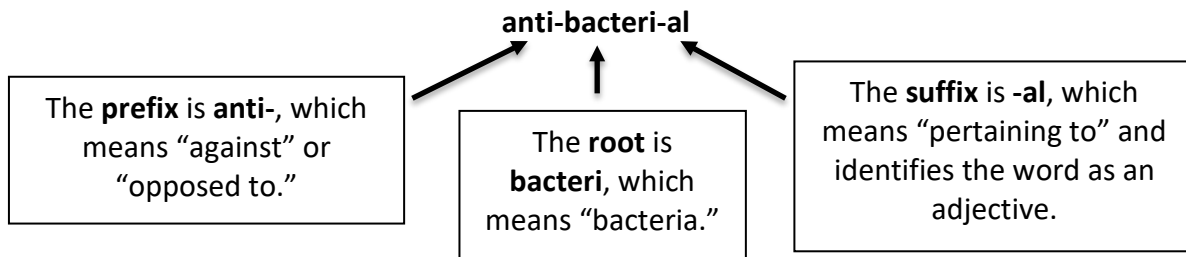


## Tips for Understanding STEM Word Parts

In science, technology, engineering, and math courses, also referred to as STEM courses, there are vocabulary words that can be challenging to understand. Separating those words into parts is a strategy that students can use to help understand new STEM terminology and other unfamiliar words in English. This handout describes how different word parts create meaning.

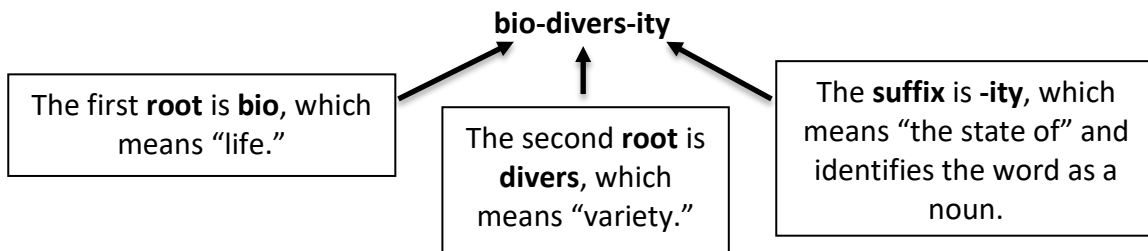
### Word Parts

In STEM terminology, all words have a root, or base, which provides the basic meaning. There are parts of words (a letter or group of letters) that are attached to add specific details to the meaning of the root. If the word part is before the root, it is called the *prefix*. If the word part is after the root, it is called the *suffix*. The suffix not only provides additional meaning but also identifies the function, or part of speech, of the word. If the root has a prefix or suffix, the order will appear as follows: prefix/root/suffix. Look at the following example to understand the function of each word part:



Putting it all together, antibacterial describes something that protects against bacteria.

In addition to the prefix/root/suffix order, many STEM terms contain other combinations of word parts such as prefix/root, root/suffix, root/root, and root/root/suffix. Look at the following example of the root/root/suffix order:



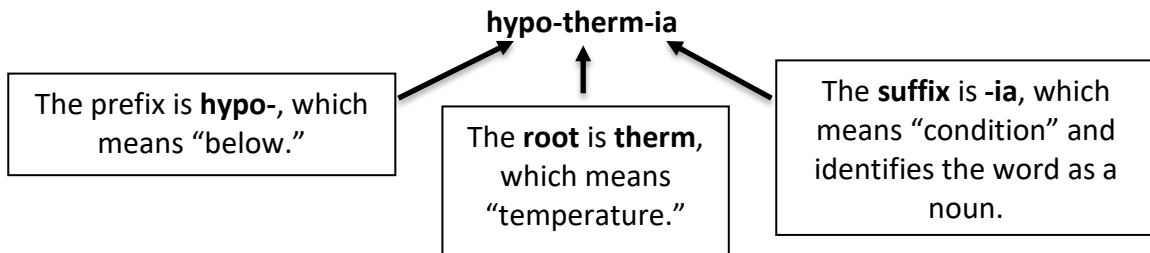
Putting it all together, biodiversity describes the different life forms that can be found in one area.

Some of the most common STEM prefixes, roots, and suffixes are listed below. A blank space on the chart signifies that the word does not contain a prefix or a suffix. (A more complete list of prefixes, roots, and suffixes can be found [here](#).)

Word	Prefix & Meaning	Root & Meaning	Suffix & Meaning (function)
aeronautical	aero = air, gas	nautic = seacraft, naval	-al = having the form of (adjective)
astrology		aster, astr/o = star	-logy = study of (noun)
astronomy		aster, astr/o = star	-nomy = rules that govern (noun)
biodiversity		bio = life diverse = variety	-ity = state or degree (noun)
biosphere		bio = life sphere = globe, world	
centrifugal		centr = center fuge = repel, expel	-al = having the form of (adjective)
chemistry		chem/o = pour together	-ist = person who does -ry = act or practice (noun)
computer science		comput = calculate sci = knowledge	-ence/-ance = quality or state (noun)
electromagnetic		electro = electricity magne = attraction	-etic = pertaining to (adjective)
engineering		engine, ingeni = invent, design	-ering = act of doing (noun)
genetics		gen/o = kind, birth	-ics = pertaining to (noun)
genealogy		gen/o = kind, birth	-logy = study of (noun)
geology		geo = earth	-logy = study of (noun)
geography		geo = earth	-graphy = describing (noun)

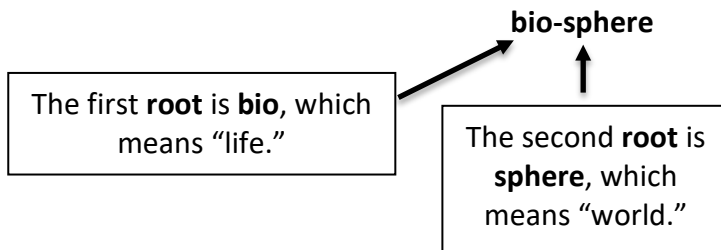
hydroelectric		hydro = water electro = electricity	-ic = connected with (adjective)
hypothermia	hypo = below, under	thermo = temperature	-ia = condition (noun)
macroeconomics	macro = large	econom = household management	-ics = pertaining to (noun)
mathematics		math = learn, study	-matic = willing to perform (noun)
meteorology		meteo = atmosphere	-logy = study of (noun)
metamorphosis	meta = change	morph = form, shape	-osis = the process (noun)
microbiology	micro = small	bio = life	-logy = study of (noun)
microscope	micro = small	scope = to look, view	
nanotechnology	nano = one billionth of a unit	techn/o = skill, craft	-logy = study of (noun)
neurology		neur/o = nerve, neuron	-logy = study of (noun)
osmosis		osmos = push, thrust	-osis = the process (noun)
photosynthesis	photo = light	synthesis = to put together	
physics		phys = nature	-ics = pertaining to (noun)
polymerization	poly = many, much	mer = part, segment	-ize = to become something -ation = the process of (noun)
technology		techn/o = skill, craft	-logy = study of (noun)
thermodynamic		thermo = temperature dyna = power	-ic = connected with (adjective)

**Example of prefix/root/suffix:**



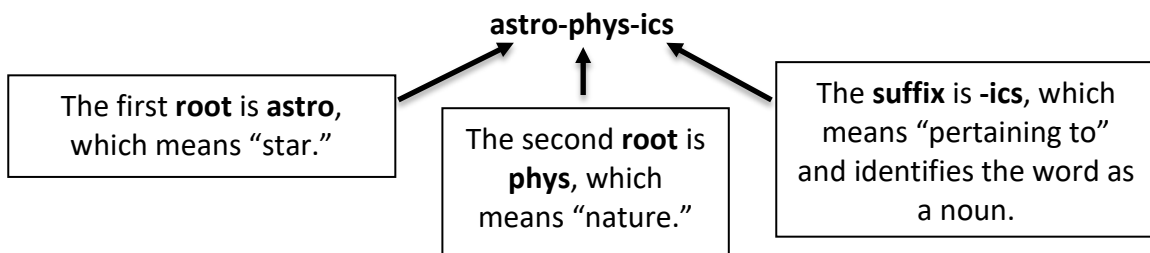
Putting it all together, hypothermia is the condition when the body temperature drops too low.

**Example of root/root:**



Putting it all together, biosphere refers to the regions of the earth occupied by living organisms.

**Example of root/root/suffix:**



Putting it all together, astrophysics is the field that relates to the nature of stars and the universe.

### **Additional Resources**

To provide you with additional practice to learn STEM terminology, the Academic Center for Excellence suggests using the following resources:

- [Guide to Common Medical Terminology](#)  
This ACE handout is organized by the various body systems and explains how medical terminology can be better understood through examining the word parts.
- [Tips for Understanding Commonly Used STEM Vocabulary](#)  
This ACE handout explains many of the commonly used STEM vocabulary words that have a different academic meaning when compared to their common usage.