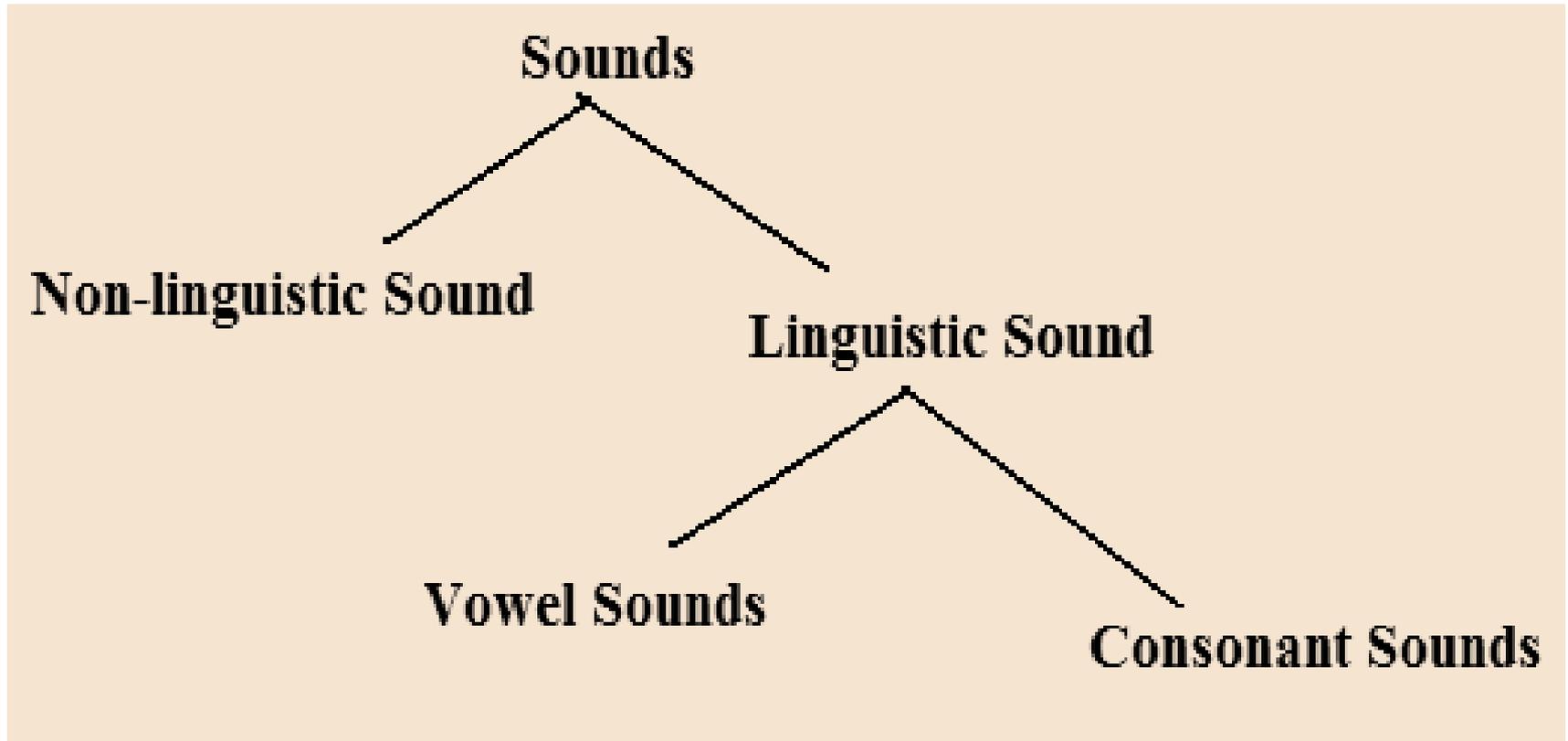


Phonetics



Phonetics: it is a branch of linguistics that deals with explaining the articulatory, auditory and acoustic properties of linguistic sounds of human languages.

It is important to understand as to how do we hear sounds.

There is air all around us. The air carries the sound waves but it is below 20Hz that our ear can't receive/perceive.

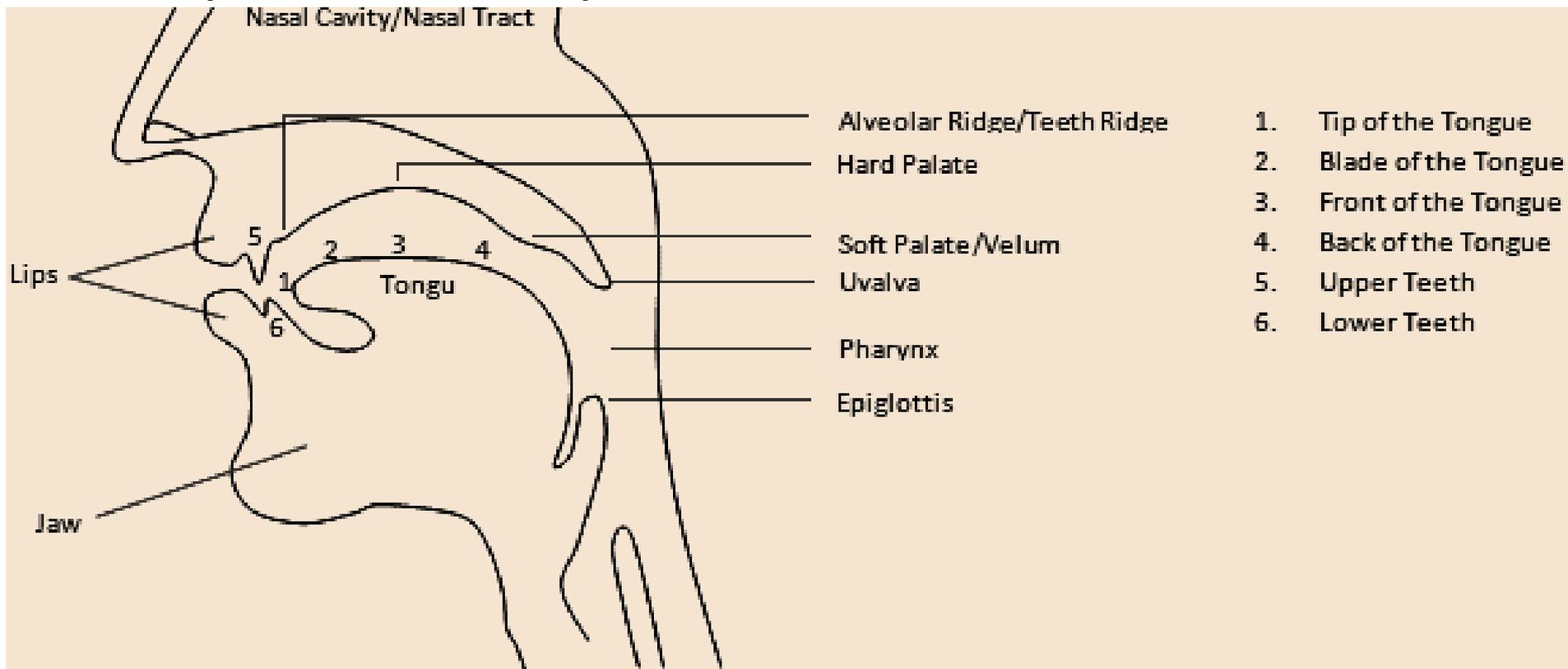
So, when we speak, we add some more amount of air taken from lungs to increase the existing Hz of the environmental sound in the air.

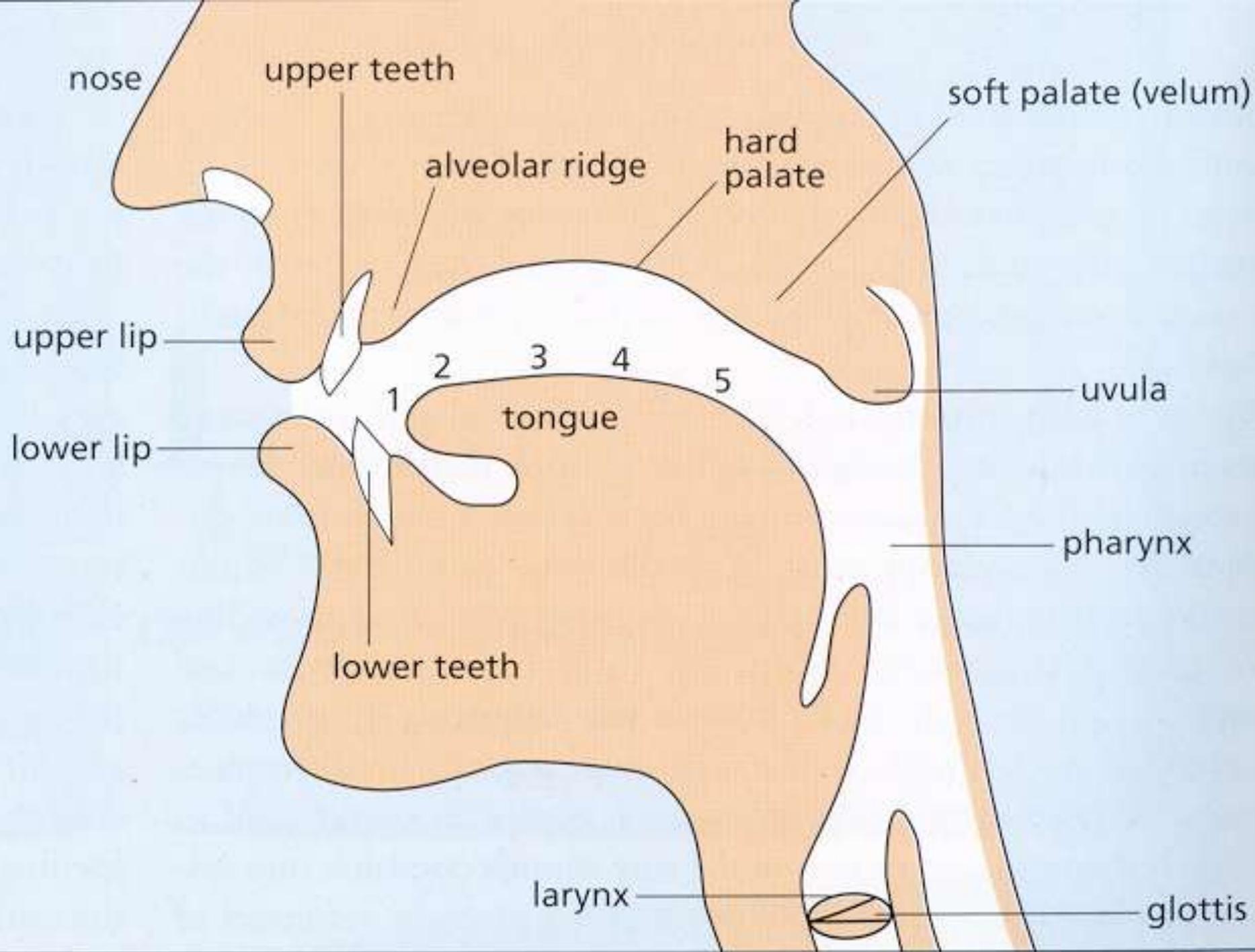
This creates turbulence and thus we hear the sound that is produced with a very complex mechanism.

The purpose of this class is to know that complex mechanism which helps us produce different kinds of sounds.

The following distinctions for the linguistic sounds are must:

- a. Constriction vs. Non-constriction
- b. Oral vs. Nasal sounds
- c. Voiced vs. Voiceless sounds
- d. Stop vs. Non-stop sounds





The basic distinction between the linguistic sounds is whether there is a constriction in the production of the sound or not.

This is the criterion on the basis of which the consonant and vowel sounds are distinguished.

The vowel sounds are produced without any constriction and thus, the vowel sound can be pronounced for long time..

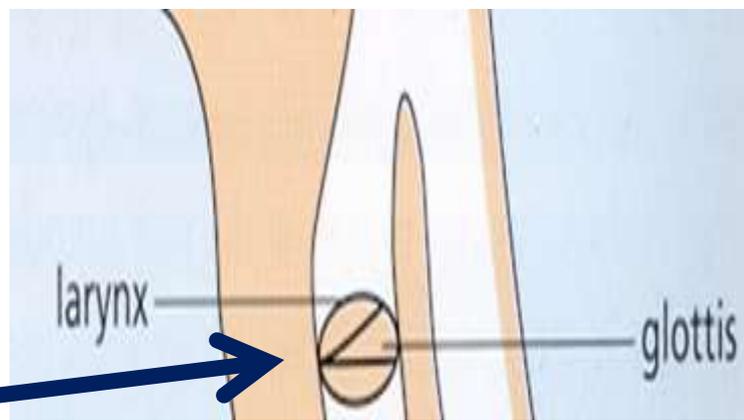
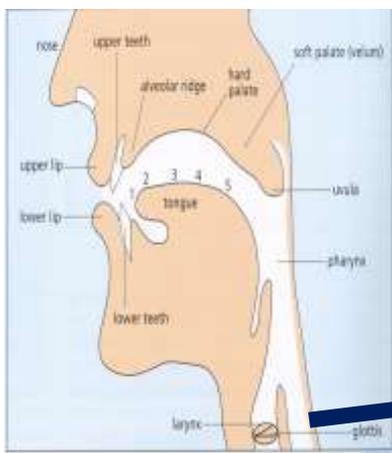
The consonant sounds on the other hand can not be pronounced without constriction.

The consonant sounds need the help of vowel sounds to be pronounced.

The next distinction for the sounds is ORAL vs. NASAL.

The oral sounds are those sounds which are produced through ORAL CAVITY after taking the air from the lungs.

The nasal sounds are those which are produced by lowering the Uvula that stop the air and let it pass through NASAL CAVITY and thus called nasal sounds.



The picture shows the glottis in zoomed form, and this glottis is what is called the vocal cords.

This is the source of energy for the production of various sounds for human languages.

If there is a vibration in the vocal-cords, the sounds are called voiced sounds and if the air that is taken through the glottis does not make it vibrate, the sound that is produced is called voiceless sounds.

The vibration of the vocal-cords are due to the different amount of air that we need for different sounds in human languages.

The sounds can also be broadly divided into the STOP sounds and other sounds which are not stop.

The stop sounds are those sounds which make the two articulators come together for a momentary closure.

The stop sounds are also known as plosive sounds because there is a burst/plosion of sound which was closed for a moment of second.

The non-stop sounds are those where there is no closure between the articulators.

These sounds are called fricative, affricate, flap, lateral, glide and others.

Where →

Place of Articulation

How ↓

Manner of Articulation

	Bilabial		Labio-dental		Inter-dental		Alveolar		Palatal		Velar		Glottal	
Stop	p	b					t	d			k	g	ʔ	
Fricative			f	v	θ	ð	s	z	ʃ	ʒ			h	
Affricate									tʃ	dʒ				
Flap								r						
Nasal		m						n				ŋ		
Lateral Liquid								l						
Retroflex Liquid								ɭ						
Glide	ɰ	w								j				

State of the Glottis:

Voiceless

Voiced

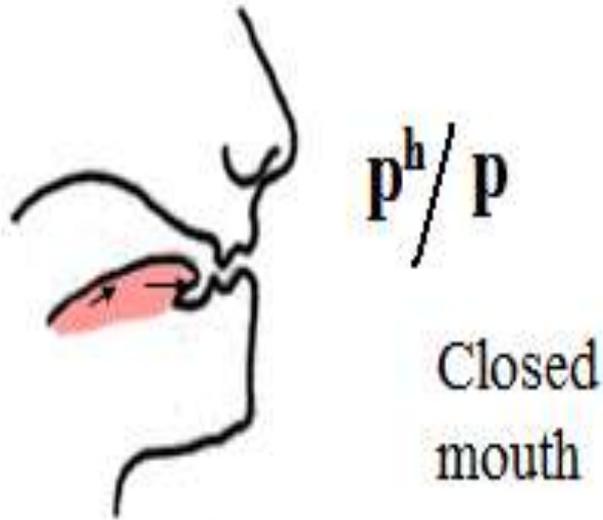
• **Consonants**

- **The Articulation of sound based on received pronunciation i.e. (R. P.)**

1) Plosives/Stops

- Plosive/Stop sounds are made by making a complete closure between two articulators at various points in the human speech organs and the vocal tract.
- The procedure of stopping the air in the oral chamber results in building some pressure and when the air is released, it creates the plosion.
- This group includes the sounds of **b, p, k, d, t & g**.
- The plosives are further distinguished as aspirated vs. non-aspirated ones.
- The aspirated plosives are pronounced with an extra puff of air i.e. pen ~ p^hen and kæt ~ k^hæt
- Aspiration is phonemic in some languages like Hindi and other languages, kana ~ k^hana & pəl ~ p^həl (ə is called schwa)
- Aspiration is non-phonemic in English and other languages

Bilabial Plosives



The two sounds in pictures are plosives/stops.

They differ from each other with regard to the voicing processes e.g.

1) **P** is aspirated/non-aspirated & voiceless— air leaving the oral cavity without making the vocal cords vibrate.

It is sometimes called gentle sound.

2) **b** is a voiced sound and the air is restricted through the glottis and it vibrates

- Both sounds are known as

Bilabial Plosives

Velar sounds



k

g

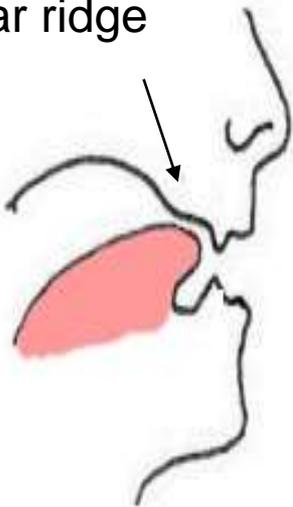
- These two sounds are also called stops/plosives.
 - These sounds **k** & **g** are produced by raising the tongue at the back of the mouth to make a complete closure.
- 1) **k** is a voiceless sound
 - 2) **g** is a voiced sound
- We will call these sounds as velar-plosive sounds.

Alveolar Plosives



t

Alveolar ridge



d

- The sounds of 't & d' are made by raising the tongue to touch the front of the alveolar ridge just behind the teeth.

- 1) 't' is voiceless

- 2) 'd' is voiced

- You can feel the stopping of the air while pronouncing 't' and 'd' sounds.

- 't' is voiceless as the sound is produced without the vibration of the vocal cords,

While for 'd', we forced the vocal cords to vibrate for the amount of air that goes out through them and thus it is a voiced sound.

2) Fricatives

Fricative sounds are produced by creating a **friction** that is caused by the air which flows between the two articulators.

Meaning, in fricative sounds there is no closure, and this is how it differs from stop sounds.

Fricatives are produced by forcing air through a narrow channel made by placing two articulators close.

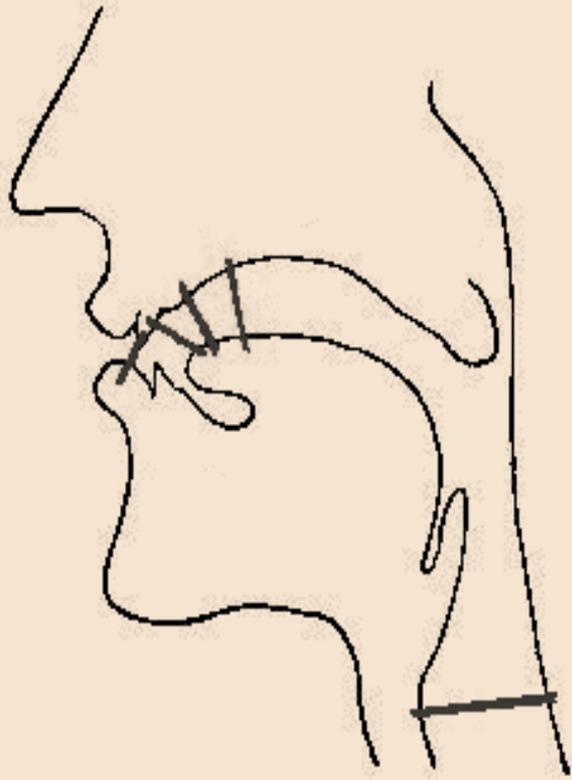
These may be the lower lip against the upper teeth, in the case of [f];

the back of the tongue against the soft palate, in the case of German [x] such as the final consonant of *Bach*.

This turbulent airflow is called **frication**.

A particular subset of fricatives is called the **sibilants**. In order to produce a sibilant sound, we still force the air through a narrow channel, but in addition the tongue is curled lengthwise to let the air flow over the edge of the teeth.

In English [s], [z], [ʃ], and [ʒ] are examples of this sibilant sounds.



English fricatives have five articulatory positions:

1. labio-dental: f, v - fine, vine
2. dental: θ, ð - think, this
3. alveolar: s, z - price, prize
4. post-alveolar: ʃ, ʒ - mission, vision
5. glottal: h - hard

These positions are shown in RED.

<https://notendur.hi.is/peturk/KENNSLA/02/TOP/fric.html>



1) The 'f' is voiceless – *first*, *phone* & *flat*

2) The 'v' is voiced – *video*, *love* & *have*

The top front teeth are placed on the top of the bottom lip.

The sound is squeezed through the small gaps

These sounds are known as

Labio-dental Fricatives



The voiced sound,
found in ***the, there &
feather***

The voiceless sound
found in ***think, thin
& thought***

The above fricative sounds, tongue touches the teeth, usually just behind the front teeth.

In the picture, it is shown the way it can be practised by putting the tongue between the front teeth and touching the index finger.

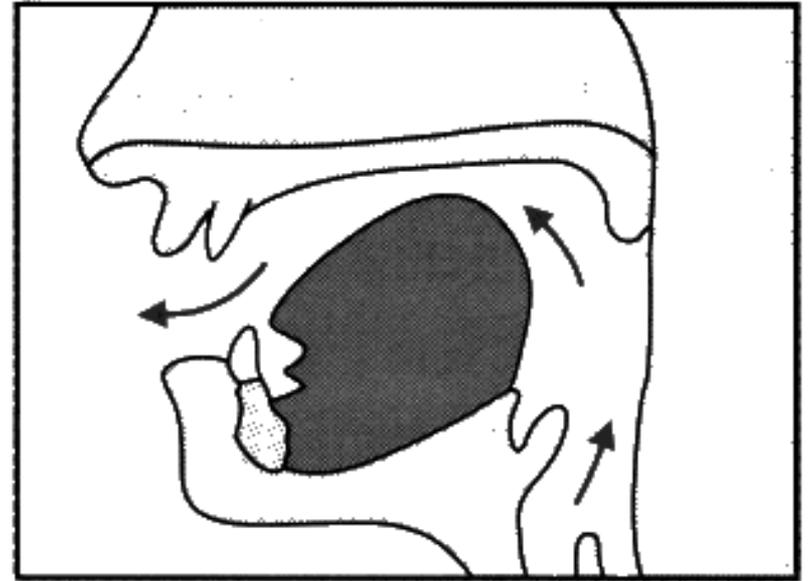
These are known as a

Dental fricatives

The sound [ʃ] is made by raising the blade of the tongue to make near about contact with the soft palate.

The sound is squeezed through the gap making a [ʃ] sound.

The voiceless sound can be found in **she**, **wash**, **sure** & **champagne**

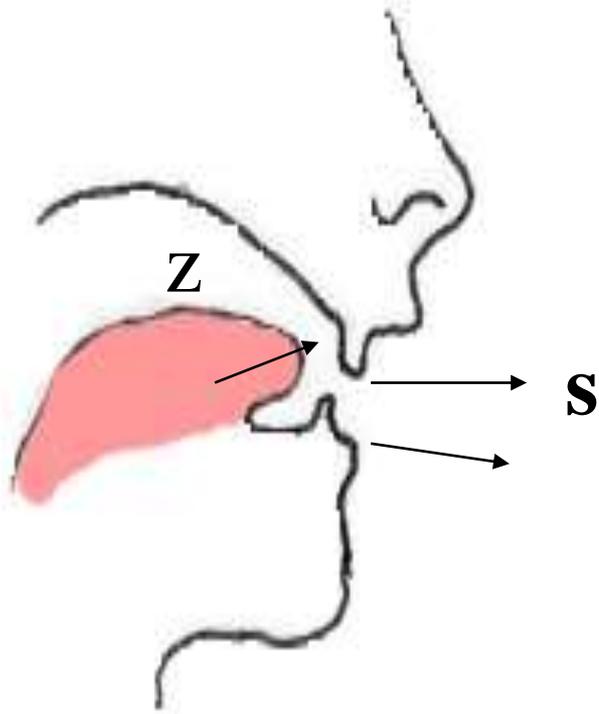


/ʃ, ʒ/

The voiced counterpart of this sound is found in **television** & **revision**, **envision**, **division** etc.

These sounds are known as

Palato-alveolar Fricatives



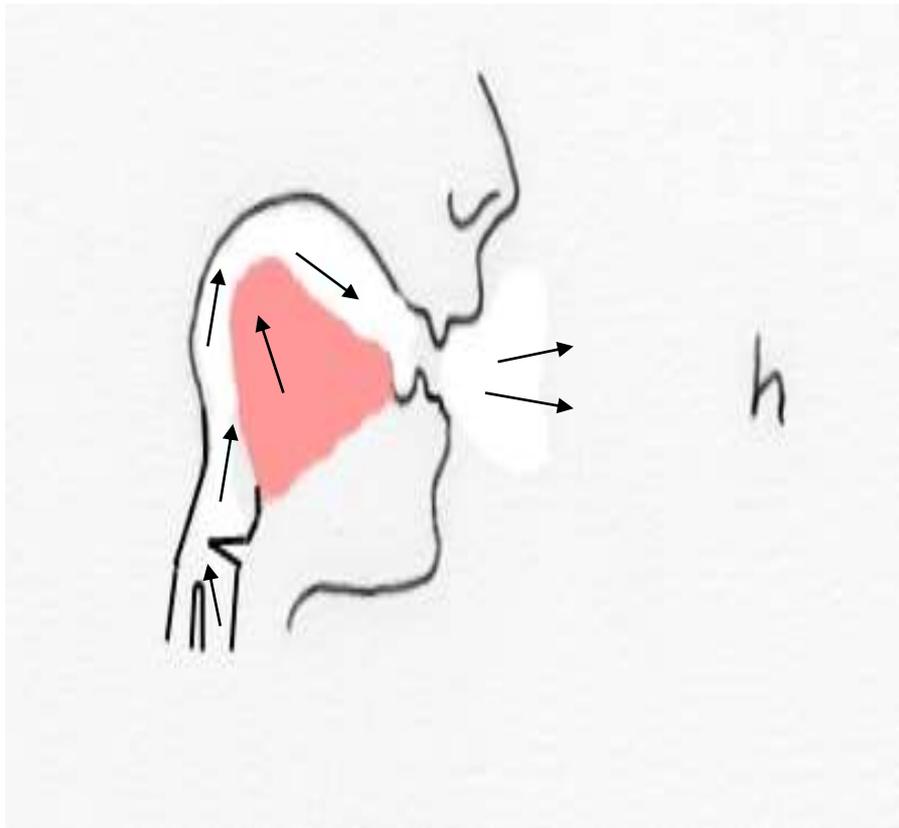
The tip of the tongue is moved towards the edge of the soft plate and the alveolar ridge. The sound is made by squeezing the sound through the narrow gap.

‘**s**’ - is voiceless and can be perceived in:– **see**, **voice** & most words that begin with ‘s’

‘**z**’- is the voiced counterpart fricative sound and can be perceived in – **zoo**, **has**, **freeze**, **crease** *bamboos*.

These sounds are known as

Alveolar Fricatives



This fricative sound is produced by raising the back of the tongue to nearly touch the soft plate.

The air from the lungs is pushed up past the glottis and through the small gap.

The sound is found in – *hotel*, *his*, *behind* & *hive*

It is known as a

Glottal Fricative