

Additional Interesting and Useful Morphemes

NUMBERS

Number morphemes serve usually as prefixes on words in a wide variety of content areas, particularly the sciences and the math fields. There are also many literary words, such as for poetic meters, and social studies words relating to time periods, that utilize number morphemes.

Most of the number morphemes used in English come from Greek and Latin words for numbers. The Greek forms, attaching to other Greek roots, are used for literary words, for highly technical biological, chemical, and technical words, and for the large numbers in scientific measuring systems (for example, a hundred, a thousand). The Latin forms, attached to Latin roots, are used for words more familiar in general academic English and for the small numbers in scientific measuring systems (for example, one hundredth, one thousandth).

A few interesting examples of each numerical morpheme are given, and new coinages using them are made continually. Enjoy!

Generic Number Morphemes

no, none	NULL(i) (Latin)	null: zero nullify: to reduce to nothing nullity: quality of being void or of no validity nullipennate: having no flight feathers
half, partial	DEMI (Latin)	demigod: a creature almost god-like demitasse: a small cup demilion: a picture of half a lion (on a coat of arms)
few	PAUC(i) (Latin)	pauciloquy: brevity in speech paucispiral: with few twists and turns paucity: quality of being small in number
few	OLIG(o) (Greek)	oligandrous: having few male parts (stamens) oligarchy: rule by a few people oligemia: deficiency of blood oligochronometer: device measuring small time intervals oligodactylism: deficiency of fingers or toes oligodynamic: active in very small quantities oligophagous: eating a small range of foods oligophrenia: mental deficiency oligopoly: the control of sales by a few companies oligotrichia: scantiness of hair oligotrophic: having too little nourishment



many	MULT(i) (Latin)	<p>multicellular: made up of many basic life units</p> <p>multichambered: having many rooms</p> <p>multicultural: having many various patterns of national behavior</p> <p>multidimensional: having many aspects</p> <p>multidisciplinary: involving many content area subjects</p> <p>multifold: having many layers</p> <p>multilateral: having many sides</p> <p>multilingual: speaking many languages</p> <p>multimedia: assorted methods of broadcasting news or entertaining</p> <p>multiply: to increase by many</p> <p>multitude: a group of many</p>
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many	POLY (Greek)	<p>polychromatic: many-colored</p> <p>polycotyledon: a plant with multiple food-storage vessels</p> <p>polygamy: state of being married to more than one person</p> <p>polyglot: a person who speaks many languages</p> <p>polygon: a plane figure with many angles</p> <p>polyhedron: a solid figure with many sides</p> <p>polyhidrosis: excessive sweating</p> <p>Polynesia: an area consisting of many islands</p> <p>polynomial: consisting of more than two numerical terms</p> <p>polyphagous: eating a wide variety of food types</p> <p>polyphonic: consisting of multiple sounds</p> <p>polysemantic: having more than one meaning</p> <p>polysyllabic: consisting of more than one tone or stress in a word</p> <p>polytechnic: relating to a variety of specialized applicable skills</p> <p>polytheism: belief in many gods</p> <p>polytrophic: being nourished from many sources</p>
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Specific Number Morphemes

half	HEMI (Greek)	<p>hemisphere: one-half of a solid round object</p> <p>hemiplegia: paralysis on one side of the body</p> <p>hemistich: half a poetic line</p> <p>hemizygous: having unpaired genes (half of an expected pair)</p> <p>hemiopia: blindness in half of the vision field</p>
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half	SEMI (Latin)	<p>semicircle: one-half of a plane round figure</p> <p>semilunar: half-moon in shape</p>
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single	MONO (Greek)	<p>monarch: a single ruler</p> <p>monad: a group of one</p> <p>monastic: relating to living alone</p> <p>monaural: heard by one ear</p> <p>monochromatic: of one color</p> <p>monocle: a single eye-glass</p> <p>monocyte: a one-celled creature</p> <p>monogamy: marriage to only one individual</p> <p>monogram: a single letter</p> <p>monolith: a single-standing large stone</p> <p>monolog(ue): a speech by one person</p> <p>monosyllabic: having only one word stress or tone</p> <p>monotheism: belief in one god</p> <p>monotony: quality of having only one tone or sound</p> <p>monophobia: fear of being alone</p> <p>monophagous: eating only one type of food</p> <p>monopoly: the control of sales by only one company</p>
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one	HEN (Greek)	<p>hendiadys: “one (idea) through two (words),” a poetic device using two nouns to express a descriptive object (e.g., “cups and silver” for “silver cups.”</p> <p>henotheism: the worship of one specific god among others</p>
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one	UN (Latin)	<p>unanimous: having one mind, all together</p> <p>unicameral: having one room or legislative body</p> <p>unicorn: a creature with one horn</p> <p>unifoliate: having one leaf</p> <p>unique: one-of-a-kind</p> <p>uniparous: giving birth to only one</p> <p>unity: quality of being one</p>
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first	PROT (Greek)	<p>protagonist: the lead character in a story, or a spokesperson</p> <p>protocol: “first glue,” the opening page of regulations for how an upcoming event will be carried out</p> <p>proton: a basic particle</p> <p>protoplasm: basic living mater</p> <p>protein: a basic chemical</p> <p>prototype: a basic kind</p> <p>protozoan: a simple, early type of organism</p>
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first	PRIM (Latin)	<p>primal: first, basic</p> <p>primary: early or first</p> <p>primitive: belonging to early stages</p> <p>primigravida: a female pregnant for the first time</p>
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once	HAP(AX) (Greek)	haplogy: saying in error only half of a double sound haplography: writing in error only one of a set of double letters hapax legomenon: a word or phrase used only once in a text
one and a half	SESQU(I) (Latin)	sesquicentennial: relating to a century and a half (150 years) sesquialteral: one-and-a-half times bigger than another thing sesquipedalian: "a foot-and-a-half long," said of a big long word
two, twice	DI (Greek)	dilemma: a situation with two equally bad alternatives diploma: a double-folded document dicephalism: condition of having two heads dicotyledon: a plant with two food-source vessels dioxide: a type of molecule with two oxygen atoms dimorphism: state of having two forms dimeter: a poetic pattern of two measures
two	DU(o) (Latin)	dual: relating to two duet: a performance by two duplicate: double-fold
in two	DICH (Greek)	dichotomy: a division into two parts dichogamous: producing males and females at different times
two, twice, in two	BI (Latin)	bicentennial: celebration of a second century binary: relating to two bicycle: a two-wheeled pedaled vehicle binomial: an expression with two terms bifid: split into two; forked bisect: to cut into two
second	DEUT(er) (Greek)	deuteragonist: a character second in importance deuterium: double hydrogen
second	SECOND/ SECUND (Latin)	secondary: after first secundigravida: a female pregnant for the second time
three	TRI (Greek)	trigonometry: math field for measuring three angles tripod: a three-footed stool or stand trilogy: a three-part story tricycle: a three-wheeled pedaled vehicle trichromatic: having three colors trimeter: a poetic pattern of three measures



three	TRI (Latin)	triangle: a plane figure with three angles trivia: "three roads": basics, simple principles trident: a three-pronged fork trillion: 1000 with three sets of 3 zeroes after it
third	TERN/TER(t) (Latin)	tertiary: third in a series or stage ternate: arranged in groups of three
four	TETR(a) (Greek)	tetrarch: one of four leaders or four districts tetrad: a group of four tetracycline: an antibiotic with four molecular rings tetrahedron: a solid figure with four faces tetralogy: a set of four symptoms tetrameter: a poetic pattern of four measures
four	QUADR (Latin)	quadrangle: a plane figure with four angles quadruple: four-fold quadruped: a four-footed animal quadrillion: 1000 with four sets of 3 zeros after it
fourth	QUART(ern) (Latin)	quart: a fourth of a gallon quarter: a fourth of a dollar quarternary: fourth in order
five	PENT(a) (Greek)	pentagon: a plane figure with 5 angles pentangle: a plane figure with 5 angles pentameter: a poetic pattern of five measures
five	QUINQUE (Latin)	quinquennial: occurring every 5 years quinquepartite: split into 5 sections
fifth	QUIN(T) (Latin))	quinate: having five leaves growing from a point quinary: relating to a pattern of five
six	HEX(a) (Greek)	hexagon: a plane figure with 6 angles hexadactylism: condition of having six fingers or toes hexameter: a poetic pattern of six measures hexaphyllous: having six leaves hexahedron: a solid figure with six faces
six, sixth	SEX(t) (Latin)	sextuplets: six offspring born at one time sextet: a group of six performing sexagenarian: a person aged 60-69 sextillion: 1000 followed by 6 sets of three zeroes



seven	HEPT(a) (Greek)	heptad: a group of seven heptameter: a measure equal to seven meters
seven, seventh	SEPT(em) (Latin)	septuplets: seven offspring born at one time septuagenarian: a person aged 70-79 September: "7 th month," when March was the first of the year septillion: 1000 followed by 7 sets of three zeroes septimal: relating to seven septifolious: having seven leaves
eight	OCT(o/a) (Greek)	octopus: "eight-footed" creature octodont: having eight teeth octagon: a plane figure with 8 angles
eight	OCT(o) (Latin)	octet: a group of 8 performers October: "8 th month," when March was the first of the year octogenarian: a person aged 80-89 octillion: 1000 followed by 8 sets of three zeroes
eighth	OCTAV (Latin)	octave: a span of eight days or notes
nine	ENNE(a) (Greek)	ennead: a group of nine enneapetalous: having 9 leaves
nine, ninth	NON NOVEM (Latin)	November: "11 th month," when March was the first of the year nonagenarian: a person aged 90-99 nonillion: 1000 followed by 9 sets of three zeroes
ten	DEC(a) (Greek)	decathlon: a competition of ten events decatalogue: a basic set of ten rules decade: a period of 10 years decahedron: a solid figure with 10 faces
ten	DEC(em) (Latin)	December: "10 th month," when March was the first of the year decimate: to reduce by a tenth decibel: a unit of sound measured by a logarithm relating to 10 decillion: 1000 followed by 10 sets of three zeroes
eleven	HENDEC(a) (Greek)	hendecasyllabic: having 11 stresses or beats



twelve	DODEC(a) (Greek)	dodecahedron: a solid figure with 12 faces
twelfth	DUODECIM (Latin)	duodecimal: relating to 12
twelve each	DUODEN (Latin)	duodenum: section of the intestines of about 12 fingers' widths duodenary: containing 12 items; relating to twelve
thirteen	TRISKAIDEKA (Greek)	triskaidekaphobia: fear of 13
twenty	VIG(int/ent) VIC (Latin)	vigintillion: 1000 with 20 sets of 3 zeros after it vigintennial: a 20 th anniversary vigesimal: based on the number twenty vicennial: occurring once every 20 years vicenary: containing 20 items
twenty	ICOS(a/i) (Greek)	icosahedrons: a solid figure with 20 faces icositetrahedron: a solid figure with 24 faces
hundred	HECT(a/o) (Greek)	hectagram: a unit made up of 1000 grams hectometer: a unit made up of 1000 meters
hundred	CENT (Latin)	century: 100 years cent: one hundredth of a dollar percent: measurement by one hundreds centennial: a celebration of a 100 th anniversary centipede: a "100-footed" creature
thousand	KIL(o), CHIL(i) (Greek)	kilocalorie: heat needed to raise a kilogram of H ₂ O one degree C. kilogram: a unit of weight made up of 1000 grams kilometer: a unit of distance made up of 1000 meters chiliad: a group of 1000 chiliarch: a leader of 1000 soldiers
thousand	MILL(i) (Latin)	millennium: a period of a thousand years millipede: a "1000-footed" creature million: a thousand thousands
ten thousand	MYRIA (Greek)	myriad: a group of 10,000 myriameter: a unit of distance made up of 10,000 meters myriarch: a leader of 10,000 soldiers



Astronomically Huge and Infinitesimally Tiny

Human consciousness has long been in awe of the vastness of space, the incomprehensibility of eternity and infinity. In addition, anatomy, chemistry, and physics have taught us to turn the binoculars around, that an inverse word of vastness exists, the extraordinarily small. Modern technology has developed instruments that can measure the vastly immense and the immensely small, and consequently, numerical morphemes have been adopted by the scientific world to express those mind-boggling numbers.

Scientists have used wit and wisdom in coming up with clever numerical prefixes, basing them on Greek and Latin numbers (but with a linguistic twist), on some classical Greek words, on an Italian word, and on two Danish numbers.

Following are fourteen numerical morphemes officially adopted worldwide by the General Conference on Weights and Measurements. Just about any of them can be used with units of distance (meter), power or radioactivity (watt, farad, joule, curie, *etc.*), volume (liter, mole), weight (gram), or time (second, hertz).

millionth	MICR(o) (Greek) "small"	microliter: a unit made up of one millionth (10^{-6}) of a liter
million	MEGA (Greek) "big"	megahertz: a unit made up of one million hertz (10^6)
billionth	NANO (Greek) ("dwarf")	nanosecond: a unit made up of one billionth (10^{-9}) of a second nanogram nanowatt nanotechnology
billion	GIGA (Greek) ("giant")	gigasecond: a unit made up of one billion (10^9) seconds gigavolt
trillionth	PIC(o) (Italian) ("small")	pictogram: a unit made up of one trillionth (10^{-12}) of a gram picovirus picoseconds
trillion	TER(a) (Greek) ("monster")	terameter: a unit made up of one trillion (10^{12}) meters



quadrillionth	FEMT(o) (Norse) "fifteen"	femtosecond: a unit made up of a quadrillionth (10^{-15}) of a second
quadrillion	PET(a) (Greek) var. of pent-	petavolt: a unit made up of one quadrillion (1000^5) volts
quintillionth	ATTO (Norse) "eighteen"	attosecond: a unit made up of one quintillionth (10^{-18}) of a second attometer attogram
quintillion	EXA (Greek) var. of hex-	exasecond: a unit made up of one quintillion (1000^6) seconds
sextillionth	ZEPT(o) (Latin) var. of sept-	zeptomole: one sextillionth ($1/1000^7$) of a mole
sextillion	ZETT(a) (Greek) var. of hept-	zettameter: one sextillion (1000^7) meters
septillionth	YOCT(o) (Greek) var. of oct-	yoctogram: one septillionth ($1/1000^8$) of a gram
septillion	YOTT(o) (Greek) var. of oct-	yottogram: one septillion (1000^8) grams

Just to let you know, numbers continue into the next ranges, just waiting for something big enough or small enough to warrant new numerical prefixes!

octillion	8 sets of 3 zeros after 1000
nonillion	9 sets
decillion	10 sets
undecillion	11 sets
duodecillion	12 sets
tredecillion	13 sets
quattuordecillion	14 sets



quindecillion	15 sets
sexdecillion	16 sets
septendecillion	17 sets
octodecillion	18 sets
novemdecillion	19 sets
vigintillion	20 sets
centillion	100 sets (that's 303 zeros after the 1)

The number called **googol** is the digit one followed by 100 zeros, or the number 1000 followed by 32.3 sets of 3 zeros (fitting into the scheme above between vigintillion and centillion).

The number called **googolplex** is the digit one followed by a GOOGOL of zeros!

