Writing Scientific Reports

Consider the following points to write your report clearly and effectively in English. You will be evaluated on the following three criteria: ***clarity, coherence and quality of English****.*

Refer to your book: "Minimum Competence in Scientific English" (MCSE).
Your paper must be ***double spaced*** *('double interligne').*
Use a ***spelling checker****. Papers with spelling mistakes will* ***not*** *be corrected.*
Proofread.

A. Clarity: Expressing complex ideas so they are understood.

1. Prefer short, simple sentences.
2. Not too simple: use well-chosen links to join ideas.
3. Avoid separating Subject –Verb –Object.
4. The main subject and verb should be the most important elements of a sentence.

B. Cohesion: explaining your ideas logically and effectively.

1. Form a thesis statement (1-3 sentences). Keep it in mind.
2. Build up to the end. Make transitions clear.
3. Tenses can enhance logic. Use them well.

C. English (or franglais?)

1. Defining objectives. Use 'to + V'.
2. Use vigorous verbs.
3. Don't dilute verbs. (avoid be, do, make, take…)
4. Use compound nouns and adjectives.
5. Articles: don't overuse 'the'.
6. Use impersonal forms to focus on the work done (not who did it).
7. Check your comparatives!
8. Translating « permet de faire »?
9. Use academic English.
    a. No contractions (can't, won't).
    b. Use academic vocabulary.
    c. Figures.
10. Punctuation.

Writing Scientific Reports

A. Clarity: Expressing complex ideas so they are understood.

1. Prefer short, simple sentences.
The ideas are complex. Try to keep the sentences simple. Break ideas down into parts.

Subject – Verb – Predicate. Subject -Verb –Predicate. Subject –Verb –Predicate.

2. Not <u>too</u> simple : use well-chosen links to join ideas.
See MCSE chapters 5 (link words), 6 (sequencing), 7 (cause and consequence), 9 (function and purpose) and 10 (means and process).

Subject – Verb – Predicate ***therefore*** *Subject -Verb –Predicate.*

V-ing …, *Subject – Verb – Predicate.*
By v-ing…, *Subject – Verb – Predicate.*

3. Avoid separating Subject –Verb –Direct Object.
In English, after the subject, the reader focuses on the verb. After the verb, he focuses on the direct object. Anything between is less important and can create confusion.

Example V-O:
V O
Poor: *The inserted material* ***can represent*** *from the thermal point of view* ***an imperfect interface****.*
V O
Better: *The inserted material* ***can represent an imperfect interface*** *from a thermal point of view.*

Example S-V:
S
Poor: ***Pressures*** *that were sensed at discrete locations such as in the cavity just behind the seal, at the bulkhead, and at the base of the ramp* ***are*** *also given.*

Shorten the intervening adjective:
S V
Pressures *sensed at discrete locations, such as at the bulkhead,* ***are*** *also given.*

Invert the subject and verb (This changes emphasis and may sound artificial.):
V S
Also ***given are pressures*** *that were sensed at discrete locations such as in the cavity just behind the seal, at the bulkhead, and at the base of the ramp.*

Place the verb between the subject and the adjective if the verb phrase is short and modification is clear:

Pressures are also given *which were sensed at discrete locations such as in the cavity just behind the seal, at the bulkhead, and at the base of the ramp.*

4. The main subject and verb should be the most important elements of a sentence.

Poor: *The **test medium is** the combustion product of methane and air, which are produced in a high-pressure combustor and diffused and pumped from the test section to the atmosphere through an air ejector.*

Better: *The **test medium**, the combustion product of methane and air, **is produced** in a high-pressure combustor then **diffused** and **pumped** from the test section to the atmosphere through an air ejector.*

Best: *The **test medium is** the combustion product of methane and air. These **gases are burned** in a high-pressure combustor, and the **combustion products are** diffused and **pumped** from the test section to the atmosphere through an air ejector.*

B. Cohesion: explaining your ideas logically and effectively.

1. Form a thesis statement (1-3 sentences).
This is what you want your reader to understand. Keep it in mind as you write. Structure your paper accordingly.

2. Build up to the end. Make transitions clear. *

a. When writing a sentence, a paragraph or a paper, consider where you place information:

topic position => stress position.

The Topic Position: "First things first"
For the reader, the information that begins a sentence establishes context and perspective.

***Bees** disperse pollen.*	*We are going to talk about **bees.***
***Pollen** is dispersed by bees.*	*... **pollen.***

The Stress Position: "Save the best for last."
Readers naturally emphasize the material that arrives at the end. (As in detective novels, tension builds as we go along.)

b. Link the ideas forward and backward:

<= old information => new information =>

- Place appropriate "old information" (material already stated in the discourse) in the topic position for linkage backward and contextualization forward.
- In general, provide context for your reader before asking that reader to consider anything new.
- Place the "new information" you want to emphasize in the stress position.

c. Avoid Logical Gaps
A => B; C => D
A => B; B => C; C => D

3. Tenses can enhance logic. Use them well. The following are general guidelines:

a. Use the **simple past** when describing the steps in the procedure.

*Control gauges **monitored** ...*
*A generator **provided** power...*
*The temperature **was increased**...*

b. Use the **present perfect** when referring to latest developments (in the introduction).

*Author1 **proposed** that ...*
*Author2 **suggested** that...*
*Author3 **has found** that...* (=>this is new, of interest now)
*Little **research has been** done on ...*

or when describing and interpreting results (in the discussion and the conclusion).

*Recent studies **have illustrated** the importance of developing user-friendly products.*
*Various research studies on organometallic compound identifications **have been developed** over the past few years.*

c. Use the **present simple** to describe a well-established fact.

*Nutrient resorption **is** a common phenomenon. (Kramer, 1978)*

C. English (or franglais?)

1. Defining objectives. Use 'to + V'.

The ***goal / aim / Objective*** *of this project was* ***to V***

2. Use vigorous verbs.

French prefers nouns. English prefers verbs. Readers expect the action of a sentence to be articulated by the verb. Notice this often turns the sentence around.

Poor: ***A comparison** of lift coefficients for the two configurations is presented in table II.*
Better: *Lift coefficients for the two configurations **are compared** in table II.*

Poor: ***The agreement** between calculated and experimental heating rates was within 30 percent.*
Better: Calculated and experimental heating rates **agreed** to within 30 percent.

Poor: *Asymmetric throat area **reduction** between the upper and lower throats occurred during reverse thrust operation.*
Better: *Throat area **decreased** asymmetrically between the upper and lower throats during reverse thrust operation.*

2. Don't dilute verbs. (Avoid be, do, make and take when possible.)

are found to be in agreement	Use *agree*
analyses were made	Use *analyze*
make adjustments to	Use *adjust*
give consideration to	Use *consider*
take measurements of	Use *measure*

3. Use compound nouns and adjectives. (MCSE 12)

They are concise and effective. When you see "….of….of….", make a compound.

The production of steel in the world => world steel production.

4. Articles: don't overuse 'the'.

Unlike French, 'the' is not used for generalities and concepts. 'The' is used when the notion is defined – when you can answer the question: which one(s)?

?

Count Noun? | Uncount Noun?

General? | Specific? | One, any one? | General? | Specific?

Ns | *the N(s)* | *a N* | *N* | *the N*

***The life** of J.F.K.* (uncount / specific)
*It's more convenient having **a car**.* (count / one, any one)
***Cars** are responsible for a significant part of CO_2 emissions.* (count / general)

5. Use impersonal forms to focus on the work done (not who did it). Studies have shown that 80% of scientific writing is in the passive voice.

Impersonal forms include: *it, these, V-ing, the passive*. (MCSE 11)

***It is expected** that any attempt to recover oil…*
*Huge amounts of energy **must be used** to …*
*The temperature **should have been increased** …*

Active forms can be used in the conclusion to bring attention to the work **you** did.

***We** conclude that this mechanism must be modified.*

The V-ing form is a useful impersonal form. It enables you to join ideas as well.

Poor: ***We** require 4000 million bits to record 45 minutes of hi-fi stereo*.
Better: ***Recording** 45 minutes of hi-fi stereo requires 4000 million bits.*

Poor: ***We** can increase conductivity if we reduce the temperature.*
Better: ***By reducing** the temperature, conductivity can be increased.*

Poor: *Archaeologists use carbon-dating techniques to measure the amount of radioactive carbon contained in many ancient objects in order to determine their age.*
Better: ***Using*** *carbon-dating techniques, archaeologists can determine the age of many ancient objects by measuring the amount of radioactive carbon they contain.*

6. Check your comparatives!

Hmm..."*the same than? bigger that?"* When in doubt, take a look at MSCE 3.

7. Translating « permet de faire »?

Enable } *Enable }*
Permit } ***sb./st.*** *to do* *or* *Permit }* *st. to be done*
Allow } *Allow }*
Not : *permit to do…*

8. Use academic English.

a. No contractions (can't, won't).

b. Use academic vocabulary (see MCSE lexis):

that's why	*for this reason*
choice	*option*
a lot of	*numerous*
to need	*to require*
to give	*to provide*
to produce	*to lead to / give rise to / result in / yield*
to try	*to attempt, to strive*
to happen	*to occur*
to control	*to monitor*
to stay	*to remain*
to show	*to display / exhibit / reveal*
to improve	*to enhance*
to understand	*to grasp*
to do	*to carry out (a project / an experiment / a study)*
to know	*to establish / determine / to calculate*
to get	*to obtain*

to fulfil a condition

to differentiate }
to distinguish } between

to be faced with }
to be confronted with } a problem

to develop / prove / disprove / validate / discard / put forward } a theory or hypothesis

c. Figures.

All graphs, pictures, drawings, diagrams, sketches, etc. must be called a 'Figure'. All Figures and Tables must be numbered (in order of appearance) and include a caption.

All Figures and Tables must be referred to, by number, in the text. The following expressions can be used.

above
below
as follows
the following

9. Punctuation.

a. No commas between subject and verb.

b. Watch your spacing. There is no space before the following punctuation marks and one or two spaces following.

comma	,	
semi-colon	;	
colon	:	
full stop (GB)	.	period (US)

*****_The Science of Scientific English_, George D. Gopen and Judith A. Swan