

The Language of Science

In science, as in other subjects, you should always try to find ways you can learn best and work on improving your study skills. As is the case of other subjects, you will need to learn the language if you are to understand science. Science is a language with a technical vocabulary. Some life science terms may be hard to understand the first time you encounter them. Where do all these strange sounding terms come from? Many of these words are based upon Latin and Greek. For example, the word **biology** comes from the Greek words **bios** and **logos**. *Bios* is the Greek word for *life*, and the Greek word *logos* means *the study*. Biology, then, is the study of life. Approximately, 80% of all the words in an English dictionary are formed from Greek and Latin parts. Knowledge of these will help you break down unfamiliar words and remember their meanings.

Therefore, the language of science can be developed through the use of word analysis. In word analysis, you can see that many scientific terms are built from prefixes, suffixes, and root words that have been derived from Latin and Greek words. To decode the meaning of a new vocabulary term, simply look at the meaning of the **PREFIX** (beginning of the word) and the **SUFFIX** (the end of the word). Here is a list of the most popular prefixes and suffixes used in science.

PREFIX LIST = BEGINNINGS

PREFIX	MEANING	PREFIX	MEANING	PREFIX	MEANING
	A		E		O
a-	without, lacking	e-/ef-/ex-	out, out of, from	oculo-	eye
ab-	away from	echin-	spiny	odont-	tooth
adipo-	fat	ect-	outside	olf-	smell
alb-	white	en-	in	omni-	all
amphi-	of both kinds	encephal-	brain	ophal-	eye
andr-	male	epi-	on, above	oss-/ost-	bone
angio-	vessel (blood)	extra-	outside, beyond		P
ante-	before			phag-	eat
anthropo-	humans	G	G	photo-	light
anti-	against	gastro-	stomach	plasm-	form
aqua-	water	gene-	origin, birth	pneumo-	lungs
arbor-	tree	geo-	earth	pre-	before
arthro-	jointed	glottis-	mouth or windpipe	prot-/proto	first
aster-	star	gymno-	uncovered	pseudo-	fake, false
audi-	hear, sound				R
auto-	self	hepato-	liver	retro-	backward, back
	B	herba-	plant	rota-	turn, wheel
bi-	two, twice	hetero-	different	rupt-	break, burst
bio-	life, living	hiber-	winter		S
bronch-	windpipe (lungs)	homo-	same	sub-	under, beneath
	C	hydro-	water	super-/sur-	above, upon
card-	heart	hyper-	above		T
carn-	meat	hypo-	below	tele-	at a distance
cell-	storeroom			therm-	temperature
cephalo-	head	inter-	between	trans-	across, beyond
chlor-	green	intra-	within, during, inside	tri-	three
chrom-	color	ichty-	fish	trop-	turning
chron-	time	immunis-	free		V
coel-	hollow			ventr-	belly
com-/con-/co-	with, together	leuc-	white		U
contra-	against	lith-	stone	uni-	one
cran-	head	luna-	moon		Z
cyt-	cell			zo-	animal
	D	macro-	large		
de-	from, away	meta-	change		
deca-	ten	micro-	small		
derm-	skin	mono-	single		
den-	tooth	multi-	many		
di-	two, double	morph-	form, shape		
dia-	through, across				
dis-/dif-	apart from, deprive	N	N		
		neo-	new		
		non-	not		
		neur-	nerve		

SUFFIX LIST = ENDINGS

SUFFIX	MEANING	SUFFIX	MEANING
-able/ible	able to, capable of	-ology/-logy	study of, science of
-algia	pain	-osis	condition or disease
-ectomy	cut out	-phyll	leaf
-gist	an expert in the field	-pod/-ped	foot, feet
-graph	instrument for making records	-scope	look, observe
-ism	act of, condition	-sect	cut
-itis	inflammation (swelling) or disease	-sperm	seed
-lateral	side	-synthesis	to make
-meter	measure	-troph	food

Example of how to use this list

Word: **TELESCOPE**

Step 1: Look up the first part of the word under the PREFIX LIST

→ tele = at a distance

Step 2: Look for the rest of the word under the SUFFIX LIST

→ scope = look or observe

So, the whole word means “distance-look” or to look at something from a distance

Note

- The order of the words may not always seem right; don't worry about that.
- Sometimes you can only find one part of a word but that can be a good clue about the meaning.
- You can have extra letters like an “o” or “a” or “i” between two parts of a word- they don't mean anything.
- If you don't see a word in the suffix list, check the prefix list. Sometimes, words can be both a prefix and suffix.

Name: _____ Date: _____ Period: Science 7EP-____

ACTIVITY: Language of Science

Directions: Using the Language of Science Prefix and Suffix lists, figure out the meanings of the following words.

1. Phototropism- _____
2. Arthropod- _____
3. Echinoderm- _____
4. Epiglottis- _____
5. Multicellular- _____
6. Hypodermic- _____
7. Anthropology- _____
8. Hypothermic- _____
9. Gymnosperm- _____
10. Pseudopod- _____
11. Photograph- _____
12. Autograph- _____
13. Neuralgia- _____
14. Decapod- _____
15. Hepatitis- _____
16. Cytology- _____
17. Zoology- _____
18. Microbiology- _____
19. Geology- _____
20. Biology- _____
21. Cardiology- _____
22. Microscope- _____
23. Photosynthesis- _____
24. Ophthalmology- _____
25. Leukemia- _____

Directions: Answer the following questions using the prefix and suffix lists.

1. What are **two** prefixes that mean one or single? _____
2. What are **two** suffixes that mean cut or cut out? _____
3. What are **two** prefixes that mean above or on? _____
4. What are **two** prefixes that mean two? _____

Directions: Just knowing 1 part of the word give you a clue to the whole word. Use your prefix and suffix list to answer the questions.

1. Would you want to be careful when touching an animal called an ECHINDNA? YES or NO (circle your choice)
2. What does a CARNIVORE eat? _____
3. Is a NEONATE a tiny baby or an old person? _____
4. Is a CRANIOTOMY a serious surgery? YES or NO (circle your choice)
5. An ALBINO rabbit is what color? _____
6. Does an AMPHIBIAN live on land or water? _____
7. If a medicine is CONTRAINDICTATED for you, should you take it? YES or NO (circle your choice)
8. A DERMATOLOGIST works with what part of the body? _____
9. How does a tiny animal does called a ROTIFER travel through the water? _____
10. If you visited the Elysian Park ARBORETUM, what would you expect to see? _____
11. In 1969, where did the LUNAR mission land? _____
12. What is another name for a CHRONOMETER? _____
13. Why do they call this symbol (*) an ASTERICK? _____
14. What kind of organism is a PROTOZOA? _____
15. Does a human have BILATERAL arrangement of body parts? YES or NO (circle your choice)
16. Is a bear an ENDOTHERM or ECTOTHERM? _____
17. Is a koala bear a HERBIVORE? YES or NO (circle your choice)
18. What is OSTEOPOROSIS? _____
19. Where is CHLOROPHYLL located? _____
20. Is it healthy to have a lot of ADIPOSE tissue in your body? YES or NO (circle your choice)
21. What do ichthyologists do? _____
22. Can you name an organism that goes through METAMORPHOSIS? _____

Directions: Using your prefix and suffix list, list 10 words that come from the list that we have not done yet. These words do not have to be science terms. Be sure to write a brief definition of each.

1. _____ = _____
2. _____ = _____
3. _____ = _____
4. _____ = _____
5. _____ = _____
6. _____ = _____
7. _____ = _____
8. _____ = _____
9. _____ = _____
10. _____ = _____

Directions: There are many prefixes and suffixes not included on your list. Can you think of any prefixes or suffixes that were not included on this list? See if you can find five more. List them below with their meaning. NOTE: You may use the internet to help you with this section and they do not have to be science-related.

PREFIX/SUFFIX	MEANING	EXAMPLE OF IT IN A WORD