

Symbols, units and abbreviations

Symbols, units and abbreviations in papers must conform to the Syst me International d'Unit s (SI Units). Authors are advised to consult the National Physical Laboratory publication (R.J. Bell (ed), 1993, *SI: The International System of Units*. London: HMSO). For all abbreviations other than units, write the word or words to be abbreviated in full on the first mention followed by the abbreviation in parentheses. If at all possible, group these definitions together near the beginning of the manuscript. As indicated earlier, avoid use of non-standard abbreviations, especially fabricated ones, within the text; words are much easier to read and follow than abbreviations. When numeric values are given, a space must appear between the number and unit, as in 95.6 W and 25.0 N (exceptions are angles in degrees, e.g. 23.5 , and percentages, e.g. 15%). Separate compound units by a raised dot (N m) and not by a space (N m); a compound unit formed from others by division should be indicated, for example, as ml min⁻¹ not as ml/min. Angular velocities should be expressed in rad s⁻¹ not degrees s⁻¹ or   s⁻¹. Some exceptions to the use of the SI are allowed, for example for heart rate (beats min⁻¹) and blood or gas pressure (mmHg). Other units and abbreviations should conform to Bell (1993) or Council of Biology Editors (1994).

Scalar variables or constants that are represented by a single letter should appear in italics (e.g. *v*, *k*, *x*). Where the abbreviation is of more than one letter (excluding suffices or superfixes), it should be set in Roman typeface, as should abbreviations of mathematical functions (thus $a = dv / dt$). Vectors should be indicated in bold and italics (e.g. ***F***, ***v***). For further and more detailed examples, authors should consult Council of Biology Editors (1994). Equations and formulae should, wherever possible, be presented on one line: for example, use

$$v = (dP / dt) / \alpha \text{ rather than } v = \frac{1}{\alpha} \frac{dP}{dt} .$$

Statistical definitions and symbols should conform to ISO3534– 1977, summarized briefly in Council of Biology Editors (1994). Some examples should make matters clear: $F_{2,12}$, H_0 , t , $n=10$, $P<0.05$, $r=0.71$ (or ρ for population correlation coefficient), s , σ (for standard deviation of sample and population), $S_{\bar{x}}$ (standard error of the mean), \bar{x} (upper case for population mean). Mean values with standard deviations or standard errors of the mean should be reported as, for example: mean value 13.7, $s=2.5$ m, or mean 15.7, $S_{\bar{x}}=3.6$ kg (no need for \pm). In tables and lists, the following is convenient (mean \pm s) or ($\chi\pm s$), with the tabulated values in the form: 13.4 \pm 7.2. Authors should, therefore, avoid the use of abbreviations such as S.D. and S.E.M.