

(Updated 2022)

The Greek Alphabet

(used often as symbols in science)

This table gives the Greek letters, their names, equivalent English letters, and pronunciation tips.

Capital letter	Small letter	Name of letter	English equivalent	Pronunciation
A	α	alpha	a	“father”
B	β	beta	b	
Γ	γ	gamma	g	
Δ	δ	delta	d	
E	ϵ	epsilon	e	“end”
Z	ζ	zeta	z	
H	η	eta	\hat{E}	“hey”
Θ	θ	theta	th	“thick”
I	ι	iota	i	“it”
K	κ	kappa	k	
Λ	λ	lambda	l	
M	μ	mu	m	
N	ν	nu	n	
Ξ	ξ	xi	ks	“box”
O	\omicron	omikron	o	“off”
Π	π	pi	p	
P	ρ	rho	r	
Σ	ς, σ	sigma	S	“say”
T	τ	tau	t	
Y	υ	upsilon	u	“put”
Φ	ϕ	phi	f	
X	χ	chi	ch	“Bach”
Ψ	ψ	psi	ps	
Ω	ω	omega	\hat{O}	“grow”

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Capital letter	Small letter	Examples of some uses in physics
	α	Symbol for an angle; angular acceleration; particle produced in radioactive decay (helium nucleus)
	β	Symbol for an angle; particle produced in radioactive decay (electron)
	γ	Symbol for an angle; symbol for “gamma” radiation
Δ		“the change in ...”(x ₂ – x ₁)
	δ	Symbol used in calculus equations for “change in ...”
	ϵ	EMF (electromotive force); Permittivity
	θ	Symbol for an angle
	κ	Dielectric constant
	λ	Wavelength
	μ	Coefficient of friction; Permeability
	π	3.14 (etc).....
	ρ	Density; resistivity
Σ		“the sum of ...”
	σ	Stefan–Boltzmann constant
	τ	Torque; time constant for RC circuits
Φ		Flux (e.g. magnetic flux)
	ϕ	Symbol for an angle
Ψ	ψ	<i>you’ll find out if you study theoretical physics and learn about quantum and Schrödinger and, and, and a bunch of other wonderful and confusing things</i>
Ω		Unit for electrical resistance (Ohm)
	ω	Angular velocity