



Guide to English Orthography

FREQUENTLY ASKED QUESTIONS

1. How predictable is English orthography?

Although it is not as transparent as some languages, such as Spanish, Italian and Serbo-Croatian, given the knowledge of spelling generalizations, English is more predictable than one might assume. English is a morphophonemic language, meaning a combination of words comprised of phoneme-grapheme relationships, as well as by meaning (morphemes) most English words can be explained based upon patterns (sound-symbol, syllable level, spelling conventions, morphology).

English can be considered an optimal system for a reader (Chomsky and Halle) because about 50% of all English words can be spelled with a direct one-to-one phoneme-grapheme correspondence. Additionally, another 36% can be spelled accurately with the exception of one speech sound, which is typically a vowel sound-spelling. This means a total of 86% can be identified and spelled with only one error, through pure decoding and use of speech to print approximations. An additional 10% can be read/spelled correctly if word origin, word meaning and phonology are all considered. **The result:** Fewer than 4% of English words are true oddities. (Moats, 2020)

Acceptance of this knowledge is important to teacher practice, because if one holds the erroneous belief that words are mostly irregular and therefore, must be taught by memorization and/or visual recall only, they are more likely to use less effective instructional strategies which rely on recall. Such strategies cannot be as easily generalized to unfamiliar words as phonics (spelling generalizations) may be.

2. What are the layers of the English language and how does orthography fit in? The following information is summarized from the works of Dr. Lousia Moats (2020).

To master the complexities of the English language, orthography is taught in layers, in order of easiest (letter-sound correspondences) to most complex (morphemes). During word study instruction an individual word can be analyzed, or studied, by one or more of these layers. Although the focus of this document is on orthography the five layers of English are listed below, including with item numbers to refer to for more information, where applicable.

I. Language of Origin - Anglo-Saxon, Norman French, Latin, Greek) involved in Sound/Spelling Conventions

- Anglo-Saxon (Old English) - *Grades 1-3*

- Often common/everyday words which are either one syllable words, often irregularly spelled or compound words
 - Examples: sky, earth, moon, sun, arm, head, toe, think, touch, were, been, would, shirt, shoe, sock, coat, cow, hen, of, said, do/does, the, want, love, heart, doghouse, birdcage
- Sound spellings:
 - Consonants: single, digraphs, blends
 - ch for /ch/: church, speech, cheap, chain
 - kn for /n/: knock, knee, know, knight
 - gh for /f/: enough, tough, rough
 - Vowels: Single short/long, VCe, Vowel Teams, Diphthongs, Vowel-r
 - Syllable patterns: Closed (short V), Open (single long V), VCe, Vowel-r, Vowel Team, Consonant -le, Odd syllables
- Morphological structures: Compound words, inflectional suffixes, prefixes, derivational suffixes
- Norman French - *Grades 4-6*
 - Often words for food, fashion, abstract social ideals, relationships (chic, chef, menu, croissant, baguette, soup, peace, rouge)
 - Sound spellings:
 - ou for /ou/: soup, coupon, acoustic, group
 - ch for /sh/: charade, machine, chef, chic
 - que for /k/: unique, boutique,
 - Soft c when followed by e, i, y: service, peace, justice
 - Soft g when followed by e, i, y: rouge, garage, genre
 - Special endings -ine, -ette, -elle, -ique: boutique, cuisine, belle, baguette
- Latin - *Grades 4-6*
 - Often content specific words (social studies, science, literature)
 - Sound spellings:
 - ti for /sh/: action, cautious, patient
 - Morphological structures: Multisyllable words with Latin morphemes such as:
 - Prefixes: pre-, inter-
 - Roots: gress, ject, vis
 - Suffixes
 - Latin plurals (alumni, minutiae, curricula, data)
- Greek - *Grades 6-8*
 - Often philosophical, mathematical or scientific terms
 - Sound spellings:
 - ph /t/
 - ch /k/
 - y for long or short i
 - e for long e at the end of word/syllable
 - Morphological structures: Greek combining forms (neuro, psych, ology, lex, chloro)
 - Plurals (crises, metamorphoses, vertebrae)

II. Phonology

- Syllables in spoken words
- Onset and rhyme within words
- Phonemes: The phoneme level of speech, or phonemic awareness, is the most directly correlated of all phonology skills involved in mapping speech to print. English contains 44 phonemes.

III. Phonics

- **Phoneme-Grapheme Correspondences (Sound-Letter) Layer:**
 - See lists and detailed description of all phonemes and graphemes, as well as the 23 spelling rules of English in **Items #3-5 of this document**.
 - Another word for “grapheme” is “phonogram”. Hear a model of all English phonograms/graphemes. [Click this link and scroll down, until you see this visual and the heading “Listen to the Phonograms with Free App.”](#) (Sharing this sample video does not constitute GMU TTAC endorsement.)
- **Syllable Layer:**
 - Syllables as spoken in speech may be slightly different than when presented in the written form. The written form of syllables used for decoding and encoding words is a more advanced skill than the early phonological skill of segmenting spoken words into syllables.
 - There are six syllable types and seven syllable division patterns in the English language.
 - See: [The 6 Syllable Types \(With Chart & Teaching Tips\) | YourDictionary](#) (Sharing this sample resource does not constitute GMU TTAC endorsement.)
 - For upper grade students still struggling with multisyllabic words, acceleration can be provided by teaching single syllable word patterns in combination with those same syllable patterns within multisyllabic words.
 - Schwa: Introduce the schwa once students are reading and writing multi-syllabic words. See details on the schwa in **Item #6 of this document**.

IV. Orthography

- Conventions of Print
- Orthographic Conventions (**See Item #5 of this document for a list of all English spelling rules and spelling generalizations.**)

V. Morphology

- Morpheme Types
- Morphemic Analysis

3. What are the consonant graphemes of the English language? The following information is summarized from the works of Dr. Lousia Moats (2020).

- Single consonant letters (all letters, except for vowels)
- Doublets (ff, ll, ss, zz)
- Digraphs (two consonant letters, one sound = one grapheme)
 - (th, ch, sh, ph, sometimes ng and ck)
- Trigraphs (three letters, one sound = one grapheme)
 - Only two exist in English (-tch, -dge)

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- Consonant blends (two or three consonant letters)
 - Can be initial blends or ending blends
 - Create more complex syllable types
 - Sometimes digraphs are used within blends (shr)
- Silent consonant letter combinations (kn, wr, rh, lk, mn)
 - From older words from which English was derived
 - At one time they were pronounced, and pronunciations have changed over time.
- Special cases:
 - X (only letter that represents two phonemes /k/ /s/)
 - Combination qu (borrowed from Latin)

4. What are the vowel graphemes of the English language? The following information is summarized from the works of Dr. Lousia Moats (2020).

- Single vowels (a, e, i, o, u and sometimes y)
- VCe
- Vowel teams: Only approximately 43% of words actually followed the rule, “When two vowels go walking the first one does the talking”, and about 57% of words do not. Instead of this rule, (Rippel, 2012). which is frequently false, teach the vowel graphemes and the sounds they make in words.
 - Vowel digraphs (ai, oa, ea, ee)
 - Combinations of up to four letters that make one vowel sound (ay, eigh, au, aw, oo)
- Vowel + r (r-controlled vowels): ar, or, er, ir, ur
- Diphthongs: oi/oy, ou/ow
- [“The Six Jobs of the Letter Y”, which could function as a vowel or a consonant, are explained in this open access excerpt.](#)

Unit Eighteen

The Six Jobs of the Letter Y

Lesson 457

The letter *y* can function as either a vowel or consonant in a word. The letter *y* as a vowel within a word is marked as any other vowel normally would be marked. The letter *y* is used at the end of English words, not the letter *i*. In English *y* as a vowel has no sound of its own and instead normally represents the short and long sounds of the vowel *i*. Keep in mind, however, that **the vowel *y* can represent two long sounds. The first long sound of *y* is the long *i* sound; the second long sound of *y* is the long *e* sound. When *y* represents the sound /ee/ as in *baby*, double underline the *y* to indicate that the vowel *y* is representing its second long sound.** The letter *y* is a vowel in every position in a word except when it is the first letter in a syllable. **When the letter *y* is the first letter in a syllable, it then is a consonant,** and no mark is made to it.

The six jobs of *y*

Job One	The letter <i>y</i> represents the short sound of <i>i</i> when it is the only vowel in a syllable and is followed by a consonant as in the word <i>gym</i> : <i>gym</i> 1
Job Two	When the letter <i>y</i> is at the end of a one-syllable word and <i>y</i> is the only vowel in the syllable, the letter <i>y</i> represents the long sound of <i>i</i> as in the word <i>by</i> : <i>by</i> 2
Job Three	The letter <i>y</i> occurring by itself at the end of any syllable after the first syllable in a word normally represents the long sound of <i>e</i> as in <i>baby</i>. Sometimes the letter <i>y</i> at the end of any syllable after the first syllable will represent the long sound of <i>i</i> as in <i>lullaby</i> . First Long Sound of <i>y</i> (long <i>i</i> sound) = <i>by</i> / <i>lul la by</i> 2 2 Second Long Sound of <i>y</i> (long <i>e</i> sound) = <i>ba by</i> 2
Job Four	When two vowels in one syllable are separated by one or more consonants, and the first vowel is the letter <i>y</i> and the second vowel is a silent letter <i>e</i> , then the letter <i>y</i> represents the long sound of <i>i</i> , and the letter <i>e</i> is silent as in the word <i>style</i> : <i>style</i> . 3
Job Five	The letter <i>y</i> is part of the vowel teams <i>ay</i> , <i>ey</i> , and <i>oy</i> . In these three teams the letter <i>y</i> is silent: <i>pay key boy</i> 4 4 6
Job Six	The letter <i>y</i> is a consonant at the beginning of any syllable in a word such as in <i>yard</i> and <i>yo-yo</i> .

(Williams, 2006)

5. What are the spelling rules, spelling generations and orthographic conventions of English? (Moats, 2020)

Teach these 23 spelling rules and spelling generalizations in the order of your school's scope and sequence.

Rule or Generalization	Explanation
All Syllables and Words Must Have a Vowel	<ul style="list-style-type: none"> • Every word has at least one vowel. • Every syllable has at least one vowel.
Capitalization	<ul style="list-style-type: none"> • Proper nouns must begin with a capital letter. • Complete sentences must begin with a capital letter.

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Silent e Rule VCe	<ul style="list-style-type: none"> When there is a VCe pattern, the silent e signals that the vowel says its “name/long sound” <ul style="list-style-type: none"> This can also occur when there are two consonants separating the vowel from the e. (examples: waste, clothe, strange) Other uses of silent e: <ul style="list-style-type: none"> E has been added to singular words that end in the letter S, to keep them from looking plural. (examples: mouse, house, blouse, purse, goose, moose) See rule below, “English words cannot end in i, u, v or j”.
Floss Rule	<ul style="list-style-type: none"> When /f/, /l/, /s/ or /z/ are before a single accented, short vowel, or are in a one syllable word, the consonant doubles
When to use c/k/-ck	<ul style="list-style-type: none"> Use c-before a, o, u Use k-before e, i, y -ck only comes at end of a syllable, after one, accented short vowel -k comes at the end of the word, when there is any other letter/sound before the last sound that is NOT a short vowel. C cannot come at the end of the word.
-tch	<ul style="list-style-type: none"> Use -tch to spell the /ch/ sound immediately after one short vowel at the end of a one-syllable word (very few exceptions should be memorized (much, such, rich, etc)
Qu	<ul style="list-style-type: none"> In words of English origin, Q is always followed by a u (queen) and says /kw/.
C can say /k/ or /s/	<ul style="list-style-type: none"> C says /s/ before an e, i, or y (cent, city, cycle). It says /k/ before everything else (cat, clip).
G can say /g/ or /j/	<ul style="list-style-type: none"> G may say /j/ before an e, i, or y (gem, giant, gym). It says /g/ before everything else (garden, glad).
English words cannot end in...	<ul style="list-style-type: none"> English words cannot end in i, u, v or j.
English words cannot end in v; add a silent e	<ul style="list-style-type: none"> Because English words do not end in v, we add a silent e at the end of the word (have, love, live, valve, adjective).
English words cannot end in u; add a silent e	<ul style="list-style-type: none"> Because English words do not end in v, we add a silent e at the end of the word (have, love, live, valve, adjective).
English words cannot end in j; use -dge	<ul style="list-style-type: none"> Because English words do not end in v or j, use -dge to make the /j/ sound at the end of a one syllable word with a short vowel <ul style="list-style-type: none"> -dge is ONLY used after a single, short vowel
When to use the vowel team: -ai, -ay	<ul style="list-style-type: none"> Position-based vowel rule, because English words cannot end in an i <ul style="list-style-type: none"> -ai always comes before a consonant in the one syllable word, or within a syllable in a multisyllabic word. It will always be followed by a consonant. -ay always comes at the end of the syllable or word, y does the job of i <ul style="list-style-type: none"> Example: may, mayor
When to use the vowel team: -ei, -ey	<ul style="list-style-type: none"> Position-based vowel rule, because English words cannot end in an i <ul style="list-style-type: none"> -ei always comes before a consonant in the one syllable word, or within the syllable -ey always comes at the end of the syllable or word, y does the job of i

When to use the vowel team (diphthong): oi/oy	<ul style="list-style-type: none"> • Position-based vowel rule, because English words cannot end in an i <ul style="list-style-type: none"> ○ -oi always comes before a consonant in a one syllable word, or within the syllable. ○ -oy always comes at the end of the syllable or word, y does the job of i <ul style="list-style-type: none"> ■ Example: toy, oyster
When to use the vowel teams (diphthongs): aw/au ow/ou ew/eu	<ul style="list-style-type: none"> • Position-based vowel rule, because English words cannot end in “u” <ul style="list-style-type: none"> ○ -au, ou, eu always comes before a consonant in a one syllable word, or within the syllable. Because words/syllables cannot end in “u” they will always be followed by a vowel. ○ -aw, ow, ew may come in any position in a word/syllable <ul style="list-style-type: none"> ■ Examples: saw, shawl, cow, crown, blew,
Single vowel; long i and o	<ul style="list-style-type: none"> • i and o may say /ī/ and /ō/ as a single vowel when they come before two consonants (kind, sold).
Rules for Making Plurals	<ul style="list-style-type: none"> • Add -s: To make regular nouns plural, add –s to the end, in most cases. • Add -es: If the singular noun ends in –s, –ss, –sh, –ch, –x, or –z, add -es to the end to make it plural. • Words that end in y: <ul style="list-style-type: none"> ○ If a singular noun ends in –y and the letter before the –y is a consonant, change the ending to –ies to make the noun plural. ○ If the singular noun ends in –y and the letter before the –y is a vowel, simply add an –s to make it plural. • Words the end in o: If the singular noun ends in –o, add –es to make it plural. <ul style="list-style-type: none"> ○ Note: There are few exceptions, due to Latin Romance/Greek origin: photo – photos, piano – pianos, halo – halos • Words that end in -f or -fe: If the noun ends with –f or –fe, the f or –fe are often changed to –ve before adding the –s to form the plural version. • Irregular Plurals: Unique, irregular patterns must be taught for specific words. (examples: goose/geese, tooth/teeth, foot/feet, man/men, woman/women, mouse/mice, child/children, person/people) <ul style="list-style-type: none"> ○ Some nouns don’t change at all when they’re pluralized. You need to see these nouns in context to identify them as singular or plural. (examples: sheep – sheep, series – series, species – species, deer – deer) • Advanced plurals (Latin/Greek) Grade 4+: <ul style="list-style-type: none"> ○ If the singular noun ends in –us, the plural ending is frequently –i. (examples: cactus – cacti, focus – foci) ○ If the singular noun ends in –is, the plural ending is –es. (examples: analysis – analyses, ellipsis – ellipses) ○ If the singular noun ends in –on, the plural ending is –a. (examples: phenomenon – phenomena, criterion – criteria)
Spelling rule to add suffixes to Anglo-Saxon Words: Drop the final -e	<ul style="list-style-type: none"> • Drop the final -e, in a word that ends in -e when adding a suffix which begins with a vowel

Spelling rule to add suffixes: Double Letter Rule	<ul style="list-style-type: none"> • If the word is a one-syllable word with a short vowel, or closed syllable at the end of the word, meaning the word ends in one single consonant after the a short accented vowel, double the consonant to add the suffix, when the suffix begins with a vowel. (suffixes: -es, -ed, -er) <ul style="list-style-type: none"> ○ Note that this does not apply for suffixes which begin with consonants. • This is sometimes called the 1-1-1 rule: 1-syllable word, 1 short vowel, 1 consonant (VC, CVC, CCVC), then double the last consonant to add the suffix, when the suffix begins with a vowel. <ul style="list-style-type: none"> ○ The purpose of this is to keep the vowel short.
Spelling rule to add suffixes: y changes to i	<ul style="list-style-type: none"> • If the letter before the final y is a consonant, change the y to i to add the suffix, except when the suffix begins with i. (suffixes: -es, -ed, -er) <ul style="list-style-type: none"> ○ Note that if a suffix begins with a consonant, this rule does not apply. • If a word ends in y preceded by a vowel, then the y is kept when a suffix is added.
Advanced rule Grades 4+: Suffix -ion	<ul style="list-style-type: none"> • Note this common misconception: “tion, sion and cion “ are NOT different suffixes. The suffix in all of these endings is -ion. This is a spelling rule for Latin based words, not a difference in suffix. <ul style="list-style-type: none"> ○ This is often confused because when dividing by syllable (sound unit), we would divide the syllable (tion, sion, cion). However, syllabication (pronunciation) is not the same as a morpheme (unit of mean). • To determine whether the sound spelling /shun/ at the end of the word is spelled “tion, sion and cion “, look at the base word that word is formed with. If the base ends in -te, then -tion is used, -s/-se then -sion is used, -c/-ce then -cion is used. • The same applies to suffixes such as -ous/-ious; the spelling is determined by the base word. • Once students are at this level they should be taught spelling through morphology, in addition to syllabication, in order to be accurate spellers and readers, and to derive meaning from morphemic units.

6. What is the Schwa and how do I teach it? (Retrieved from [TTAC Ready, Set, Go...](#))

Teaching Schwa: The Most Common Vowel Sound in the English Language

Perhaps you have heard the saying, “Be like the schwa; it is never stressed.” Schwa is the phenomenon that occurs when a vowel loses its contrast in an unstressed syllable. Sometimes it is referred to as the vowel being “emptied” for this reason. It is a mid-central, lax vowel. It is neither short nor long. Schwa is considered a neutral vowel with the least articulatory effort, yet it is one of the most frequent vowel sounds in the English language.

Schwa can be spelled with any vowel grapheme and presents as the sounds /uh/ or /i/. It is the relaxed sound in many words that begin with the letter “a” like about, above, or along and make the sound /uh/. It can also be the /i/ sound like the letter “e” in basket. Schwa never occurs in monosyllabic words with the exceptions of the articles “a” or “the”, because single syllable words are accented in speech.

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Any vowel can be reduced to schwa when they occur in the unstressed syllable. Schwa is the unexpected sound a vowel makes in an unstressed syllable. In English, this often varies by regional dialect. Listen for the schwa as you read the examples:

- a. above, (e) basket, (i) edible, (o) random, (u) focus, (y) Pennsylvania, (ia) parliament, (ie) ancient, (ea) sergeant, (ei) decaffeinated, (oi) porpoise, (ou) nervous, (iou) precious

These words illustrate how the schwa is an allophonic variation, phonemes which are pronounced differently depending on the sounds around them. Because the schwa can be made with any number of vowel graphemes, spelling must be taught through understanding the word's morphology (related words) or through memorization.

What is the schwa and why is it important?

Schwa is a quick, relaxed, neutral vowel pronunciation very close to a 'short u' /ʌ/. An example of the schwa can be heard in the beginning and ending sounds in the word Alaska. It is an important sound in English for two reasons. First, it's the most common vowel sound so to speak naturally, you need to be able to pronounce it properly when reading. Secondly, it is important to teach the occurrence of schwa in multisyllabic words, because it is responsible for common misspellings, as the word's spelling does not fully match its pronunciation. This is often because as affixes are added to base words the accent (pronunciation) shifts. In words with affixes correct spelling can be derived from the morphemes within the word. However, because it is pronounced differently, this impacts our ability to spell the word phonetically. One way to teach the schwa is to help students recognize that although it cannot be sounded out for spelling purposes, morphology can be used to explain the correct spelling of the words. The schwa may pose difficulty for English Learners who are not only learning word recognition and spelling, but also pronunciation. Examples include: competition/compete and narrative/narrate. When the schwa is not related to the words morphemes, it must be memorized. Examples include: again, lemon, problem.

Article

- [The schwa phenomenon in English vowels](#)

Video

- [The Schwa Sound Pronunciation](#)

Websites

- [What is Schwa and How to Teach it \(Phonics Hero\)](#)
- [All about Schwa \(Learning Press\)](#)

How can instruction in schwa patterns can increase students' ability to read and spell multisyllabic words?

Introduce the schwa once students are reading and writing multi-syllabic words. Helping students learn the vowel sound of schwa is no easy task. You can recognize that students are having difficulty by analyzing the errors in spelling patterns of multi-syllabic words. One way to help students learn how to remedy spelling errors is to provide exercises where they generate related words. The related words help students identify the correct spelling when the schwa vowel is present in its accented form. See the resources below for even more great ideas to incorporate into your lesson plans.

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Article

- [Teaching the Schwa Sound in Unaccented Syllables](#)

Video

- [How to teach Schwa \(PATTAN\)](#)
- [How to Teach Schwa](#)

Website

- [How to Teach Schwa Vowels \(Literacy Nest\)](#)

Book

- Eide, D. (2012). *Uncovering the logic of English: A common-sense approach to reading, spelling, and literacy*. Pedia Learning Inc.

Explore these resources to incorporate explicit instruction in the application of schwa into your structured literacy routines.

Use word lists and exercises to help your students identify schwa in common words. Try a lesson plan from Lyn Stone's book *Spelling for life*. Play short video clips that help reinforce your instruction of the concept of schwa.

Videos

- [English Decoded - The Schwa](#)
- [English Schwa Sound - Listen, Record & Practice to Improve Your Schwa \(speechactive.com\)](#)

Websites

- [Two-to-Four-Syllable Words with Short Vowels and Schwa \(Reading Rockets\)](#)

References

- Ahn, S. (1997). The schwa phenomenon in English vowels. *English Teaching*, 52(3), 257-279.
- Chomsky, N. & Halle, M. (1968). *The Sound Pattern of English*. New York: Harper & Row.
- Eide, D. (2012). *Uncovering the logic of English: A common-sense approach to reading, spelling, and literacy*. Pedia Learning Inc., 123-127.
- Henry, M. K. (2010). *Unlocking literacy: Effective decoding & spelling instruction*. Paul H. Brookes.
- Moats, L. C. (2020). *Speech to print: Language Essentials for Teachers* (3rd ed). Brookes Publishing Company. 44-5, 74, 90, 119, 149-150.
- Moats, Louisa C. (2005). How Spelling Supports Reading. *American Educator*, Winter 2005/06, 12-43.
- Moats, L., & Tolman, C. (2009). *Excerpted from Language Essentials for Teachers of Reading and Spelling (LETRS): Spellography for Teachers: How English Spelling Works (Module 3)*. Boston: Sopris West.
- Moats, L., & Tolman, C. A. (2019). *LETRS: Language essentials for teachers of reading and spelling*, (3rd ed). Boston: Sopris West Educational Services.

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Rippel, M. (2012). *All About Spelling and All About Reading*. Eagle River, WI.

Sassano, J. & Madden, D. (2023, February) *Teaching schwa the most common sound in the English language*. Ready, Set, Go.
https://ttac.gmu.edu/assets/ttac_archive/2023/RSG.GMU.02.2023.pdf

Stone, Lyn. (2021). *Spelling for Life: Uncovering the Simplicity and Science of Spelling*. Routledge, 141-150.

Williams, J. E. (2006). *We all can read: A research-based, multisensory, step-by-step phonics program for teaching anyone to read and spell*. Winding River Books.

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