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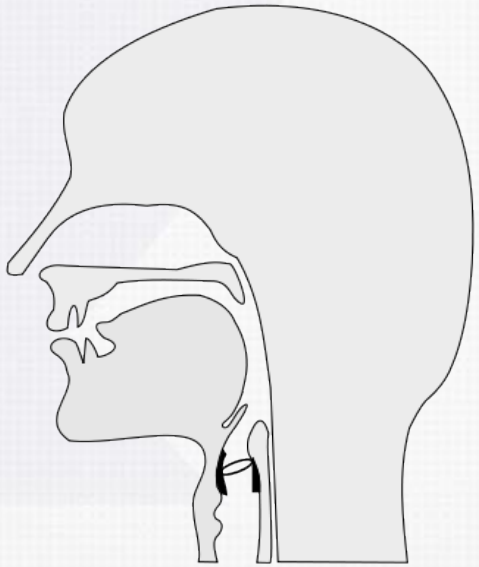
Manner and Place of Articulation



By: J. Flaitz, J. Govoni, C. Lovell

Manner of Articulation:

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…describes **how the airstream** is modified by the **vocal tract** to produce **sounds.**

Stops:

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…are sounds produced by obstructing the airstream in the oral cavity and then releasing it.

English sounds:

Bilabial stops: [p] [b] as in “pot” and “bee”

Alveolar stops: [t] [d] as in “two” and “do”

Velar stops: [k] [g] as in “car” and “go”

Fricatives:

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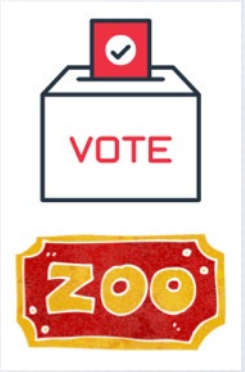
…are sounds made by forming a nearly complete stoppage of the airstream.

English sounds:

Labio-dental: [f] and [v] as in “fun” and “vote”

Alveolar: [s] and [z] as in “so” and “zoo”



PLACE OF ARTICULATION

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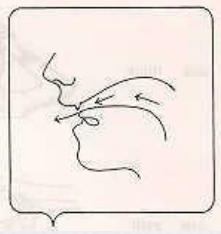
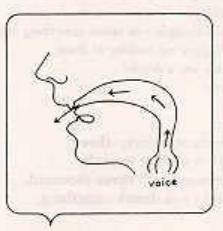
A graphic way of looking at English fricatives

a) inter-dental

θ thin

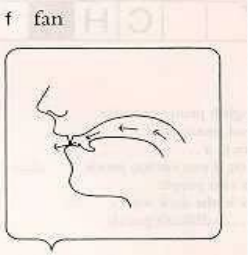


ð the feather

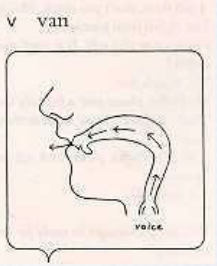


b) labiodental

f fan

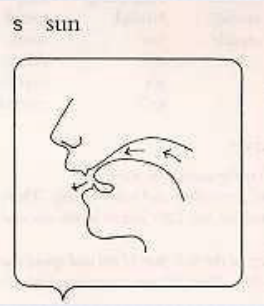


v van

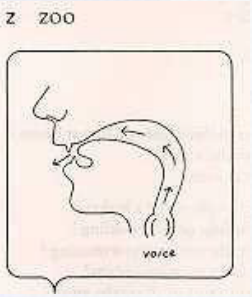


c) alveolar

s sun

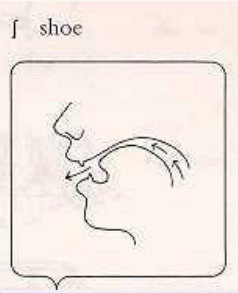


z zoo

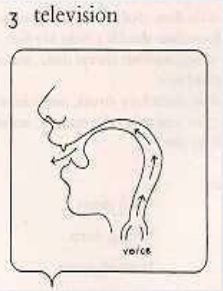


d) palatal

ʃ shoe



ʒ television



Affricates:

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…are sounds made by a combination of the stop and fricative. The airstream is briefly stopped, and then the articulators are released slightly.

This action causes a kind of friction, and produces the alveolar (or alveo-palatal) sounds.

English sounds:

[tʃ] as in “watch” and [dʒ] as in “joy”

Nasals:

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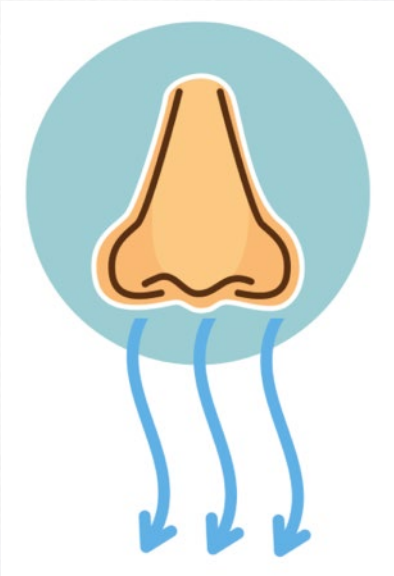
…are sounds produced in the nasal; the velum is lowered, and the air stream escapes out through the nasal cavity.



3 nasal sounds in English:

[m] me
[n] no
[ŋ] ri<u>ng</u>

Liquids:

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…are sounds produced in the oral cavity with some obstruction of air stream in the mouth, but there is no friction in the production of these sounds.

2 liquid sounds in English:

[l] love
[r] rot

Glides:

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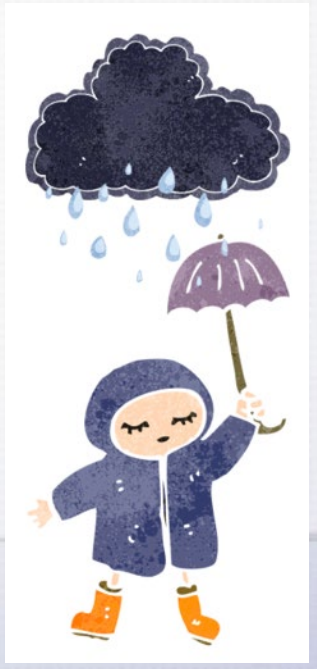
…are sounds produced with little obstruction of the airstream. They are also known as **semivowels.**

If the vocal tract were any more open, these would be classified as vowels. These sounds must be preceded or followed by a vowel.

2 glide sounds in English:

[y] as in ***yet***
[w] as in ***wet***



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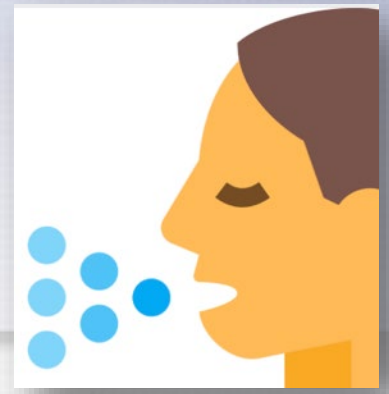

English Alphabet versus International Phonetic Alphabet (IPA)

- The English alphabet has 26 letters, but not a one-on-one correspondence.
  Example: [k] sound can be represented as *c* in “cow”, *k* in “kite”, ch in “chorus.”

- The **International Phonetic Alphabet:**
  1 sound = 1 symbol
  same symbol for sound in every language having sound

Familiarize yourself with the phonetic alphabet at:
International Phonetic Alphabet Or Phonetic Alphabet

Consonants:

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Sounds that are produced by complete or partial closure of the airstream in the vocal tract

Features that define consonants:

1. **Place** where they are articulated;
2. **Manner** in which they are articulated;
3. **Phonation of the consonant** – the amount of vibration of the vocal chords during the articulation of the sounds.

Sounds that **vibrate** the vocal chords during pronunciation are called **voiced**, and those that don't are called **voiceless**.

Glottis:

Voiced vs. Voiceless

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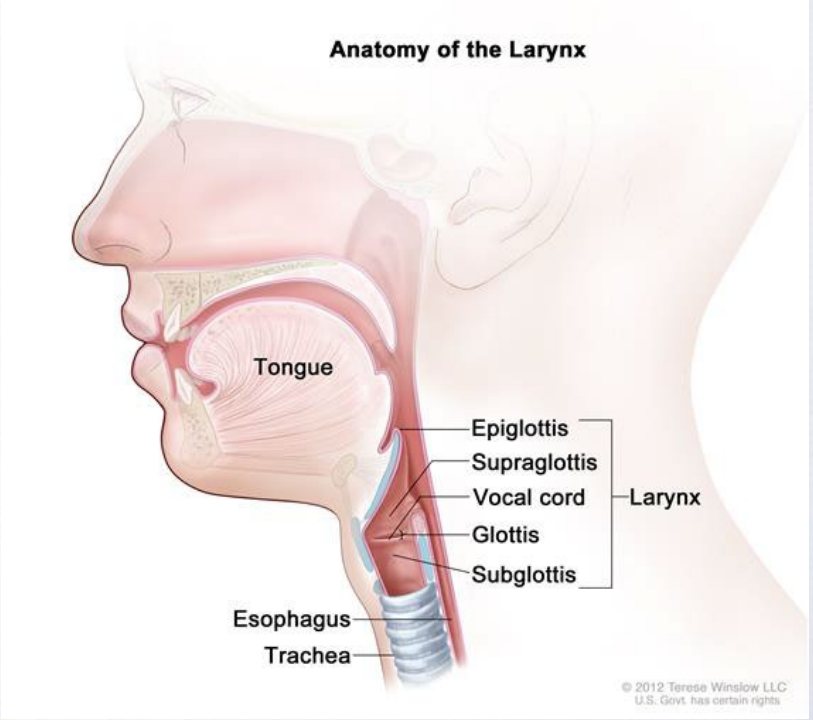
space between cords when they are open

The **vocal cords** can be **relaxed**, so that the flow of air coming up from the lungs passes through freely (**voiceless**);

or the **vocal cords** can be held **close together** so that they **vibrate** as air passes through (**voiced**).



Image

Practice: Voiced vs. Voiceless Sounds

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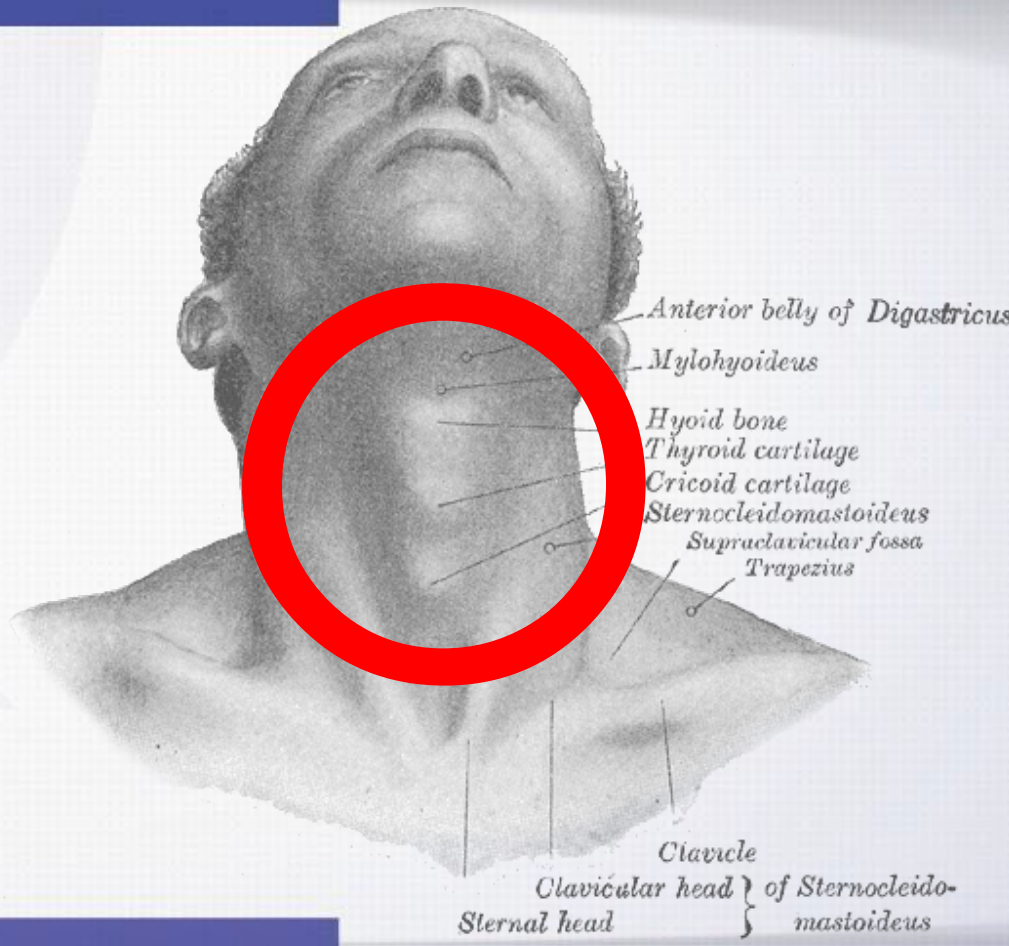
Place a finger on your throat (on the Adam's apple region) and enunciate the following pairs of words:

p/b, t/d, k/g, f/v, s/z

The enunciation of these sounds moves from your lips to glottis.

Notice: Voicing occurs with words produced in glottis.

The front (first letter) sounds are voiceless.



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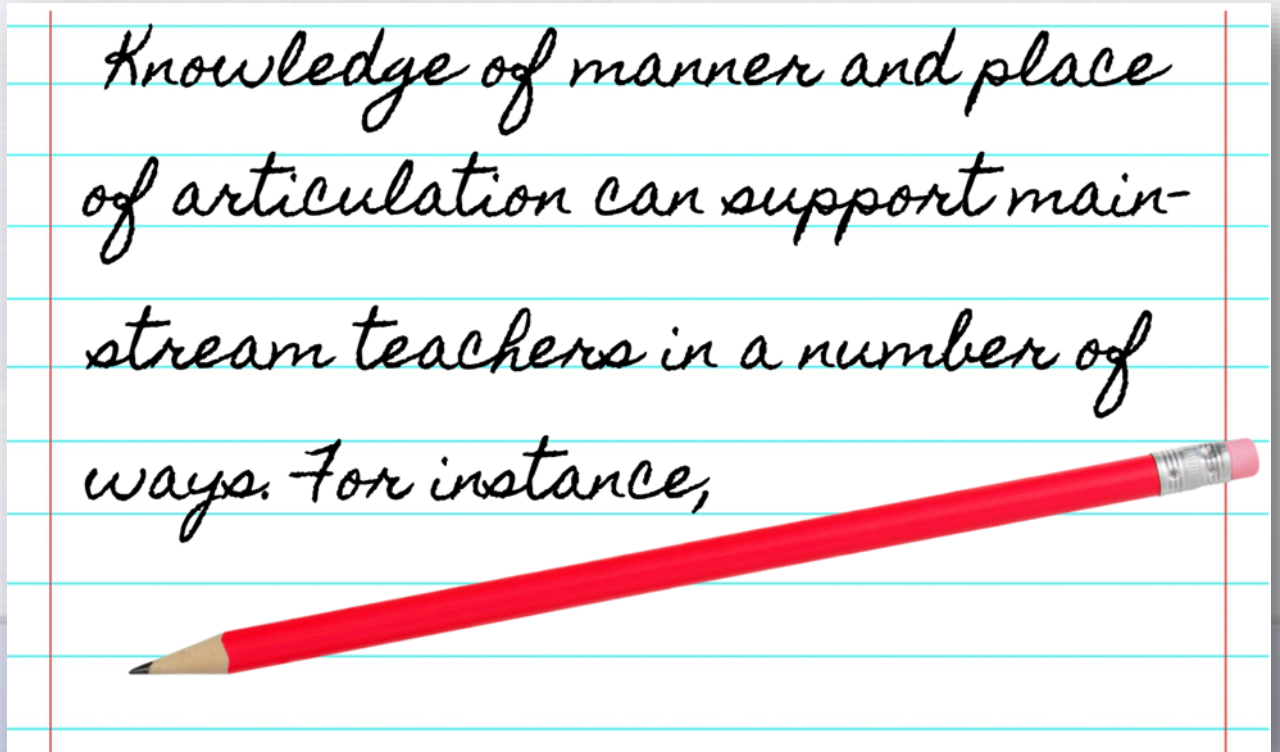
In your own words, explain how knowledge of Manner and Place of Articulation can support mainstream teachers.



Vowels:

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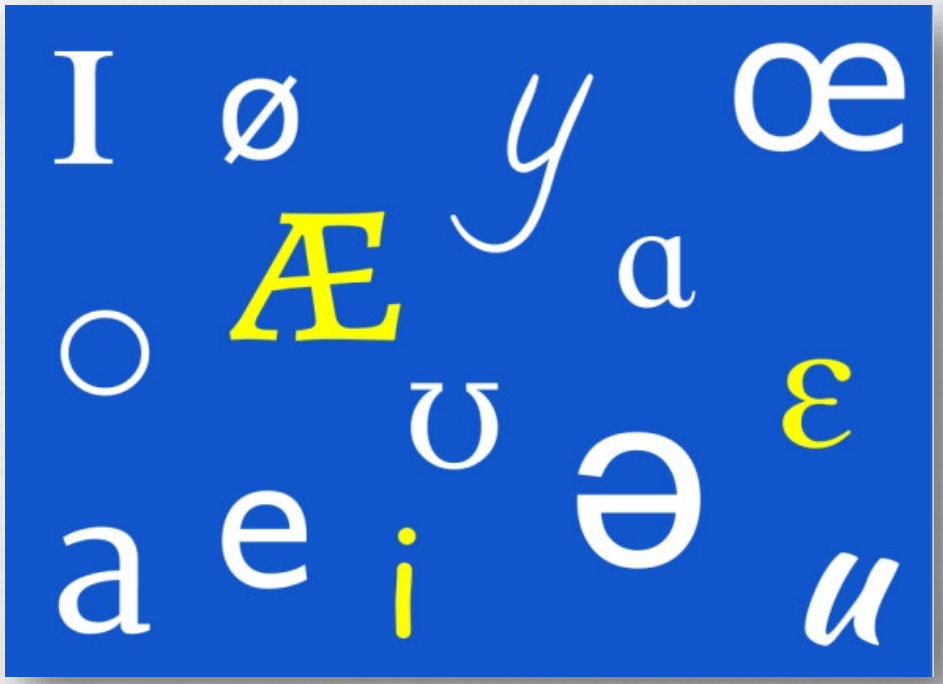
… are sounds produced without any obstruction in the oral cavity.

classified as being articulated through your tongue position:

- high, mid, or low
- tense or lax
- front, central, or back



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How are vowels and consonants different?

Articulation (how we produce them);

Acoustics (perceived as louder and longer, i.e., you can sing vowels);

Function (vowels are the basis of syllable formation)

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Four Qualities that Describe Vowels:

1) **Tongue Height**: raising or lowering the body of the tongue
   a. high vowels: *leak/lick, Luke/look*
   b. low vowels: *sat/cat, cot*
   c. mid vowels: *set[e], bait[e], bet, bought, boat[o]*

2) **Tongue Advancement**: advancing or retracting the body of the tongue
   a. front: *seek/sick[i], sake[e], sec/sack*
   b. back: *ooze/look, road/paw, dot*
   c. central: *luck*

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Cont.: Qualities that describe vowels:

3) **Lip Rounding**: rounding or not rounding the lips
   ex: *loop/foot, soap/fall*

4) **Tenseness:**
   a. tense (long): produced with an extra degree of muscular effort
   b. lax (short): less tense

   ex: *beat/bit, bait/bet, boot/put, boat/bore*

Vowel Chart

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Classifications of English Vowels

		Front	Central	Back
High	Tense	i (beat)		u (boot)
	Lax	ɪ (bit)		ʊ (book)
Mid	Tense	e (bait)	ʌ (but)	o (boat)
	Lax	ɛ (bet)	ə (about)	ɔ (paw)*
Low		æ (bat)		ɑ (pot)

*(not in all dialects)

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Nasalized Vowels

…occur when the vowel sounds are emitted through the nasal track because of proximity to a nasal sound. For example:

bean, bin, bane, Ben, ban, boon, bun, bone, beam, bam, boom, bing

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Long(tense)/Short(lax) Vowels:

Another way to describe vowels is by the amount of tension experienced by the tongue.

Long (tense)	**Short (lax)**
[i:] beat	[ɪ] bit
[ei] bait	[e] bet
[u:] boot	[u] put
[ou] boat	[ɔ:] ball, bore

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Dipthongs …

… are a combination of two vowels or a vowel and a glide

There are many arguments among linguists about the quality of dipthongs.

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Our phonological knowledge is comprised of:

- knowing the **phonemes** of the language;
- knowing the difference between **phonemes** and **allophones;** and the
- **phonological rules** that govern the production of sounds in words.

How do we describe sounds?

- Are the sounds oral or nasal?
- Are the sounds consonantal or vowel (a.k.a. syllabic)?
- Are the sounds voiced or voiceless?
- What phonological process describes the production of these sounds?

Phonemes

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Allophones

Phoneme: how the sound is represented in a language in the mind of the speaker.

[b] – represented in one way
[p] - represented in two ways: /p/ or /p^h/ {aspirated sound}
[i] – represented in two ways: /i/ or / ĩ/ {nasalized vowel}

When different phones are derived (variants) from one phoneme (because of the rules that govern the pronunciation of the phones), these phones are called **allophones** of that phoneme.

[p] → /p/ and /p^h/ {aspiration rule}
[i] → /i/ and / ĩ/ {nasalization rule}
[l] → /l/, / l̥/ or /ɬ/ [voiceless rule and velarization rule}

Allophones are always in **complementary distribution** since one variation cannot occur in the same environment as the other variant.

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Knowing the phonemes of the language (English) is knowing the distinctive sounds of the language (English) and how they are pronounced.

▶Speakers of English know that each of the following words are different:
sip/zip; fine/vine; chunk/junk.

▶**Initial sounds** in minimal pairs with distinctively different properties are called **phonemes**.

▶**Substitution** of initial distinctive sounds produces a new word. Thus, the words are said to be in **contrast.**

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When two words are similar in every way, except that a substitution in a sound in the same place causes a new word to be born, we have what is known as a **Minimal Pair.**

sip/zip; fine/vine; chunk/junk are minimal pairs.

Minimal Pairs are used to contrast or highlight the phonemes of a particular language.

bead [bid] - *deed* [did]] *bowl* [bol] - *dole* [dol]

[b] and [d] contrast in the same position in words where all other sounds are the same.

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Why should teachers know about phonemes and minimal pairs?

- to help detect which sound ELs are having trouble with
- to help ELs perceive the differences between sounds
- to use minimal pairs to show ELs the sound differences

Resource: Ted Power

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Phonological Rules that Govern the Pronunciation of Sounds in English

Aspiration

Velarization

Nasalization

Aspiration

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Set A:	pat /pæt/	tub /tʌb/	cope /kowp/
Set B:	span /spæn/	upset / ʌpsɛt/	sap /sæp/

In **Set A:** [p] is aspirated, that is an extra puff of air accompanies the sound. The features of the [p] sound are characterized:

(1) they are all *stops*, (2) they are all *voiceless*, and (3) they all occur in initial position, and before a stressed vowel.

In **Set B**: [p] is unaspirated. The features of the unaspirated are characterized by (1) they are all stops, (2) they are all voiceless, (3) they are not in initial position, and (4) they occur after a /s/ and before a stressed vowel.

- Aspiration Rule applies to Set A.
- Other aspirated sounds are /t/ and /k/ under the same conditions.

Velarization

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Example phoneme is [l]:
It can be pronounced in 3 different ways:

1. in words like: **blue [blu] glue [glu] gleam [glim]**
   as here **/l/ is voiced** since it is preceded by a voiced stop [b],[d],[g];

2. in words like: **clip /kl· p/ plow /pl· aw/**
   as here **/l/ is voiceless** since it is preceded by voiceless stops;

3. in words like: **foal /foł/ peel /pił/ teal /tił/**
   as here **[l] is velarized** since it is preceded by a stressed vowel and is at the end of the word.

Nasalization

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Nasalize vowels and dipthongs before nasals sounds:

Bob /bab/ nasal rule does not apply

bomb /b ã m/ - here /a/ is nasalized because the vowel occurs in a nasalized environment ([m]).

List words with adjoining **m** and **b**.
Say them aloud.
Can you hear the nasalized pronunciation?

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Phonological Rule: Past Tense Pronunciation

Set A: grab - grabb**ed** ; hug - hugg**ed**; pray- pray**ed;** gun - gunn**ed**

Set B: reap - reaped; peak - peaked; kiss – kissed

Set C: state - stated; raid – raided

- **How do we pronounce the past tense endings?**

Set A: /d/ **Set B:** /t/ **Set C:** /ɪd/

- **What governs the pronunciation of these phonemes?**

Set A	Set B	Set C
grab + past	reap + past	state + past
/græb + d/	/riyp + t /	/steyt + ɪd /
/græbd/	/riypt /	/steytɪd /
/ɪ / before the /d/		

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What rules govern the pronunciation of these past tense phonemes?

Set A: when the final phoneme is voiced, pronounce the past tense with /d/ when the final phoneme is a vowel, nasal, glide, liquid, pronounce the past tense with /d/;

Set B: when the final phoneme is voiceless, pronounce the past tense with /t/; and

Set C: when the final phoneme is an alveolar stop, pronounce the past.

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Phonological Rules: Pronouncing Plurals

Let's look at a few pluralized words

Set A: cat - cats; mat - mats
Set B: dog - dogs; bud - buds
Set C: bus - buses; church - churches

How do we pronounce these?

Set A: pronounce with /s/
Set B: pronounce with /z/
Set C: pronounce with /əz/

What are the rules?

Set A: when the final phoneme is voiceless, pronounce the plural with /s/
Set B: when the final phoneme is voiced, pronounce the plural with /z/
Set C: when the final phoneme is an alveolar sounds, pronounce the plural with an /ə/ before the /z/

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Pronunciation Challenges for ELs

- lack of sound in native system
- phonemes with different distribution in two languages, i.e., in English -ng [ŋ] is either words final (dancing) or internal
  (mango), but **never** in word initial, which may occur in ELs' L1
- phonemes occur in unfamiliar combinations

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Resource:
American English Pronunciation Practice