
**QUICK
SCIENTIFIC
TERMINOLOGY**

Kenneth Jon Rose



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A Self-Teaching Guide

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To the Reader

Quick Scientific Terminology is designed to teach you how to build hundreds of scientific terms using a system of word parts. Whether you are studying for the Scholastic Aptitude Test (SAT) or the Graduate Record Examination, or you are planning to enter the scientific or health field, or whether you just want to increase your scientific vocabulary, this book is designed to help you. To use this book, you do not need a special background in the sciences, though a high school education (or the equivalent) will make the task much easier.

This is a self-teaching book; you work at your own speed. To be as effective as possible, the program is structured so that you actively participate in building new words from word parts. It requires that you pronounce the words that you build and that you understand their meanings.

To use this program with maximum effectiveness, you should proceed in the following way: Read the unit entitled "How to Build a Word" first so that you understand the basic structure of the program. Then continue on to read Units 1 and 2. These two units include word parts that are common to all scientific disciplines; you will be able to build hundreds of scientific terms just from the word parts included in these two units alone. Study them, and then go on to the unit or units that interest you.

Each unit is divided into numbered frames; each frame will ask you to write out a particular word or word part, although occasionally, each may ask a question that requires a brief answer. On the right side of the page you will find a reading column and on the left side a verification column. *Cover the verification column on the left side with a card or a slip of paper.* As you read through the frames, respond to the questions that are asked.

When you have written out your answer, move your card down to the next frame and verify your attempt. *Do not look at the answers in the left-hand column until you have genuinely tried to fill in the answer space.*

If you have misspelled a word, or have written an incorrect answer, be sure to understand why your answer was wrong, and write out the correct answer before continuing to the next frame. The answer in the left-hand column may also have a guide to the pronunciation of a word. Be sure to pronounce the new word you have formed aloud. If the answer column does not have a pronunciation for the new word, look up the word in your dictionary if you are not sure that you are saying it correctly.

Each frame consists of a **statement** or **question** and an answer space; if a word answer is required, the space will contain diagonals to separate the word parts (_____/_____/_____.). If the question calls for a longer answer, you may use **your own words** to answer it.

At the end of each unit is a list of many of the words that you have built in that unit. There is also a **self-test** after each unit that is designed to test whether you have fully understood the words that you have built. If you complete the self-test and find that you have more than six incorrect answers, go back and review the unit again until the words and word parts are perfectly familiar to you.

At the back of the book are review sheets for each unit. You may go to them at any time and as often as you wish. They will help you keep the word parts fresh in your mind. In addition, the back of the book contains an **index** of word parts, which lists where you can find each word part in the body of the text. There is also a list of **additional word parts**, so that you may expand your scientific vocabulary even further.

In addition, two final self-tests are included. They will test the extent of your scientific vocabulary; from them you can ascertain how much you have learned.

So, enjoy!

K. J. R.

Objectives of the Program

Upon completing *Quick Scientific Terminology*, you will have built more than 500 scientific terms using the word-building system, combining Greek and Latin prefixes, suffixes, word roots, and combining forms. You will have learned to:

1. identify and understand these word parts in your studies;
 2. build other scientific terms from the word parts in this book; and
 3. recognize new word parts in other scientific terms and use these word parts to build and understand further scientific terms, using this word-building design.
-

Pronunciation Key

The syllable bearing the primary stress or accent is indicated by capital letters, as in *ev-ery-man* (EV-rē-man).

a	add, map	m	move, seem	u	up, done
ā	ace, rate	n	nice, tin	er	urn, term
air	care, air	ng	ring, song	yōō	use, few
ä	palm, father	o	odd, hot	v	vain, eve
b	bat, rub	ō	open, so	w	win, away
ch	check, catch	ô	order, jaw	y	yet, yearn
d	dog, rod	oi	oil, boy	z	zest, muse
e	end, pet	ou	out, now	zh	vision, pleasure
ē	even, tree	ōō	pool, food	ə	the schwa, an unstressed vowel representing the sound spelled
f	fit, half	oo	took, full		<i>a</i> in <i>above</i>
g	go, log	p	pit, stop		<i>e</i> in <i>sicken</i>
h	hope, hate	r	run, poor		<i>i</i> in <i>clarity</i>
i	it, give	s	see, pass		<i>o</i> in <i>melon</i>
ī	ice, write	sh	sure, rush		<i>u</i> in <i>focus</i>
j	joy, ledge	t	talk, sit		
k	cool, take	th	thin, both		
l	look, rule	th	this, bathe		

Source: Modified "Pronunciation Key" in *Funk and Wagnalls Standard College Dictionary*. Copyright © 1977 by Harper and Row, Publishers, Inc. Reprinted by permission of the publisher.

In words like pneumonia and pneumatic, where pn begins a word, the "p" is silent; however, it may be pronounced when pn exists later in a word. Example: tach/y/pne/a.

In words like photic, phosphate, and philosophy, where ph begins a word, "ph" is pronounced like "f" as in fox or film.

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How to Build a Word

Quick Scientific Terminology uses a system of word building that will teach you how to form thousands of scientific terms. Science is forever forming new words by borrowing the parts of other words. But, by following this system, you will be able to understand their meaning and their context.

word root 1. The whole of a word is the sum of its parts.
The foundation of a word is the word root. In the words im/plant, sup/plant, and trans/plant, plant is the _____.

pack 2. What is the word root in these words: pre/pack, un/pack, pack/age? _____.

cook 3. How about these: un/cook, pre/cook, cook/ing, cook/ed? _____.

word roots 4. When two or more word roots are used to form a word, the term becomes a compound word. Compound words are formed from two or more _____.

two words 5. Gum/shoe and life/guard are both compound words because both are formed from _____.

madman 6. Build a compound word using the words mad and man: _____.

- moonquake
7. Build a term from the word roots moon and quake:
_____ .
- compound words
8. Both the words moonquake and madman are formed from two different words and are therefore
_____ .
- dynam/o
9. When a vowel is attached to a word root, the result is called a combining form. For the word dynam/o/meter, locate the combining form and write it here: _____ / _____ .
- cry/o
10. What is the combining form for the term cry/o/stat? _____ / _____ .
- retr
retr/o
11. In the compound words retr/o/fire, retr/o/grade, and retr/o/fit, the word root is _____ ; the combining form is _____ / _____ .
- electr/o
positive
12. For the above terms, fire, grade, and fit are whole words. Many compound words are formed by using the combining form for the word root and attaching it to a whole word. In the term electr/o/positive what is the combining form? _____ / _____ .
What is the whole word? _____ .
- micr/o
balance
13. Try another. For micr/o/balance, what is the combining form? _____ / _____ . What is the whole word? _____ .
- equ/i
molecul
-ar
14. In science, the majority of compound words are built up from a combining form, a word root, and an ending. In the term equ/i/molecul/ar, the combining form is _____ / _____ ; the word root is _____ ; the ending is _____ .

crystall/o/graph/y

15. Build a word from the combining form crystall/o, the word root, graph, and the ending -y.
 _____ / / / .

atm/o/spher/ic

16. Try this variation. Build a term from the combining form atm/o, the word root spher, and the ending -ic: _____ / / / .

combining form
word root
ending

17. In the scientific term phot/o/graph/y, phot/o is the _____ ,
 graph is the _____ ,
 and -y is the _____ .

fixed
fixing

18. The ending that follows a word root is called the suffix. The endings -ed and -ing are suffixes. Attach them to this word root:
 fix/_____ ;
 fix/_____ .

one who views
closely

19. Using a suffix changes the meaning of the word. The suffix -or means one who. The word root inspect means to view closely. By adding the suffix -or (inspect/or) we get a word that means _____ .

suffix

20. The ending -less changes the meaning of the word effort in the compound effortless; -less is a _____ .

pre-
un-

21. A word part that precedes a word and thus changes its meaning is a prefix. In the words pre/cook and un/cook the prefixes are _____ and _____ .

un/like
dis/like

22. Using the prefixes dis- and un-, and the word root like, build two words that change the meaning of like: _____ ;
_____ .

trans-
port
-er

23. In the term trans/port/er, the prefix is _____ ; the word root is _____ ; the suffix is _____ .

word root

24. To review: The foundation of the word is called the _____ .

combining form

25. When a vowel is added to a word root, the word part becomes a _____ .

compound word

26. When two or more word roots are combined to form a term, the term is called a _____ .

prefix

27. A word part that precedes a word root and changes the meaning of that word root is called a _____ .

suffix

28. A word part that follows a word root and changes the word root's meaning is called a _____ .

UNIT 1

Place, Direction, And Time

In Unit 1 you will form more than 100 scientific words by using the following word-root combining forms and prefixes, which describe place, direction, and time.

ab- (*away from*)
ad- (*toward*)
ante- (*before, forward*)
circum- (*around*)
de- (*down from, less than*)
dia- (*through*)
epi- (*over, upon*)
ex- (*from*)
extra- (*beyond*)
hyper- (*above*)
hypo- (*beneath*)
in- (*in, not*)
infra- (*under*)
inter- (*between*)
intra- (*within*)
mid- (*middle*)
para- (*around, near*)
per- (*through*)
peri- (*around*)
post- (*after, behind*)
pre- (*before*)
pro- (*before, in front*)

super- (*beyond*)
supra- (*above*)
sub- (*below, under*)
trans- (*across, over*)
ultra- (*above*)

anter/o (*before*)
caud/o (*tail*)
cephal/o (*head*)
dextr/o (*right*)
dors/o (*back*)
ect/o (*outer, outside*)
end/o (*within*)
ex/o (*outside*)
later/o (*side*)
lev/o (*left*)
medi/o (*middle*)
mes/o (*middle*)
poster/o (*behind, after*)
retr/o (*behind, backward*)
sinistr/o (*left*)
ventr/o (*belly*)

toward the back
and sides

1. The word form dors comes from the Latin *dorsalis*, meaning back. If the word later/al means toward the side, the word dors/o/ater/al must mean

dors/o/ventr/al
dor-sō-VEN-trəl

2. The combining form dors/o can also be combined with ventr/al, a word meaning toward the belly. Combine the two words to mean extending from the back to the belly: _____ / _____ / _____ .

toward the belly
and the side

3. If ventr/al means toward the belly, and later/al means toward the side, then the word ventr/o/later/al must mean: _____ .

ventral
dorsal

4. On the human body, the navel is located on the _____ portion of the body (remember where the belly is located) and the spine is found in the _____ part.

medi/o

5. The navel is also located in the midregion or middle of the abdomen. A word that means middle is medi/al. The combining form for medial (medi/al) is _____ / _____ .

medi

6. Medi/al comes from the Latin word *medius*. Another word for middle is median. Both median and medial have the word root _____ .

dors/o/medi/al
dor-sō-MĒ-dē-əl

7. Combine the words dors/ and medi/al to mean towards the middle of the back: _____ / _____ / _____ .

DIRECTIONAL WORD	COMBINING FORM	MEANING
dorsal	dors/al dors/o (back)	toward or on the back
ventral	ventr/al ventr/o (belly)	toward or on the belly side of the body

dorsomedial

8. The spine is in a _____ position in the body.

ventr/o/medi/al

9. The belly button, or navel, is in a _____ position.

mes/o/derm

10. The combining word form mes/o also means middle. Mes/o comes from the Greek *mesos*. Combine mes/o with the word derm, meaning skin: _____.

ect/o/parasite

11. There are three layers to an early embryo. The middle layer is the mesoderm, the outer layer is the ectoderm (ect/o/derm; look up ect/o), and the inner layer, or the layer within the embryo, is called the end/o/derm. Use one of these combining forms, ect/o, mes/o, or end/o, to define a parasite that lives on the exterior of its host: _____.

end/o

12. A plant that lives *within* another plant is a(n) (end/o, mes/o, ect/o) _____ /phyte.

end/o/enzyme

13. By the same token, an enzyme that functions within the confines of a cell must be a(n) _____.

midgut
midsection

14. Mid- also comes from the Greek *mesos*, and means middle. Midfield means the middle portion of a field. Midnight is the middle of the night. Midsummer is the middle of the summer. The word, then, meaning the middle of the alimentary canal or gut should be the _____, and a section midway from the two ends is called the _____.

<i>DIRECTIONAL</i>	<i>COMBINING FORM OR PREFIX</i>	<i>MEANING</i>
medial	medi/al medi/an	middle (Latin)
meso-	mes/o	middle (Greek)
mid-	mid-	middle (Greek)

15. For fun and a change of pace, look up these words in your dictionary and write a brief definition of each:

midbrain _____

midrib _____

mediator _____

mediate _____

mesomorph _____

mesosphere _____

mesopause _____

mesencephalon (mez-en-SEF-ə-lān) _____

16. The word anter/ior means toward the front or in front of; the word poster/ior means following or located behind. The combining forms of anterior and posterior are _____ ;

anter/o
poster/o

toward the front
middle of the
body

17. Something that is anter/o/medi/an is located _____