

CHAPTER I: Terminology

Terms and Definitions

All areas of learning have their **own terminology** that allows for concise and effective communication between practitioners. **Specific terminology** decreases the chances of subjective interpretations of a practitioner's work while increasing accurate interpretations and replication (incredibly important in any applied, technical, or clinical field). **A student of biology will need** to learn the technical words that are **specific to various biological sub-fields**. Understanding the terminology in a student's chosen field and similar fields will benefit that student over the course of their career.

Etymology is an **explanation of the origin of a word and its 'life' history**. A word may start out meaning one thing but as time goes by it may mean something very different. **Word structure** or, in the field of linguistics, morphology, is the arrangement of sounds in words. **It is a good idea to study a word's etymology and structure** (i.e. **prefix**, **root**, and **suffix**) when learning a new word and its definition. Understanding structure will not only help a student remember the definition of a biology term but also help them learn new terms that have a similar structure.

When writing out the terms and definitions, use different colored pencils for each part of the word such as:

- **Prefix**— appears at the beginning of the word
- **Root**— words that have a meaning standing alone
- **Suffix**— appears at the end of the word and provides additional information.

3. Biology Prefixes

3.1. Root

A **root word** is the **most basic form of a word** that cannot be **further divided into meaningful** segments. **Root words are used to form new words by adding letters at the beginning** (i.e., **a prefix**) and/or **the end** (i.e., a **suffix**).

For example, the word “**unfaithful**” is made up of these different parts:

un	faith	ful
prefix	root word	suffix

Root	Meaning	Example
Agri	Field	Agriculture
Agro	Field	Agronomy
Anthropo	Human	Anthropology
Aqua	Water	Aqualung, aquarium
Astro	Star	Astronomy
Audio	Hear	Audience, audition
Auto	Self	Automatic, autonomy, autobiography
Avi	Bird	Aviation
Bio	Life	Biography, Biology
Chrom	Color	Monochromatic
Chron	Time	Chronological, chronic
Cide	Kill	Insecticide, suicide

Cor	Heart	Core
Cord	Heart	Cordial
Corp	Body	Corporal, incorporate
Cred	Belief	Credible, credit
Dem	People	Democracy
Derm	Skin	Dermatology
Gen	Birth	Genesis
Geo	Earth	Geography, geology
Path	feeling or suffering	Sympathy, empathy
Phob	Fear	Phobia, claustrophobia
Photo	Light	Photosynthesis
Pyro	Fire	Pyromaniac
Temp	time	Temporary
Viv	Life	Survive
Zoo	Animal	Zoology, zoological

3.2. Prefix

Prefixes are letters which we **add to the beginning of a word to make a new word with a different meaning**. Prefixes can, for example, create **a new word opposite in meaning to the word the prefix is attached to**. Example: **Base word** **Prefixed word** **Type of meaning**

Possible

Impossible

Opposite

Prefix	Meaning (exact)	Example
a-, an-	Without, not	Asexual (without sex)
Ab-	Away from	Abnormal (departing from normally)
Ad-	Toward, near	Adrenal (toward the kidneys)
Ambi-	On both sides	Ambidextrous (capable of using both hands)
Anti-	Against	Antibodies (proteins that work against invaders)
Auto-	Self	Autotroph (self-nourishing)
Bi-	Two, twice	Biennial (two-year life span plant)
Di-	Two	Disaccharide
End-, Endo-	Within, internal	Endoskeleton
Ex-, exo	Outer, external	Exoskeleton
Extra-	Outside, beyond	Extracellular

Hemi-	Half, partial	Hemiparasite (organism that is able to live either as a parasite or independently)
Pre-	Before	Preview
Poly-	Many	Polysome (many ribosomes attached to a messenger RNA)
Post-	After	Postmortem (occurring after death)
Proto	First	Protozoa
Pseudo-	False	Pseudoscience (practice that resembles science but is considered to be without scientific foundation)
Super-	Above, beyond	Superhuman
Trans-	Across	Transmit
Tri	Three	Trisomy
Uni-	Consisting of one	Unicellular

3.3. Suffix

A suffix is an ending. It is **added to the end of a word to make a new word.** Unlike root words, suffixes cannot stand on their own as a complete word. Example:

Word suffix
Stress Stressful

Suffix	Meaning	Example
-ose	Simple sugar	glucose, lactose, maltose
-in	Protein	Actin, fibrin, insulin
-ine	Amino acid	Proline, methionine
-ol	Alcohol	Butanol, methanol
-ase	Enzyme	Lactase, helicase, polymerase
-ate	Contains oxygen	Carbonate, phosphate, sulfate
-oma	Cancer	Lymphoma, carcinoma
-one	Hormone	Testosterone, progesterone
-sis	Process	Photosynthesis, hydrolysis