PHONETICS

PREPARED
BY
B.NEETHU PRATHYUSHA
FACULTY IN ENGLISH
P.R.GOVERNMENT COLLEGE(A), KAKINADA

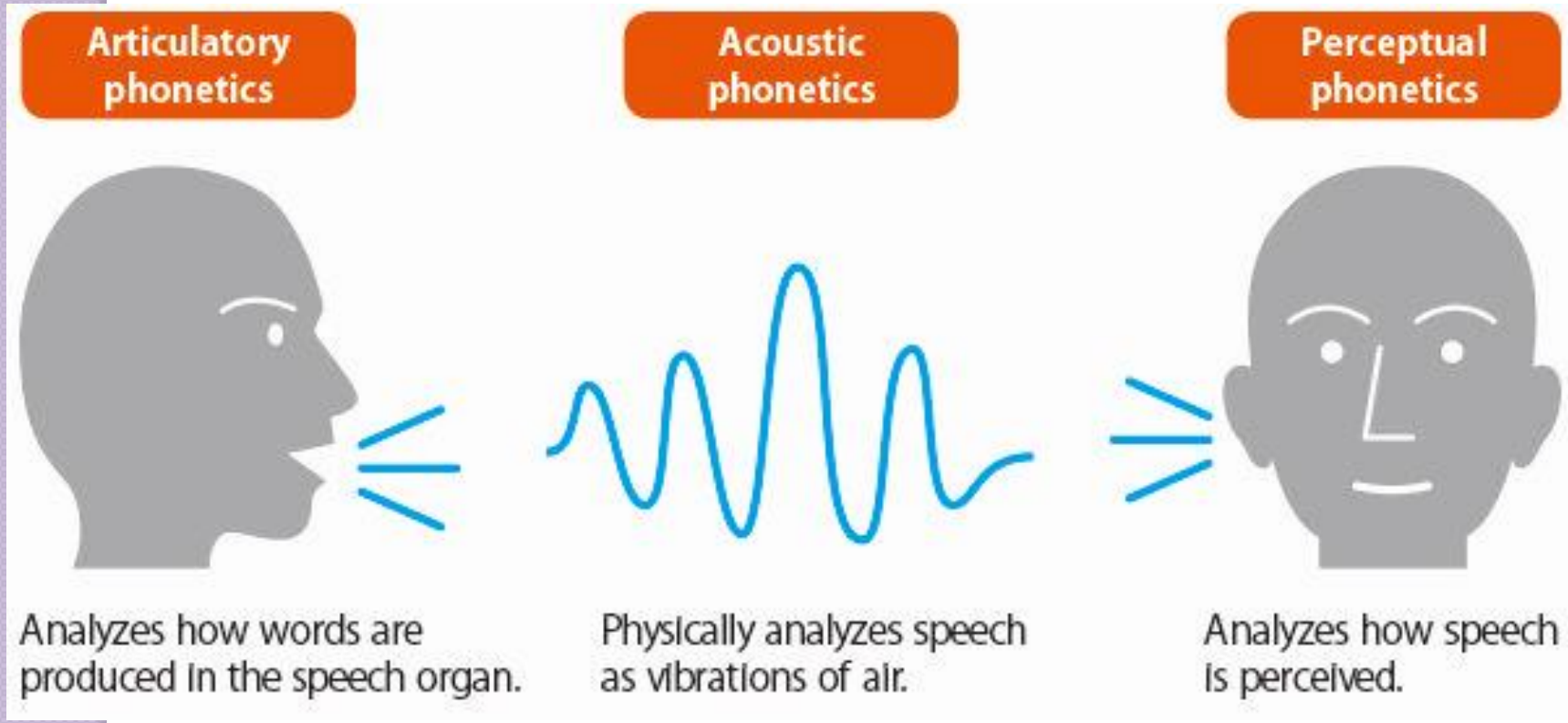

PHONETICS

What is phonetics?

Phonetics is the scientific study of speech sounds. It consists of three main sub-fields:

- Articulatory phonetics
  - = how speech sounds are produced
- Acoustic phonetics
  - = how speech sounds are transmitted from producer to perceiver
- Perceptual phonetics
  - = how speech sounds are perceived

- **1. Articulatory phonetics**
- Study of the vocal organs and how they produce speech sounds
- **2. Acoustic phonetics**
- A study of the physical properties of speech sounds as sound waves.
- **3.Auditory Phonetics**
- Study of how speech sounds in the form of sound waves are perceived and processed by ears , nervous system, and brain.


Articulatory phonetics
Acoustic phonetics
Perceptual phonetics
Analyzes how words are produced in the speech organ.
Physically analyzes speech as vibrations of air.
Analyzes how speech is perceived.

Articulatory phonetics

- Humans produce different kinds of sounds, not all related to language (e.g, coughing, burping)

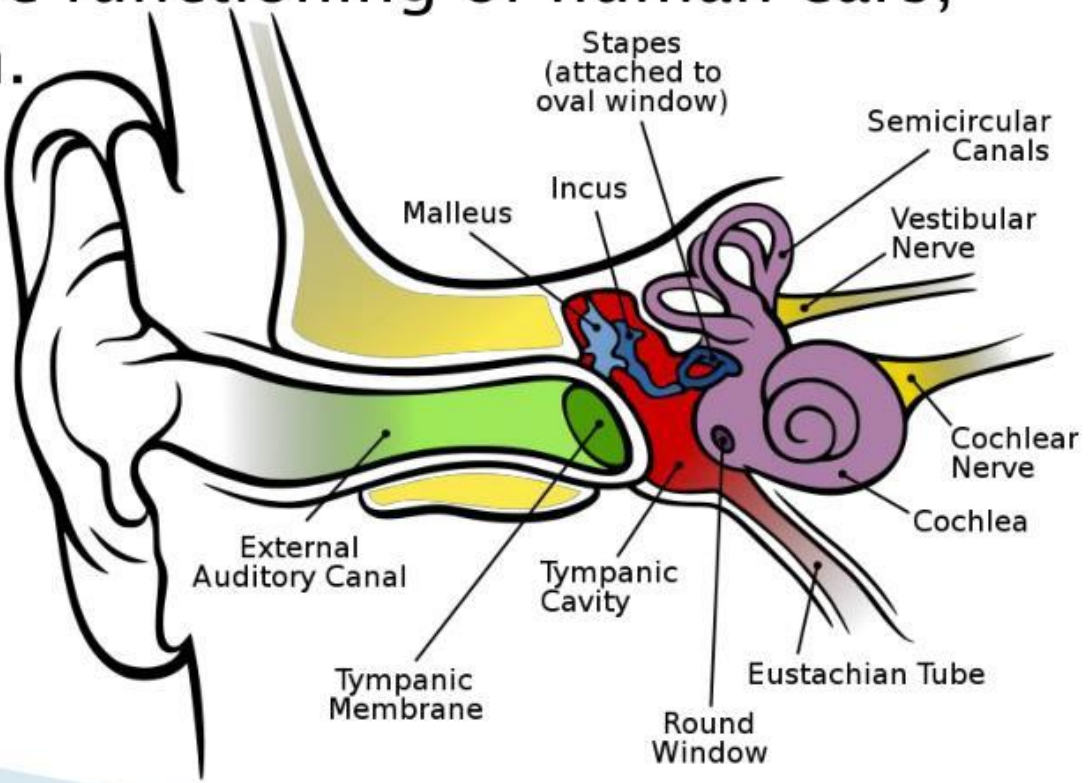
- Major aspects of speech production:
  - airstreams mechanism
  - state of the vocal cords
  - state of the velum
  - place & manner of articulation

Acoustic Phonetics

- Acoustic phonetics investigates properties like the mean square and amplitude of a waveform, its duration, its fundamental frequency, or other properties of its frequency spectrum, and the relationship of these properties to other branches of phonetics (e.g. articulatory or auditory phonetics), and to abstract linguistic concepts like phones, phrases, or utterances.

Auditory Phonetics

- Is the study of how humans perceive sounds. What is heard is analyzed physiologically to learn more of the functioning of human ears, nerve, and brain.

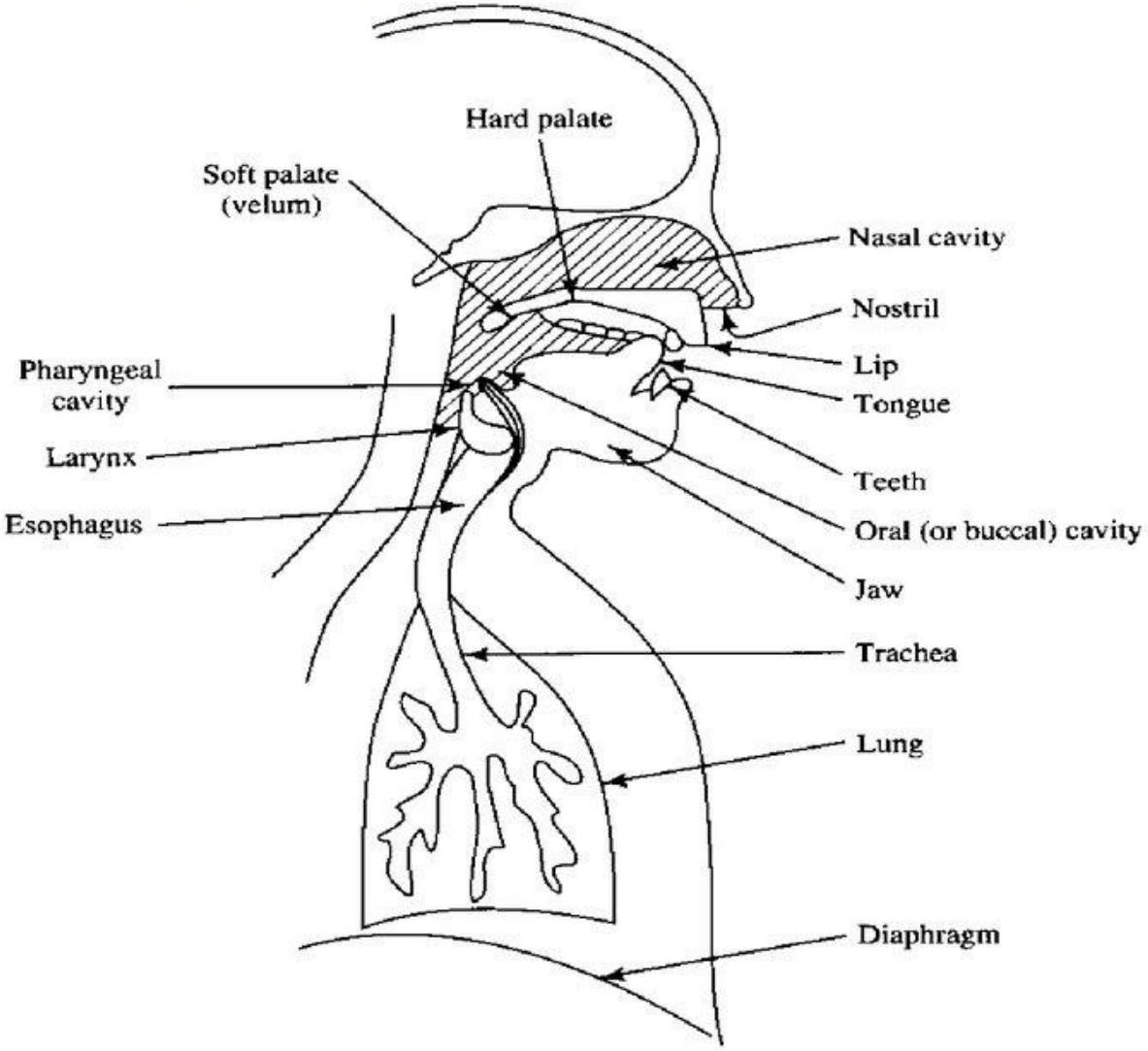


1- Speech production mechanism

The production of any speech sound takes place when the air escapes from **the lungs** which serve as an air reservoir and energy source.

Then, the airstream passes through the **trachea** (wind pipe) and through the **larynx** which lies behind the throat.

The larynx contains two stretched membranous cords called '**the vocal cords**' which are made of an elastic tissue. As they open and shut off, the vocal cords regulate the amount of air that passes to the lungs. Afterwards the air goes up through the **pharynx**, and escapes via either the **oral cavity** or the **nasal cavity**.

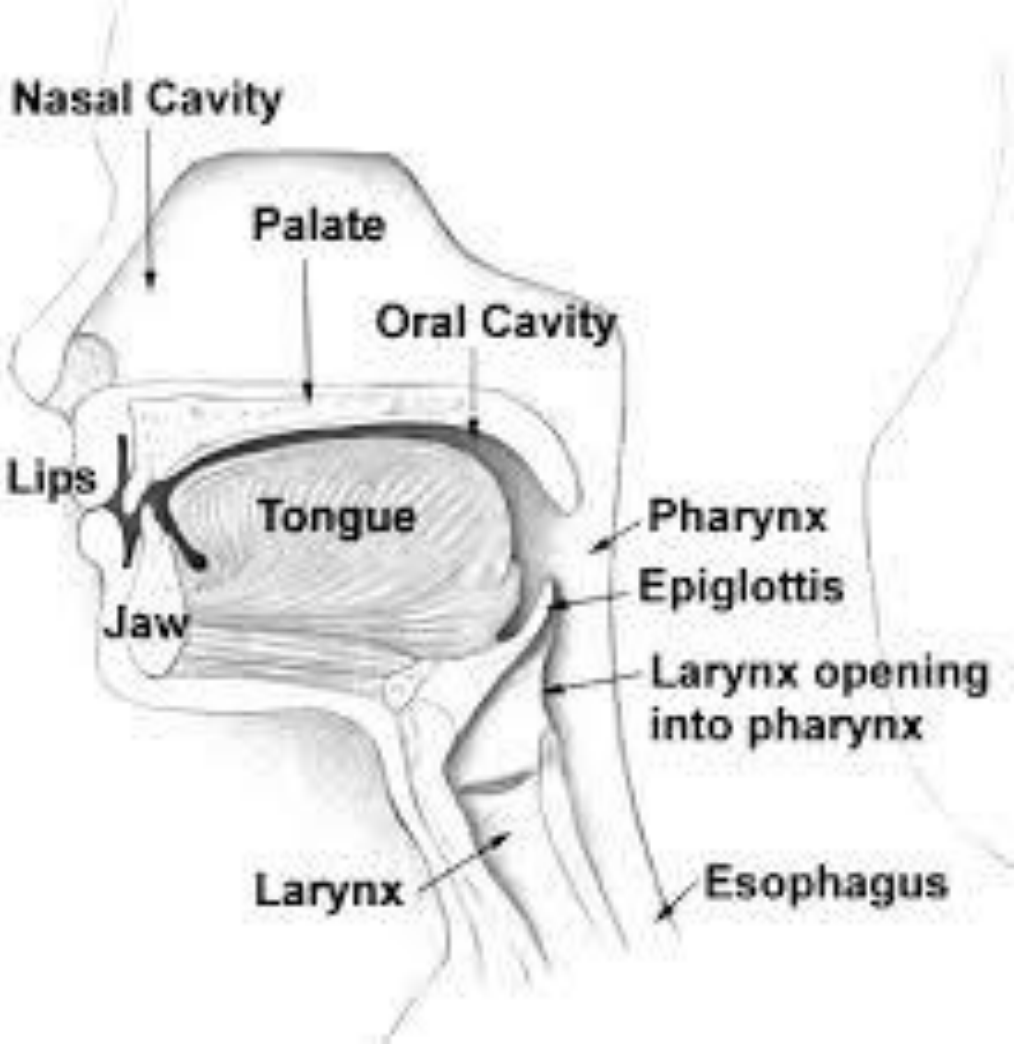


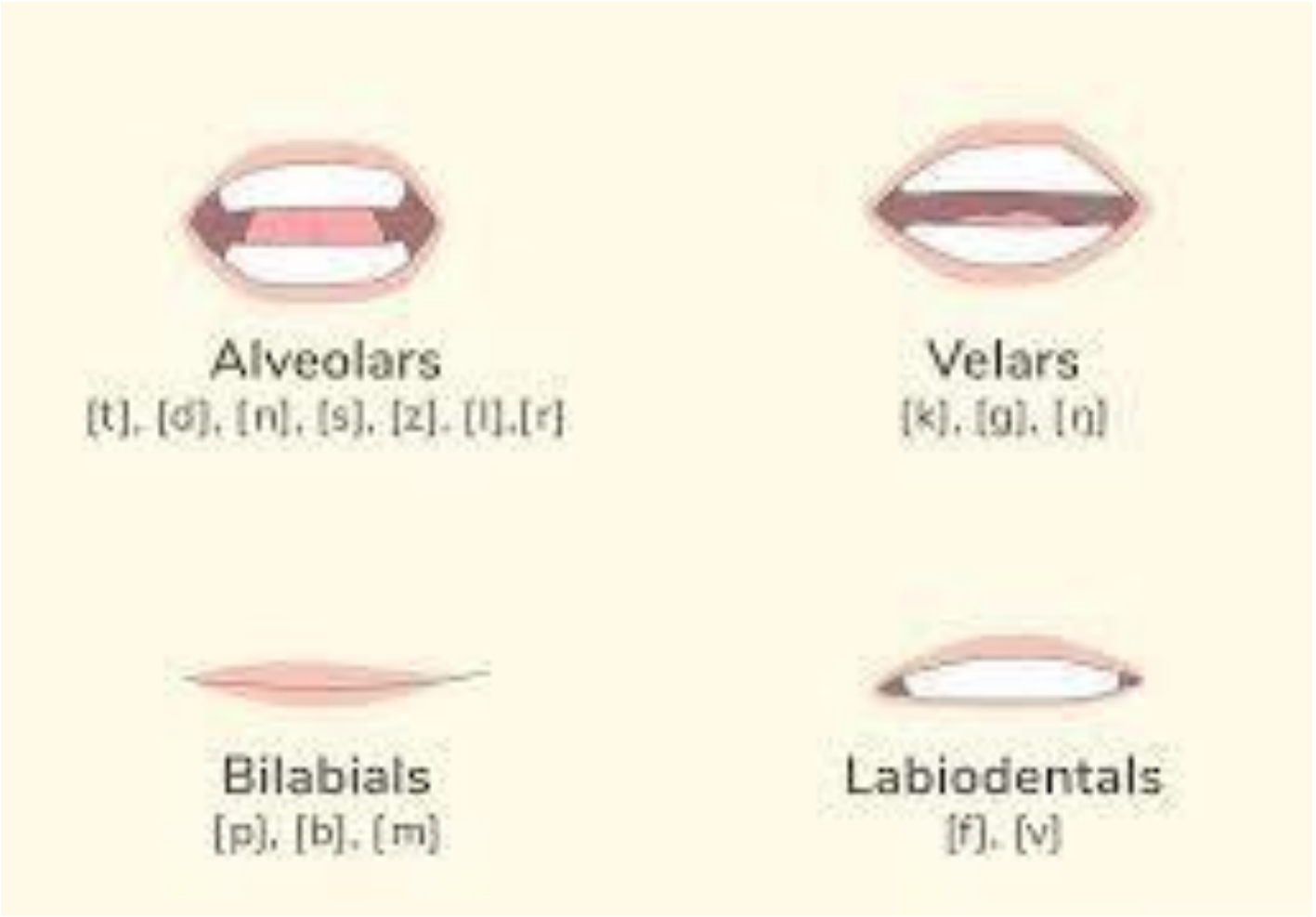
Articulation of Sounds

- A wide range of physical activity is involved in the production of the speech sounds in human language. Vocal organs often articulate or move against each other in the production of speech. Vocal organs refer to all the parts of the human body that are related to speech production

Place of Articulation

- Bilabials
  - the articulation involves both lips
- Labiodentals
  - the articulation involves the lower lip and upper teeth
- Dental
  - the tongue is placed against or near the teeth
- Interdental
  - the tongue is placed between the teeth
- Alveolar
  - the tongue is placed near the alveolar ridge or touches it


Nasal Cavity
Palate
Oral Cavity
Lips
Tongue
Pharynx
Epiglottis
Jaw
Larynx opening into pharynx
Larynx
Esophagus


Alveolars
[t], [d], [n], [s], [z], [l],[r]
Velars
[k], [g], [ŋ]
Bilabials
[p], [b], [m]
Labiodentals
[f], [v]

Manner of Articulation

FRICATIVES:	**voiceless /voiced**	
labiodental fricatives	/f v/	**fan || van**
linguadental fricatives	/ɵ ð/	**thin || then**
lingua-alveolar fricatives	/s z/	**sink || zinc**
lingua-palatal fricatives	/ʃʒ/	**shrill || genre**
lingua-glottal fricatives	/h/	**happy, hello**
AFFRICATES:	/tʃ | dʒ/	**chain || Jane**

Phonetic	Sounds
Bilabial	[p], [b], [m]
Labio dental	[f], [v]
Lingua dental	[θ], [ð]
Alveolar	[t], [d], [n], [s], [z], [l]
Palatal	[tʃ], [dʒ], [r], [ʃ], [ʒ]
Velar	[k], [g], [ŋ]
Glottal	[h], [ʔ]

In most languages, speech sounds which are produced by human speech organs are classified into

vowel and **consonant**:

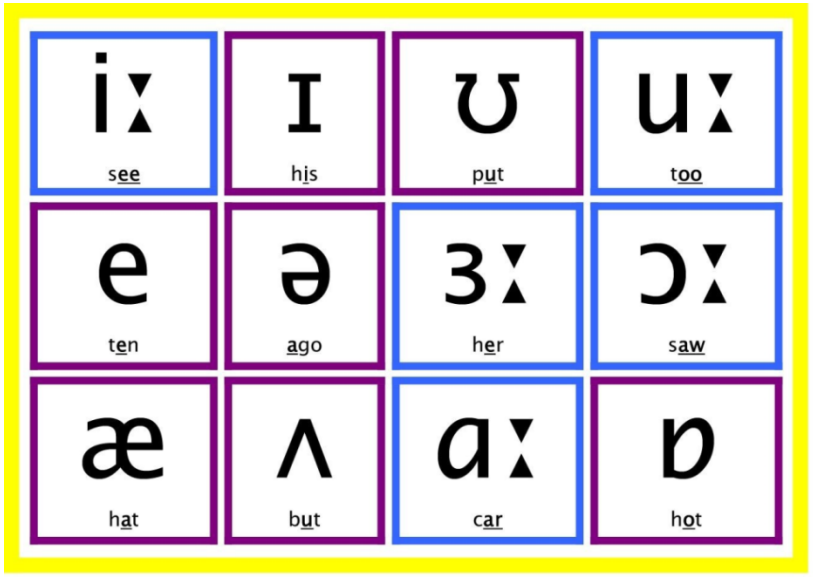
- **Vowel sounds** are normally further classified based on: **the position of the tongue** (*high*, *mid*, *low*) or **the position of mandible** (*open, close*), **the part of the tongue** (*front*, *central*, *back*), and **the shape of the lips** (*rounded, unrounded).*

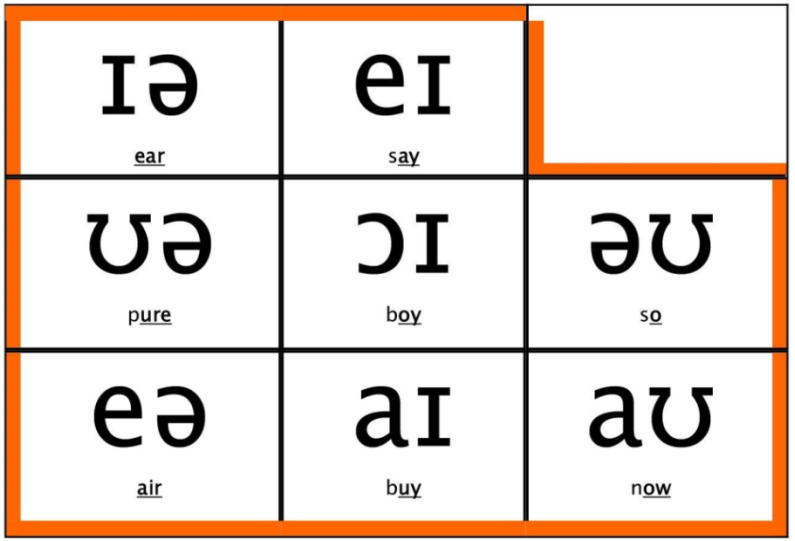
- **Consonant sounds** are classified based on: **The place of articulation** (place in the mouth where the sound is produced or where there is the most contact or near contact of articulators), **the manner of articulation** (used to classify sounds by how they are produced), and **voicing** (*voiced , voiceless*).

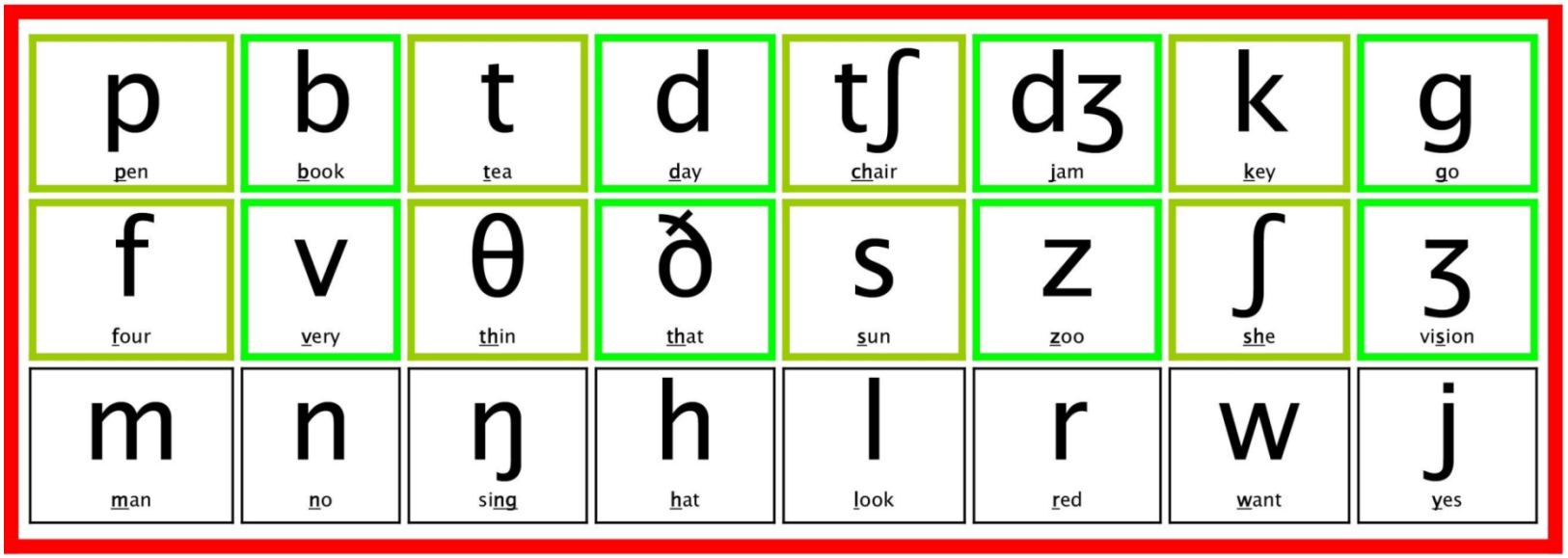
PHONETIC TRANSCRIPTION

Phonetic Chart

- Vowels
- Diphthongs
- Consonant







VOWELS | long sounds | short sounds | DIPTHONGS

CONSONANTS | voiced consonants | unvoiced consonants

Vowels

iː sheep	ɪ ship	ʊ good	uː shoot
e bed	ə teacher	ɜː bird	ɔː door
æ cat	ʌ up	ɑː far	ɒ on

/e/	as in b**e**d		/iː/	as in f**ee**t
/æ/	as in fl**a**t		/ə/	as in p**o**tato
/ɑː/	as in l**a**st		/ɔː/	as in p**our**
/ɒ/	as in wh**a**t		/ʌ/	as in r**ou**gh
/ɜː/	as in b**ir**d		/ʊ/	as in t**oo**k
/ɪ/	as in sh**i**p		/uː/	as in f**oo**d

DIPHTHONGS

/ɪə/	–	ear,hear,cheer,deer,beer
/eə/	–	air,chair,rare,bare,their
/ʊə/	–	tour,poor,sure,cure
/eɪ/	–	say,pray,pay,day
/aɪ/	–	I , eye,pie,sight,fight
/ɔi/	–	oil,coin,voice,boy,boil
/eʊ/	–	go,so,sow,bow,slow,
/aʊ	–	owl,out,count,found,bow

ɪə here	eɪ wait	
ʊə tourist	ɔɪ boy	əʊ show
eə hair	aɪ my	aʊ cow

Consonants

1. **Definition**: Consonants are the sounds in the production of which one articulator moves towards another or two articulators come together, obstructing the air-stream and the air-stream can't get out freely.
2. **Classification**:

   In order to form consonants, the air-stream through the vocal cords must be obstructed in some way. Therefore, consonants can be classified according to the place where the air-stream is obstructed (***the place of articulation***) and the way in which the air-stream is obstructed (***the manner of articulation***).

CONSONANTS

p	b	t	d	f	v	θ	ð
/pin/	/bæd/	/tɪn/	/dɔg/	/faiv/	/væn/	/θɪn/	/ðæt/
pin	bad	tin	dog	five	van	thin	that
m	n	ŋ	h	ʧ	ʤ	k	g
/mæn/	/nəuz/	/θɪŋ/	/ha:f/	/ʧə:ʧ/	/ʤæm/	/kaind/	/gʌn/
man	nose	thing	half	church	jam	kind	gun
s	z	ʃ	ʒ	l	r	w	j
/seɪ/	/zu:/	/ʃip/	/meʒə/	/leg/	/rʌn/	/wə:k/	/jes/
say	zoo	ship	measure	leg	run	work	yes

CONSONANT PRONUNCIATON

b	b	l	l	sh	ʃ	a	æ	oh	ɔːʳ
p	p	r	ɹ	zh	ʒ	ah	aːʳ	oa	o
d	d	m	m	th	θ	ay	e	u	ʊ
t	t	n	n	h	h	e	ɛ	uh	ʌ
f	f	s	s	w	w	ee	i	oo	u
v	v	z	z	y	j	i	ɪ	oi	ɔj
g	g	ch	tʃ	ng	ŋ	iy	aj	ow	aw
k	k	j	dʒ			o	ɑ		

EXAMPLES

/əb'dʌkt/	abduct
/əd'mɪt/	admit
/kəm'baɪn/	combine
/ˌkɔnfə'mæɪʃn/	confirmation
/kən'dɪʃn/	condition
/ə'læbəˌræɪt/	elaborate

IPA SYMBOL	WORD EXAMPLE	IPA TRANSCRIPTION
[i]	fee	[f i]
[I]	fit	[f I t]
[ej]	fate	[f ej t]
[ɛ]	let	[l ɛ t]
[æ]	bat	[b æ t]
[u]	boot	[b u t]
[ʊ]	book	[b ʊ k]

IPA SYMBOL	WORD EXAMPLE	IPA TRANSCRIPTION
[θ] theta	**th**ick	[θ ɪ k]
[ð] eth	**th**ough	[ð o w]
[ə] schwa	th**e**	[ð ə]
[ɾ] flap	hi**tt**ing	[h ɪ ɾ ɪ ŋ]
[ŋ]	sa**ng**	[s æ ŋ]
[t ʃ]	**ch**ip	[tʃ ɪ p]
[dʒ]	**j**u**dg**e	[dʒ ʌ dʒ]

IPA SYMBOL	WORD EXAMPLE	IPA TRANSCRIPTION
[p]	spit	[s p ɪ t]
[b]	bib	[b ɪ b]
[t]	stuck	[s t ʌ k]
[d]	dip	[d ɪ p]
[k]	skip	[s k ɪ p]
[g]	get	[g ɛ t]


Thank You