# Quantities, symbols, units and abbreviations

The following units (shown **in bold** in the table) are SI base quantities: metre, kilogram, second, kelvin, ampere, mole. All other units are SI derived units or SI accepted units.

Some quantities are used only in calculations at higher tier – these are marked (higher tier).

| **Physical quantity** | **Common symbol(s)**(use of these symbols is optional) | **SI unit / accepted unit** | **Unit abbreviation** |
| --- | --- | --- | --- |
| length | *d* – perpendicular distance from the line of action of a force to the pivot*h* – height raised above ground level or height (of a column of liquid) (higher tier) *l* – length (e.g. of a conductor) (higher tier)*s* – displacement (or distance travelled); displacement of a force along its direction of action*x* – extension (e.g. of a spring)*l* (lambda) – wavelength | **metre** | m |
| mass | *m* | **kilogram** | kg |
| time | *t* | **second** | s |
| temperature | *T* – for kelvin temperature | **kelvin** | K |
| current | *I* | **ampere** | A |
| amount of substance | *n* | **mole** | mol |
| area | *A* | square metre | m2 |
| volume | *V* | cubic metre, litre, cubic decimetre | m3, l, dm3  |
| density | *r (rho)* | kilogram per cubic metre | kg / m3 |
| temperature | *q* (theta) – for Celsius temperatureD*q* (theta) – for change in Celsius temperature | degree Celsius | °C |
| pressure | *p* | pascal | Pa |
| specific heat capacity | *c* | joule per kilogram degree Celsius | J / kg °C |
| specific latent heat | *l* | joule per kilogram | J / kg |
| speed | *v* – (final) speed or velocity*u* – initial speed or velocity | metre per second | m / s |
| force | *F* – forces generally*W* – weight or gravitational force | newton | N |
| gravitational field strength | *g* | newton per kilogram | N / kg |
| acceleration | *a* | metre per square second | m / s2 |
| frequency | *f*  | hertz | Hz |
| energy | *E* – energy transferredD*E* – change in (thermal) energy*W* – work done | joule | J |
| power | *P*  | watt | W |
| electric charge | *Q* | coulomb | C |
| electric potential difference | *V* | volt | V |
| electric resistance | *R* | ohm | W |
| magnetic flux density (higher tier) | *B* | tesla | T |
| moment | *M* | newton metre | N m |
| momentum(higher tier) | *p* | kilogram metre per second | kg m / s |
| periodic time | *T* | second | s |
| spring constant | *k* | newton per metre | N / m |
| number of turns (higher tier) | *N*p – number of turns on primary coil*N*s – number of turns on secondary coil | unitless |
| efficiency |  | unitless |

Please note – web links are correct at date of publication but other websites may change over time. If you have any problems with a link you may want to navigate to that organisation’s website for a direct search.



We’d like to know your view on the resources we produce. Click ‘Like’ or ‘Dislike’ to send us an auto generated email about this resource. Add comments if you want to. Let us know how we can improve this resource or what else you need. Your email will not be used or shared for any marketing purposes.

Looking for another resource? There is now a quick and easy search [tool to help find free resources](https://www.ocr.org.uk/qualifications/resource-finder/) for your qualification.

OCR is part of Cambridge University Press & Assessment, which is itself a department of the University of Cambridge.

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored.
Oxford Cambridge and RSA Examinations is a Company Limited by Guarantee. Registered in England. Registered office
The Triangle Building, Shaftesbury Road, Cambridge, CB2 8EA. Registered company number 3484466. OCR is an exempt charity.

OCR operates academic and vocational qualifications regulated by Ofqual, Qualifications Wales and CCEA as listed
in their qualifications registers including A Levels, GCSEs, Cambridge Technicals and Cambridge Nationals.

OCR provides resources to help you deliver our qualifications. These resources do not represent any particular teaching method we expect you to use. We update our resources regularly and aim to make sure content is accurate but please check the OCR website so that you have the most up to date version. OCR cannot be held responsible for any errors or omissions in these resources.

Though we make every effort to check our resources, there may be contradictions between published support and the specification, so it is important that you always use information in the latest specification. We indicate any specification changes within the document itself, change the version number and provide a summary of the changes. If you do notice a discrepancy between the specification and a resource, please contact us.

© OCR 2022 - You can copy and distribute this resource freely if you keep the OCR logo and this small print intact and you acknowledge OCR as the originator of the resource.

OCR acknowledges the use of the following content: N/A

Whether you already offer OCR qualifications, are new to OCR or are thinking about switching, you can request more information using our [Expression of interest form](https://www.ocr.org.uk/qualifications/expression-of-interest/).

Please get in touch if you want to discuss the accessibility of resources we offer to support you in delivering our qualifications.