MONASH University
Engineering

Improving your scientific writing style

Sentences

1. **Write complete, grammatically correct sentences.**

   Avoid incomplete sentences such as:

   Although the repeated experiment for the high flow rate was conducted at the end of the high flow set and not at the very end of the experiment.

   This is only half a sentence. More has to be added to finish the sentence.

2. **Write short clear sentences.**

   Avoid very long, potentially confusing sentences such as:

   The theory is simple, harvest the free light and the heat of the sun, then either directly heat water running through pipes of high heat absorptivity through irradiation or convert it into electricity through photovoltaic cells to heat stored water by means of a heating element.

   These sentences are incorrectly joined together with commas. Such a long sentence is difficult to understand.

3. **Use plural subject with plural verb and singular subject with singular verb.**

   Check sentences with complex subjects such as:

   In this part of the experiment, ***the values*** of the mass transfer coefficient Kg ***is calculated*** using equation 3.

   This sentence should be: the values .. are calculated.

Words

1. **Use technical terms correctly.**

2. **Check your spelling.**

   Pairs of words or expressions that are often confused are:

   absorb / adsorb; affect / effect; complement / compliment; dependent / dependant; it is composed of / it comprises; its / it's; lead / led; practice/ practise; principal /principle; where/ were.

Exercise 1:

Which word is right? Check that you know which word to use in the following sentences.

1. The results show that the T is **dependant/ dependent** on Z.
2. The friction factor **affects/ effects** turbulent air flow in a pipe.
3. One major **affect/ effect** on the rate of transfer is the interfacial surface area between the phases.

Style

1. Use formal, scientifically precise language in technical reports. Avoid imprecise informal language.

Formal words		**Informal words**	
examine	√	look into	x
increased	√	got bigger	x
decreased	√	got smaller	x
obtained	√	got	x
improved	√	got better	x
many, a number of	√	lots of	x
a large amount (> X tonnes)	√	huge amount	x
conduct, carry out	√	do	x

2. Be objective.

Limit your use of:

- personal pronouns (***I, you, we***)
- emotionally loaded words (***wonderful, useless, lovely***)
- casual or ambiguous expressions (***the reaction carried on for 10 minutes***).

3. Do not use contractions (isn't, there's → is not, there is).

4. Do not use an informal writing style.

For example, you would need to use more formal expressions than those in bold italics in the following sentences.

(a) ***We weren't*** able to measure the ambient temperature throughout the experiment so ***I can't say for certain*** that the ambient temperature had any effect on the results.

(b) Pollutants ***are still being dumped into*** the atmosphere.

These sentences could be written more formally as follows:

(a) ***Because it was not possible*** to measure the ambient temperature throughout the experiment, ***it cannot be concluded*** that the ambient temperature had any effect on the results.

(b) Pollutants ***are continuously added to*** the atmosphere.
Or: Pollutants ***continue to be discharged into*** the atmosphere.

5. Use accurate scientific vocabulary.

My results were **not very good**.

The results obtained were unexpected/ inaccurate.

Exercise 2:

Change the informal expression in the following sentences to achieve a more formal style.

My results were ***puzzling***. ***My*** viscosity changed with cube diameter, ***or at least it appeared so***. The ***cubes'*** apparent diameter was ***curious*** as the cubes had ***far slower*** fall times than the ***ball's*** but a larger Stokes diameter.

This paragraph could be written more formally as:

The results obtained are difficult to explain. It appeared that the viscosity changed with cube diameter. The apparent diameter of the cubes was unexpected, because, while the fall times of the cubes were much slower than those of the ball, the Stokes diameter of the cubes was larger than that of the ball.

Punctuation

Probably the best advice is to avoid using the apostrophe!! Write out the expression in full.

the iron's resistivity → the resistivity of the iron

the cube's diameter → the diameter of the cube

As already stated above, since contractions are only used in informal writing, they should not be used in formal academic reports. Write any contractions out in full.

Write:	it is, who is, there is and would not
rather than:	it's, who's, there's and wouldn't.

Examples:

The valve **couldn't** be opened.→ The valve **could not** be opened.

It's reasonable to suppose ….. → **It is** reasonable to suppose ….

Checklist

To improve your written expression in any of your reports, make sure you do the following.

Sentences

1. Write good short complete sentences.

Words

2. Use technical terms correctly
3. Check your spelling.

Style

4. Use formal, scientifically precise language in technical reports.
5. Limit your use of:
   - personal pronouns (I, you, we)
   - emotionally loaded words (wonderful, useless, lovely)
   - casual or ambiguous expressions (the reaction carried on for 10 minutes).

Punctuation

5. Use the apostrophe with great care!
    - Do not use contractions (isn't, there's →is not, there is).
    - Avoid the apostrophe for the possessive of things (the iron's resistivity → the resistivity of the iron).