



Technical Writing 101

Celia Mathews Elliott

Department of Physics • University of Illinois at Urbana-Champaign

cmelliot@illinois.edu

© 2019 The Board of Trustees of the University of Illinois
All rights reserved



1. Which phrase is correctly hyphenated?

- a) easily-performed calculations
- b) 10-mm beam line
- c) condensed-matter physics
- d) the experimental set-up

1. Which phrase is correctly hyphenated?

- a) easily-performed calculations
- b) 10-mm beam line**
- c) condensed-matter physics
- d) the experimental set-up

Why the other answers are wrong:

a) An adverb ending in *ly* is not connected to the word it modifies by a hyphen.

c) “Condensed matter” physics is almost always written open; see, for example, the description of *Phys. Rev. B* (q.v. <https://journals.aps.org/prb/about>).

d) “Setup” is a word that is evolving in US English. When it is used as a noun, particularly in scientific writing, it is almost always written closed. (*The experimental setup was extremely sensitive to vibrations.*)

When it is used as a verb (the process of making something ready to be used), it is always written open. (*It took three days for us to set up the experiment and isolate it from vibrations.*)

In non-scientific contexts, the noun and adjective forms are sometimes written hyphenated, but increasingly they are written as one word, unhyphenated.

See <http://www.future-perfect.co.uk/grammar-tip/is-it-setup-set-up-or-set-up/>.

2. Which phrase is correctly hyphenated?

- a) 10-20 mg
- b) next-generation detectors - currently under development - will increase sensitivity sixfold
- c) “We hope to explain the entire universe in a single, simple, formula that you can wear on your T-shirt.”—*Leon Lederman*
- d) 1.3×10^{-6}

2. Which phrase is correctly hyphenated?

- a) 10-20 mg
- b) next-generation detectors - currently under development - will increase sensitivity sixfold
- c) “We hope to explain the entire universe in a single, simple, formula that you can wear on your T-shirt.” *Leon Lederman*
- d) 1.3×10^{-6}

Why the other answers are wrong: a hyphen has only two uses in technical writing: 1) to break a word at the end of a line of text, or 2) to join two separate words or numbers to make an adjective modifying a third word.

a) An en dash (—) is used to indicate a range of numbers, not a hyphen (-).

b) Em dashes (—), not hyphens (-), are used to punctuate sentences in place of commas, colons, or parentheses.

d) A minus sign (−), not a hyphen, is used to indicate a negative number or a mathematical operator.

3. Which phrase correctly uses dashes?

- a) gravitational–wave astronomy
- b) pages 1491–03
- c) Fermi–Dirac statistics
- d) Three methods — cold stamping, hot rolling, and cleaving — are employed to create the samples.

3. Which phrase correctly uses dashes?

- a) gravitational–wave astronomy
- b) pages 1491–03
- c) Fermi–Dirac statistics**
- d) Three methods — cold stamping, hot rolling, and cleaving — are employed to create the samples.

Why the other answers are wrong:

- a) Use a hyphen to join two words to make a compound modifier, not an en dash.
EXCEPTION (always exceptions in English): If two proper nouns are combined (e.g.,; Hartree–Fock method; Hanbury Brown–Twiss interferometry, Sunyaev–Zel’dovich effect), use an en dash to join them.
- b) To avoid ambiguity, give all numbers in a range.
- d) No spaces before or after en and em dashes.

4. Which word or phrase is correctly capitalized?

- a) A lepton can be charged or neutral.
- b) alloys of Tungsten and Vanadium
- c) in 10 Volt increments
- d) 200 KW

4. Which word or phrase is correctly capitalized?

- a) A lepton can be charged or neutral.
- b) alloys of Tungsten and Vanadium
- c) in 10 Volt increments
- d) 200 KW

Why the other answers are wrong:

- b) The names of elements are not capitalized when they are written out as words; only the abbreviations (in this case, W and V, respectively) are capitalized.
- c) Units of measure are capitalized only when they are abbreviated; whole words are written lower case. Further, the “10” and the “V” should be hyphenated, as they combine to form an adjective modifying “increments.”
- d) The abbreviation for “kilo” is **always** written lower case.

5. Which word or phrase is correctly capitalized?

- a) AC (abbreviation for *alternating current*)
- b) Higgs Boson
- c) general relativity
- d) The Earth is the third planet from the Sun in our solar system.

5. Which word or phrase is correctly capitalized?

- a) AC (abbreviation for *alternating current*)
- b) Higgs Boson
- c) general relativity
- d) The Earth is the third planet from the Sun in our solar system.

Why the other answers are wrong:

a) Some abbreviations in physics, particularly those for single words (ultraviolet = uv) or only two words (direct current = dc), are written lower case. Consult the AIP Style Manual for abbreviations that are written lower case.

b) The names of particles (muon, neutrino, electron) are not capitalized. In this case, "Higgs" is capitalized, because it's a proper noun being used as an adjective.
N.B. The proper term is Higgs boson, not Higg's boson (the particle is named after British physicist Peter Higgs).

d) "The proper names of planets, stars, and other astronomical bodies should be capitalized, e.g., Mars, the North Star (Polaris), the Milky Way, Halley's Comet. The words "earth," "moon," and "sun" are capitalized only when they are used in connection with other astronomical terms." *Scientific Style and Format*, 6th ed. (Cambridge University Press, 1994), p. 163.

Further, "earth" and "sun" are never capitalized when the definite article *the* precedes the name.

6. Which number is expressed correctly?

- a) 3.4 Å
- b) .75 mm
- c) 15-nm quantum dots were used to image the protein's corona.
- d) 3rd step of the protocol

6. Which number is expressed correctly?

a) 3.5 Å

b) .75 mm

c) 15-nm quantum dots were used to image the protein's corona.

d) 3rd step of the protocol

b) Numbers <1 expressed in decimals must have a zero preceding the decimal point.

c) A sentence may not begin with a number expressed in numerals. However, writing "Fifteen-nm quantum dots..." is not right, either, because the number represents a quantity that has been *measured*, so it has to be written in numerals. Fix this sentence by writing "Quantum dots 15-nm in diameter were used to image a protein corona." Or if the important thing is the protein corona and not the size of the quantum dots, write "A protein corona was imaged using 15-nm quantum dots." Make the thing you want to emphasize the subject of the sentence.

d) Ordinal numbers <10 are always written out as words.

7. Which acronym is correctly presented?

- a) SPT (South Pole Telescope)
- b) scanning tunneling microscope (STM)
- c) Bardeen-Cooper-Schrieffer (BCS) theory of superconductivity
- d) PET was used to observe possible metastasis of the Stage-4 tumor.

7. Which acronym is correctly presented?

- a) SPT (South Pole Telescope)
- b) scanning tunneling microscope (STM)**
- c) Bardeen-Cooper-Schrieffer (BCS) theory of superconductivity
- d) PET was used to observe possible metastasis of the Stage-4 tumor.

Why the other answers are wrong:

- a) The words are spelled out first, and then the acronym is given in parentheses.
- b) The AIP has designated some acronyms as so widely recognized that they do not have to be defined at first use. If you insist on defining it, en dashes, not hyphens, should be used between Bardeen and Cooper and Cooper and Schrieffer.
- c) Do not begin a sentence with an acronym.

8. Which sentence is correctly formatted?

- a) 30-nm surface steps were observed between layers of the thin films.
- b) β decay is a type of radioactive decay whereby a proton is transformed into a neutron, or vice versa, inside an atomic nucleus.
- c) The setup for the heat transport measurement is shown in Fig. 3.
- d) Eq. 7 shows a small variability that may be resolved by accounting for higher-order fluctuations.

8. Which sentence is correctly formatted?

- a) 30-nm surface steps were observed between layers of the thin films.
- b) β decay is a type of radioactive decay whereby a proton is transformed into a neutron, or vice versa, inside an atomic nucleus.
- c) The setup for the heat transport measurement is shown in Fig. 3.
- d) Eq. 7 shows a small variability that may be resolved by accounting for higher-order fluctuations.

Why the other answers are wrong:

- a) A sentence may not begin with a number written in numerals.
- b) A sentence may not begin with a symbol or chemical formula.
- d) A sentence may not begin with an abbreviation, unless it is a title or honorific (Ms., Dr., Hon., Prof.) used with a person's name.

To review the rules, see



**[https://courses.physics.illinois.edu/phys496/sp2019/Resources/
TechWrite101.pdf](https://courses.physics.illinois.edu/phys496/sp2019/Resources/TechWrite101.pdf)**

Or email questions to Ms. Particular (cmelliot@illinois.edu)