

Phonetics and Phonology

Phonetics is an essential branch of language that foreign students of English need to study.

The linguistic phonetic study of a language involves working out how the sounds of language (the 'phonetic' part) are used to make meaning, how words are uttered, how similar (but different) strings of sounds can be distinguished (such as 'I scream' and 'ice cream'), how particular shades of meaning are conveyed.

Speech is produced by the controlled movement of air through the throat, mouth and nose (more technically known as the vocal tract).

Most languages have a fixed set of sounds that are used in speech the same way they have a fixed set of letters that are used in writing. The finite set of letters that we use when we write is called the alphabet and the finite set of phonemes (sounds) that we use when we speak is known as the phonetic system.

Phonetics is the field of study that deals with the production, perception and characteristics of speech sounds of human language.

Phonology is the study of how these speech sounds come together to form systems and patterns in a certain language.

There are three main areas that are studied within the field of phonetics:

- **Articulatory phonetics** (how speech sounds are produced by the speech organs)
- **Acoustic phonetics** (the physical properties of the sounds that are transferred from the speaker to the hearer as sound waves)
- **Auditory phonetics** (how we hear and perceive these sounds)

Dialects and accents

Languages have different accents: they are pronounced differently by people from different geographical places, from different social classes, of different ages and different educational backgrounds. The word "accent" is often confused with "dialect". We use the word "dialect" to refer to a variety of a language which is different from others not just in pronunciation but also in such matters as vocabulary, grammar, spelling and word-order. Differences of accent, on the other hand, are pronunciation differences only.

Received Pronunciation (RP)

Received Pronunciation is the accent traditionally regarded as the standard for British English. It is the accent of the social elite and it is associated with educated speakers and formal speech. It is the accent used by BBC announcers and the accent commonly taught to foreign learners of English.

Phonetic Symbols

Transcription is the phonetic representation of speech sounds with phonetic symbols to show how a word is pronounced, e.g. the word "computer" is transcribed as /kəmˈpjʊ:tə/.

The symbols used in transcription form a system that is known as the **International Phonetic Alphabet (IPA)**.

English Vowel Sounds:

ɪ	as in 'pit' pɪt	i:	as in 'key' ki:
e	as in 'pet' pet	ɑ:	as in 'car' kɑ:
æ	as in 'pat' pæt	ɔ:	as in 'core' kɔ:
ʌ	as in 'putt' pʌt	u:	as in 'coo' ku:
ɒ	as in 'pot' pɒt	ɜ:	as in 'cur' kɜ:
ʊ	as in 'put' pʊt		
ə	as in 'about, 'upper' əbaʊt, ʌpə		
ɛɪ	as in 'bay' beɪ	əʊ	as in 'go' gəʊ
aɪ	as in 'buy' baɪ	aʊ	as in 'cow' kaʊ
ɔɪ	as in 'boy' bɔɪ		
ɪə	as in 'peer' piə		
eə	as in 'pear' piə		
ʊə	as in 'poor' puə		

English Consonants:

p	as in 'pea' pi:	b	as in 'bee' bi:
t	as in 'toe' təʊ	d	as in 'doe' dəʊ
k	as in 'cap' kæp	g	as in 'gap' gæp
f	as in 'far' fæt	v	as in 'vat' væt
θ	as in 'thing' θɪŋ	ð	as in 'this' ðɪs
s	as in 'sip' sɪp	z	as in 'zip' zɪp
ʃ	as in 'ship' ʃɪp	ʒ	as in 'measure' meʒə
h	as in 'hat' hæp	l	as in 'led' led
m	as in 'map' mæp	r	as in 'red' red
n	as in 'nap' næp	j	as in 'yet' jet
ŋ	as in 'hang' hæŋ	w	as in 'wet' wet
tʃ	as in 'chin' tʃɪn	dʒ	as in 'gin' dʒɪn

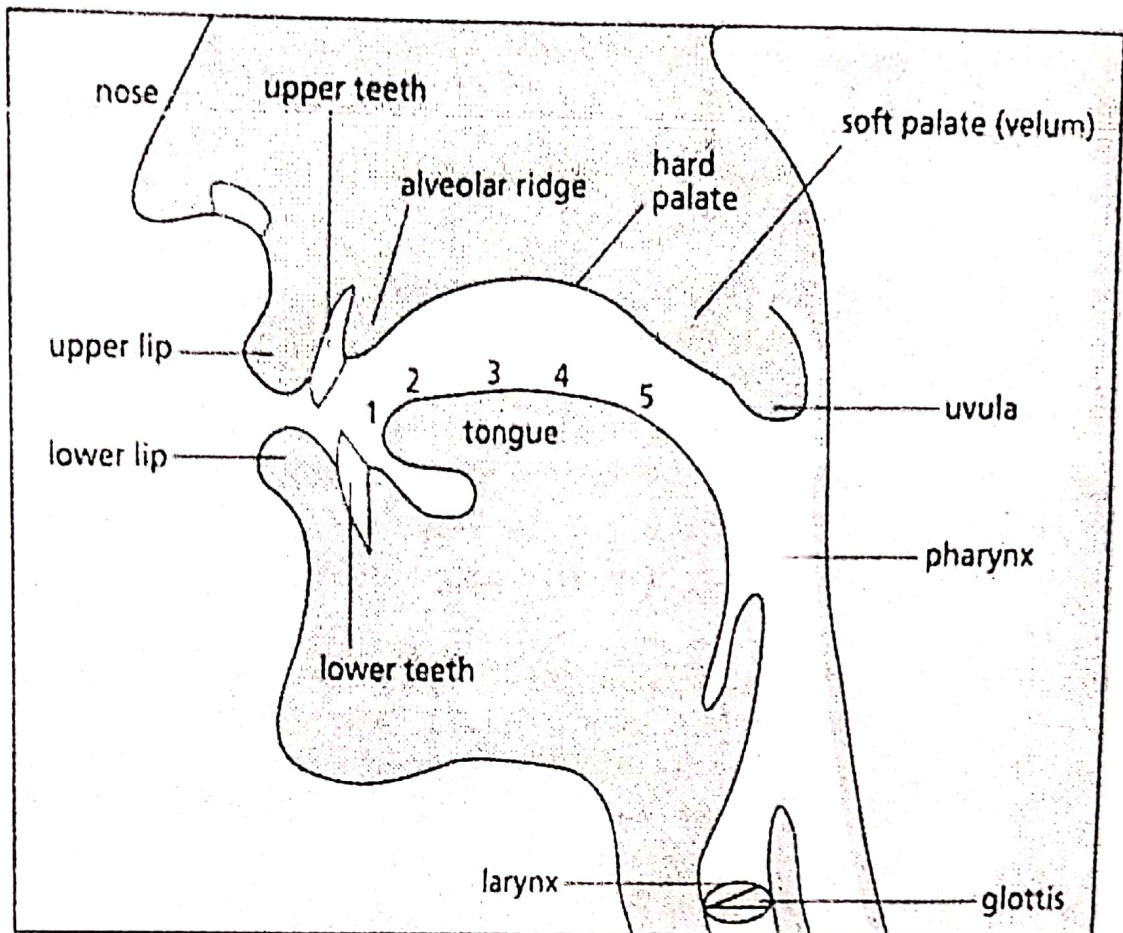
Organs of Speech

-The larynx (voicebox): The larynx is in the neck. Its main structure is made of two cartilages (a material that is similar to bone but less hard). The two hollow cartilages are attached to the top of the trachea. They form a box in which the vocal folds are located. (two thick flaps of muscles).

- We use the word **glottis** to refer to the opening between the vocal folds.

The vocal folds can move to take four easily recognizable states:

- 1- Wide apart = normal breathing and usually voiceless consonants.
- 2- Narrow glottis = the voiceless sound /h/.
- 3- Totally closed; the vocal folds can be firmly pressed together so that air cannot pass between them = the voiced sound /ʔ/
- 4- When the edges of the vocal folds are touching each other, air passing through the glottis will usually cause vibration = voiced consonants



- **The pharynx**: a tube which begins above the larynx. At its top end, it is divided into two passages, one is the back of the mouth (oral cavity) and the other is the nasal cavity.

- **The velum or soft palate**: It is often raised in speech so that air cannot escape through the nose. (velar consonants k & g)

- **The hard palate** (roof of the mouth): It has a smooth curved surface. (palatal j)

- **The alveolar ridge**: It is between the top front teeth and the hard palate. Its surface is rough & covered with little ridges. (alveolar t & d)

- **The teeth**: They are in the mouth immediately behind the lips to the sides of the mouth back almost to the soft palate. (dental θ & ð)

- **The lips**: They can be pressed together (bilabial p & b) or brought into contact with the teeth (labio-dental f & v).

- **The tongue**: It is a very important articulator and it can be moved into many different places and takes different shapes. It is divided scientifically into: tip – blade – front – center – back – root.

Consonant sounds

In order to describe any consonant sound, we need to take into consideration three criteria:

- 1- **Voicing** (vibration of the vocal folds)
- 2- **Place of Articulation** (where the obstruction of the airstream occurs)
- 3- **Manner of Articulation** (the degree and kind of constriction or obstruction of the airstream in the vocal tract)

Voicing

Voiced= lenis (vibration of the vocal folds)	Voiceless= fortis (no vibration of the vocal folds)
b	p
d	t
g	k
v	f
z	s
ð	θ
ʒ	ʃ
dʒ	tʃ
m	h
n	
ŋ	
l	
r	
w	
j	

Place of Articulation

lower lip + upper lip = bilabials /p, b, m/

lower lip + upper teeth = labiodentals /f, v/

tongue + upper teeth = dentals /θ, ð /

tongue + alveolar ridge = alveolars /t, d, s, z, n, l/

tongue + post-alveolar area = palate-alveolar /r, ʃ, ʒ, tʃ, dʒ/

tongue + hard palate = palatal /j/

tongue + soft palate (velum) = velar /k, g, ŋ/

larynx = glottal /h, ʔ/

Note: /w/ is labial and velar

Manner of Articulation

Plosives/Oral stops:

A plosive is a consonant that is produced when one articulator is moved against another, or two articulators are moved against each other, so as to form a stricture that allows no air to escape from the vocal tract. The stricture is, then, total. After the stricture has been formed and air has been compressed behind it, air is released or allowed to escape. The escape of the air will produce loud noise that is called plosion.

So the plosive consonant passes through four phases:

- 1- Closure phase
- 2- Hold phase
- 3- Release phase
- 4- Post-release phase

The plosives in English are /p, b, t, d, k, g, ʔ/

	Initial	Medial	Final
/p/	Pin	Paper	Keep
/b/	bin	rubber	bulb
/t/	tin	bitten	tent
/d/	dog	bidden	bid
/k/	king	bicker	kick
/g/	gun	bigger	big

Fricatives:

When a fricative is produced, air escapes through a small passage and makes a hissing sound. Fricatives are continuant consonants, which means that you can continue making them without interruption as long as you have enough air in your lungs.

Fricatives in English are /f, v, θ, ð, s, z, ʃ, ʒ, h/

Examples of words that contain the sound /f/: foot, Philip, pharmacy, farm, off, enough, soften, soft, offer, feel.

Examples of words that contain the sound /v/: veal, vice, heave, averse, of, vain.

Examples of words that contain the sound /θ/: thanks, breath, thought, thumb, theory, thunder, anthem, method, bath, cathedral.

Examples of words that contain the sound /ð/: this, thus, father, other, gather, breathe, either, smooth, bathe.

Examples of words that contain the sound /s/: seat, sit, set, use (noun), practice, close (adjective), I used to, advice, loose.

Examples of words that contain the sound /z/: arouse, disease, cousin, amaze, zeal, phrase, misery, close (verb), lose, to use (verb), advise.

Examples of words that contain the sound /ʃ/: sheep, fishy, pressure, tissue, social, motion, Russia, machine, moustache, champagne, chemise, chandelier, chivalry.

Examples of words that contain the sound /ʒ/: treasure, decision, leisure, beige, rouge, massage, usual, vision.

Examples of words that contain the sound /h/: heat, behave, hand, inhale, heart, who.

Affricates:

Affricates are complex consonants. They begin as plosives and end as fricatives. The plosive and the following fricative must be homorganic, i.e. made with the same articulators. Affricates are regarded as single, independent phonemes of English. Thus, "church" and "judge" are composed of three phonemes.

Affricates in English are /tʃ, dʒ/

Examples of words that contain the sound /tʃ/: cheese, chess, church, batch, orchard, adventure, picture, nature, question, vulture.

Examples of words that contain the sound /dʒ/: Jeer, gin, ridge, edge, giant, engine, injure, George, age, village, cabbage, courage, luggage.

Nasals:

The basic characteristic of a nasal consonant is that air does not escape through the mouth; it is prevented by a complete closure at some point in the oral cavity. Instead, air escapes through the nose. For this to happen, the soft palate must be lowered.

Nasals in English include /m, n, ŋ/

Practice /m/:

glum mouse made map man smile

There are many monks in the monasteries in Rome

Practice /n/:

next nut not knot snore ignorant injure button certain

Doesn't anyone know where the new knives are?

Practice /ŋ/:

riding anger finger anchor ankle tongue thing hang think banker
tangle banquet uncle

Laterals:

The air does not go the usual way along the center of the tongue. There is a complete closure where the contact is to be made and the only way for the air is to escape along the sides of the tongue.

It has two realizations (allophones):

1- before a vowel (clear), e.g. Lea

2- after a vowel (dark), e. g. eel

The /l/ phoneme is the only lateral sound.

Examples of words that contain the sound /l/: lull, fill, dull, law, clear.

Approximants:

An approximant is produced when the articulators approach each other but do not get sufficiently close to each other to produce a plosive, a nasal or a fricative.

Approximants include /r, w, j/

The /r/ is pronounced before a vowel but not pronounced after a consonant. In its articulation, the tip of the tongue approaches the alveolar area approximately, but never actually makes contact. The tongue is also slightly curled backwards with the tip raised and the lips are slightly rounded. That is why consonant /r/ is also called retroflex.

Examples of the pronounced /r/: rat, cry, grand, rich, rule, grow, bring, grass, derive, arrive.

Examples of the silent /r/: hard, mark, dare, pure, cheer, turn, scared, word, car, ever, care.

Practice /r/:

a far country a poor man bare facts a sure thing care a lot

a bare arm far away

The /w, j/ sounds are also known as semi-vowels or glides because they function as consonants but phonetically they are moving vowels.

Examples of words that contain the sound /w/: worth, wait, work, when, wander, wonder, queen, acquire, require, one, once, choir, suite, sweet.

Examples of words that contain the sound /j/: youth, young, yesterday, use, unit, Europe, few, music, huge, onion, reduce, canyon.

Practice /w/:

Wee Willie wept wildly when his wicked uncle whipped him well.

Practice /j/:

Yesterday I heard a curious and beautiful new tune.

Table of English Consonants,								
	bilabial	labio-dental	dental	alveolar	post-alveolar	palatal	velar	glottal
plosive	p b			t d			k g	
affricate					tʃ dʒ			
fricative		f v	θ ð	s z	ʃ ʒ			h
nasal	m			n			ŋ	
lateral approximant				l				
approximant	w				r	j		

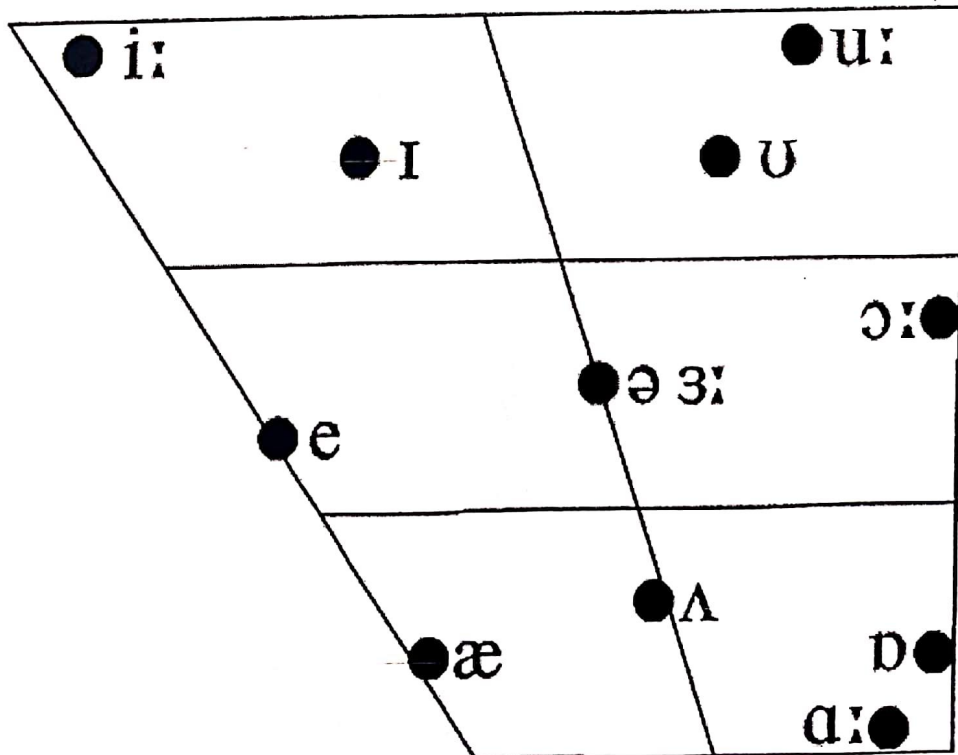
English Vowel Sounds

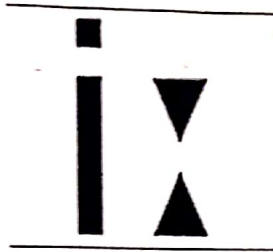
The main difference between the articulation of vowels and the articulation of consonants is that consonants involve some type of obstruction or constriction in the vocal tract, while vowels are made with no major obstruction in the vocal tract so that air passes from the larynx to the mouth fairly easily. Another difference is related to voicing; all vowels are voiced, while some consonants are voiced and others are voiceless. Vowels and consonants are also different in the way they are described and in their distribution in a certain language.

To describe any vowel sound, we should consider:

- 1- the part of the tongue, which is raised highest: front, center and back.
- 2- The vertical distance between the upper surface of the tongue and the palate: close, half-close, half-open, open.
- 3- The shape of the lips: rounded, spread, or neutral.
- 4- The duration of uttering: long or short.

Pure Vowels = Monophthongs





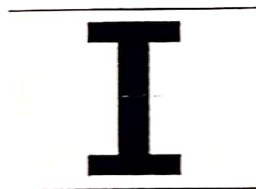
A long vowel, nearly fully front, nearly close.

Pronounced with slightly spread lips

<u>clean</u>	pol <u>ice</u>
<u>heat</u>	<u>even</u>
<u>week</u>	breath <u>e</u>
<u>key</u>	th <u>ief</u>
<u>eager</u>	<u>be</u>
employ <u>ee</u>	<u>quay</u>
<u>Caesar</u>	secre <u>t</u> e
con <u>ceal</u>	se <u>cret</u>
<u>E</u> den	

Practice:

The leaves of these trees are green at this season but if the wind is keen and the leaves freeze, they cease to be green and seem to lose their sheen. These trees need heat to keep them green.



A short vowel, retracted front, between close & mid-close.

Pronounced with slightly spread lips.

<u>ill</u>	<u>busy</u>
sh <u>ip</u>	sk <u>inny</u>
qu <u>ick</u>	<u>village</u>
cl <u>iff</u>	w <u>omen</u>
miss <u>e</u> d	b <u>iscuit</u>
s <u>ixty</u>	rec <u>ipe</u>
<u>mischief</u>	

Practice:

Tim's as thin as a pin, but it isn't a sin to be thin!
If Mr Willis is in, I'd like to have a word with him, Jim.

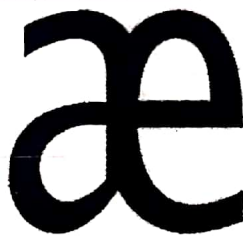


A short vowel, fully front, between mid-close & mid-open.
Pronounced with nearly spread lips.

<u>e</u> gg	breath
hea <u>d</u>	gu <u>e</u> ssed
sai <u>d</u>	ma <u>n</u> y
de <u>p</u> end	<u>a</u> ny
fr <u>i</u> end	reque <u>s</u> t
bre <u>a</u> st	de <u>t</u> est
me <u>s</u> sage	

Practice:

Ten men set out to get to the top of Ben Nevis. The eldest, Ted, carried a tent, in which they meant to spend the night.



A short vowel, fully front, between mid-open & open.
Pronounced with neutrally open lips.

<u>a</u> dd	ex <u>a</u> ct
<u>a</u> nt	carri <u>a</u> ge
ba <u>c</u> k	sa <u>v</u> age
cl <u>a</u> p	<u>a</u> xe
sa <u>n</u> k	

Practice:

A man sat on a black cat and the black cat was squashed flat, for the man was a fat man.

Practice:

bean	.bin	Ben	ban
beat	bit	bet	bat
feed	fid	fed	fat
peak	pick	peck	pack
seat	sit	set	sat
heed	hid	head	had
reach	rich	wretch	ratch
meat	mitt	met	mat
neat	knit	net	gnat
reek	rick	wreck	rack

3x

A long vowel, central, between mid-close & mid-open.
Pronounced with neutrally spread lips.

learn
Earth
burst
worse

prefer
occur
colonel

ə

A short vowel, central, between mid-open & mid-close.
Pronounced with neutral lips.

seizure
eastwards
towards
ardour
runner

abet
among
about

A large, bold, black lowercase letter 'a' is positioned on a vowel chart grid. The grid consists of a top horizontal line, a middle horizontal line, and a bottom horizontal line. The letter 'a' is located between the middle and bottom lines, centered horizontally.

A short vowel, central, between mid-open & open.
Pronounced with neutrally open lips.

stomach

brother

come

shovel

cut

colour

flood

honey

A large, bold, black lowercase letter 'ɑ' is positioned on a vowel chart grid. The grid consists of a top horizontal line, a middle horizontal line, and a bottom horizontal line. The letter 'ɑ' is located between the middle and bottom lines, centered horizontally.

A long vowel, advanced back, fully open.
Pronounced with neutrally open lips.

hart

laugh

serageant

dark

grass

half

aunt

memoir

reservoir

pass

A large, bold, black lowercase letter 'ɒ' is positioned on a vowel chart grid. The grid consists of a top horizontal line, a middle horizontal line, and a bottom horizontal line. The letter 'ɒ' is located between the middle and bottom lines, centered horizontally.

A short vowel, nearly fully back, between mid-open & open.
Pronounced with open rounded lips.

cough

contrary

obstacle

woant

woant

woatch

knowledge

hot

A long vowel, nearly fully back, between mid-close & mid-open.
Pronounced with medium rounded lips.

awful

walk

water

thought

appalling

horse

sword

law

fall

caw

A short vowel, advanced back, between mid-close & close.
Pronounced with closely but loosely rounded lips.

push

look

good

mistook

put

butcher

coold

manhood

A long vowel, slightly advanced back, nearly close.
Pronounced with closely rounded lips.

fool

fruit

moon

shooe

June

woomb

soop

issue

tune

Diphthongs

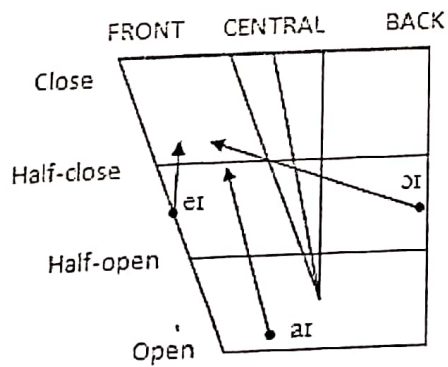
They are sounds which consist of a movement or glide from one vowel to another; they are like long vowels but of two parts: the first part is much longer and stronger than the second part.

They are eight in number divided into two groups

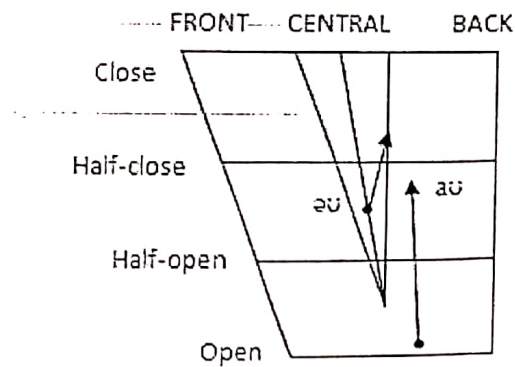
Closing Diphthongs

- /eɪ/ - say, pray, pay, day
- /aɪ/ - I, eye, pie, sight, fight
- /ɔɪ/ - oil, coin, voice, boy, boil
- /əʊ/ - go, so, sow, bow, slow,
- /aʊ/ - owl, out, count, found, bow

Closing Diphthongs		
/eɪ/ /aɪ/ /ɔɪ/	The tongue moves to:	/ɪ/



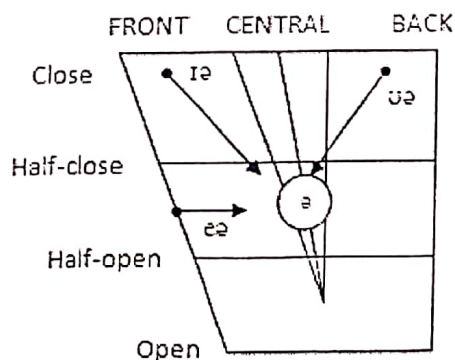
Closing Diphthongs		
/əʊ/ /aʊ/	The tongue moves to:	/ʊ/



Centring Diphthongs:

- /ɪə/ - ear, hear, cheer, deer, beer
- /eə/ - air, chair, rare, bare, their
- /ʊə/ - tour, poor, sure, cure

Centring Diphthongs		
/ɪə/ /eə/ /ʊə/	The tongue moves to:	/ə/



Triphthongs

They are sounds which consist of a movement or glide from one vowel to another and then to a third one, all produced rapidly and without interruption. The triphthongs are composed of the five closing diphthongs with a schwa sound added at the end.

TRIPHTHONGS

aɪə (fire, tired, flyer)

aʊə (hour/our, power, tower)

eɪə (player, mayor)

əʊə (lower, widower)

ɔɪə (loyal, royal)