

Handouts

UNIT 5, MODULE 2: Morphemic Analysis

TEKS Connections

English Language Arts (Grades 6–8)

- (2) Reading/Vocabulary Development. Students understand new vocabulary and use it when reading and writing. Students are expected to:
 - (A) determine the meaning of grade-level academic English words derived from Latin, Greek, or other linguistic roots and affixes;
 - (B) use context (e.g., cause and effect or compare and contrast organizational text structures) to determine or clarify the meaning of unfamiliar or multiple meaning words

Reading Elective Credit (Grades 6-8)

- (2) The student acquires vocabulary through reading and systematic word study. The student is expected to:
 - (A) expand vocabulary by reading, viewing, listening, and discussing;
 - (B) determine word meaning by using context;
 - (C) use spelling, prefixes and suffixes, roots, and word origins to understand meanings

SOURCE: Texas Education Agency (TEA), 2008.

English Language Proficiency Standards (ELPS) Connections

- 4(A) learn relationships between sounds and letters of the English language and decode (sound out) words using a combination of skills such as recognizing sound-letter relationships and identifying cognates, affixes, roots, and base words

SOURCE: TEA, 2007.

Morphemes: Order of Acquisition

- Monomorphemic roots/base words (e.g., walk, boy, test)
- Compound words (e.g., cowboy, sandbox, ladybug) and high-frequency prefixes (e.g., **untie**, **repay**, **illegal**)
- Inflectional suffixes
 - Progressive (e.g., **playing**, **walking**, **singing**)
 - Plural (e.g., **boys**, **tests**, **foxes**)
 - Possessive (e.g., **boy's**, **fox's**, foxes')
 - Past regular (e.g., **played**, **walked**, **tested**)
 - Third-person singular regular (e.g., **plays**, **walks**, **sings**)
- Neutral derivational suffixes do not change the pronunciation of the root word (e.g., **loudness**, **loudly**, **teacher**, **secondary**, **lemonade**, **comfortable**, **ripen**).
- Non-neutral derivational suffixes (e.g., **action**, **decision**, **pressure**, **closure**, **activity**) and low-frequency prefixes (e.g., **forewarn**, **ambiguous**, **hexagram**, **adjacent**) tend to change the pronunciation of the root word.
- Multimorphemic words (e.g., transcendental, hypothesis, synchronize)

REFERENCES: Cazden, 1968; Rubin, Patterson, & Kantor, 1991; Vogel, 2001

Common Prefixes

| PREFIX | % of All Prefixed Words | MEANING | EXAMPLES |
|--------------------|-------------------------|------------------|---|
| Un- | 26 | Not, opposite of | unaware, unbelievable, unsure |
| Re- | 14 | Again | redo, replay |
| Im-, in-, il-, ir- | 11 | Not | impossible, incapable, illogical, irregular |
| Dis- | 7 | Not, opposite of | dishonest, disgraceful, discover |
| En-, em- | 4 | Cause to | enable, emblaze |
| Non- | 4 | Not | nonstick, nonfiction, nonexistent |
| In-, im- | 3 | In, into | inject |
| Over- | 3 | Too much | overtime, overeat |
| Mis- | 3 | Wrongly | misunderstand, misuse |
| Sub- | 3 | Under | subsurface, subway |
| Pre- | 3 | Before | prepay, preschool |
| Inter- | 3 | Between | international, interact |
| Fore- | 3 | Before | forethought |
| De- | 2 | Opposite of | decaffeinated, dehydrate |
| Trans- | 2 | Across | transatlantic |
| Super- | 1 | Above | superhero, supermodel |
| Semi- | 1 | Half | semiannual, semicolon |
| Anti- | 1 | Against | antiwar, antisocial |
| Mid- | 1 | Middle | midyear, midnight |
| Under- | 1 | Too little | underweight, underpaid |
| All others | 3 | | |

Top 20 prefixes from Carroll, J. B., Davies, P., & Richman, B. (1971). The American heritage word frequency book. Boston: Houghton Mifflin; as cited in White, Sowell, & Yanagihara, 1989.

Common Suffixes

| SUFFIX | % OF ALL SUFFIXED WORDS | PART OF SPEECH | EXAMPLES |
|-----------------------------|-------------------------|--|------------------------------|
| -s, -es | 31 | Plural of noun | cats, boxes |
| -ed | 20 | Past tense of verb | sailed |
| -ing | 14 | Progressive tense of verb | jumping, racing |
| -ly | 7 | Usually an adverb; sometimes an adjective | slowly, lovely |
| -er, -or (agent) | 4 | Noun (agent) | runner, professor |
| -ion, -tion, -ation, -ition | 4 | Noun | action, transition, vacation |
| -able, -ible | 2 | Adjective | lovable, incredible |
| -al, -ial | 1 | Adjective | global, logical, partial |
| -y | 1 | Adjective | funny |
| -ness | 1 | Abstract noun | kindness |
| -ity, -ty | 1 | Noun | activity |
| -ment | 1 | Noun | merriment |
| -ic | 1 | Adjective | historic |
| -ous, -eous, -ious | 1 | Adjective | hideous, spacious |
| -en | 1 | Verb | quicken, thicken |
| -er (comparative) | 1 | Adjective | bigger |
| -ive, -ative, -tive | 1 | Adjective | alternative, pensive |
| -ful | 1 | Adjective | wonderful |
| -less | 1 | Adjective | effortless |
| -est | 1 | Adjective | strongest |
| All others | 7 | | |

Top 20 suffixes from Carroll, J. B., Davies, P., & Richman, B. (1971). The American heritage word frequency book. Boston: Houghton Mifflin; as cited in White, Sowell, & Yanagihara, 1989.

Common Latin and Greek Roots

| ROOT | ORIGIN | MEANING | EXAMPLES |
|-----------------|--------|-----------------|---|
| aud | Latin | Hear | Auditorium, audition, audience, audible, audiovisual |
| astro | Greek | Star | Astronaut, astronomy, asterisk, asteroid, astrology |
| bio | Greek | Life | Biology, biography, biochemistry |
| cept | Latin | Take | Intercept, accept, reception |
| dict | Latin | Speak or tell | Dictation, dictate, predict, contradict, dictator |
| duct | Latin | Lead | Conduct, induct |
| geo | Greek | Earth | Geography, geology, geometry, geophysics |
| graph | Greek | Write | Autograph, biography, photograph |
| ject | Latin | Throw | Eject, reject, projectile, inject |
| meter | Greek | Measure | Thermometer, barometer, centimeter, diameter |
| min | Latin | Little or small | Miniature, minimum, minimal |
| mit or mis | Latin | Send | Mission, transmit, missile, dismiss, submit |
| ped | Latin | Foot | Pedal, pedestal, pedestrian |
| phon | Greek | Sound | Telephone, symphony, microphone, phonics, phoneme, phonograph |
| port | Latin | Carry | Transport, portable, import, export, porter |
| rupt | Latin | Break | Disrupt, erupt, rupture, interrupt, bankrupt |
| scrib or script | Latin | Write | Scribble, scribe, inscribe, describe, prescribe |
| spect | Latin | See | Inspect, suspect, respect, spectacle, spectator |
| struct | Latin | Build or form | Construct, destruct, instruct, structure |
| tele | Greek | From afar | Telephone, telegraph, teleport |
| tract | Latin | Pull | Traction, tractor, attract, subtract, extract |
| vers | Latin | Turn | Reverse, inverse |

Diamond, L., & Gutlohn, L. (2006). Vocabulary handbook. Berkeley, CA: Consortium on Reading Excellence; Ebbers, S. (2005). Language links to Latin, Greek, and Anglo-Saxon: Increasing spelling, word recognition, fluency, vocabulary, and comprehension through roots and affixes. Presented at The University of Texas, Austin, TX; and Stahl, S., & Kapinus, B. (2001). Word power: What every educator needs to know about teaching vocabulary. Washington, DC: National Education Association.

Sample Word Parts

Prefix: A word part that is attached to the beginning of a word

Suffix: A word part that is attached to the end of a word

Root: The basic part of a word that carries meaning

pre-

post-

re-

test

view

game

-ed

-ing

-er

What is a Tropical Rainforest?

Student Fact Sheet 1

WHAT IS A TROPICAL RAINFOREST?

A tropical rainforest is one of the earth's most spectacular natural wonders! Here are some answers to frequently asked questions about rainforests.

Q: Where can you find tropical rainforests?

A: Tropical rainforests are located around the **equator**—from the **Tropic of Cancer** in the north, to the **Tropic of Capricorn** in the south. The largest rainforests are in Brazil (South America), Democratic Republic of Congo (Africa), and Indonesia (islands found near the Indian Ocean). Other tropical rainforests lie in Southeast Asia, Hawaii, and the Caribbean Islands. The Amazon rainforest in South America is the world's largest, covering an area about two-thirds the size of the continental United States.

Q: Why are they called “rainforests?”

A: Because they're wet! Tropical rainforests are defined by their wet and dry seasons. Tropical rainforests receive 160 to 300 inches

(400-760 cm) of rain each year. Compare this with the city of Los Angeles, which only receives an average of 10-20 inches of rain a year! Also because rainforests lie near the equator, temperatures stay near 75-80 degrees Fahrenheit all year round, which is nice and warm.

Q: What does a rainforest look like?

A: Picture yourself walking on a thin carpet of wet, rotting leaves. If you look up you see an umbrella of dark green leaves. Only a spot or two of blue sky peeks through the thick mass of tree branches and leaves. You see beautiful flowers growing wild upon the trees, as well as on the ground. You hear the constant sound of insects, birds, and falling twigs. In some rainforests, you might hear the sounds of large animals like the gorilla or jaguar.

There are so many **species** of plants and animals in the rainforest that, if you stood in one place and turned a complete circle, you might



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Retrieved from http://rainforestheroes.com/kidscorner/rainforests/s05_rainforests.html on July 24, 2007.

Student Fact Sheet 1

see hundreds of different species. This incredible number of species of living things is one of the major differences between tropical rainforests and the forests of North America.

A tropical rainforest consists of four layers: **the emergent trees, canopy, the understory, and the forest floor.** The emergent and canopy layers make up the very top of the rainforest, where a few trees, called emergents, poke out above the green growth to reach the sun. Most of the plant growth in rainforests is here, close to the sun. Most rainforest animals, including monkeys, birds, and tree frogs, live in the canopy.

Below the canopy are the young trees and shrubs that make up the understory. The plants in this layer rarely grow to large sizes because the canopy blocks most of the sunlight. The forest floor is almost bare because very little sunlight can get through the canopy and understory to reach the ground. This is where fallen leaves and branches rot quickly to release nutrients for other plants to grow. Large mammals such as South American tapirs and Asian elephants who are too heavy to climb up into the canopy layer live in the dim light of the understory and forest floor.

Q: How do rainforest plants and animals depend on each other?

A: In all of nature, and especially in rainforests, plants and animals depend on each other for survival. This is called **interdependence.** For example, some insects can only survive in one type of tree, while some birds only eat one type of insect.

If this tree is destroyed, the insects will have no home. If the insects die, the birds who rely on them for food will starve to death. Because of this interdependence, if one type of plant or animal becomes extinct, several others could be in danger of extinction as well.

Q: What is the secret to making this system work?

A: One secret to this lush environment is that the rainforest reuses almost everything that falls to the ground and decays. When leaves fall from the trees, when flowers wilt and die, and when any animal dies on the forest floor, it decays and all of the **nutrients** in the decayed species are recycled back into the roots of the trees and plants.

Only the top few inches of rainforest soil have any nutrients. Most of the nutrients are in the **biomass**, the bulk of animal and plant life above the ground. The roots of rainforest trees are not very deep; that way they can collect all of the nutrients in the top few inches of the soil.

Rainforests even recycle their own rain! As water **evaporates** in the forest it forms clouds above the canopy that later fall as rain.

Q: How do humans depend on rainforests?

A: Rainforests are essential—not just to those who live in or near them, but to everyone on the whole planet. They help control the world's climate. However, when the rainforests are burned and cleared, carbon is released that causes the weather to be much hotter. This is called the **greenhouse effect.**


 Student Fact Sheet 11

People also use many rainforest materials. Many of our medicines come from plants that grow in rainforests. Perhaps someday the cure for cancer or AIDS will be found in a tropical rainforest. Some of the medicines we now use come from tropical rainforest plants, such as aspirin, heart disease treatment, and painkillers.

Many products, such as medicines and Brazil nuts, can be taken from rainforests without destroying them; but other products—such as timber, gold, and oil—require a more destructive method of **extraction**. Logging for tropical timber and gold mining has contributed to much of the destruction of tropical rainforests.

Q: Do people live in rainforests?

A: Indigenous, or native, peoples have lived in tropical forests for thousands of years. They use every part of the forest in a sustainable manner, or in a way that does not destroy the forest. Recently, many other people have moved to tropical rainforests, and some of them have used the forests in ways that destroy them.

Q: Can rainforests grow back once they have been destroyed?

A: A rainforest cannot be replaced. Once it is destroyed it is gone forever. Once the web of interdependence has been broken, plants and animals have no way to rebuild their complex communities.

Rainforests have been evolving for 70 to 100 million years. They contain plants and animals that live nowhere else on earth. When a rainforest is destroyed, so are the plants and animals who have lived there for millions of years. Once they are destroyed, they will only be memories of our past. It is up to us to help preserve the rainforest before it is too late! For information on what you can do to help, download a copy of “Seven Things You Can Do to Save the Rainforest” from our website at www.ran.org, or you can write or call Rainforest Action Network and ask for a copy of our student fact sheet. You can also send an email to tsolum@ran.org to get on our kids email list.

Student Fact Sheet 1

Glossary

Biomass: Living and dead matter produced, including plants and animals.

Canopy: The highest layer of the rainforest, made up of the tops of trees. Animals such as howler monkeys, red-eyed tree frogs, sloths, and parrots live in the canopy.

Equator: An imaginary circle around the earth, equally distant at all points from the North and South poles. It divides the earth into two halves—the Northern and Southern Hemispheres.

Emergent: The rainforest layer that includes the tops of the tallest trees.

Evaporate: When moisture changes from liquid to gas in the air.

Extraction: To remove something (for example, to take out Brazil nuts from the Amazon rainforest).

Forest Floor: The ground layer, made up of tree roots, soil and decaying matter. Mushrooms, earthworms, and elephants all make their homes here.

Greenhouse Effect: The warming of the planet caused by chemicals which trap heat in the air. This process is being sped up by humans who put too many heat-trapping chemicals into the air. Some causes include car exhaust, factory smoke, and burning rainforests.

Interdependence: The concept that everything in nature is connected to each other, and cannot survive without the help of other plants, animals and abiotic factors (such as sun, soil, water and air) around it.

Nutrients: Food needed for growth by living things.

Species: A distinct kind of plant or animal that has many common characteristics or qualities.

Sustainable: Using products of the forest in a way that does not permanently destroy them, so that people in the future can also use them.

Tropic of Cancer: A circle around the earth, parallel and to the north of the equator.

Tropic of Capricorn: Similar to the Tropic of Cancer, but to the south of the equator.

Understory: The second layer of rainforests, made up mostly of young trees and shrubs. Animals that live here include jaguars, tapirs, fer-de-lance snakes, and woodpeckers.

*Written by Susan Silber & Illisa Kelman
revised 2/04*



Scaffolding Morphemic Analysis

Scaffolding steps:

- Make morphemic analysis a habit.
- Provide corrective feedback.
- Offer students of different ability levels different application words with which to practice.
- Challenge students to find additional examples of the correct use of morphemes.
- Provide a word list or glossary for students when combining word parts.

Students who are struggling may be experiencing one of two problems:

- **The practice word is too difficult.** Remember that monomorphemic and compound words of higher frequency are easy, bimorphemic words are little more challenging, and multimorphemic and low-frequency words are the most challenging. Have the student practice identifying morphemes and analyzing the meaning of easier words, and then gradually increase the complexity of the practice words.
- **The type of morpheme is too difficult for their ability level.** Suffixes, in particular, are difficult and often cannot be directly taught without giving students a lot of exposure to suffixed words in context. Try returning to easier types of morphemes, such as prefixes or compound words, for practice manipulating word parts while also increasing students' incidental exposure to words containing the difficult morpheme. You can do this by using sample words in class, modeling how to analyze sample words as they come up in class readings, and posting sentences containing the sample words in your room.

Sources of Greek and Latin morphemes:

- Web search
- Florida Center for Reading Research:
www.fcrr.org/Curriculum/StudentCenterActivities45.shtm

Reflection Log

Think about how you might use the information presented in this module to plan instruction and support students’ academic literacy needs. What seemed particularly useful to you? What ideas were new or interesting? What confirmed or challenged your previous beliefs? What questions do you still have?

Use the lines below to record your thoughts.

Lined area for recording thoughts, consisting of 18 horizontal lines.

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