNYA

PEMERIKSAAN FIZIKAL

Suhu Badan: ..... Kadar Denyutan Nadi: ..... Kadar Pernafasan: ..... Tekanan Darah: .....

The patient has been depressed since she began seeing me in 1993.



Tandakan kesan-kesan fizikal yang penting pada rajah di atas, dan senaraikan penemuan tersebut.

PENYIASATAN MAKMAL & KEPUTUSANNYA

*My Girl Bill*

## Source

Lindsay, D. (1995) "A Guide to Scientific Writing", 2nd edition. Longman, Melbourne.

Towns, P. (1990) Is literacy important? Aust. Biochem. Soc. Newsletter 3: 21