

A Checklist for Scientific Writing

✓ **Abbreviations** should be avoided except when using terms common to science. These terms include RNA, DNA, ATP, units of measurement (g, cm) and chemical formulas.

✓ **Acronyms** should be used only after stating the full scientific name of the substance once. The acronym should be introduced along with the first mention of the full term.

Example: *“The U.S. Environmental Protection Agency (EPA) is devoted to saving species endangered by human carelessness.”*

✓ **Chemical elements** are not proper nouns and should not be capitalized. When using the chemical symbol, only the first letter should be capitalized: carbon (C), iron (Fe), calcium (Ca).

✓ **Contractions**, such as *didn't*, *can't* and *doesn't*, should never be used in formal writing in the sciences.

✓ **Footnotes** should not be used. Instead, use in-text citations.

✓ **Illustrations** should clearly depict information to the reader.

✓ **Numbers** are tricky to report. The general rule is to write out numbers below 10 as words (ex: one) and express numbers above 10 (ex: 10) as numerals.

General Rule

Write out numbers nine and under and use numerals to represent numbers 10 and over.

Incorrect: *The fetal pig was eighteen inches in length.*

Correct: *The fetal pig was 18 inches in length.*

Remember that there are exceptions to this rule.

Use Numerals to Express

Values under 10 that are compared to or used in the same sentence with numbers over 10

Incorrect: *There were 23 red-eyed fruit flies and five white-eyed fruit flies.*

Correct: *There were 23 red-eyed fruit flies and 5 white-eyed fruit flies.*

Values preceding a unit of measurement

Incorrect: *seven cm, eight grams*

Correct: *7 cm, 8 g*

Values representing percentages, ratios, fractions and decimals

Incorrect: *two percent, three to four, five-sixths, seven hundredths*



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Correct: 2%, 3:4, 5/6, .07

Values representing the number of participants, date, ages or points on a scale

Incorrect: *eight subjects were interviewed, ages six to nine, scored three on a six point scale*

Correct: *8 subjects were interviewed, ages 6 to 9, scored 3 on a 6 point scale*

Use Words to Express

Numbers that begin a sentence.

Incorrect: *12 fetal pigs were dissected. . .*

Correct: *Twelve fetal pigs were dissected. . .*

Conflict Between Rules

When there is a conflict between these rules, such as when listing a specific amount (*typically written as a numeral*) located at the beginning of the sentence (*typically expressed in words*), use this example to guide you.

Incorrect: *2.00 g of hydrochloric acid was used to determine. . .*

Correct: *Hydrochloric acid (2.00 g) was used to determine. . .*

✓ **Scientific names** consisting of genus and species should be underlined or italicized; only the genus should be capitalized. For example, *Homo sapiens* or Canis familiaris.

✓ **Singular and plural forms** of some scientific terms are confusing. The following are the correct forms:

| Singular | Plural |
|-----------------|---------------|
| hypothesis | hypotheses |
| datum | data |
| appendix | appendices |
| phenomenon | phenomena |
| criterion | criteria |
| axis | axes |

Make sure that **verb tenses** agree with these unusual singular and plural forms:

Incorrect: *The criterion are. . . ; the axes are. . . ; the data are. . .*

Correct: *The criterion is. . . ; the axis is. . . ; the datum is. . .*

✓ **Tables and figures** are useful for displaying large amounts of quantitative information. They help the reader organize information and internalize it. Be sure that the title of the table or figure clearly describes its contents.

✓ **Tenses** The past tense should be used when describing methods and results. The present tense is used in your personal conclusion and when stating accepted facts.

✓ **Units** of measurement should be metric or SI (International System).

*Resources used to compile this checklist include:

George Mason University: Department of Biology. *A guide to writing in the biological sciences*. Retrieved June 3, 2002 from <http://classweb.gmu/biologyresources/writingguide/PracticalTips.htm>

McLeod, P. (2002). *PSYC 2023 research design and analysis: Scientific report writing*. Retrieved August 1, 2002 from <http://plato.acadiau.ca/courses/psyc/mcleod/2023Research/apaformat.general.htm>

McMillan, V.E. (2001). *Writing papers in the biological sciences*. Boston: Bedford/St. Martin's.

Reimer, B. (2002). *Preparing your PHED 220 lab report*. Retrieved August 1, 2002 from http://web.mala.bc.ca/reimer/220/Labs/lab_report_guide.htm