THIRUTHANGAL NADAR COLLEGE

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A Self-Financing Co-educational College of Arts & Science

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NAME OF THE DEPARMENT: ENGLISH

SUBJECT : INTRODUCTION TO LANGUAGE AND LINGUISTICS

TOPIC : ORGANS OF SPEECH

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PHONETICS

ORGANS OF SPEECH

SPEECH PRODUCTION AND THE VOCAL TRACT

The production of sounds

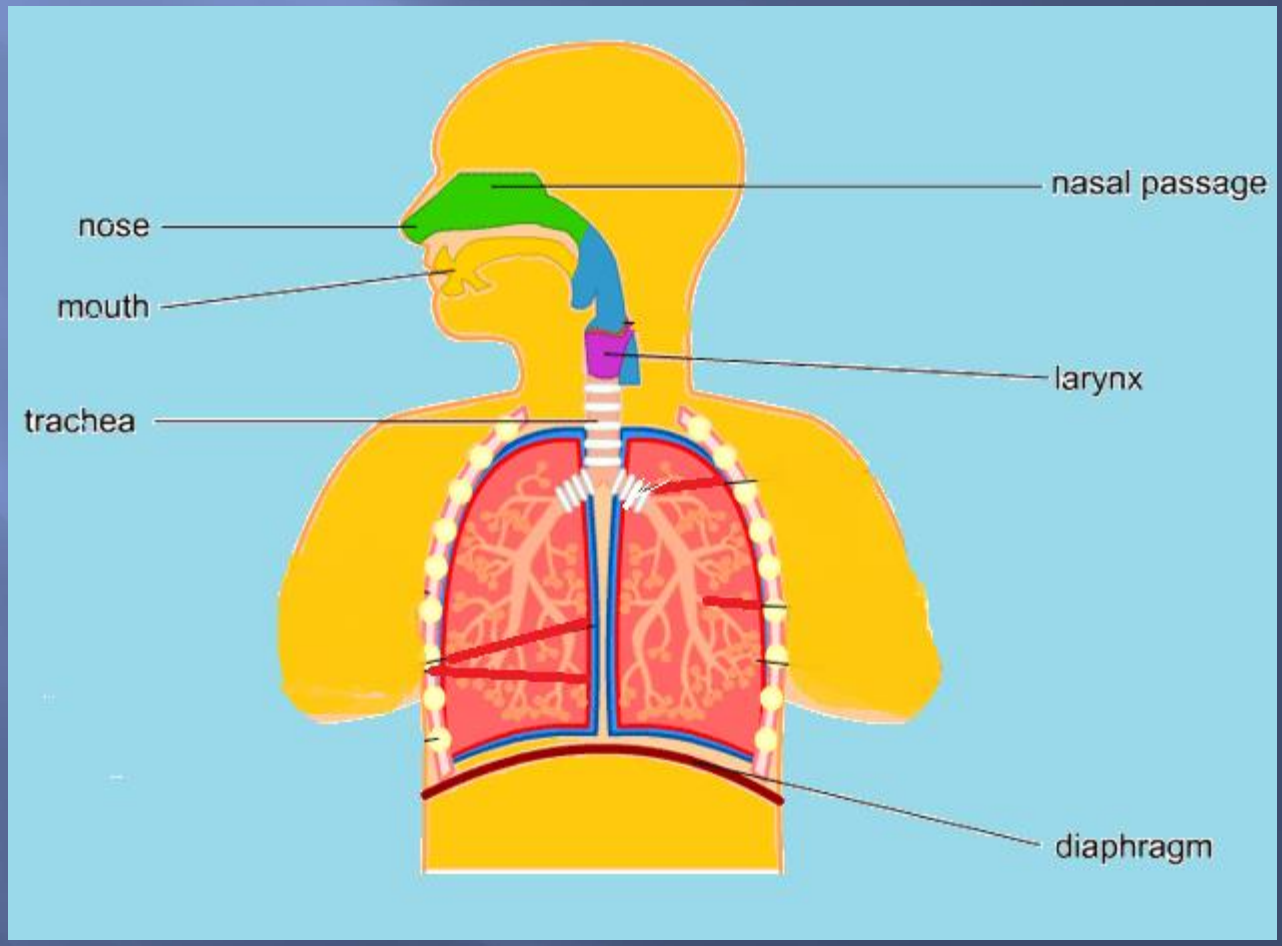
There are 3 processes associated with the production of speech sounds

Initiation: The creation of the airstream

Phonation: Airstream modification by the vocal folds (cords)

Articulation: Further modification of airstream by articulators (lips, tongue etc)

Breathing



Speech Production Processes and the Vocal tract

1. Initiation (of airflow)

Your airflow can be initiated in two ways

egressive: breathing out

ingressive: breathing in

at three different locations

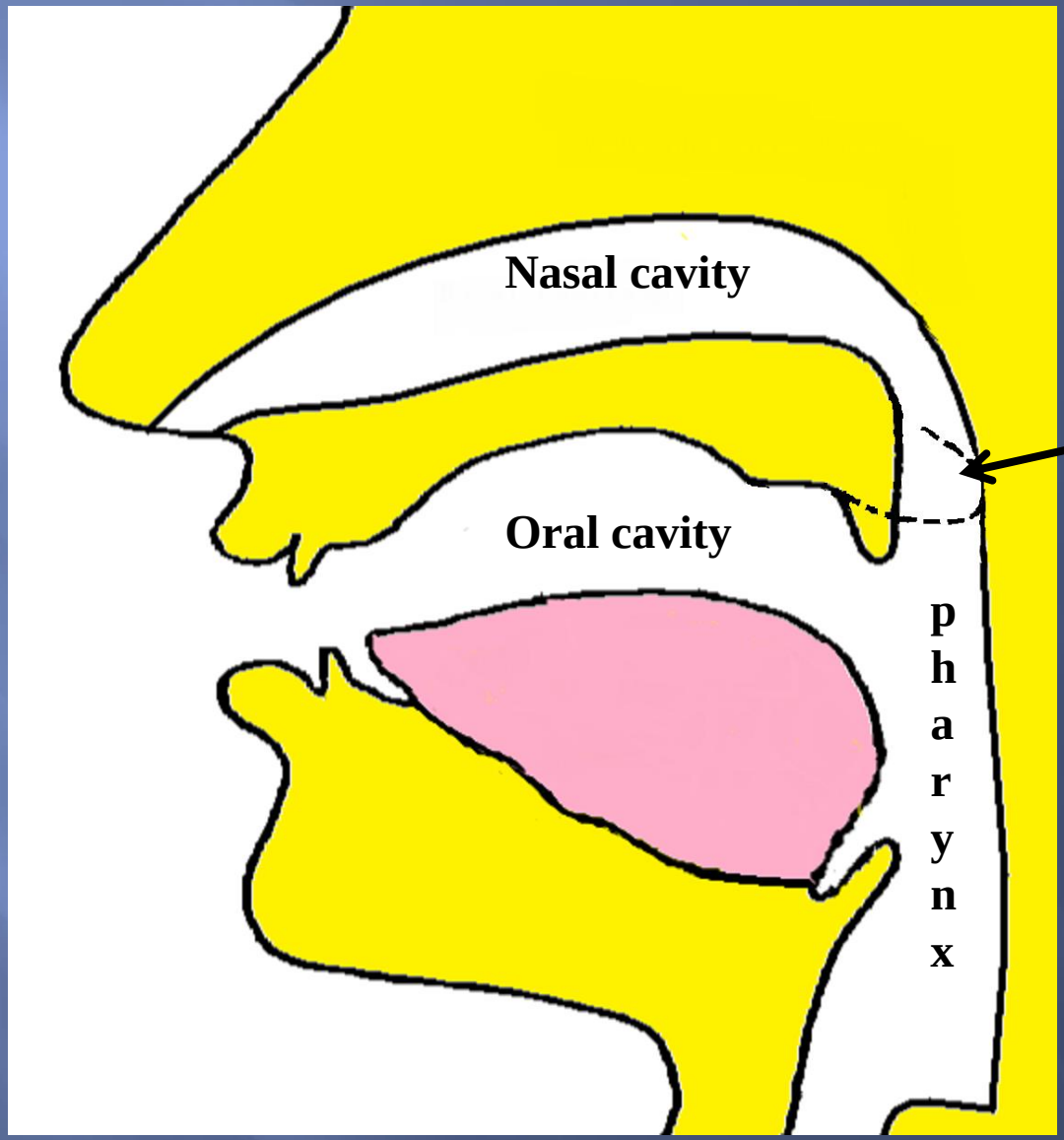
pulmonic (lungs)

velaric (velum)

glottalic (glottis / larynx)

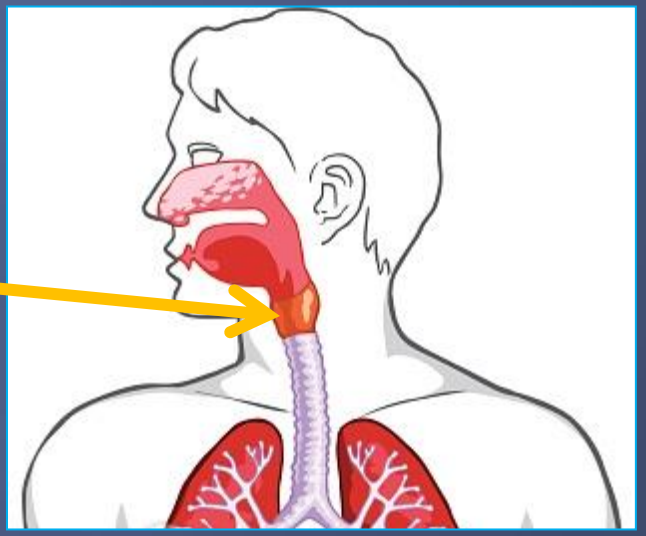
The pulmonic egressive airstream is the primary airstream of all the world's languages

Important chambers in the head and neck used in speech production



Pharynx + Oral Cavity = the Vocal Tract

2. Phonation (voicing of sound)



The larynx is a box of cartilage

Inside the larynx is the glottis containing the vocal folds

The vocal folds can open and shut like curtains

Consonant speech sounds are either:

Voiceless: if air passes freely from the lungs through the larynx

or

Voiced: if the vocal folds are brought together and the air is forced through making the folds vibrate

Exercise 1.

(i) Put your fingers on your larynx (Adam's apple, voice box)

1. **produce and hold [s] (hissing like a snake)**
2. **produce and hold [z] (sound like a bee)**

Exercise 2.

With your neighbour, say the words below aloud. Decide whether the sound associated with the underlined segment is voiced or voiceless and tick the appropriate box ☑.

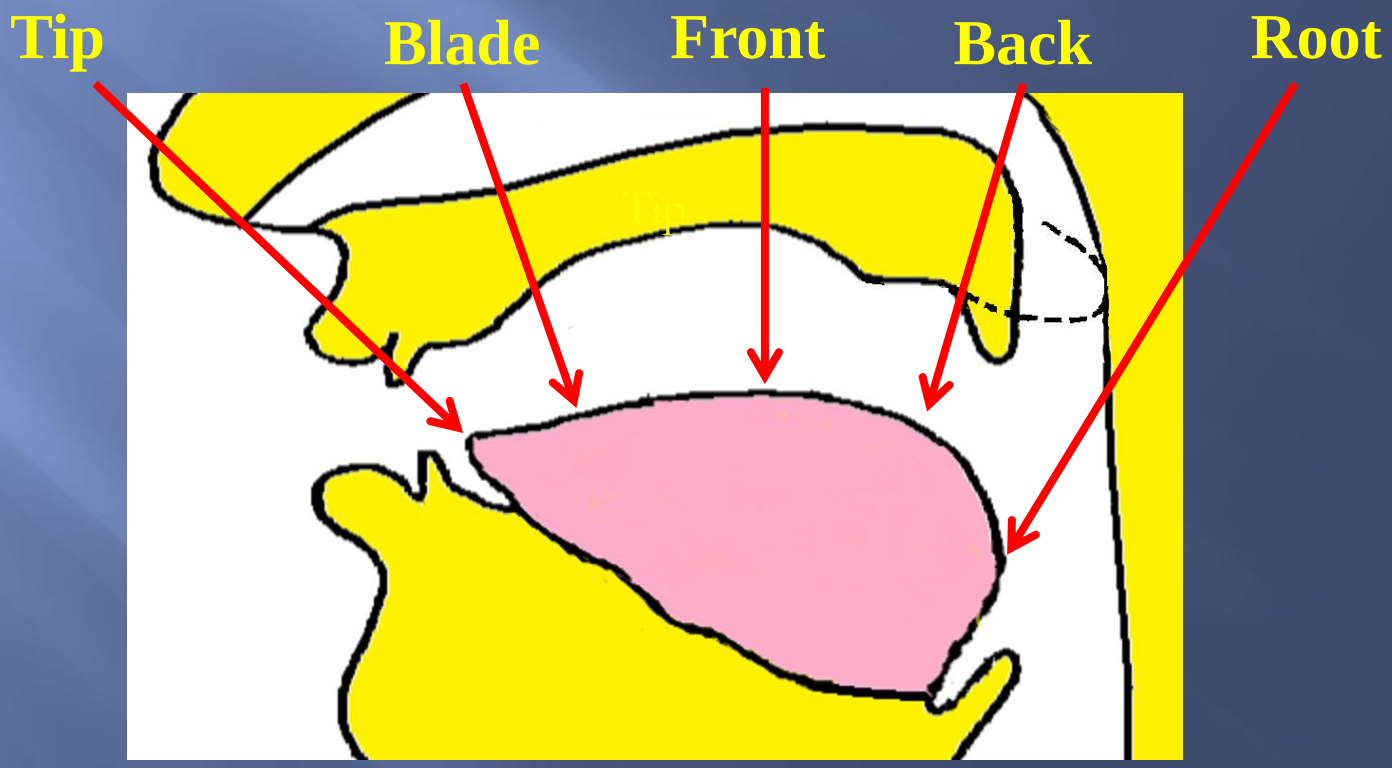
	Voiced	Voiceless		Voiced	Voiceless
push	☐	☑	rose	☑	☐
bother	☑	☐	window	☑	☐
many	☑	☐	fly	☐	☑
Stop	☐	☑	bath	☐	☑

3. Articulation

The interaction of active and passive articulators modifies the airstream at various points along the vocal tract.

Active Articulators

These are typically the lips or some part of the tongue.



Parts of the tongue used to describe speech

Summary: The Vocal Tract and Organs of speech.

The lungs = pulmonic egressive airstream

Three cavities of the head and neck

(i) the pharynx

(ii) the oral cavity (mouth)

(iii) the nasal cavity

The larynx and the vocal folds

Glottis open or closed?

- **voiced**
- **voiceless**

Labelling a consonant

Each consonant sound has a description consisting of three parts.

1. **Voicing**
2. **Place of articulation**
3. **Manner of articulation.**

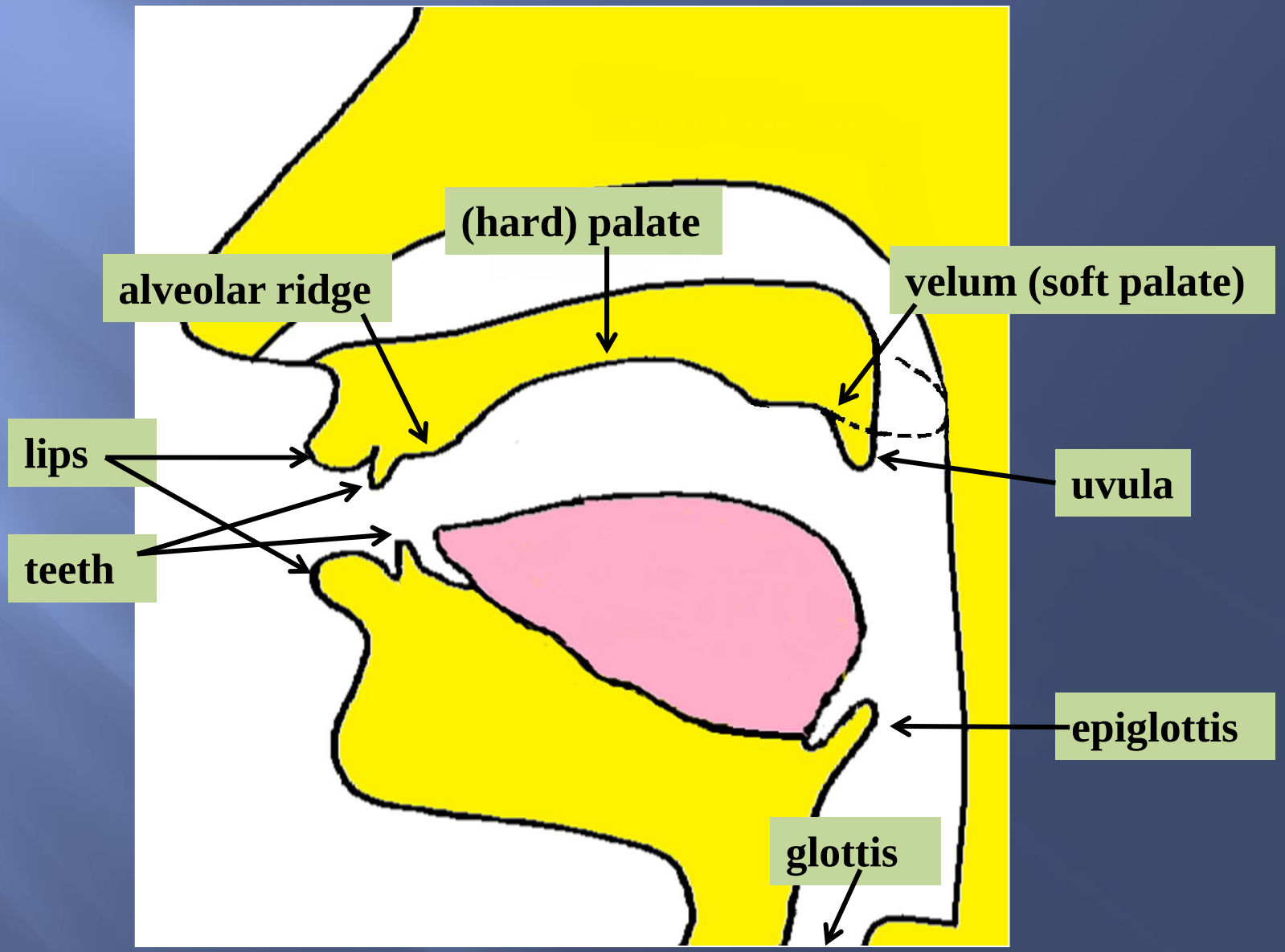
Voicing: state of the glottis (open or closed)

Place of articulation: the location of the passive articulator in the vocal tract

Manner of articulation: the degree to which the flow of air is obstructed.

Static places of Articulation

These are the static places of articulation along the vocal tract



PLACES OF ARTICULATION

Labial (bilabial):

Labial sounds formed by the articulation of the upper and lower lips, e.g. [p] as in *pit*.

Labio–dental:

Labio–dental sounds are produced by the lower lip and the teeth, specifically the upper incisors, e.g. [f] as in *fat*. The lip is the passive articulator, and the upper incisors are the active articulators.

Inter-dental (dental):

Inter-dental sounds involve putting the tip of your tongue in contact with or actually between both sets of teeth. Make the sound at the beginning of *thick* and prolong it. Feel where your tongue is.

Alveolar:

Immediately behind the teeth there is a bony ridge called the alveolar ridge To produce an alveolar sound, the blade (or tip and blade) of the tongue touches the alveolar ridge.

In English, alveolar sounds include: *tip* [t], *dip* [d], *sip* [s], *zip* [z], and *nip* [n].

Post–alveolar:

Post–alveolar sounds are produced by the blade of the tongue articulating with the junction of the alveolar ridge and the hard palate. In English the sound at the beginning of *church* is post–alveolar.

Palatal:

A palatal sound is produced by bringing the *front* of the tongue up into the hard palate. There is only one in English [j] = the <y> sound in yacht, yak etc.

Velar:

The back of the tongue is raised towards the velum . [k] in *cat*, [g] in *golf*, are velar.

Glottal:

The sound associated with the [h] in *hang* is a glottal sound. There is only one glottal sound in English.

MANNERS OF ARTICULATION

The proximity of the active and passive articulators affects the airstream in various ways, these are the 'manners of articulation.'

Stops (also called plosives) [p b t d k g]

Two-stage production. The articulators form an air–tight seal; the air flow is completely obstructed. It is then released forcefully (= plosion).

close & hold = **stop**

release = **plosion**

Exercise:

Say 'pat' then say 'rap', concentrating on the [p] in both words. Can you perceive a difference in its production?

Fricatives

The active articulators impede the flow of air but do not stop it completely; the air stream becomes turbulent and an audible hiss is produced. [f v s z] are some fricatives of English.

Affricates

A complete obstruction is released gradually; the air, which has built up behind the obstruction squeezes through the gap creating audible friction. English has only two: [ʧ] ch<u>urch</u> and [ʤ] j<u>udge</u>.

Approximants (also called semi vowels, glides)

the vocal tract is narrowed but not enough to produce friction: no audible hiss is produced. The sound at the beginning of *yacht* [j] is an approximant.

Trills [r] and Taps [ɾ]

These sounds involve rapid vibration of the active articulator. Most Englishes does not use trills. Some English accents turn a [t] into a tap in words like 'butter'.

Nasal vs Oral

Nasal sounds are made by relaxing the velum: air can flow from the lungs into the nasal cavity. Nasal sounds are always a minority in a language. There are three in English [m, n, ŋ]. All other sounds are oral.

Central

The air stream exits over the centre of the tongue. The side rims of the tongue form an air tight seal with the upper molars and gums.

Exercise

Make an [s] but instead of breathing out, breath in. The centre of your tongue should feel cold as the air passes over it. [s] is a central sound.

Lateral

For lateral segments, a closure is formed at some point in the centre of the vocal tract. Air passes round this obstruction and out over the sides of the tongue.

Exercise

Make an [l] but breath in. This time the sides of your tongue should feel cold as the air passes over them. The only lateral in English is [l]; all other segments are central.

The IPA

Representing speech sounds

Spelling systems often have multiple ways of representing a single sound

Consider

(i) beet beat be chief Keith jetty

Furthermore, the same combinations are not always consistent

(ii) sear by vein

To eliminate this redundancy when recording how a language sounds, linguists devised the phonetic alphabet whose underlying principle is

one symbol always represents one and the same sound

Thus all the spellings in (i) above, can be represented by /i/

The Consonant Sounds of English

ORAL STOPS		
voiceless labial stop	/p/	put, capable, cup
voiced labial stop	/b/	but, abandon, cub
voiceless alveolar stop	/t/	tab, butter, put
voiced alveolar stop	/d/	done, edit, pad
voiceless velar stop	/k/	cat, succulent, break
voiced velar stop	/g/	get, begging, drug
NASAL STOPS		
voiced labial nasal	/m/	mint, examine, drum
voiced alveolar nasal	/n/	nut, money, can
voiced velar nasal	/ŋ/	Ngaire, singer, drink

The Consonant Sounds of English

FRICATIVES		
voiceless labio–dental fricative	/f/	fly, coffee, calf
voiced labio–dental fricative	/v/	verb, having, cave
voiceless dental fricative	/Θ/	thin, ether, moth
voiced dental fricative	/ð/	the, either, bathe
voiceless alveolar fricative	/s/	sing, blessing, cats
voiced alveolar fricative	/z/	zinc, razor, breeze
voiceless post–alveolar fricative	/ʃ/	ship, brushing, crush
voiced post–alveolar fricative	/ʒ/	pleasure, rouge
voiceless glottal fricative	/h/	hope, ahead

The Consonant Sounds of English

AFFRICATES		
voiceless post–alveolar affricate	/tʃ/	chip, catching, clutch
voiced post–alveolar affricate	/dʒ/	jump, digest, rage
APPROXIMANTS		
voiced labio–velar approximant	/w/	watch, away
voiced alveolar lateral approx.	/l/	lie, pulling, pull
voiced alveolar (central) approx.	/ɹ/	roast, pouring
voiced palatal approximant	/j/	you, union

THANK YOU