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exercises
to train, project
and harness the
power of your voice

This is a Voice

Jeremy Fisher & Gillyanne Kayes
Foreword by Cerys Matthews

This is a Voice

Jeremy Fisher is a prizewinning musician and performance coach, who has been working with actors and singers for more than 30 years. A multimedia vocal educator, he has developed numerous training DVDs and professional development tools for Vocal Process and the Science Museum. He is co-writer of four books, 300 articles on classical and commercial singing, and a chapter for the *Oxford Handbook of Singing*.

Dr Gillyanne Kayes is a singing voice expert and vocal troubleshooter, inspiring singers and teachers for 35 years. She has a PhD in voice research and has written seven books, including *Singing and the Actor*. A pedagogue and presenter for international conferences, including Eurovox and PEVOC, she has acted as curriculum advisor to CSSD, RCS and DMusics Barcelona. Gillyanne and Jeremy work together as Vocal Process.

Cerys Matthews is a singer, songwriter, author and broadcaster, awarded an MBE for her services to music. Her work encompasses song and spoken word: she is an award-winning DJ and presenter for the BBC, founder of the band Catatonia, and has sung duets with Sir Tom Jones. Her radio show on BBC 6 music celebrates music of all genres, from soul, rock, reggae, blues, jazz, country, classical and world music, to poetry and storytelling.

Steven Connor is Grace 2 Professor of English at the University of Cambridge. He was formerly professor of modern literature and theory at Birkbeck College and academic director of the London Consortium inter-disciplinary graduate programme in humanities and cultural studies. He is the author of several books, including *Dumbstruck*, *Beyond Words* and *Paraphernalia*.

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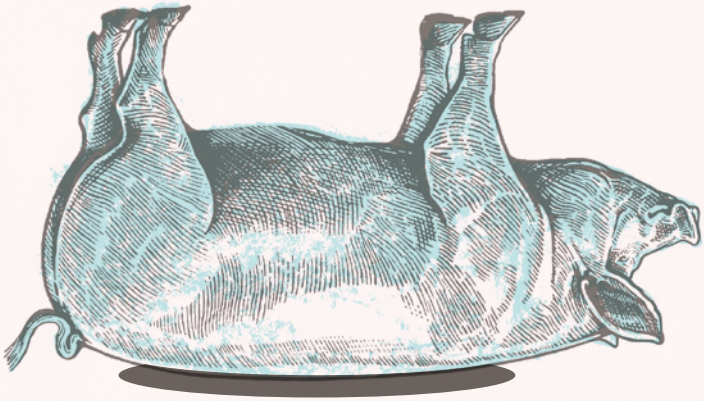
Foreword

"Everybody can sing." So said a vocal coach friend of mine.
"But some people are tone deaf, aren't they?" I replied.
"Yes, but they can still enjoy making a noise, at least it won't trouble them."

We all have one, and it's pretty slam-dunk that it's one of the very first things we use when we enter the world. We use it for communication, it greases our social lives, and a huge percentage of us use it as an integral part of our working day. It offers a soundtrack to our lives and enhances our daily experience. And let's not forget the sheer physical pleasure of making sound: who can remain unmoved when a rugby terrace bursts into full-volume harmony? What an instrument! What a sound! Does anything else come close?

My first memory is of a 15-stone sow leaping out of a farmer's trailer in a Pembrokeshire country lane in 1974. We all launched lustily into *Mochyn Du*, a classic Welsh folk song lamenting the death of a pig. It set the tone for the rest of my life, during which I've been totally surrounded, and obsessed, by human sound. When I sit, headphones on, programming my radio show, which covers all eras, and recordings of all genres, listening to the voices of people world over, I'm always struck by what we have in common – we may use different languages, different vocal techniques, different styles, but we are united in our use of this great sound-making machine; this giant palate of sonic colour and its potential to somehow change our perception of the world.

Yet many admit to being shy of speaking aloud or singing in public. Perhaps you were mocked at school and lost your confidence. Put that behind you. We were all born to make ourselves heard. At school in



the 1980s, I was given the nickname 'Squeaky' (oh the joys). I drank whiskey and tried smoking in order to lower my voice and get closer to sounding like my hero Bob Dylan. Obviously, I don't recommend this approach, especially if you're nine years old as I was at the time. There are better ways of improving your tone, as you'll see as you read on. But each of us has our own aims for what we'd like to get out of our voice. Perhaps you'd like to emulate Snooks Eaglin's honey'd purrs, or aim for the supple athleticism of Joan Sutherland? Perhaps you plan a debut at the Met, or at the O2 – or want to deliver a world-changing speech? Or maybe you want to explore the depths of expression like Richard Burton.

Or do you simply want to know how the voice works? It's all in here, from warm up exercises to opera, to beatboxing. You can even learn about the idea of the 'perfect voice'. In short, leave the whiskey and cigars aside for the moment. Learn more about this wonderful instrument you were born to use, put your fears behind you and go and make some noise.

Cerys Matthews
London 2016

Introduction

Vocus Pocus

by Steven Connor

Voicing the voice

We live in an age in which voices are constantly being recorded so they can be kept and then called up at will – like books being selected from a shelf in the library. We might, therefore, be forgiven for occasionally forgetting that the voice is always an active exertion, that voices are always being voiced.

The voice is more energy than object, more force than form. A vocal sound never simply occurs; it has always been made. This is not often a process we are aware of. In fact, like riding a bike, making a vocal sound may partly depend on the fact that it happens largely without conscious control. So subtle and complex are the muscular adjustments required that, as with riding a bike, you are liable to fall off if you think too hard about what you are doing. This is why our voices can so often whisper or blurt things out without our realising, things that we would prefer to keep quiet about, about our irritation, our nervousness or our longings. But this does not make the voice any less of a production; it just points to the many different pressures, conscious and unconscious, voluntary and habitual, that are always acting on the raw material of the voice to shape and style it.

Actually, there probably never is a raw – or naked – condition of the voice. Even seemingly spontaneous vocal actions like crying, sobbing, laughing, groaning and gasping have their characteristic tonalities and rhythms. It always amazes me, for example, that, in response to sudden or unexpected pain, people will often actually say "Ow!" or something like it rather than just crying out. It is as though the pain is not quite there until it can be given expression and thereby made actual enough

to be dispelled. The pressure to shape the cry of pain into something like a word seems as primary as the impulse to cry out in the first place. Every distress has its own prosody (the pattern created by its pitch, tempo and tone). One only has to listen to a baby crying to realise that, even before language, using the voice to create sound is an intensely styled thing, in which the production of a particular, personalised tone is an important part of what the crying is for. Hence crying oneself to sleep: crying is a sort of self-curing wound. Crying turns distress into a pattern of vocal stresses – creating a kind of personal tune that soothes the pain to which it gives expression.

If the voice is always being produced, then what we call "voice production" always has a double sense. We use the voice to make sounds, and through those sounds to represent ideas and bring about effects in the world. But that vocal production itself also produces the thing we recognise as our own voice – the vocal signature we all possess. So the voice is both cause and effect; it is born from that to which it gives birth.

Relating to the voice

A voice is like a face, in that it is the most intimate and characteristic thing about each of us, to which we pay careful attention, but over which we can never have complete control. And like faces, if our voices can be called "windows to the soul", it is because we cannot fully own, know or govern them. The image that we all have of our own face can never exactly match what others see, like the sound-image that we cultivate of our own voice, which is never quite the voice that others hear. The sounds of our own voices come to us, not just through the air, but cloaked in the bone of our own skulls and enriched by their vibrations within our own bodies, making them sound deeper and richer than the reality. People are often shocked to hear a recording of their own voice, and it can take listeners a long time to acknowledge their recorded voice as their own. Once they do, voice-recording equipment can become a kind of sound-reflection in which the voice may be pitched and primped, just as hair, skin and teeth are styled in the mirror. Recording and editing techniques also allow for voices to be manipulated: multiplied, layered and strengthened, for example, fulfilling various impossible vocal fantasies.

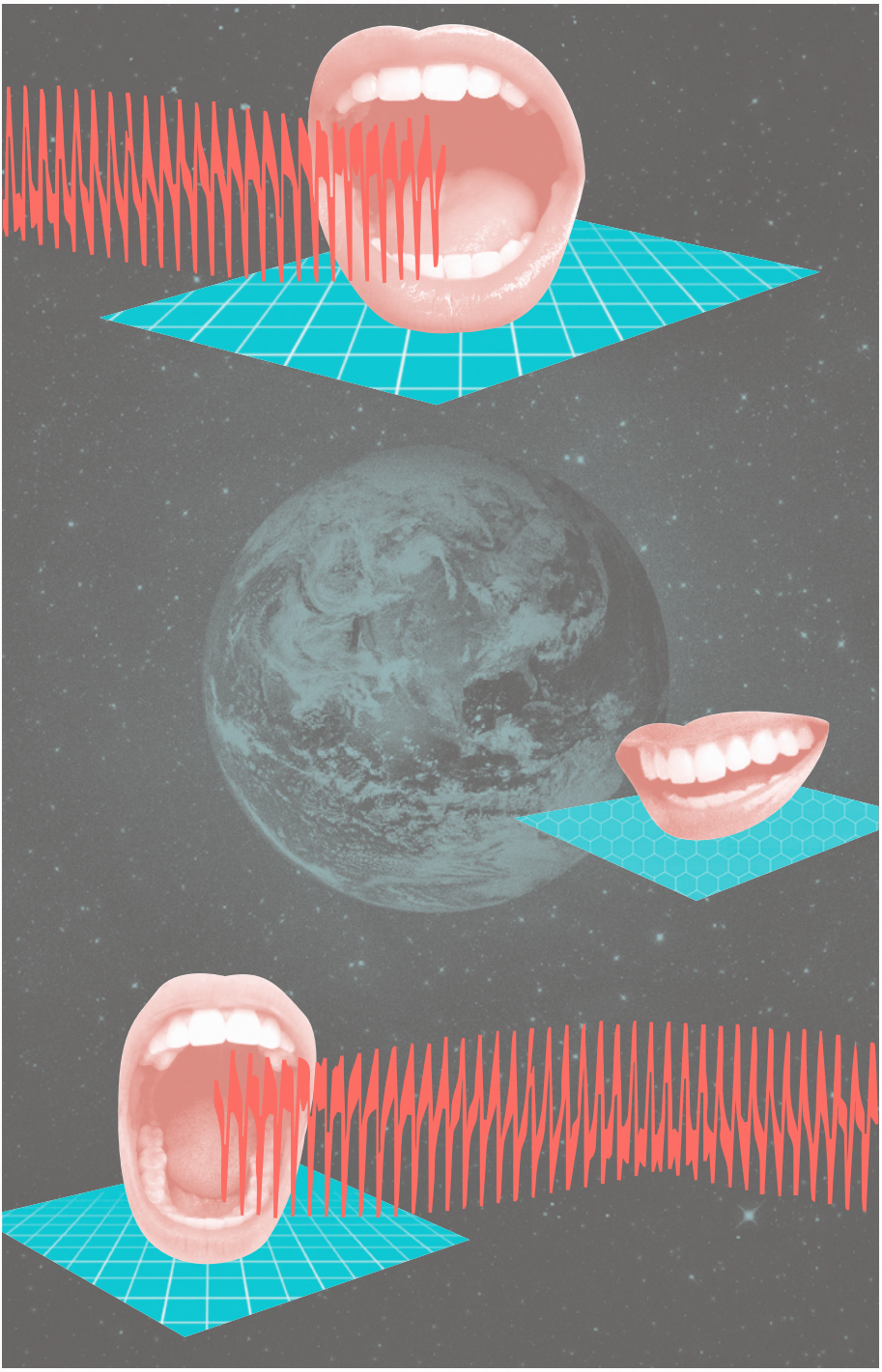
Though it has yet to be written, there is a long history of human infatuation with echo and reverberation – the caves of Lascaux and Altamira were likely chosen by Palaeolithic people at least in part because of their qualities as echo chambers. It seems likely that part of the appeal of the echoing voice is that it allows us to sound out into the world something of the rich and intimate quality of the voice we hear in our own heads.

Power and the voice

The exercise of the voice is an exercise of power. Human beings spend so long as infants in a physically powerless condition in which their voices are all they have with which to command and control the world. As a result, we learn early to depend on our voices to ensure our survival and wellbeing. As children grow into adults, we may see these pre-pubescent cries become amplified, literally, into the megaphonic bawlings of the dictator, or the massive, space-saturating volume of the rock star. But we may also see a more persuasive power embodied in the voice, in the uplifting tones of the charismatic preacher or the intimate whisperings of a loved one that result in our swooning submission. Sometimes we might even experience the power of a voice as something like physical contact. And this belief that the voice can perform the work of the finger or fist is underlined by the ways we instinctively use our arms and hands to gesture while using our voices; kneading, stretching and severing the air. Without these gestures, speaking can seem like an achingly amputated thing.

Power is exercised not only through the voice but over it. The power of the voice often seems to be exercised through the performance of the voice's power over itself, through constriction, fragmentation or other kinds of distortion. It is striking how often, and especially in rage or other kinds of extreme emotion, the voice seems to be turned against its own matter or bodily means: the voice that rasps, or splits, or cracks seems to be demonstrating in its violent self-laceration the desire for the voice (almost, one might say, the voice's own desire) to be able to do its work directly upon the world and those in it.

Associating the voice with power also intensifies our awareness of what may impede, deplete or distort it. Certain styles of voice, like lisping or rhotacism (the so-called "weak r"), have often been thought of as defects that require fixing. This joins with the long and sometimes very brutal history of efforts to overcome stuttering, efforts that have included various kinds of drills and regimens to strengthen or straighten the voice, and even surgical intervention to cut through the physical knots or impediments that were believed to be making the speaker "tongue-tied".



And yet, such impediments can also be seen as an addition to the voice's repertoire of postures and expressive possibilities. This can be clearly seen in the ways in which speaking may be compounded with laughter. In its extreme form, laughing is as incompatible with speech as eating. Genuine laughter can invade and overcome us, splitting our syntax and reducing us to inarticulate sobs and gasps. Yet we all learn very early on to simulate various degrees of laughter-induced incapacity – the socially styled snort, hiss, snigger, giggle, chortle or pseudo-guffaw – as a way of diversifying our voice's powers. Human conversation would be a much flatter thing without these energising inflections.

Training the voice

Much of the effort that we expend on styling our voices is aimed at an ideal of refinement. This ideal can be traced back to the spreading of state education during the late 19th century, which coincided with the rise of the idea of Standard English. This was consolidated in the 20th century through the increased prominence and authority of what became known as "received pronunciation", or "the Queen's English", in national broadcasting. This encouraged a great deal of both class anxiety and aspiration (much of the anxiety ironically being centred on the dropping or sounding of the aspirate "h").

Elocution lessons, which promised to "clean up" the voice, became popular. The idea of elocution training involves a fantasy: that the ideally neutral or "unmarked" voice is attained through a kind of purifying subtraction, as though the original accent were something "picked up" – a sort of accidental addition that can therefore be removed. In fact, the experience of most of those who have developed a new class accent is one of internalising a new vocal style, and thereby adding something to the voice's repertoire. It is as though the educated or "elocuted" voice were heard as the sound of a voice possessed of the capacity to listen to and therefore edit itself, as opposed to the more unconscious or hard-of-hearing forms of speech characteristic of dialect.

The word elocution entered English in the early 16th century to mean eloquence, or the art of public oratory. In this sense it was associated with the stage, the pulpit and, increasingly, with politics. But by the early 17th century, the word had already begun to move from the idea of rhetorical elaboration or adornment to that of propriety and correctness. Robert Cawdrey's 1604 dictionary defined elocution as "good utterance of speech", and was followed by Edward Phillips's 1658 *New World of English Words*, which defined elocution as "proper speech, handsome utterance". As the centuries went by, the proper became ever more important than the handsome.

"snort, hiss, snigger, giggle, chortle or pseudo-guffaw"

The high-water mark of the elocution mania was reached by George Bernard Shaw's play *Pygmalion* (1913), in which the flower girl Eliza Doolittle asks a professor of phonetics to teach her to "talk more genteel" so she can realise her dream of working in a flower shop. The title of the play makes it clear that the process of improving the voice is seen as a kind of awakening from a condition of slumbering insentience; just as *Pygmalion*'s Galatea is brought to life from the condition of stone, the development of elegant and correct pronunciation brings with it articulate language, where previously Eliza's speech is characterised by animalistic howls: "Ah-ow-ooh!... Aaah-ow-oooh!... Aaaaaah-ow-ooh!... Aaaaaaaaaaah-ow-oooh!" Here, Eliza's new, "genteel" voice is more than the mere sign and accompaniment of refined manners and intelligent discernment: it is the means of remaking her, from the outside in.

The elocutionary ideal has also been much associated with the more specialised kinds of singing training. Beginning in the 19th century, a vast range of techniques and associated technical languages have been developed to build power, endurance and expressiveness among

singers. Such techniques, some of which are in this book, can be highly effective, especially perhaps when they help those who must make deep and frequent demands on their voices to maintain function and avoid exhaustion. The physical work involved in vocal training is usually accompanied by considerable imaginative work. Singers and speakers are often encouraged to produce an elaborate dream theatre, in which the interior spaces of the body – the diaphragm, chest, larynx, throat, tongue and skull – are remade as a kind of imaginary corporeal architecture, of galleries, corridors and booming cathedral-like vaults, which has little to do with the anatomical reality of vocal production. But of course what matters is not the accuracy of the image that one may have of the voice, but the work that imaging may enable one to do on, and through, the voice.

"nasal whine", "extreme ranting", "the pathetic drop of the more educated"

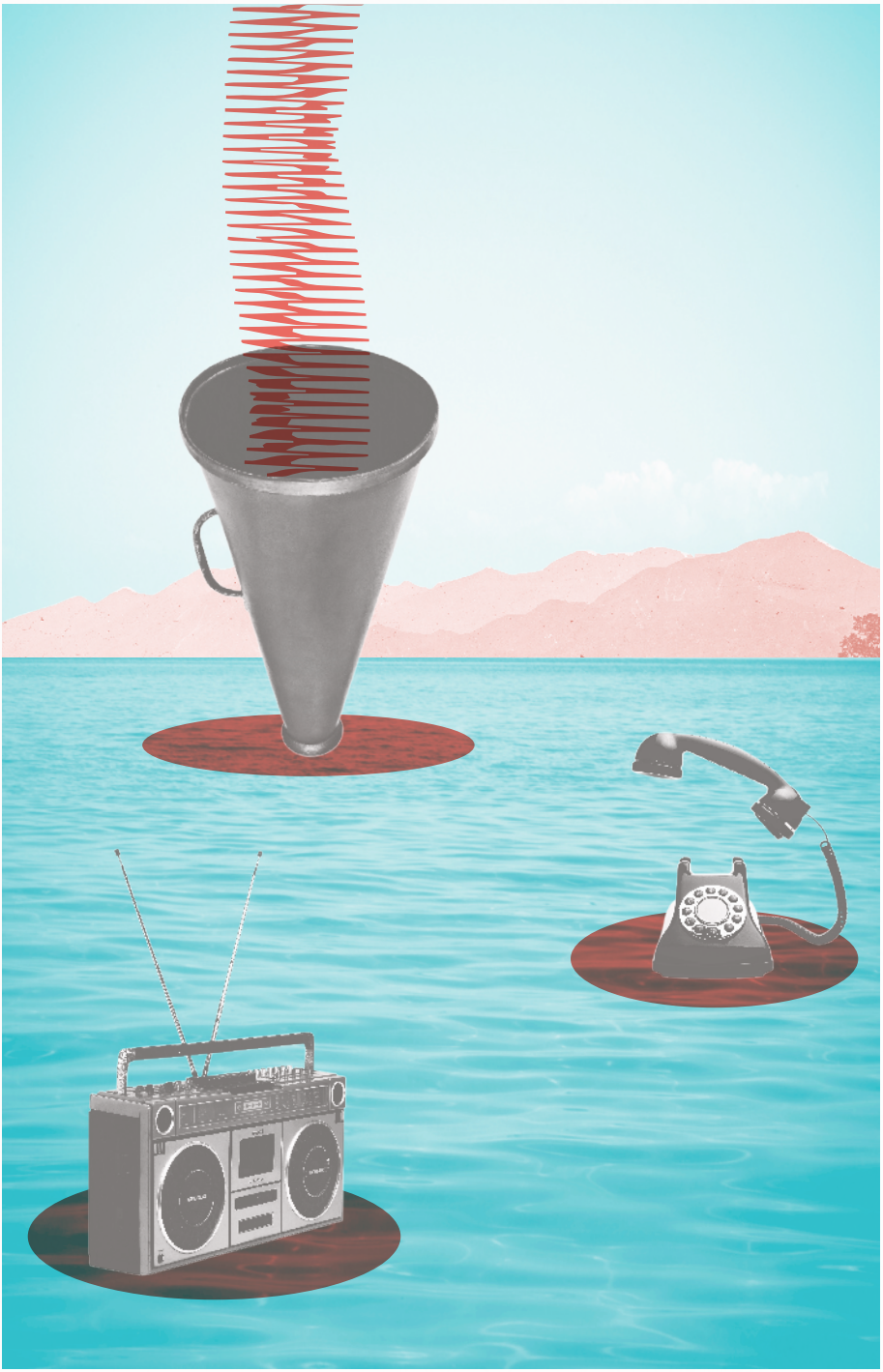
The early voice coaches believed the voice to be a combination of the physiological and the psychological. "The voice is dependent on the body, and both voice and body upon the mind" promised the author of an early 20th-century manual of vocal training. As such, the failings of the voice could seem to be moral as much as physical. "A lack of proper control over emotion is always associated with the absence or wrong use of primary conditions of tone", we are assured, and what the author calls the "many perverted speech melodies" – the examples he gives are "nasal whine", "extreme ranting", "the pathetic drop of the more educated" – are always, it is claimed, "due to some peculiar attitude of mind, to lack of control over emotion, or some abnormal mental condition". Over recent decades, voice training has expanded beyond the coaching of musical and theatrical professionals to become a central component of many kinds of spiritual and meditational practice,

such as chanting or *pranayama* (yogic breathing). Work on the voice here becomes an essential part of the work of forming or reforming spiritual being.

The voice and the self

The voice is one of the most powerful and versatile things our body produces, but it is itself often subject to various kinds of technical extension or reinforcement, whether through amplifying devices like the speaking trumpet or the megaphone, microphone-based amplification, technologies of transmission like the telephone or radio, the forms of filtering and transformation available in recording technologies, or the artificial speech generation systems that have given voices to those, like Stephen Hawking, who have lost the capacity to speak. It may seem as though the real or "natural" voice is in danger of being lost amid this cacophony (from Greek, "bad voice") of dubbings and doublings, enhancements and augmentations, voice-overs and undertones. But these devices can all be thought of as extensions of the powers that are already implicit in the voice, the human feature that holds the sweetest and most intoxicating promise of self-transformation. Not the least important of these powers is the voice's ability to escape the condition of singularity that seems most to define it, by blending with other voices in the many forms of chorality or collective vocalisation.

Perhaps the reason that so much effort is expended on improving and perfecting our voices is that they are a kind of sound-image of our persons. The word person in fact derives from the Latin persona, the mask worn by actors in the Greek and Roman theatre, which typically covered the whole face and had a large hole for the mouth. Persona is a noun from the verb per-sonare, to sound through. In English, the difference of one letter turns the person into the persona, the secondary character that a person may project through their voice. We express ourselves through our voices, those essential extensions of the person, but our personalities are also formed and pervaded by those voices. This is the essential ambivalence vibrating through the voice, which, in all the many ways in which we work on it, makes us its work.



How to use this book

"Vocal sound is one of the defining features of our humanity. Its commonality, plurality and development distinguish the species."

Welch, G.F., 2005

How to use this book

When we think of a voice, it can call to mind many things: it could be a particular person and the way they speak, a powerful and well-honed vocal instrument that fills us with an emotion, or a stirring speech that inspires us to action. Each of us has a distinctive voiceprint that is as individual as our fingerprint, yet we are able to make our voice sound like someone else's. How do we make our voices do all these things?

The human voice is actually a collection of several mechanisms, uniting to create a myriad of different sounds. *This is a Voice* explains not only how breath, vibration and resonance work, but also how you can explore and improve your voice. Understanding these key aspects of vocal function will make the process of exercising your voice more meaningful.

Warming up

At the heart of the book are 99 practical exercises for vocal self-improvement. Before undertaking any of these we recommend you rebalance your body (pages 22–23) and warm up your voice. There are two sets of warm ups: general ones (that work for speaking or singing) and those specific to singing. Warming up should take between 5 and 15 minutes. Many of these exercises can be done in everyday situations around the house, in the car or walking down the street. Try each exercise and then choose the ones that work best for your voice.

Exercises and cool downs

For each exercise, the rationale and purpose has been explained as simply as possible, with the instructions broken down step by step so they are easy to follow. The themed sections give you techniques to practise for specialisms such as beatboxing or opera. Make sure to use the cool down exercises at the end of the day to reset your voice and give you stamina for the following day.

Find video tutorials of selected exercises at
wellcomecollection.org/thisisavoice

Suggestions and scenarios

You can either work through the warms ups and exercises in the order they appear or you can dip in and out, returning to what works best for you. However, if you are short on time then here are some more specific recommendations for a few different scenarios that should take no more than 10–12 minutes.

Use the exercises in the order shown to begin with: you will quickly find out which ones you need to spend a little more time on than others. To make your routine more relevant to your work or performance situation use phrases from the song or speech you are preparing for, or key phrases that you use regularly in your work.

For specific concerns such as voice strain, groggy morning voice or stress impacting on your voice, you might also find it helpful to refer to the sections on Troubleshooting (page 183) and Further useful information (page 186).

To prepare for:

A high-pressure presentation or speech to a large number of people (with a microphone): Finding your body balance (pages 22–23) and Exercises 1, 3, 10, 19 and 23. Use your opening and closing remarks as practice phrases for the last two exercises.

A presentation or speech to a small–medium number of people (without a microphone): Finding your body balance (pages 22–23) and Exercises 1, 3, 24 and 21. Talk about your key slide, or use your best joke or story, as practice material for the last two exercises.

A whole day of using your speaking voice, perhaps in meetings or phone calls, in which you want to sound confident and avoid voice strain: Exercises 3, 2, 9 and 11. Finish your warm up using your "meet and greet" opening remarks that you use at work.

An acting audition: Exercises 3, 9, 4, 30 and 19. For the last, use paragraphs from the audition piece you have prepared.

Trying beatboxing for the first time: Exercises 24, 47 and 48–50.

A singing performance as part of your choir: Exercises 2, 3, 13 or 14 and 75, then sing phrases from your choir repertoire.

A solo singing performance in a contemporary music style (such as rock, pop, jazz, soul or country): Exercises 12, 7, 88 and 89, then choose one of the settings (92–94) to practise with your song material.

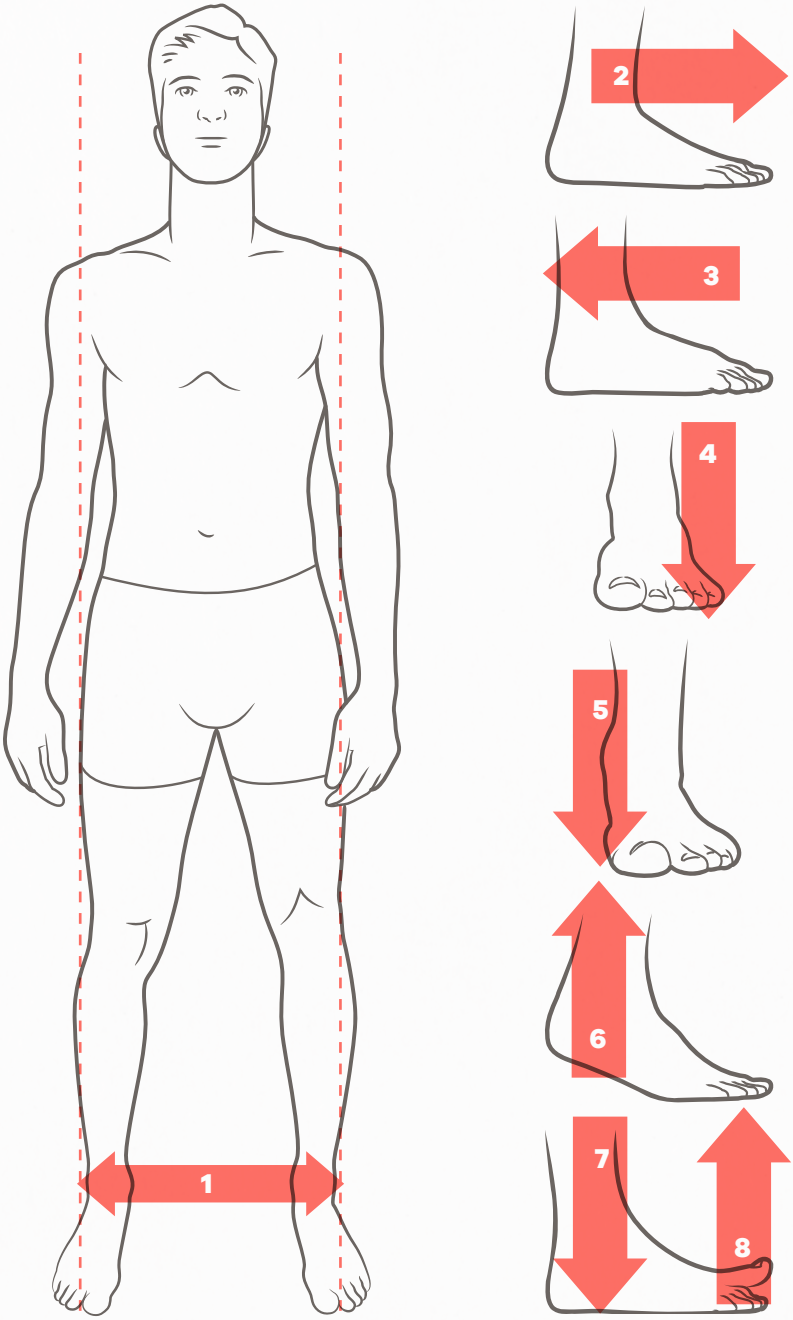
Singing in classical style for the first time: Exercises 14, 73, 76, 68 and 82. Practise using the settings in 73 and 76 in combination with some longer phrases from a song or aria you want to work on.

Finding your body balance

Because the voice is a physical instrument and the state of the human body varies day to day, it should be regarded as a golden rule to rebalance your body before and during the vocal exercises.

Posture can be rebalanced by feeling the ground under different parts of your foot. For this exercise, remember to breathe normally.

1. Stand with your heels shoulder width apart.
2. Without lifting your feet off the ground, shift your weight by leaning forwards. Hold for a count of five and notice which part of your foot feels the ground the most.
3. Shift your weight by leaning backwards slightly – hold for five.
4. Shift onto the outside edges of your feet – hold for five.
5. Shift onto the inside edges of your feet – hold for five.
6. Raise your heels off the floor slightly – hold for five.
7. Go back down. Feel where the parts of your foot touch the floor.
8. Finally, lift just your big toes – hold for five. When you drop your big toes back to the floor, your body will be rebalanced.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How the voice works

What is a voice?

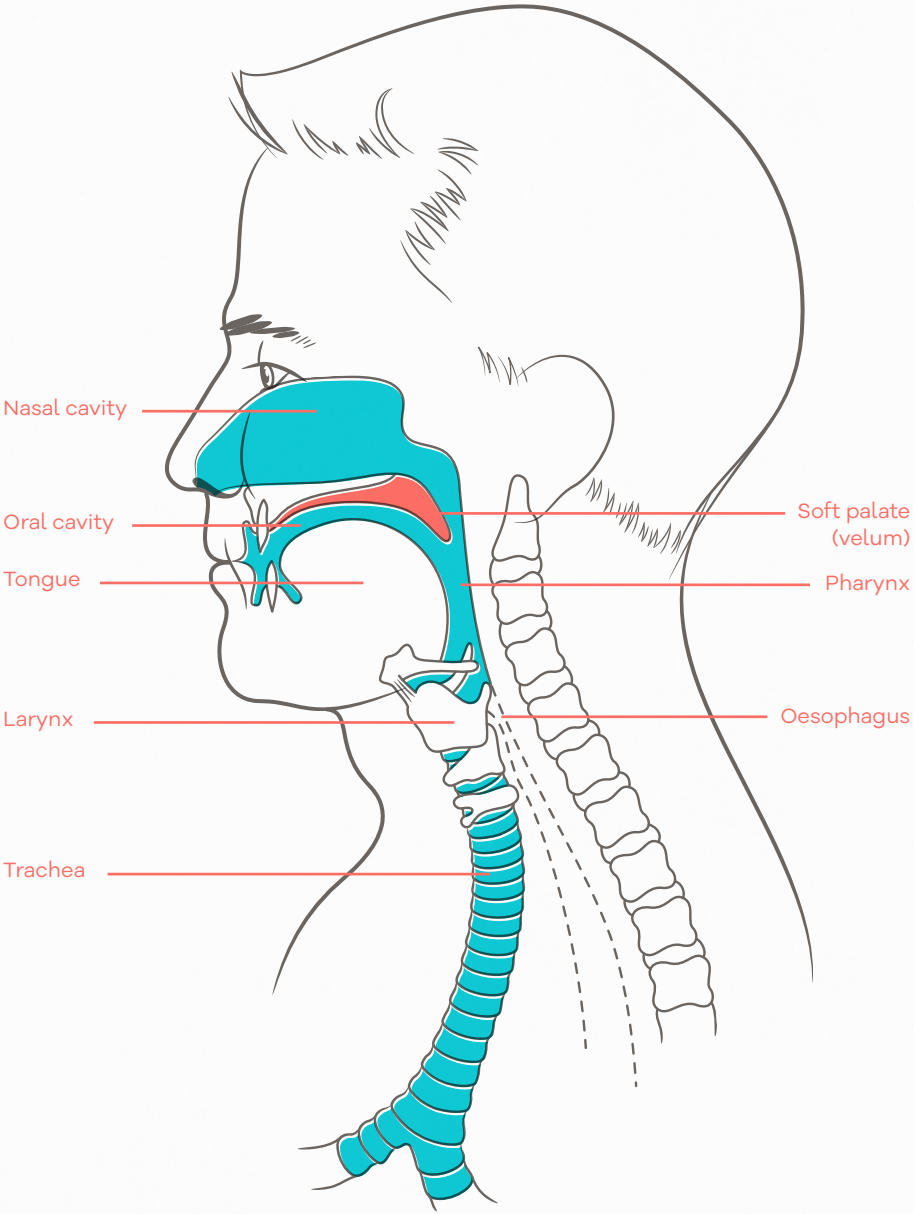
In this section we look at the scientific understanding of the voice. Many disciplines have joined forces to uncover its workings, including medicine, acoustics, music, psycho-acoustics, linguistics and vocal pedagogy. Whether you tackle this section all at once or merely dip into it at the outset, you will almost certainly find yourself coming back to this part of the book.

The voice is unique because of its ability to change size, shape and texture. The "vocal mechanism" gives you an idea of the voice's complexity: how it shares functions with other body systems, and how sound and pitch are made.

Following this, we'll look at concepts behind "breath" and the voice; "Respiration" explains how we use the breath differently for vocal tasks. "Phonation" describes where the "sound source" is in the voice, and how pitch and volume are made. In "Resonation" we explore how and where resonance is made – essential to all singers and speakers.

After reflecting on why it is that male and female voices are different and why a child's voice cannot do what an adult's can, the final and essential topic is "Word articulation". Everyone – whether a singer, a would-be effective speaker, a ventriloquist, mimic or a beatboxer – can benefit from learning more about how the sounds of language are formed.

Opposite: This side view of the head and neck shows how the airway space that leads from the mouth into the pharynx and larynx is shared: part airway and part food channel.


Nasal cavity
Oral cavity
Tongue
Larynx
Trachea
Soft palate (velum)
Pharynx
Oesophagus

The vocal mechanism

There are three physical systems that make up the human vocal mechanism and each of these parts has another, more important, biological function: to help to keep you alive.

The lungs: provide airflow that powers the voice, but their primary function is to supply oxygen for the entire body through gaseous exchange and to maintain homeostasis.

The larynx: houses the vocal folds that produce the vibrations we hear as voice, but its primary function is to provide airway protection (for swallowing) and to assist with pressure-valving (for childbirth, defecation and weight-bearing tasks).

The airway: above the larynx and its vocal folds acts as the resonator for the voice, while the lips, tongue and soft palate are used to articulate speech sounds that form words and sentences. Their normal function is to process food for digestion (chewing and swallowing), as well as contributing to airway protection.

The brain is the overall regulator of these systems: activating muscles, providing information via nerve pathways, and using both sensory and auditory feedback to control and monitor the functioning of the three systems. Except in rare cases, all humans are capable of making both spoken and sung sounds.

Your instrument – the vocal tract

The collection of structures that constitute the voice are known as "the vocal tract", a flexible tube that runs from the upper surface of the vocal folds to the exterior surface of the lips. This flexibility is needed because you swallow approximately a thousand times a day, moving your tongue, soft palate, the walls of your pharynx, the epiglottis, the true and the false vocal folds, and the whole larynx. The only fixed part of the vocal tract is the hard palate (the roof of the mouth).

Waveform image of the sound of someone saying "This is a voice".

How we make sound

"Sound" is the result of pressure fluctuations in a medium such as air or water. A door slamming, a glass being clinked or a string being plucked all trigger pressure fluctuations in the air. If we are close enough to the sound source, the pressure fluctuations will cause our eardrums to oscillate. These oscillations are translated by the hearing system into neural impulses that we experience as sound. Larger pressure fluctuations produce bigger oscillations of the eardrum and the sound is perceived as louder. We measure this loudness or intensity in units called decibels (dB).

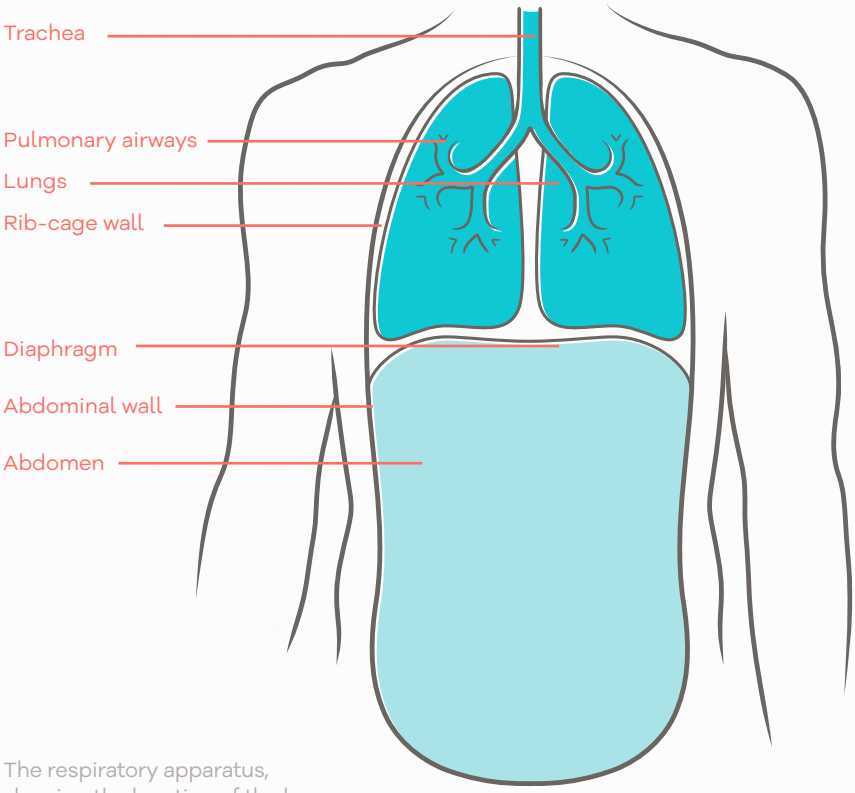
How we make and hear pitch

Pitch is your hearing system's interpretation of the frequency of a regular vibration maintained over a period of time. So if something vibrates regularly at 440 times per second, the listener perceives it as the A above middle C, whether it is the oboe tuning the orchestra, an elastic band or a ruler on the end of a desk. Slower vibrations are perceived as lower in pitch, whereas faster vibrations are perceived as higher. When we speak or sing on a note, the voice produces complex vibrations: a fundamental frequency (the note we hear) and multiple frequencies above it (the harmonics). Together they contribute to our vocal timbre or tone.

Respiration

Humans need breath to live. Normal breathing is called "tidal respiration", or "quiet respiration", and it has its own rhythm, consisting of in-breaths and out-breaths of similar lengths.

During tidal respiration, the airflow is uninterrupted. However, in singing and speaking, the vocal folds come together and interrupt the airflow, which is released in small puffs. These create the pressure fluctuations, described earlier, which are heard as sound. Because of this interruption, the rhythm of breathing changes for vocal tasks – a quicker, shorter in-breath and a considerably more extended out-breath. This is known as "active respiration".



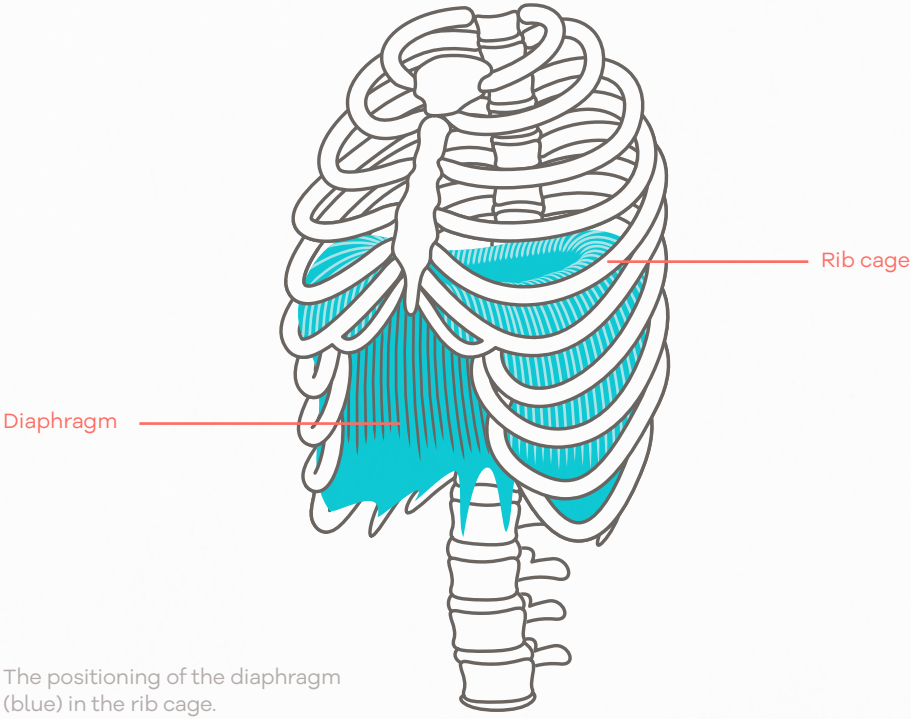
The respiratory apparatus, showing the location of the lungs, the diaphragm and the abdomen containing the digestive organs.

How you breathe

The respiratory system is made up of structures and air passages in the torso, neck and head. The lungs and pulmonary airways form the part of the system that receives the air and deals with gaseous exchange. The lungs themselves are passive, but the body system works like a pressure pump to suck air inwards and gently squeeze it outwards. When we breathe in we enlarge our lung volume and the pressure of the air inside drops below the pressure of the air outside, which causes air to rush in to rebalance the pressure. When we breathe out our lung volume is reduced as the air is pushed outwards until the cycle begins again.

Breathing in

The most important muscle for drawing breath into the body is the diaphragm (pictured below), which is always active when we breathe in (known as inspiration). In deep inspiration, such as is needed for singing or energised speaking, the diaphragm provides 60–80 per cent of lung volume increase.



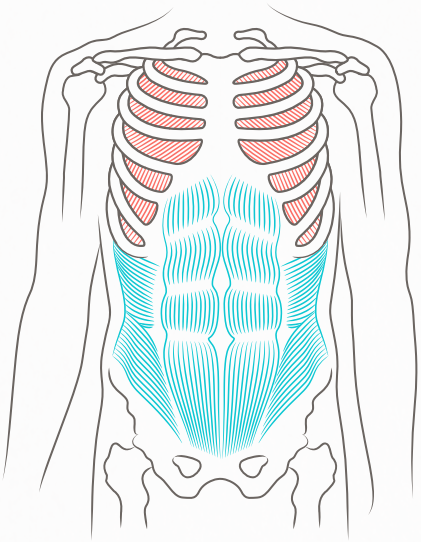
The positioning of the diaphragm (blue) in the rib cage.

Because the outside of the lungs is connected to the inside of the chest wall, when the diaphragm contracts and the rib cage expands, the lungs expand with them. The muscles of the rib-cage wall, when activated, can expand the chest cavity further.

Breathing out

When we breathe out normally, the diaphragm relaxes upwards, decreasing the size of the lung cavity. During the active respiration we use for engaging our voice, additional muscles may also be used to assist during breathing out (pictured below), which might include the muscles of the abdominal wall, some of the muscles of the rib-cage wall and the back. This active decreasing helps to maintain sufficient air pressure in the lungs just below the vocal folds. Called "sub-glottal pressure", this enables the vocal folds to continue vibrating as the volume of air in the lungs diminishes when we are speaking or singing.

During singing and speaking, the out-breath is more pressurised than in normal breathing due to the interference of the vibrating structure. In voiced sounds such as vowels, it is the vocal folds themselves that chop the air up. In unvoiced sounds the air is interrupted by other parts of the vocal tract, such as the teeth and bottom lip ("f"), or the tongue ("sh"). The breathing mechanism also helps to regulate loudness, pitch and linguistic stress, and assists in organising sounds into discrete units for syllables, words and phrases. Tasks such as beatboxing and singing require considerable agility in breath use, with different phrase lengths and percussive effects.



Right: Both the muscles of the abdominal wall (blue) and the muscles of the rib-cage wall (red) are used during active expiration.

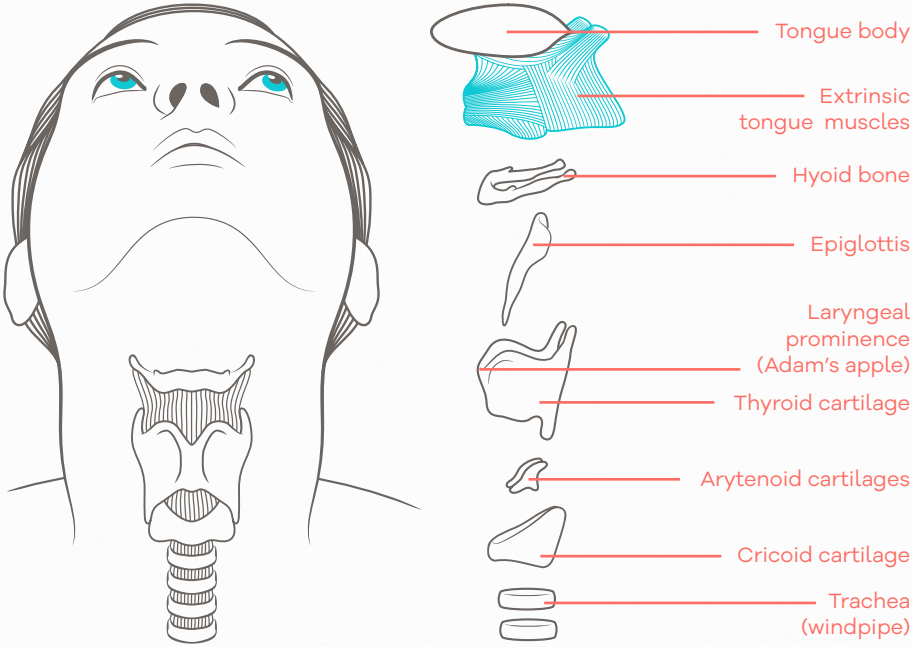
Opposite: A front view of the larynx and the top of the windpipe with an exploded view of the larynx to the right.

Phonation

Voiced sounds, or phonation, are produced by vibrations of the vocal folds housed inside the larynx, which is attached to the muscles of the tongue, to the jaw and to the base of the skull. All the laryngeal structures are held together by a series of ligaments and membranes, which makes the entire system highly mobile.

The laryngeal structure

The larynx is a collection of cartilages suspended from the hyoid bone, which is the only bone in the skeleton not directly connected via a joint to another bone. The lowest laryngeal cartilage is the cricoid, which sits on top of the trachea (windpipe). Above the cricoid cartilage and towards the back are two arytenoid cartilages, attached to the cricoid by joints and shaped rather like two small pyramids. Articulating with the cricoid cartilage is the thyroid cartilage, which is made up of two plates of cartilage, fused at the front and wide apart at the back. Attached to the inside of the thyroid cartilage is the epiglottis, which is made of a special soft elastic cartilage so that it can fold down easily over the larynx during the act of swallowing.



The vocal folds – smaller than you might think

The vocal folds, which are tiny (approximately 12.5–23mm long in most adults), lie inside the larynx. They are attached at the front to the inside of the thyroid cartilage and at the back to the arytenoid cartilages.

A complex system of laryngeal muscles coordinates to open, close, tension and elongate the vocal folds, which are opened (abducted) for breathing and closed or partially closed (adducted) for phonation.

The vocal folds are made up of several different layers, each with different physical properties:

Layer 1: The outermost layer of the vocal folds is a thin mucous membrane (epithelium), acting rather like clingfilm to hold the shape of the vocal folds.

Layer 2: The innermost layer, called the "body", is muscle, which can contract and relax. Like most muscles it can also be stretched via other muscles.

Layer 3: Between the epithelium and the body is the "cover" of the folds, which has three discrete layers, two of which make up the vocal ligament. The vocal ligament layer provides firmness to the vocal folds.

Two sets of folds – true and false vocal folds

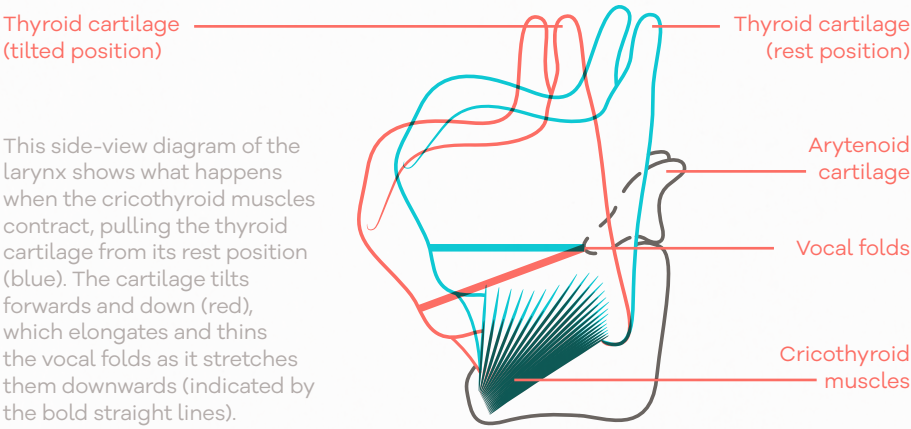
Although referred to as the "false" vocal folds, the ventricular folds do not operate in the same way as the "true" vocal folds. The false vocal folds are mostly fatty tissue and mucus glands, with a small slip of muscle at the anterior end (front). They are positioned slightly above the true vocal folds but not touching. Together with the vocal folds and epiglottis, the false vocal folds act to make a firm seal over the windpipe so that no food or liquid enters the airway during swallowing. The mucus glands provide essential lubrication for the true vocal folds, which should be moist like the inside of the mouth. In normal phonation, the false vocal folds need to be away from the mid-line so that they do not interfere with true vocal fold vibration.

Control of pitch

When we wish to speak, sing or make a voiced sound the vocal folds begin to move closer together (adduction). As we breathe out the airflow draws the vocal folds together. As they snap shut the airflow is interrupted and pressure builds, throwing them apart again. This cycle of closing and opening is aided by the elastic quality of the vocal fold tissue and it can happen tens or thousands of times a second. For example, a bass singer's bottom C is approximately 65 cycles a second, and a soprano's super F is around 1,395 cycles a second.

The vocal folds can be tensioned by changing the relationship between the cricoid and thyroid cartilages that house them. When the thyroid cartilage tilts forwards on the cricoid cartilage, the vocal folds inside will be elongated, similar to pulling on an elastic band. Broadly speaking, when the vocal folds are relaxed and short, the pitch of the voice is lower; and when they are stretched and tensioned, the pitch is higher.

An alternative way of changing length and tension in the vocal folds in order to raise the pitch is by relaxing the vocal fold muscle itself. When the muscle is relaxed its overall length is longer, and the ligament layer is stretched, which allows it to vibrate faster in response to higher driving airflow.



This side-view diagram of the larynx shows what happens when the cricothyroid muscles contract, pulling the thyroid cartilage from its rest position (blue). The cartilage tilts forwards and down (red), which elongates and thins the vocal folds as it stretches them downwards (indicated by the bold straight lines).

Loudness in the voice

A number of different elements contribute to vocal loudness. In simple terms, a higher, more pressurised airflow plus a more resistant vocal fold muscle will give a louder sound.

When they are vibrating, healthy vocal folds also produce a kind of "ripple wave", which rolls from the centre to the side. A large ripple wave gives a louder sound, whereas a smaller wave gives a quieter sound. The vocal folds can also vibrate without actually meeting and this gives a breathy sound, because of the air turbulence in the sound signal. The pitch of the note, the timbre of our voice and the use of the resonating chambers can also all affect our loudness outcome. It's a flexible system.

Resonation

The vocal tract is essentially an airspace resonator made up of a series of interconnected "chambers", each with its own resonance bandwidth. Within the resonator, air molecules can be directly excited by the sound source of the vibrating vocal folds. You can easily experience this by holding your breath and flicking your fingers against your neck just to the side of your larynx. Even without using a voiced sound, you can hear the resonance change when you make different silent vowel shapes. Each "vowel" will seem to have its own pitch.

This happens because there are areas of resonance in your vocal tract that enhance or damp specific frequencies. Whenever the harmonics of your fundamental frequency lie close to the resonance frequencies of your vocal tract, the sound levels of those harmonics will be boosted, making your voice sound louder. By using vocal tract shaping to adjust and enhance those resonance frequencies we can consciously "shape" our resonance: a larger resonating chamber will boost the lower harmonics of the sound signal and a smaller or narrowed chamber will boost the higher harmonics.

The four main regions of vocal tract resonance are the pharynx (or pharyngeal tube), the nasal cavity, the oral cavity (including the tongue, jaw and lips), and the epilarynx.

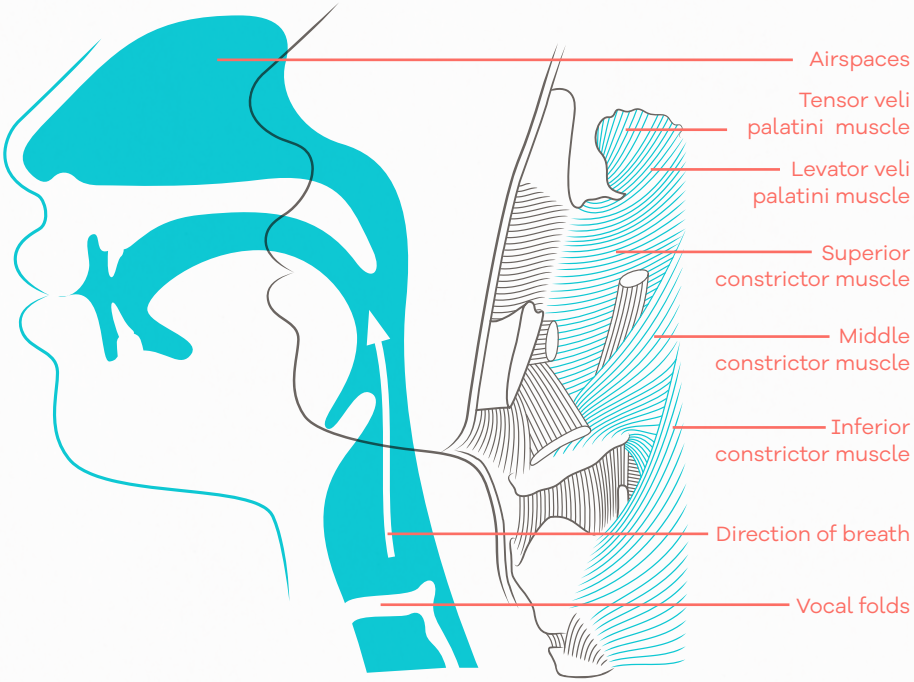
The pharynx

The pharynx, or pharyngeal tube, is the largest and most important resonator of the voice, extending upwards from the back of the larynx into the mouth and nasal cavities. It is wrapped around the larynx rather like a muscular sleeve.

The diagram (opposite, right) shows several soft palate (palatine) and constrictor muscles, which are used in swallowing and to move food down the oesophagus towards the stomach. The muscles can also be used to narrow or widen parts of the pharynx to alter resonating quality. The soft palate can be arched or pulled horizontally to change the resonating space. The larynx can be raised or lowered to shorten or lengthen the pharyngeal tube, thereby giving a perceptually brighter or deeper resonating quality respectively.

The nasal cavity

Raising the soft palate (velum) closes off the nasal cavity from the oral cavity. This is necessary for non-nasal consonants and all non-nasalised vowels that occur in languages such as English, Italian and German. Lowering the soft palate will open the nasal cavity, giving a resonance coupling of the nasal and oral pharyngeal regions, and a perceptually nasal sound quality. For nasal consonants and nasalised vowels (as in French), the soft palate is lowered. Because the nasal cavity is full of soft tissue, it is a rather inefficient resonator. However, some contemporary commercial singers consciously mix in a little nasal resonance to blend with other instruments, or for vocal effect.



Above, left: The breath filling the airspaces (in solid blue) of the vocal tract. Any of the cavities above the vocal folds can be reshaped to change resonating quality.

Above, right: The main muscles of the pharynx and soft palate.

The oral cavity

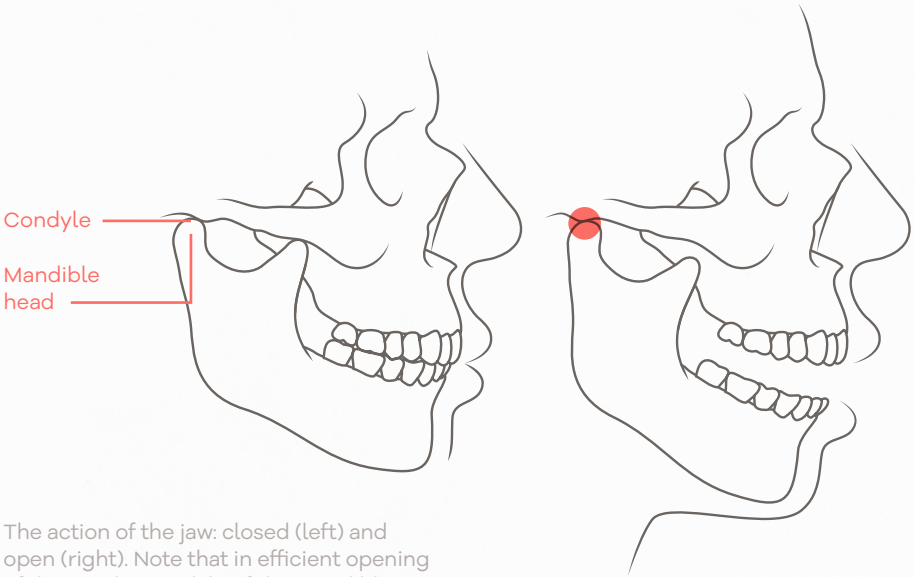
The oral cavity runs from just behind the lips to the arches at the back of your mouth called the "faucial pillars", which you can see if you open wide and look in a mirror. Within this resonating chamber, the soft palate, the tongue, and the jaw can act together or independently to change the resonant quality.

The tongue is far bigger than most people think and is made up of a complex set of muscles. Because the tongue is connected to the hyoid bone, the way we use it can have a big impact on vocal comfort and resonating quality.

High forward tongue body: As in making a "y", a high body will tend to give a brighter sound. If the tongue tip is forward in the mouth, this also gives a perceptibly brighter sound.

Rearward tongue body: If the body is backed towards the rear of the oral cavity, the sound will be darker, or "covered". If the tongue tip is retracted, or curled (as in the rhotic "r" of American speech), the sound will also be darker.

Tongue root tension: This refers to when the whole tongue is pulled backwards and down, which will narrow the pharynx and is likely to produce a perceptibly throaty quality to the sound. In a speaking voice we might recognise this as the voice of the comedy character Mr Bean.



The action of the jaw: closed (left) and open (right). Note that in efficient opening of the jaw the condyle of the mandible head should not move forward of the point indicated by the red dot.

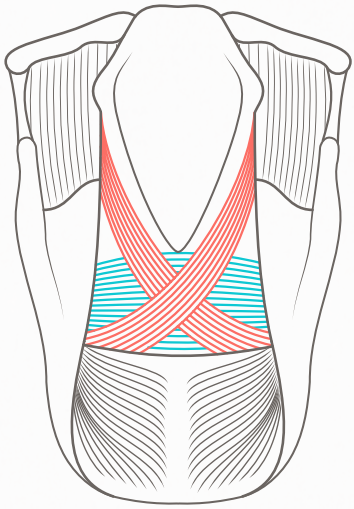
The jaw (mandible) forms the side and front boundary of the oral cavity. Although you might think that opening the jaw wider will produce a louder sound, the jaw's unusual hinging mechanism means that a widely opened jaw actually reduces the resonating space in the oral pharynx. To find a bigger space it is usually more effective to adjust the resonating chambers further back and down in the vocal tract.

The lips are used mostly to form vowels and consonants but they can also make small changes to the overall vocal tract length. Lip protrusion will lengthen the vocal tract and lip widening will shorten it, lowering or raising all the resonance frequencies respectively.

The epilarynx

The part of the larynx between the vocal folds and the epiglottis is sometimes referred to as the "epilarynx". This funnel-shaped tube begins at the base of the cricoid cartilage and includes the muscles between the arytenoids at the back of the larynx, the epiglottis and the muscles around that. When the muscles around the epiglottis contract, they will narrow the tube in an anterior-posterior direction (front to back).

A narrowed epilarynx gives a brighter, perceptually "twangy" sound that will boost the sound levels of your voice. Opera singers use this narrowing, coupled with a widened and elongated pharynx, to create the "singer's formant", a special clustering of resonance frequencies that allows them to project acoustically above (or more accurately through) a full orchestra.



The muscles that work together to narrow the epilaryngeal tube of the larynx at the base (the interarytenoid muscles in blue) and around the epiglottis (the oblique and aryepiglottic muscles in red).

Age and gender matter

Your voice is a biomechanism that changes with the rest of the body, growing and maturing – along with your lung capacity and the ability to control breath – as part of the life cycle from child to adult. The positioning and size of the larynx are important factors, as well as the relative firmness of the cartilages.

A child's voice

A baby's larynx functions differently from an adult's. The infant larynx is high – almost in line with the jaw – so that the epiglottis and soft palate can work together for simultaneous breathing and suckling. During early childhood the positioning of the larynx drops a little, and during puberty and into early adulthood it will drop even further.

The laryngeal cartilages of a young child are softer and more pliable than an adult's, and therefore less able to resist muscular pull. Up until puberty the layers of the vocal folds are not fully differentiated, which gives the voice a different timbre from that of an adult. Also, children's vocal folds are shorter, which gives their voices a higher pitch. Smaller lungs and weaker abdominal muscles mean that children are not able to carry out the same type of energetic vocal tasks as adults. So, for a child to sing an operatic aria or a power ballad is really no more appropriate than for them to run a marathon.

The male and female voice

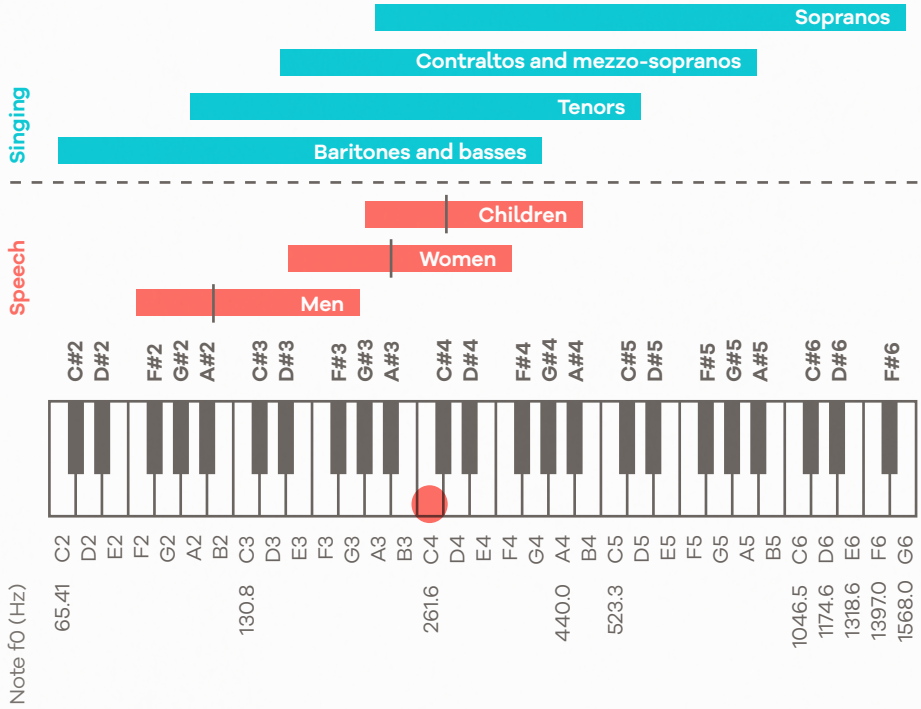
During childhood, male and female voices develop along roughly similar lines, but this changes dramatically at puberty. Both experience an alteration to their voice, but a girl's voice changes in line with her general growth patterns, whereas for boys the growth of the laryngeal cartilages and vocal folds is disproportionate to the rest of their anatomy, resulting in a dramatic period of voice change. These changes, which occur in response to high levels of testosterone, account for some important differences between adult male and female voices.

Average vocal fold lengths (in millimetres) during lifespan

	Infancy	Puberty	Adult male	Adult female
Total length	6–8	12–15	17–23	12.5–17

Both have the same component parts, and function in the same way, but the overall length of the male vocal tract is greater and the larynx in particular is larger with longer, thicker and heavier vocal folds. (The chart opposite shows average vocal fold lengths across a lifespan.)

In general, male and female speaking pitches are noticeably different: the average adult female speaking pitch is about 20 per cent higher, while men will have a pitch range that is a fifth to an octave lower than that of most women. The diagram below (with the piano keyboard) shows the voice range for children and adults, together with the singing voice range for different voice classifications, from voices with the highest pitch range (soprano) to the lowest (bass).



The speaking and singing voice ranges show the fundamental frequency values for each C (or "do") of the musical scale in Hz – the lowest to the left and the highest to the right. Middle C is marked with a red circle. The vertical line through the speech bars shows the average speaking pitch for each group.

Word articulation

The sounds of speech are made up of words and syllables. Notice that the spelling and sound of a word can differ – "the" has three letters but only two sounds: "th" and "e". The classification of the sounds of the world's languages is a field of study known as phonetics. The phonetic symbols for the two sounds "th" and "e" are **/ð/** and **/ə/**. Single sounds like these are called phonemes. The word "bat" has three phonemes, "b", "a" and "t", or **/b/**, **/æ/** and **/t/**. Notice that if you remove any of these phonemes, the word will change.

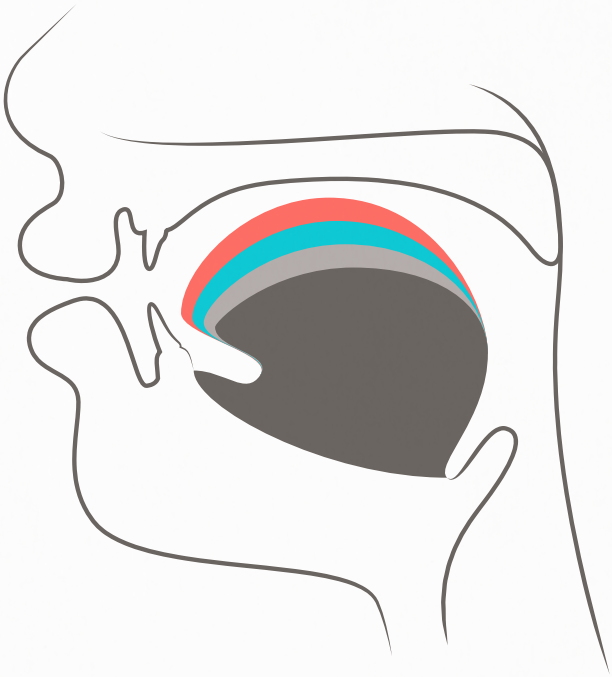
How vowels and consonants are made

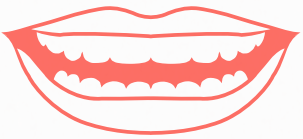
There are two groups of phonemes: vowels and consonants. Vowels are unobstructed and voiced: the vocal folds are vibrating, but there is nothing in the vocal tract interfering with the exit of the sound. Consonants are partially or fully obstructed, and may be voiced or unvoiced. For example, to make the sound "f" the bottom lip is touching the top teeth, allowing the airflow through under a higher pressure (partially obstructed) but the vocal folds do not vibrate (unvoiced).

More about vowels

Each vowel falls within a specific frequency bandwidth, which enables the hearing system to discriminate between them. Most of the shaping of each vowel is done inside the mouth, a feature exploited by ventriloquists. In singing training, much attention is given to the resonating quality of particular vowels.

Opposite: The idealised positioning of the mouth and the tongue for four of the simple vowels in English. From highest to lowest position you can see the vowels that appear in these words: fl**ee**ce (red **/iː/**), dr**e**ss (blue **/e/**), n**u**rse (grey **/ɜː/**) and tr**a**p (black **/æ/**).





/i:/ as in fl**ee**ce

/e/ as in dr**e**ss

/ɜ:/ as in n**ur**se

/æ/ as in tr**a**p

Vowels can be long or short, simple or compound. Simple vowels are single sounds. Compound vowels (also known as diphthongs) are sounds made up of two vowels within a single syllable. Compound vowels involve movement of the tongue or lips, beginning with one vowel that moves towards another while the sound is being made. Examples in Standard British English (SBE) would be the vowel in the exclamations "oh" (/əʊ/) or "oy" (/ɔɪ/). For the syllable "oh" the tongue begins in the central position and moves to a higher position towards the centre-back of the mouth and is uttered with more closed lips in the second part of the sound (the /ʊ/).

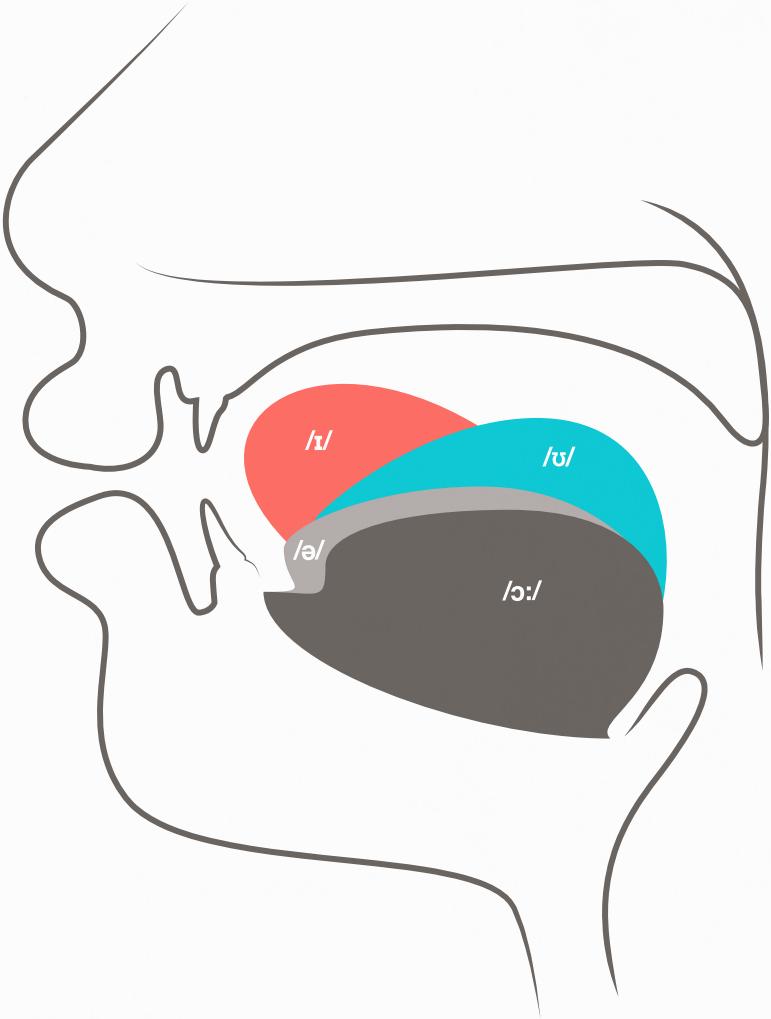
These tongue, lip and jaw positions are really only a guide. In reality, even within the same country there will be variations in vowel placement according to regional and socio-linguistic customs. Language is also a living and changing entity and therefore pronunciation styles differ between eras. Think of the difference between a BBC newsreader in the 1950s and the present decade.

Long vowels	iː	ɔː	ɑː	ɜː	uː
Keyword	fleece	thought	palm	nurse	goose

Short vowels	ɪ	ɒ	æ	ʌ	e	ʊ	ə
Keyword	kit	lot	trap	strut	dress	foot	comm**a**

Compound vowels	ɪə	ɛə	ʊə	eɪ	aɪ	ɔɪ	əʊ	aʊ
Keyword	near	square	cure	face	price	choice	goat	mouth

Standard British English contains long, short and compound vowels. This chart shows the types of vowels with their phonetic symbols and a keyword for each phoneme. Note the final sound (emboldened) in "comm**a**".



Tongue positions for diphthongs.

More about consonants

Consonants are defined by their **manner**, **placement** and **voicing** – that is, how the air is obstructed (manner), where the main obstruction is (placement), and whether or not the vocal folds are vibrating (voicing).

In Standard British English there are six categories of **manner**:

Plosive: a complete obstruction of the airstream, followed by a subsequent release of air – for example, "p" or "b".

Nasal: characterised by nasal resonance – for example, "m" or "n".

Fricative: produced by a continuous airstream passing through a narrow channel; contains high-frequency noise – for example, "f" or "v".

Affricate: a plosive ending in a fricative – for example, "ch" or "dge".

Approximant: sounds like a vowel because there is no obstruction of the airstream but it is made with a movement of the articulators – for example, "y", "r" or "w".

Lateral Approximant: where the sound passes over the sides of the tongue – for example, "l".

Placement refers to where the consonant is made and in Standard British English we have the following nine locations:

Bilabial: using both lips – for example, "p", "b" or "m".

Labiodental: using the lower lip and the upper front teeth – for example, "f" or "v".

Labial-velar: using the lips and the back of the tongue at the velum (soft palate) – for example, "w".

Dental: using the tip of the tongue and the teeth – for example, "th".

Alveolar: using the tip or blade of the tongue and the alveolar ridge – for example, "t", "s" or "l".

Post-alveolar: using the tip or blade of the tongue and the postalveolar region of the hard palate – for example, "j" or "sh".

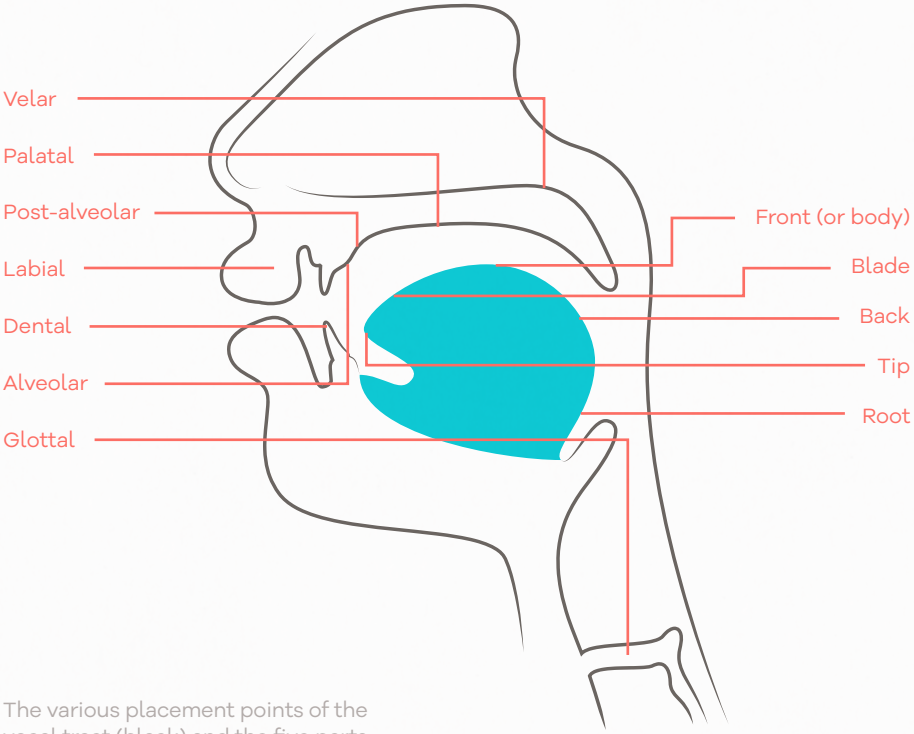
Palatal: using the tip of the tongue and the palate – for example, "y".

Velar: using the back of the tongue and the soft palate – for example, "k" or "g".

Glottal: using the glottis, or space between the vocal folds when they are open – for example, "h".

An excellent way to explore consonant manner and placement is by surrounding the target sound with a vowel such as "ah" or "er" and notice what moves to create the consonant. For example, "ah-f-ah" will show you very quickly that the consonant "f" is formed between the top teeth and bottom lip, and that it is made by air frication between the upper teeth and bottom lip. You can check for **voicing** – whether or not the vocal folds are vibrating – by putting the fingers of one hand flat on the front of your voicebox, or larynx, to feel any vibration on the target sound. Thus for "f" the manner is fricative, the placement is labiodental and there is no voicing, making it an unvoiced labiodental fricative. Compare that with "ah-v-ah". This is the same manner and placement, but now the vocal folds vibrate on the "v", making it a voiced labiodental fricative.

Equally, "ah-p-ah" uses both lips to stop the airflow completely before releasing it in a burst, but the "p" is unvoiced (unvoiced bilabial plosive), whereas "ah-b-ah" indicates a voiced bilabial plosive.

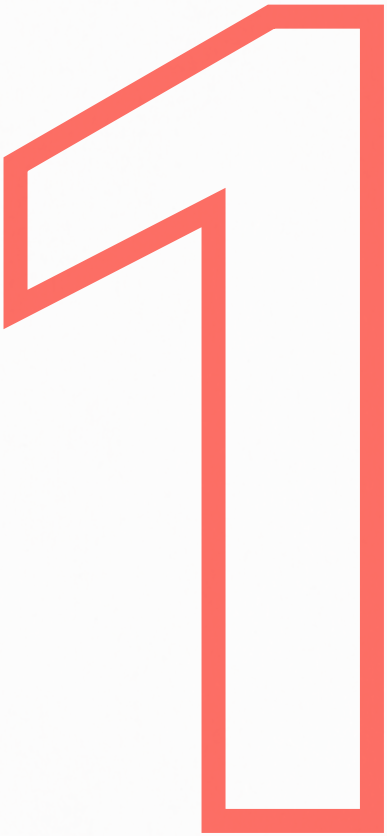


The various placement points of the vocal tract (black) and the five parts of the tongue (blue).

Getting started

Getting started

Speaking and singing warm ups



Speaking and singing warm ups

The human voice is extraordinarily flexible. It can be used for talking, mimicry, ventriloquism and beatboxing, as well as many different styles of singing – from humming everyday melodies around the home to performing artistically in the grandest opera house.

Although you are probably using your voice every day, it will still benefit from warming up. Using your voice is a motor skill that requires fine control and vocal muscles will work more efficiently when warmed up. Warm ups can also help you to deal with negative habits that can stop your voice sounding as good as it might. Warm ups allow each of us to focus on the sound and feel of our voice, and they help to improve the range of notes, vocal stamina and ability to project.

There are four key areas that need to be worked for an effective warm up: body, breath, the vocal folds and the "sound-shapers": tongue, jaw, lips and the soft palate. Before you begin, remember the golden rule to balance your body first (see pages 22–23).

The warm ups that follow consist of a variety of general voice exercises to improve both speaking and singing, as well as specific, task-oriented exercises to support the development of new vocal skills. Although we speak and sing with the same vocal mechanism, the way we use our voice for singing is different. Exercises 12–17 will help to prepare your voice specifically for singing. There are warm ups for breathing, pitch range and for making sustained sounds and sample melodic patterns for a broad range of musical styles.

№01 The most efficient breathing technique

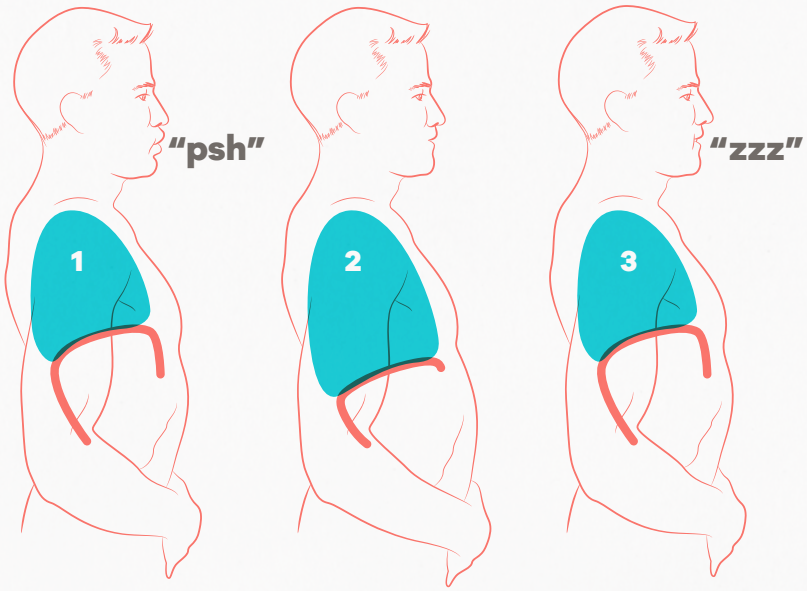
The voice needs breath to power its sound. The diaphragm, the principal muscle for breathing in, will contract more efficiently if your abdominal wall is released on the in-breath. This will allow breath to be drawn deeper into the lungs. Use this three-step exercise to make your abdomen move slightly when you breathe in and out.

1 Put your thumb on your navel and the rest of the hand lower down. Make a strong **"psh!"** sound, then elongate it: **"pshhhhhhhh"**. As you make the sound, move your navel inwards. This "feeds" the air in and upwards towards your vocal folds.

2 When you have run out of air, allow your navel to release outwards to take the air in again. This moves the abdominal contents (viscera) down and out slightly, allowing the bottom of the lungs to move down and helping the air to rush in.

3 Now repeat on a voiced sound such as **"zzz"** or **"vvv"** – it's the same action but this time you're adding vibration from your vocal folds.

This low breathing will help to calm nerves, give you focus and feed your voice with sufficient breath to create good vibrations.



№02 Breathing in rhythm

Breathing patterns change depending on the task – speaking, shouting, singing and the varying length of sentences all affect the amount of air needed, which means that the whole breathing system needs to be very flexible. This exercise will help you to plan your breathing for sentences of different lengths.

1. Buzz on a **"zz"** or a **"vv"**, making the sound last for a couple of seconds. Notice how much breath you need.
2. Build a sequence of four two-second buzzes, breathing between each buzz. Notice how much breath you need for this length of buzz.
3. Repeat with four-second buzzes.
4. Repeat with eight-second buzzes.
5. Now experiment with sequences made up of buzzes of differing lengths, such as 2/2/4/8 or 4/2/1/12 (with the / sign indicating when you should breathe in). Take in more or less breath as needed.

№03 Making space in your throat

A feeling of constriction in the throat can lead to a tight sound, a tired voice and a lot of throat clearing. "Opening" the larynx will give a clearer, warmer and more authentic sound.

Of the two sets of vocal folds in the larynx, only the true vocal folds are needed for speaking and singing. The false folds are there to close the larynx for swallowing. They are also part of our flight-or-fight mechanism, so that when we are stressed they can engage, which makes the throat feel tight and the sound raspy. This exercise will help you to find and control the false vocal folds so that you can get them out of the way for efficient speaking and singing.

1. Sigh out on a whispered "huh". This will feel relaxed.
2. To find the false vocal folds make the **"huh"** sound more noisy, feeling the inside of your throat get tighter. This negative practice helps you to be aware of any false vocal fold constriction.
3. To move your false vocal folds out of the way, make a silent "huh" – you are still breathing out but there is no turbulent air-noise or friction in the throat.
4. Move from step 2 to step 3 and feel the differences between them. Your false vocal folds are changing the airstream in your throat – you may be able to feel something moving into the centre of your throat and out to the sides.
5. While breathing out, hold the silent "huh" in your throat (false vocal folds held out of the way) and count aloud from one to five in your normal voice. If you run out of breath, keep the feeling of space in the throat and breathe in again before you count.
6. Repeat step 5 while reading a couple of lines from a book.

"...12345..."

Working your tongue

Your tongue is big – far bigger than what you can see in your mouth, filling the lower jaw down to the hyoid bone. Working the back and the root of your tongue will give you a clearer sound and more accurate diction.

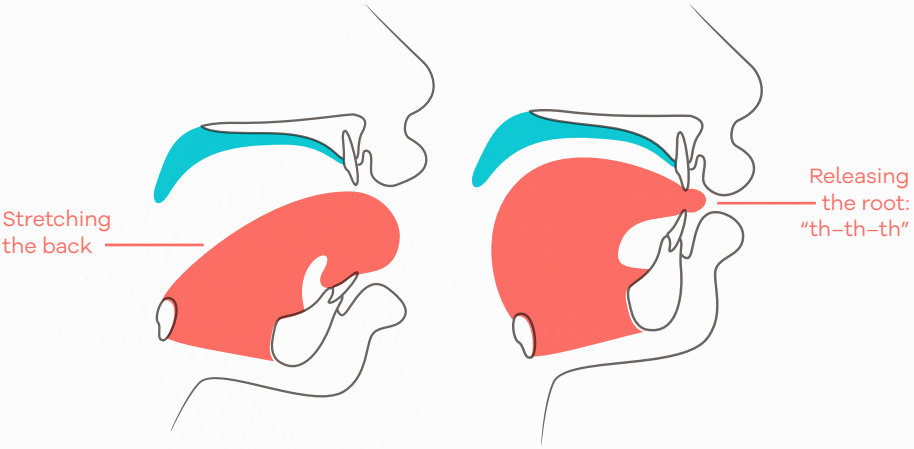
№04 Stretching the back of the tongue

1. Put the tip of your tongue behind your lower teeth and keep it there.
2. Drop you jaw and roll the middle of your tongue up and out of your mouth. Feel the stretch in the middle and back of your tongue.
3. Hold that position for five seconds then bring your tongue back into your mouth.
4. Do this three times, then speak a sentence. You should find you have a more resonant sound.

№05 Releasing the root of the tongue I

When making a "th" sound, the tip of the tongue goes between your teeth, whether the sound is unvoiced (as in "think") or voiced (as in "that").

1. Say the unvoiced sound "th" (as in "think") three times: **"th–th–th"**. Now say the voiced sound "th" (as in "that") three times: **"th–th–th"**.
2. Repeat step 1, sticking your tongue further out of your mouth.



№06 Releasing the root of the tongue II

1 Open your jaw just enough to put the tip of a finger between the middle of your upper and lower front teeth. This is to keep your jaw stable.

2 Make the clicking sound of irritation **"tut tut"**. Your tongue touches the area behind your top teeth, known as the alveolar ridge, then it gets pulled away quickly with a sucking action.

Experiment with different clicking sounds by moving the contact point of your tongue. Further back along the hard palate (the postalveolar region) will give you a firmer click.

№07 Cleaning your teeth

A flexible tongue is essential for shaping vowel sounds and articulating clear consonants. The tongue has a multitude of muscle fibres running in different directions. This exercise moves them all and gives your tongue a great two-minute workout.

1 Clean your teeth using your tongue.

2 Use the tip of your tongue to rub up and down on the inside and outside of each tooth. Start at the back of the upper teeth and work your way round each tooth. If you find your jaw tensing during this process, stop and swallow.

3 Repeat with the lower teeth. Your aim is to touch every part of each tooth with the tip of your tongue.

№08 Releasing jaw tension

A tense jaw can lead to tightness further down in the throat. This massaging and chewing exercise will help to release jaw tension and also make you aware of some of your resonating spaces.

1. Massage your cheeks with your knuckles. Take particular care with the area under your cheekbones because this is where most of your jaw tension will be.
2. Now stop the massaging and chew for 20 seconds with your lips open – not just up and down, use a circular motion. Don't open the jaw too wide, you just need to move the muscles.
3. Keep chewing, close your lips and hum.
4. Keep chewing and humming, and put your fingers in your ears. You will hear the resonance moving around inside your head as you chew.
5. Keep chewing, take your fingers out of your ears and speak a sentence or read aloud. You might find it's tricky to start with, or even sounds a little odd, but the chewing separates your jaw, tongue and lips for better diction.
6. Stop the chewing and speak the sentence again. Your voice will sound freer, with the feeling of more space inside your mouth.

№09 Working your lip and face muscles with five wows

Your lips are the last part of your vocal anatomy to shape the sound, but they can help you create clarity in your speaking and singing.

1 Whisper "wow". Your lips go from pursed to open to pursed.

2 Say **"wow"** five times, getting more excited and using bigger movements, until your last **"WOW"** uses all of your face muscles.

№10 Toothbrush talk

Many people use their jaw, tongue and lips as one unit, which isn't using your mouth to its full potential. This exercise helps you to separate your lips and tongue movements from your jaw movements.

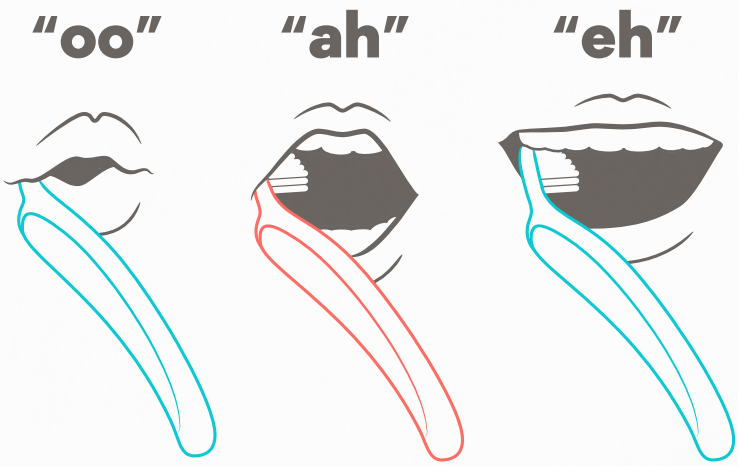
1 Put a toothbrush (or a finger) in one side of your mouth and hold it steady with your back teeth.

2 Say the vowel sounds **"oo"**, **"ah"** and **"eh"**. Your lips and tongue can move to create the vowels, but the toothbrush must stay still.

3 Start speaking. Keep your jaw still and the toothbrush steady – don't bite. If the toothbrush moves up and down, you are using your jaw to speak.

4 Repeat with the toothbrush on the other side of your mouth.

5 Repeat with the toothbrush held by your front teeth only.

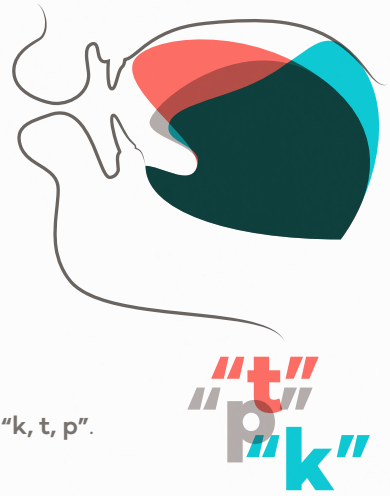


№11 Warming up your articulators

1 Clear articulation of consonants is an important part of good speaking and singing. By using this routine to work the tongue, soft palate and lips you can warm up those parts of your mouth that shape the sounds of speech.

2 Whisper these three separate sounds: **"p, t, k"**.

3 Concentrate on the lips (p), the tip of the tongue (t) and the back of the tongue (k) making contact to produce the sounds.



4 Whisper each sound three times – **"p, p, p"** – **"t, t, t"** – **"k, k, k"**. Make the movement of the articulators as efficient as possible. Don't over-open the jaw and keep your cheeks soft, massaging them with your knuckles to make sure you are not tensing.

5 Now say **"p, t, k"** aloud three times.

6 Reverse the order and repeat three times **"k, t, p"**.

7 Say **"p, t, k, k, t, p"** three times.

№12 Straws and bubbles

The basic approach to breathing for singing is the same as in the general warm up exercises 2 and 3 (pages 54–55), but for singing the way you release the breath on the way out is more important.

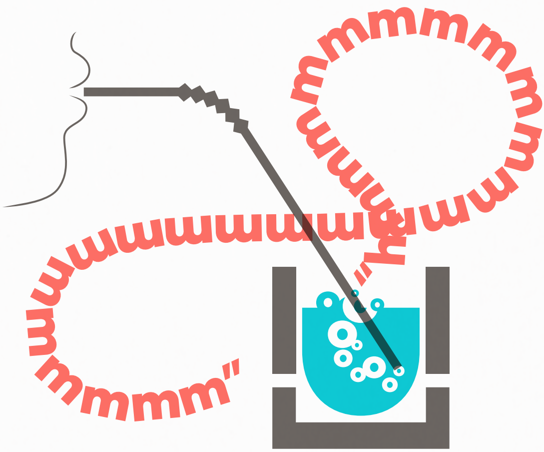
This exercise will help you create sufficient airflow for sung sounds. It's also a good way of checking that you are not overworking your voice. You will need a drinking straw and a large glass, half full of water. A medium-narrow straw is best but different straw sizes will give different levels of resistance. Sit upright when you do this – you don't want to compromise your breathing by bending down.

1 Start to blow down the straw into the glass of water. Your aim is to keep a constant airflow so that you see a steady stream of bubbles emerging in the water. Breathe when you need to.

2 Now hum down the straw. Keep the airflow gentle – if you splash yourself you're blowing too hard. You are aiming to maintain the bubble factor while you make a voiced sound.

3 Start moving between the unvoiced breath and the voiced hum. Taking a breath any time you need to, make sure that the bubbles stay constant when you change from unvoiced to voiced. Use this rhythm to practise: a four-count of breath (unvoiced) followed by a four-count of hum (voiced).

4 After 30 seconds of this, lift the end of the straw just out of the water and repeat the pattern of unvoiced to voiced. You will see ripples appearing on the surface of the water – these are a visual representation of your airflow, so your aim should be to make sure the ripples stay the same when you move from unvoiced to voiced sounds.



5 So far you have been using the water as resistance to your airflow. Put the glass down and use the tip of your finger to partly cover the end of the straw. Now when you hum down the straw, the resistance comes from your finger partly blocking the exit.

6 Finally, take your finger away and hum down the straw.

Using these methods of gentle resistance allows your vocal folds to vibrate efficiently without forcing, and it enables you to practise your breath flow. You can use this exercise for a few minutes each morning to get your breathing and your voice going. If your voice gets tired during the day, take a minute out to repeat steps 5 and 6 with the straw.

Warming up your range

In both speaking and singing we use different pitches, or notes. For example, you can say "mm-hmm" as the sound of agreement in different ways: gentle, doubtful, emphatic, sarcastic, excited. These are all forms of "pitch-glide", moving between sounds. When singing we generally use a wider pitch range than in speaking, so it is essential to warm up your range to avoid vocal strain when working on song material.

№13 "Ng" glides

This exercise is widely used by singers of all types and was first introduced by the opera singer and teacher Lilli Lehmann in 1902.

1. Say the word **"sing"** and extend the "ng" sound at the end. Your tongue will be raised at the back and the air and sound will be coming out of your nose. You will find it helpful to spread your tongue at the sides, so that it is touching your upper back molars.
2. Using this sound, think of a small animal whimpering and make a series of short repeated **"ng"** sounds on a comfortable mid-range note. Aim to keep your volume level at medium to quiet.
3. Keeping the same "ng" sound, feel and volume, start to make small pitch-glides moving up and back down. Practise this movement a few times without thinking of specific notes to sing. Check that you are gliding between the pitches. Do this slowly and gently so that you can really feel and hear everything between your start and finish notes.
4. Now make the pitch-glide of a fifth up and down (do-sol-do). Using your "ng" sound, start on a note that is mid-low in your pitch range (not the lowest note). Repeat this interval and move up in steps until you have covered at least 12 notes.
5. As you go towards the higher notes using the "ng" sound, make small movements with your lips and jaw. This will help free up your voice while the vocal folds are being stretched for the highest notes. It also helps you to avoid jaw tension.
6. Make the seven-note pattern 1-3-1-5-1-8-1, or do-mi-do-sol-do-do-do, sliding between the notes. Repeat the pattern, moving up a half-step (semitone) until you have covered your full pitch range. Most singers like to move incrementally up and down through their range.

№14 Puffy cheeks

This is an alternative exercise if you find that the "ng" position makes your voice feel tight. This substitute sound is made with almost closed lips, which enables you to keep the volume quiet for warming up while practising your pitch-glides. The voice science term for this technique is "semi-occluded vocal tract".

1. Close your lips in preparation for the plosive consonant "b", holding a little bit of air in the mouth just behind the lips.
2. Let the air go out of the mouth as you say **"b"**.
3. Now close the lips again, getting ready for the "b", but then make a small hole in the centre of your lips so that a little bit of the air can escape on a steady stream. Pretend that the small hole in the centre of your lips is a straw.
4. Take in a slightly larger breath and make this "loose b" sound again, sliding up in pitch and then back down again. You will feel a slight build up of air inside the mouth while you are doing this and your cheeks will be very slightly puffed out. The volume of the sound needs to be medium to quiet.
5. Follow steps 4–6 in the previous exercise.

Starting position, lips closed for a "b" sound

Tiny gap in the lips to allow the sound out

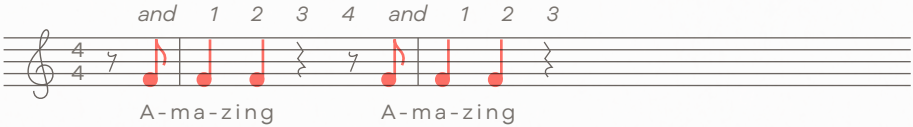
Same small gap in the lips with looser, slightly puffy cheeks

Sustaining sound

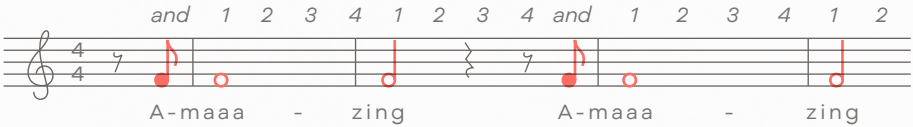
Almost all styles of singing involve more sustained sounds than speech. The first task is to work out which parts of the words can be sung on a note – the vowels and voiced consonants. The second task is to coordinate any unvoiced consonants in time with the melodic and rhythmic pattern of the music.

№15 Words with voiced consonants

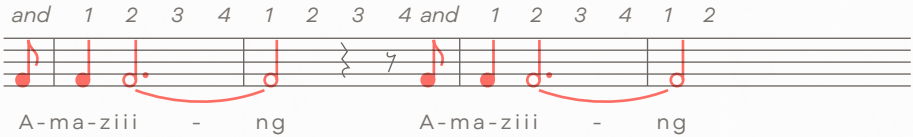
1. Say the word **"amazing"** slowly. Notice that there are no stopped consonants, so the airflow can move throughout this word.
2. Now sing the word on a single note. Make sure you sing all the vowels and all the consonants on the same note.



3 Now elongate the second syllable thus: **"amaaazing"**. Aim to keep your breath flowing and also to hold the shape of the vowel consonant for the elongated syllable. Don't change the size of your mouth opening. Note the proposed counting scheme for this step in the exercise.



4 Now shape the word differently by elongating the final syllable thus: **"amaziiing"**. Again, aim to keep the breath flowing and hold the vowel shape for the elongated syllable.



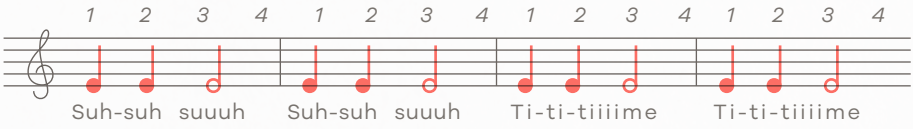
№16 Words with unvoiced consonants

1 Say the word **"summertime"** slowly. Notice the air flows through this word until you reach "t", which is a stopped consonant.

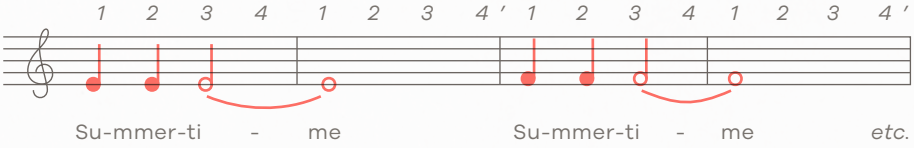
2 Now sing the word on a single note. Notice that you cannot pitch the "s" (since it is unvoiced) and that you have to stop your voice and your breath in order to make the "t" (an unvoiced plosive consonant). After the "t" there will be a small burst of air.

3 Isolate the syllables with unvoiced consonants – sing **"su"**, as in "summer", and then **"ti"**, as in "time". Feel when the voicing starts in these sounds.

4 Now you need to coordinate this with notes and rhythm. Sing **"suh-suh-suuuh"** then **"ti-ti-tiime"**. Follow this counting scheme:



5 Finally, sing the whole word **"summertiiime"**, elongating the final syllable as shown and moving up a five-note scale.

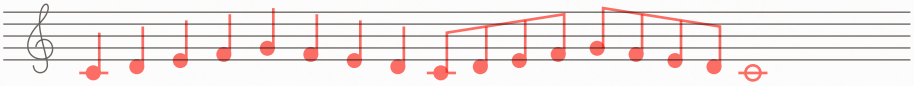


№17 Note patterns

Simple note patterns help you to move your voice between notes and around your vocal pitch range. Because this is still part of your warm up, use the vowel **"ah"** or **"oo"** to begin moving slowly between the notes to hear and feel them. You can then speed up, and move it up and down your range. These patterns contain the seeds of runs (classical) and riffs (contemporary).

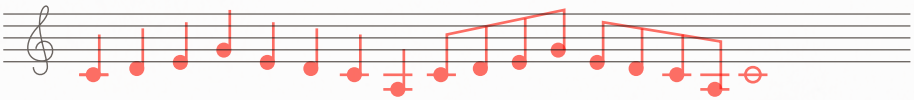
Classical pattern

This classical pattern is based on a diatonic scale. Start with this pattern that moves up and down five notes: C-D-E-F-G-F-E-D-C. If you are not a music reader, think **"do-re-mi-fa-sol-fa-mi-re-do"**. Singing the first note on **"ah"**, elongate the sound so that you can move smoothly between each of the notes that are adjacent to each other. Do this on a slow beat at first, then double the speed. When you are comfortable (but not before!), change key by moving up a half-step. Continue with this pattern for two minutes.



Contemporary pattern

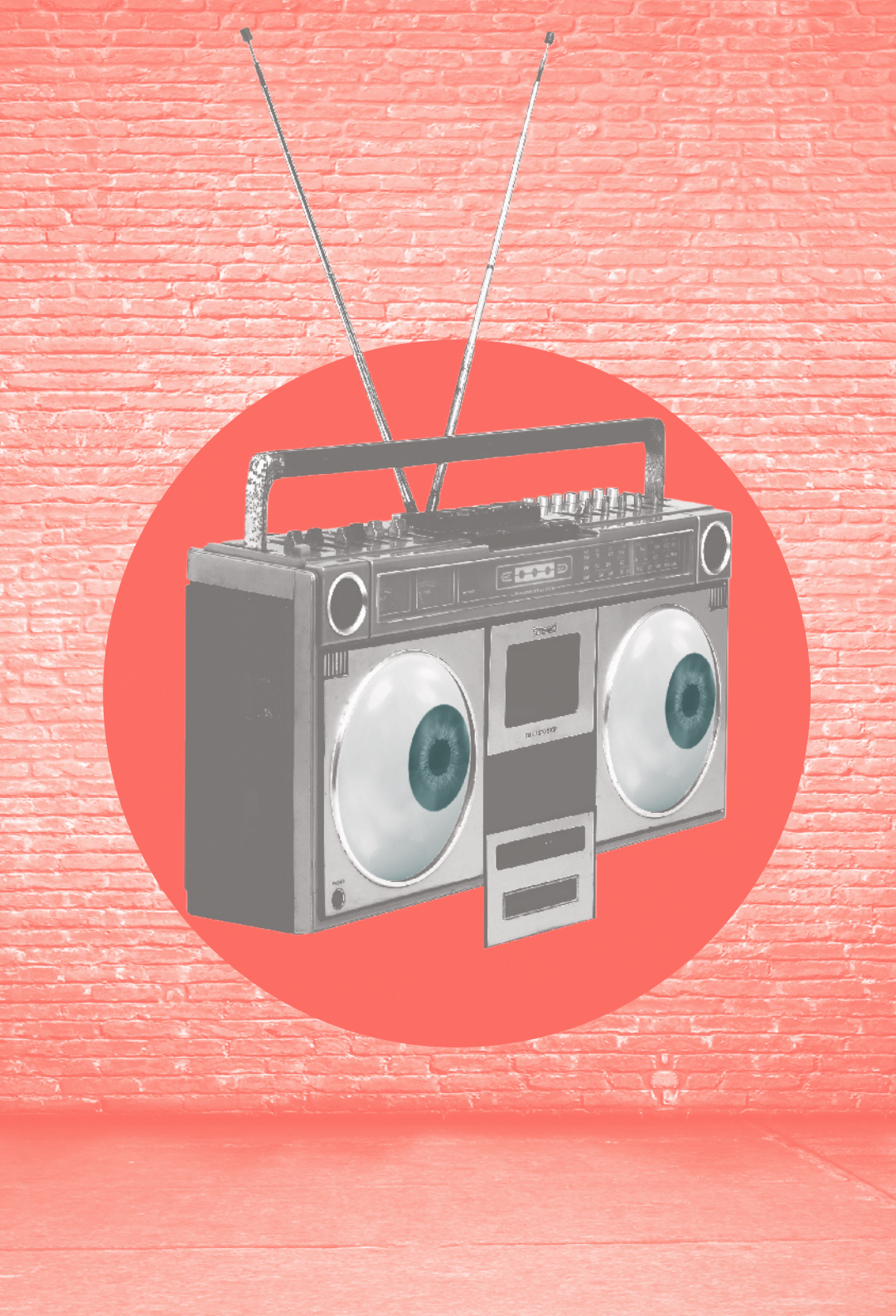
This contemporary pattern is based on a pentatonic scale. Start with the pattern that moves up and down on these five notes: C-D-E-G-A. Notice that you miss out the F, and that you add a low A towards the end. Think **"do-re-mi-sol-mi-re-do-la-do"**. Sing each note on a slow beat, then double the speed. When you are comfortable (but not before!), change key by moving up a half-step. Continue with this pattern for two minutes.



Speaking exercises

Speaking exercises

Speaking effectively
Ventriloquism and mimicry
Beatboxing



Speaking effectively

In 2008 the University of Sheffield conducted a study in the UK to identify a formula for the "perfect voice", based on the combination of tone, speed, frequency, words per minute and intonation. The study found that such a pleasing-to-listen-to voice should utter no more than 164 words per minute and pause for 0.48 seconds between sentences, which should not be rising in intonation.

The main purpose of speech is as a medium for language to enable us to communicate with others. This means that most speakers are not particularly aware of the sound quality of their own voice because they are paying more attention to what they are saying. Our speaking voice is often taken for granted until something goes wrong. This might be due to our habitual voice failing, perhaps for emotional reasons, or as a result of physical changes in the mechanism of the voice itself. Or, more commonly, when we find our voice insufficient for a particular situation, such as giving a speech.

It is estimated that up to 33 per cent of the world's workforce may be reliant, directly or indirectly, on their voice as part of their work. And, of course, on top of work we use vocal interaction as part of our social lives. Just imagine not being able to laugh and chat with your friends. When our speaking voice isn't working for us, the impact on our social life, our careers and our general confidence can be significant.

The exercises in this section will help you to improve the quality of your voice production. There are exercises for breathing, volume, pitch, clarity, intonation, how to avoid sounding nasal and how to coordinate your vocal articulation.

The following practice paragraph contains all the sounds of the English language, which makes it a helpful tool to explore all aspects of voice production:

Comma gets a cure

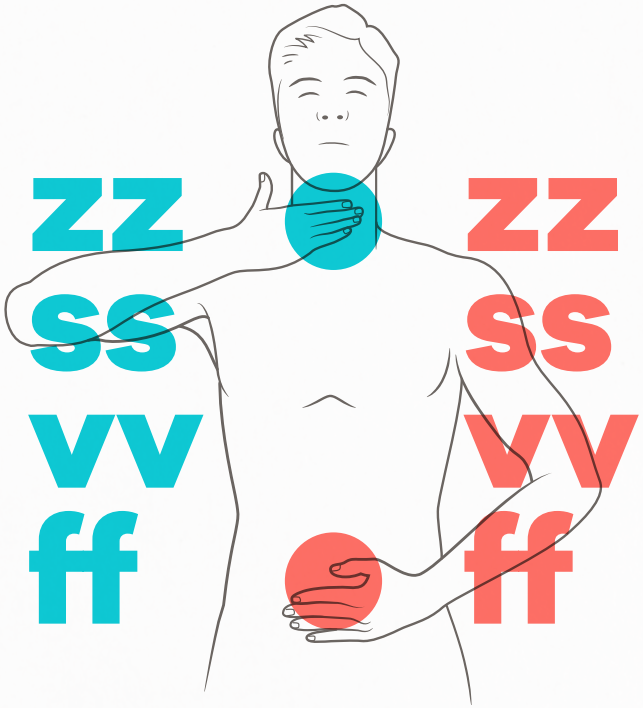
Sarah Perry was a veterinary nurse who had been working daily at an old zoo in a deserted district of the territory, so she was very happy to start a new job at a superb private practice in north square near the Duke Street Tower. That area was much nearer for her and more to her liking. Even so, on her first morning, she felt stressed. She ate a bowl of porridge, checked herself in the mirror and washed her face in a hurry. Then she put on a plain yellow dress and a fleece jacket, picked up her kit and headed for work. When she got there, there was a woman with a goose waiting for her. The woman gave Sarah an official letter from the vet. The letter implied that the animal could be suffering from a rare form of foot-and-mouth disease, which was surprising, because normally you would only expect to see it in a dog or a goat. Sarah was sentimental, so this made her feel sorry for the beautiful bird. Before long, that itchy goose began to strut around the office like a lunatic, which made an unsanitary mess. The goose's owner, Mary Harrison, kept calling, "Comma, Comma," which Sarah thought was an odd choice for a name. Comma was strong and huge, so it would take some force to trap her, but Sarah had a different idea. First she tried gently stroking the goose's lower back with her palm, then singing a tune to her. Finally, she administered ether. Her efforts were not futile. In no time, the goose began to tire, so Sarah was able to hold on to Comma and give her a relaxing bath. Once Sarah had managed to bathe the goose, she wiped her off with a cloth and laid her on her right side. Then Sarah confirmed the vet's diagnosis. Almost immediately, she remembered an effective treatment that required her to measure out a lot of medicine. Sarah warned that this course of treatment might be expensive – either five or six times the cost of penicillin. I can't imagine paying so much, but Mrs Harrison – a millionaire lawyer – thought it was a fair price for a cure.

Breathing is of crucial importance for producing a good speaking voice. Without it, the connected words and sentences that make up "running speech" might not be intelligible to your listener. These two exercises will help you to find the efficient vocal fold vibration and appropriate airflow needed for efficient "running speech".

№18 Feeling the buzz

By coordinating breath flow and vocal fold vibration you will be able to find a clear, easy and sustainable speaking voice.

1 First, feel the vibrations. Put your fingers together flat on your larynx, or voicebox. Get in touch with where the vibrations happen by alternating between the continuous sounds **"zz"** and **"ss"**. Do this a couple of times, taking a breath in between. You'll feel when the vocal folds are set into vibration (during the "zz") and when they don't vibrate (during the "ss").



2 Now do the same again but this time alternating between the sounds **"vv"** and **"ff"**.

3 Next, focus on the breath use. Keep one hand on the larynx and the other on your abdomen (with your thumb on your navel and the rest of the hand lower down). Repeat steps 1 and 2. Notice that you need breath to make these sounds happen.

4 Repeat rhythmically **"zz-zz-zz-zz-ZZZZ"** as if you were revving an engine, with an extended sound at the end. Notice the level of activity in your abdominal wall and how much breath you use.

5 Keeping the same level of activity in your abdominal wall and breath use, and the same volume, count aloud – and hold the last number for longer:

"one–two–three–four–fiiiiiiiiiiiiiiiiiiiive"

№19 Using the buzz in running speech

Buzzing your way through several sentences while keeping your hand on your abdominal wall will help you to monitor your breathing pattern.

1 Silently read a passage from a book or newspaper. It is important that you are reading, not reciting from memory. Do not speed-read, but imagine each word sounding in your head at your normal talking speed.

2 Read it again, still thinking the words in your head but this time making the sound **"vv"** for each syllable – so that the sentence "Read it again", for example, becomes **"vv vv vv-vv"**. Remember to pull the abdominal wall inwards gently as you make the "vv" sound, and to release the centre of the abdomen when you want to breathe in between words or phrases. You can monitor this by placing your hand on your abdomen as in the previous exercise.

3 Repeat step 2, still using **"vv"**, aiming to make your "reading", or sounding out, of the words expressive and natural.

4 Read the passage aloud, but this time uttering the actual words. Your sound will be easier and more expressive.

If you are too loud and your pitch is irritating, people could be put off; too soft and they may overlook you. Exercises 20 and 21 will help you get your volume levels and pitching just right for the situation.

№20 Finding your personal volume levels

This three-part exercise will make you aware of your personal volume level and how to change it, from intelligibly quiet to comfortably loud.

Part one

1 Say the following sentence from the practice paragraph on page 71:

"Sarah Perry was a veterinary nurse who had been working daily at an old zoo."*

2 Say it again at the same volume, but this time with your hands placed in front of your ears.

3 Repeat the sentence in the same voice, but this time with your hands cupping behind your ears.

Your hands are damping (step 2) or boosting (step 3) different harmonics in your voice each time – your voice is producing the same output but your auditory perception of the volume changes.

Part two

Count aloud from 1 to 15 accompanied by the following moves:

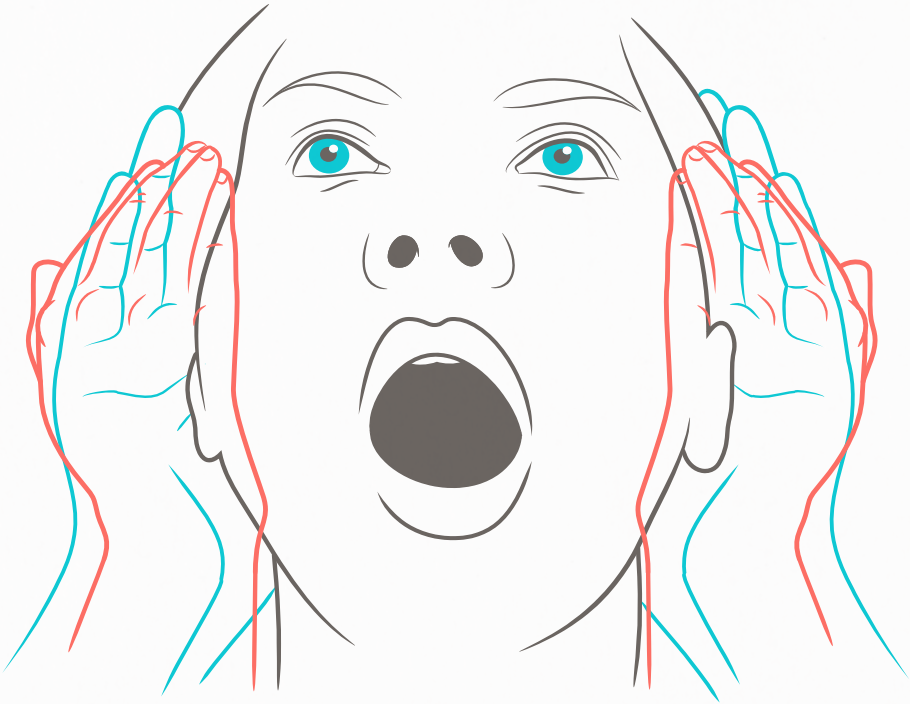
1 Count 1–5 with your hands behind your ears.

2 Count 6–10 with your hands in front of your ears, and try to match the volume that you heard in 1–5.

3 Count 11–15 with your hands held away, maintaining the volume that you created when counting 6–10.

4 To match the volume you may have to use one or more of the following:

- stronger airflow
- larger mouth space
- more vocal fold contact



damping **boosting**

Part three

1. Now count 1–5 with your hands in front of your ears.
2. Count 6–10 with your hands behind your ears, matching the volume you heard when counting 1–5.
3. Count 11–15 with your hands held away, keeping to the volume level that you created when counting 6–10.
4. You may find that to match the volume, you have to use one or more of the following:
   - slower or smaller airflow
   - smaller mouth space
   - less vocal fold contact

№21 Changing volume and pitch

Speakers of American English are more likely to use a change of volume for emphasis, whereas speakers of Standard British English are more likely to use a change of pitch. A great example of these different styles can be heard in two roles played by the actor Hugh Laurie: as Dr Gregory House in *House* he uses volume change and as the Prince Regent in *Blackadder the Third* he uses pitch change. This two-part exercise helps you to separate these changes so that you can adjust your personal volume level for different speaking situations.

Part one: Measuring your volume

Your personal volume use needs to be appropriate to the situation you are in – larger volume to talk to a group, give a work presentation or make a speech, but smaller volume to chat one to one or on the telephone.

Getting louder:

1 Set your quiet volume level with a gentle **"mm-hmm".**

2 Starting at that quiet level, count from one to ten, getting louder as you count. How loud can you get and stay comfortable?

1 2 3 4 5 6 7 8 9 10

3 Speak practise sentences maintaining the loud volume level. Raising your pitch as you increase volume is normal.

Getting softer:

1 Set your strongest comfortable volume level with a loud, jubilant **"yeah!"**

2 Starting at that strong level, count from ten to one, getting softer as you count. How soft can you get and stay comfortable?

10 9 8 7 6 5 4 3 2 1

3 Speak practise sentences maintaining the quiet volume level. Dropping your pitch as you decrease volume is normal.

Part two: Separating volume from pitch

It is normal to raise your pitch slightly when increasing volume. When you need to be heard this can be useful, but to avoid sounding loud and strident this exercise will help you to calibrate your volume levels when you "raise your voice".

1. Say **"mm-hmm – yes"** as a sound of general agreement. Notice your volume level.
2. Say **"mm-hmm – yes"** again and say it louder, *without* going up in pitch, just more emphatically. It doesn't matter if there's a bit of a pitch-glide on the "mm-hmm", just focus on keeping the pitch stable on the word "yes".
3. Repeat **"mm-hmm – yes"** even louder and notice what your body and voice have to do. If you are not raising the pitch, it is likely that you took in more breath before you started, that you are opening your mouth a bit wider and that you released the breath a bit faster from the abdominal wall when you said "yes".
4. Now explore quieter speaking. Say **"mm-hmm – yes"** again, quieter than your original volume. Aim to keep the same pitch.
5. Repeat even more quietly, keeping the pitch stable. Notice what your body, voice and breath need to do to make that happen. If you didn't lower the pitch it is likely that you took a smaller breath before you started, that you didn't open your mouth so wide and that you released the breath more slowly when you said "yes".

   Repeat all of the above but now do it with **"uh-huh"**.
6. Use the practice paragraph on page 71 to experiment with the different volume settings you have discovered.

№22 Finding the right speaking pace

Getting your listeners to hear and understand what you say isn't just about volume: pace, pauses and clarity will help you to get the message across. Although you may have a habitual pace, varying your speed of delivery can not only help others to process what you are saying more easily, but also make you more interesting to listen to. This exercise helps you to practise controlling and varying the pace of your words, and it will also help you to match your physical movements with your voice.

1. Choose a couple of sentences to work with. Walk around at a medium pace, saying the words silently in your head.
2. Walk at a fast pace and say the same words silently, matching your words to your walking speed.
3. Walk slowly, matching the silent words to your walking speed.
4. Now repeat the three walking speeds (medium–fast–slow), but this time saying the sentences aloud and matching their delivery to your walking pace each time.
5. Experiment with pace changes. For instance, start walking and talking very slowly and gradually speed up to a very fast pace; or speed up the unimportant phrases and slow down for the important ones.
6. You can also practise this with someone else doing the walking while you match your sentence speed to their pace. Experiment with this in the street, silently matching your talking speed to a passing stranger's walking pace.

Sound saying these words silently in your head

Passages to work with

How about Shakespeare?

Friends, Romans, countrymen, lend me your ears.
I come to bury Caesar, not to praise him.
The evil that men do lives after them;
The good is oft interred with their bones.

Or limericks work well because they have their own internal rhythm:

There was a young woman named Kite,
Whose speed was much faster than light,
She set out one day,
In a relative way,
And returned on the previous night.

And here's a wildcard – you have to fit the last sentence into the standard limerick last line length...

There was an old man from Milan,
Whose limericks never would scan.
When told this was so,
He said, "yes, I know".
"But I always try to get as many syllables into
the last line as I possibly can."

"The right word may be effective, / Breathe in but no word was ever as effective, / Breathe in as a rightly timed pause." / Breathe in

Mark Twain

№23 And pause...

Breathing spaces and pauses can add structure to a speech. It's important when speaking or giving a presentation to a group that you allow yourself time to breathe, and to let the listeners absorb your message. This exercise helps you to find suitable places to pause.

1 Read out the paragraph above, or one from your prepared speech or presentation, as you walk around a room at home.

2 Read it aloud again, and when you feel you can make a pause stop moving and speaking. Start by matching the pauses to the punctuation you see (full stop, comma), then look for places where you can add extra pauses.

The *way* you pause is also important. For example, different types of breath use can give a different meaning to your pause.

3 Read your paragraph again and experiment with different types of breath while you pause:

- Breathe in and hold your breath for an extra second before you start again (to ensure you are holding your audience's attention).
- Breathe in silently (to settle and calm your audience).
- Breathe in audibly (the gasp – to emphasise the point you are about to make).
- Breathe *out* audibly (the sigh – to get your audience to empathise with the strength of feeling you just displayed).

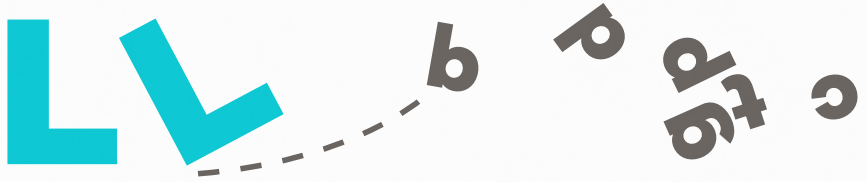
If a speech is scheduled for a particular venue you might like to practise this exercise again while in that room because the room's acoustics may well require you to speak slower/faster or louder/quieter.

№24 Consonant awareness

Clearly articulated consonants are important cues for a listener and will be more intelligible if made louder or longer. Making them longer gives a smoother sound and allows your audience more time to hear and understand what you are saying. This exercise enables you to experiment with each of these ways.

1 Speak one of the four sample paragraphs on page 82 and use volume and emphasis to kick some of the key consonants. For example, emphasise any plosive sounds – **"b"**, **"p"**, **"d"**, **"t"**, **"g"** and the hard **"c"** (k) – at the beginning of words.

2 Repeat step 1 and speed up the paragraph, but continue to kick the key consonants.



3 The key consonants in the below paragraph are fricatives (**"f"**, **"v"**, **"sh"** and **"th"**). Say the paragraph slowly and, using the same volume throughout, dwell lovingly on the key consonants:

"Fforty-thththree ththththistle sifffters fffrantically sifffted fforty-sevvven thththorny ththththistles. The ththththistles had shshsharp thththorns, so thththey thththrust thththem into thththree fffreshshsh thththatchchch shshshafffts and thththrew thththem into the sifffting thththistle ththththreshshsher."

Fricatives use a lot of breath, so remember to breathe as often as you need to. By lengthening the key consonants you will become more aware of the articulators you are using to make them.

4 Repeat step 3 and speed up the paragraph, but continue to dwell on the key consonants (**"f"**, **"v"**, **"sh"** and **"th"**).

5 Choose any paragraph from the four below and explore alternating between louder or longer consonants to give variety.

"Frank King, burglar extraordinaire, cracks the black coffer and slings the bling in the big gig bag, looking like a cocky rocker. But copper Dick Clark overlooks the slick burgling suspect and locks ex-convict Wolfgang Gokart in the clink."

"A sublime palimpsest of sunbeams mop with marigold aplomb the plump bumps, blimps, dumps, dimps, pubs and sumps that map and mob the moping panorama of Birmingham."

"Unsurprisingly, Sister Suzie's sewing of shirts for sailors was a short-lived career. The solid canvas sacking supplied for such purposes caused severe bruising to her fingertips as she struggled to persevere, pushing the needles into the resistant texture of the sacking. Suzie's sewing skills are currently sidelined and she hopes to pursue a new career as a personal shopper for outsize ladies."

"Forty-three thistle sifters frantically sifted forty-seven thorny thistles. The thistles had sharp thorns, so they thrust them into three fresh thatch shafts and threw them into the sifting thistle thresher."

№25 Toothbrush intelligibility

Clear speech means you can communicate ideas and observations better. This exercise forces you to work the muscles of articulation energetically and helps to create space in the mouth for clear vowels. Practise this in the morning, or when you're getting ready to go out.

1 Use a toothbrush, without paste, to brush the chewing surface of your molars on one side of your mouth and then the other.

2 Pronounce this phrase several times as clearly as possible while you are brushing your teeth:

3 Take the toothbrush out of your mouth and say the phrase once more. Feel the extra space inside your mouth and notice that you are working harder with your lips and tongue to form the words.

4 Now say the phrase one more time, making the movements slightly smaller and more efficient but still aiming for clarity.

№26 What's your pitch pattern?

Anything you say has a pitch pattern – rather like a group of notes in music – that you speak on for each phrase. If you use the same pattern repeatedly, it will sound monotonous.

In these two exercises you are going to explore using different pitch patterns – known as intonation. These will change the stress of the syllables and can give different meanings to the same phrase.

1 Use a sentence that you might say during your daily routine:

"I'd like a cup of tea with milk and one sugar"
"I've got to run to catch the train" or
"I need you to feed the dog; I forgot to do it this morning".

2 Say the sentence as you normally would, then repeat it with your lips held closed. What will come out is a series of "mm" sounds that follow the pitch pattern you just used. The "mm" sound not only allows you to focus on the pitch pattern rather than the words, it also helps you to listen "internally" to your own sound.

3 Repeat the "lips closed" version and then exaggerate it by making the high notes higher and the low notes lower.

4 Now open your lips and speak the sentence again with the words, using the more exaggerated pitch patterns.

The intonation can indicate your emotional state, or the intention behind the words. You may find that your pitch pattern differs with context – for example, conversational speech, reading aloud or work presentations.

1 Now look at the first sentence of this exercise – **"Anything you say..."** – and read it aloud.

2 Repeat that with your lips held closed and using **"mm"** as before.

3 Repeat the "lips closed" version and exaggerate the pitch patterns.

4 Now open your lips and speak the sentence again, using the more exaggerated pitch patterns.

Next you are going to explore some different pitch patterns with the phrase "feed the dog". Everything we say has a context, therefore you are going to explore how your pitch pattern changes in relation to different contexts.

1 "Feed the dog" (I forgot to do it this morning)

Feed the dog

2 "Feed the dog" (that's the third time I have asked you this morning)

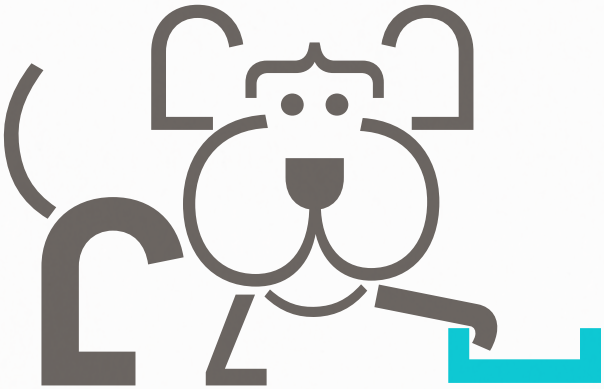
Feed the dog

3 "Feed the dog" (he looks hungry to me)

Feed the dog

Notice how you adjust your pitch pattern according to the contrasting intentions.

Throughout the day, be aware of the pitch patterns you use to communicate. You can experiment with exaggerated or subtle changes. Or if you habitually use wide and varied pitch patterns, investigate narrow or repeated pitch patterns.



№27 The rising inflection?

A distinctive higher pitch on the last word of a phrase or sentence is known as the rising inflection. Also called the high rising intonation or "upspeak", it's when each statement sounds like, you know, a question? Upspeak is popularly identified with the "Valley girl" of California or Australian soap stars; however, upspeak is inherent in some speech patterns, including those of people from Belfast in the UK, Minnesota in the USA and Cape Town in South Africa.

Many people exhibit upspeak quite unconsciously. It can give the impression of uncertainty or approval-seeking, which might be a disadvantage in situations where we need to sound confident, definite and authoritative.

This exercise will help you to change an upspeak pattern for such a situation. Whereas the previous exercise enabled you to find your habitual pitch and to experiment with different shapes of pitch pattern, in this exercise you consciously change the *end* of the pitch pattern – the "upspeak".

1 Start by saying the following sentences, deliberately using the upward ending:

That's what he did

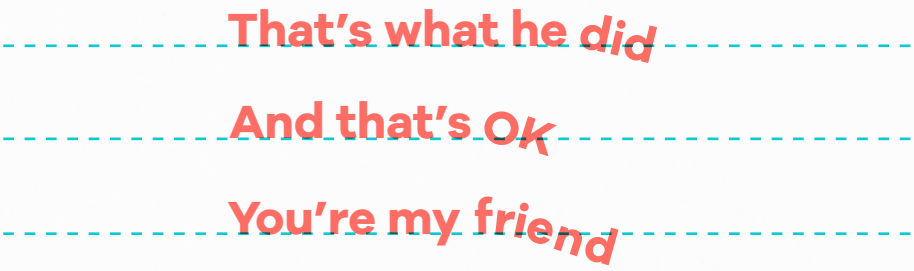
And that's OK

You're my friend

Notice that each of these phrases actually comes out sounding like a question rather than a statement.

2 Repeat the three phrases again, still using the upward inflection on the final word or syllable but this time conduct yourself with your hand. Keep your hand on the same level for each word until the end and then "conduct" yourself to raise the pitch for the last word. If you're not sure, check in a mirror to see that you are conducting yourself correctly.

3 Now you are going to consciously direct your pitch in the opposite direction: downwards for the final syllable, not upwards. Use your hand to conduct the pitch change as you did before. Follow your hand movement with your eye and make a big movement of your hand downwards for the last word. It doesn't matter if it sounds odd, the point is to change your upspeak pattern.



For many people, getting to step 3 will suffice. However, if you are a habitual "upspeaker" and still find it difficult to make the change, use some misdirection to help.

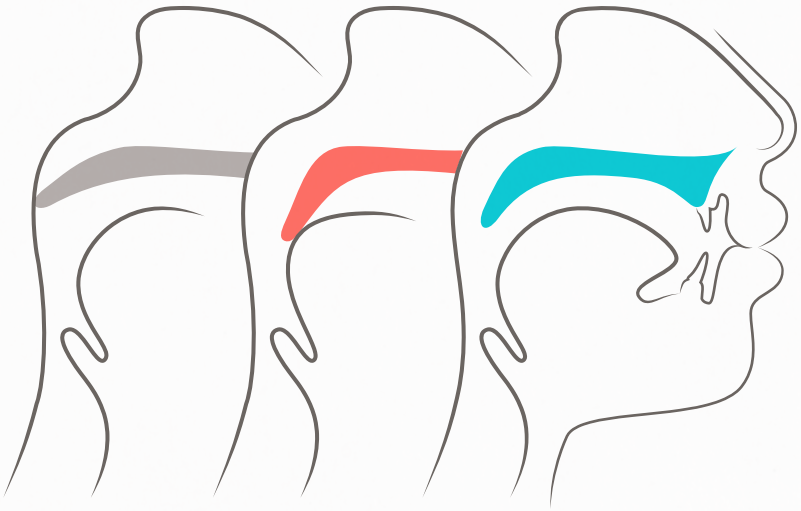
4 Say the phrases again but this time experiment with going up quite dramatically on the penultimate word or syllable so that you have to come down on the final one.

Upspeak does, of course, have positive uses – as a note of encouragement to join in, or to confirm agreement. Just not for use on, like, every sentence?

№28 How to sound nasal

The soft palate acts as a "doorway" between your nose and mouth. For nose-breathing and the nasal sounds "m", "n" and "ng", this doorway needs to be open. For clear vowel sounds and properly articulated plosive consonants, this doorway needs to be closed – so if you leave the door open, your consonants will be indistinct and your vowels will sound nasal. This exercise directs your awareness to the feel and sound of being nasal in your speech so that you know what to avoid.

1 Say **"a"** as in the word "bat". Extend the vowel sound **"aaaa"** and pinch your nose closed. "A" is an English vowel and doesn't need any nasality, so when you pinch your nose the sound will not change. All of the air and sound is coming out of your mouth.



The soft palate "doorway" shown in three positions: closed for the oral vowel "aaaa" (grey), open for nose-breathing (red) and ajar for the nasal vowel in "bien" (blue).

2 Now say the French word **"bien".** It ends with a nasal vowel, not normally used by English speakers. Extend that vowel and pinch your nose again. The sound will change when you pinch because the air is now divided between your mouth and nose.

3 Move between those two vowel sounds and monitor your nose with your fingers. If you keep your nose pinched closed, you'll feel vibrations under your fingers when you say the nasal (French) vowel and none when you say the oral (English) vowel.

4 "This is the house that Jack built" is a sentence without nasal consonants, which makes it a good test for experiencing nasality. Keep your fingers just below your nostrils (so you can feel the air and vibrations). Start with the word **"bien"**, then say, **"This is the house that Jack built"**. You are aiming to keep the doorway open a little and make the sentence nasal. Check that there is a little bit of sound travelling through the nose on all of the words, which indicates you've opened the doorway that should normally remain closed.

№29 Avoiding the nasal sound

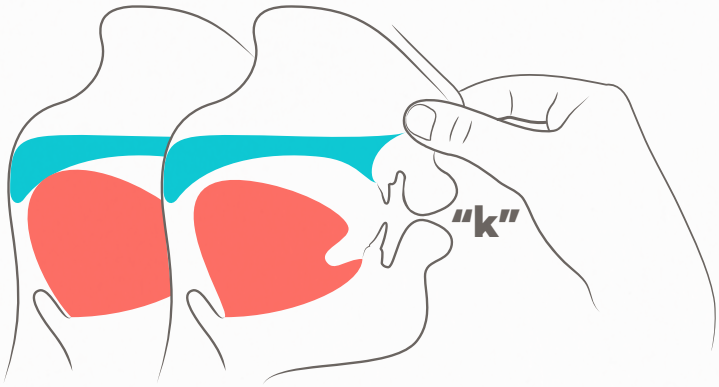
A plosive sound in English, such as "p", "b" or "k", is one made when there is a complete obstruction of the airstream, followed by a small burst of air, known as the "aspiration". These plosive sounds are made with the doorway to the nose closed. This allows for a build-up of air behind the "stop" of the consonant.

1 Make the sound **"k"**. "K" is a voiceless consonant, so do it as if you are whispering. "K" is also a plosive sound made between the tongue and the soft palate where it joins the back wall of the throat. Before you sound "k" the breath will be trapped briefly behind your tongue and soft palate. When you sound "k" you will feel your tongue drop away from the back wall of the throat, air will be released into your mouth and your soft palate will stay in the upward position.

2 While pinching your nose closed, repeat the whispered **"k"** several times to feel the two actions at the back of your mouth – stop and release the air. Keep your mouth a little bit open and make the stop and aspiration of the "k" quite strong. If you can do this and hold your nose you have successfully closed off the doorway to the nose as a first step to avoiding nasality.

3 Repeat step 2 but this time make the sound **"g"** using the hard form we use when saying "guh". "G" is made in exactly the same place as "k" but it has some voicing so you cannot whisper it.

4 Say **"This is the house that Jack built"**. Now say **"k-k-k-k-k"** followed by the sentence. Pinch your nose closed the entire time – you should not feel any air being pushed through your nose into your fingers. You have now successfully closed the doorway to the nose and are using "clear" vowels. Work to apply these clear vowels in normal speech.



№30 Tongue twisters

Tongue twisters are articulation and brain exercises that tackle particular consonant clusters in running speech. These exercises are excellent for coordination of the articulation muscles together with breath use. The fun comes from tripping up unexpectedly on seemingly normal words. Before practising these exercises, review the guide to word articulation (pages 42–47) and make a note of the manner and placement for each of the target sounds given below.

Start **sssslllooooowwwwwlllllyyyyyyyy** on these, otherwise all the good work you've done so far will be undone by excess tension. Gradually speed up until you can say them fast five times in a row.

1 This one targets bilabials:

"Purple paper people."

2 This is a complex combination of post-alveolar, lateral, labial and palatal. Divide it into manageable sections first before attempting to string them all together:

"Red leather yellow leather, red lorry yellow lorry, red welly yellow welly."

3 This one targets post-alveolar fricatives and affricates:

"Shy Sheena Church cautiously shushed brash chatty Sean Bishop during the speech on religious friction."

4 This is a really tricky combination of velar, lateral and bilabial:

"She stood on the balcony inexplicably mimicking him hiccoughing, and amicably welcoming him home."

5 And this is probably the most difficult combination of voiced and unvoiced fricatives – good luck:

"The seething sea ceaseth and thus the seething sea sufficeth us."

6 If you've mastered that one, try this to finish:

"I slit the sheet, the sheet I slit, and on the slitted sheet I sit."

Here are two tips for mastering tongue twisters:

First, find the word (or consonant cluster) that gives you the most difficulty (usually one sound) and emphasise it in your mind. Do this by thinking it louder or slower – for example, Purp**le** paper peop**le**.

Second, there's often an underlying rhythmic pattern – here's how it works for "Red leather yellow leather":

1 Begin by saying out loud **"one, two, three, four"**. All are equal beats in length.

2 Now add the half-beat "and": **"One-and-two-and-three-and-four-and."**

3 Now *remove* the first "and": **"One, two-and-three-and-four-and."** The "one" is a full beat.

4 Now emphasise the "one" and the "three": **"One, two-and-three-and-four-and."**

5 Finally, say the tongue twister using the rhythm you have just practised in step 4. "Red" and "yell" are emphasised, and "red" has a whole beat, whereas all the other parts have half-beats:

"Red, lea-ther-yell-ow-lea-ther."

6 Now repeat the phrase several times and gradually speed up.

Ventriloquism and mimicry

The aim of most speaking and singing tasks and exercises is to improve your voice. However, the popular arts of ventriloquism and mimicry rely on the speaker being able to speak with a voice that is substantially different from their habitual sound.

The purpose of ventriloquism is to create the illusion of a hand puppet that has a voice and personality of its own. Ventriloquism is not just the art of speaking without being seen to move your lips and jaw, it is also creating a voice that is sufficiently differentiated from yours that you can appear to have a conversation "with someone else". Exercises 31–39 will help you identify and isolate different parts of your vocal mechanism, enabling you to speak and make non-verbal sounds without moving your lips. Exercises 40–45, while aimed primarily at the mimic, can also help the ventriloquist to find new and differentiated character voices.

Mimicry is the vocal skill of imitation, and it can be used in a headlining act, on a political satire show or just to annoy your colleagues. In contrast to ventriloquism, mimicry includes facial as well as vocal characterisation. Skilled mimics study their targets (whether it is a celebrity or a co-worker), copying not just their voice but their vocal intonation, speed of delivery, vocal attack and physicality.

Both ventriloquism and mimicry require vocal dexterity. If you are creating more than one character, you may need to speak using different parts of your vocal range. Pay attention to making space in your throat (page 55), working your tongue (pages 56–57) and warming up your range (pages 62–65).

While you may not want to spend years perfecting ventriloquism and mimicry skills, the following exercises can help you to explore your voice and its many possibilities.

Ventriloquism

Watch your mouth

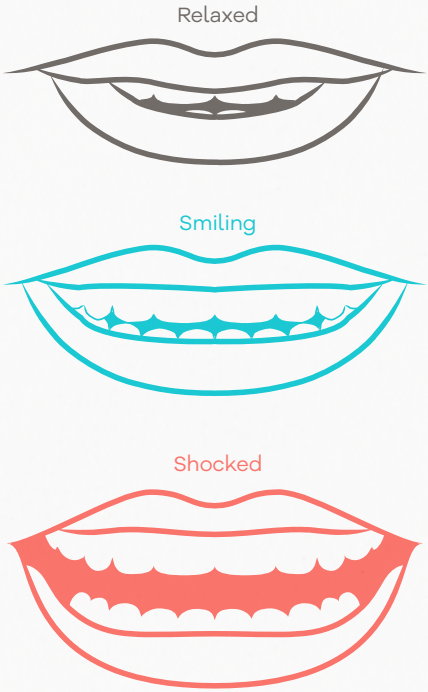
Misdirection is an important part of ventriloquism – although the ventriloquist is manipulating and speaking for the puppet, the audience is led to believe that the puppet is alive and separate from the ventriloquist. A key element of this misdirection is the ability to speak clearly without been seen to move your mouth. When the puppet "speaks", the ventriloquist can adopt three mouth positions, leaving the tongue to create all the sounds required. Each of these mouth positions represents a recognisable emotional state and all are expressed with open lips: relaxed, smiling and shocked.

№31 What to do with your mouth

Relaxed: Your lips are slightly open but not smiling. Your teeth will be very close together but not touching.

Smiling: Your lips are slightly open and the corners are gently pulled back into a smile. Again, your teeth will be very close together but not touching.

Shocked: Your mouth is more open and your jaws will be more apart than when relaxed or smiling. Experiment with how open mouthed you can go and still pronounce the words. "Shocked" is useful to register both surprise and amusement at your puppet's antics. Since there is a risk of the audience seeing your tongue move during puppet talk, it is better to use this mouth position when in profile, turning to your puppet while you make it speak.



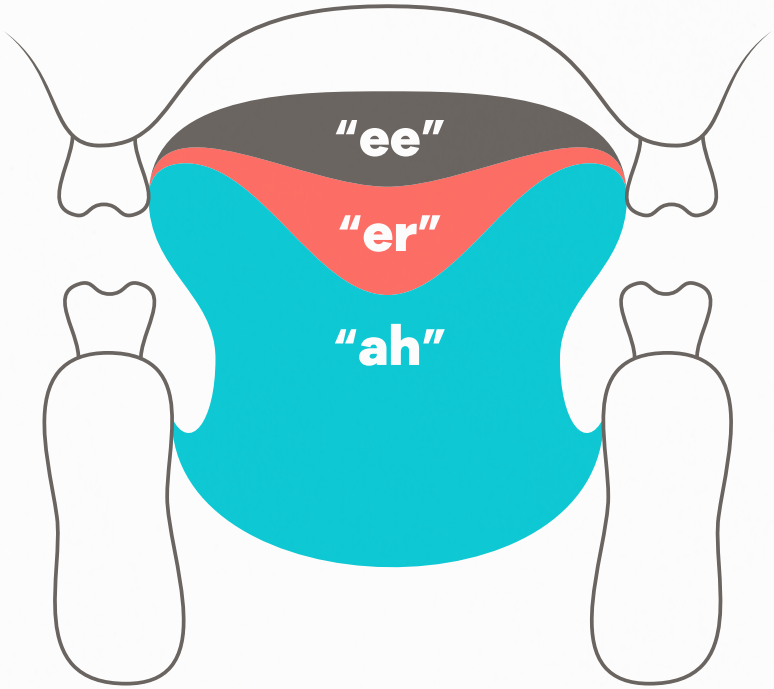
Finding your tongue

We process vowel sounds in *relation* to each other, so this exercise shows you how to refine your tongue movements between vowels. These tiny movements of the sides, centre, back and tip of the tongue will give the listener just enough auditory cues to distinguish each vowel without you having to move your lips.

№32 Vowel modification

For this exercise, use the vowel sounds (highlighted) in the following words – k**ee**p, k**i**p, k**e**pt, c**a**p, k**er**b, c**ar**p, c**or**p, c**oo**p.

1. Adopt the relaxed mouth position. You are going to work with the widely spaced vowels "ee" (a high, forward vowel), "er" (a mid, central vowel) and "ah" (a low, back vowel). First, say the vowel in "k**ee**p" – **"ee"**. Notice where your tongue is in your mouth – the sides are up, the centre is fairly high towards the roof of the mouth but not touching, the back is fairly high, while the tip can be either up or down.
2. Then say the vowel in "k**er**b" – **"er"**. (This vowel, also called the schwa, is next because it is the most neutral vowel in terms of tongue position.) Your tongue moves to create the new vowel. The centre goes down a little, while the tip, sides and back may or may not move much.
3. Next, say the vowel in "c**ar**p" – **"ah"**. Now the centre drops, the sides drop, the back drops and the tip may or may not move.
4. A ventriloquist needs to make these tongue movements much smaller. Go back to step 1. Each side of your tongue will be touching a top molar. Keep the sides just touching (not pressing) your molars and slide from **"ee"** to **"er"** (k**ee**p … k**er**b) – now just the centre of your tongue moves. Repeat this and make that movement as small as you can.
5. Slide from **"ee"** to **"ah"**, again keeping the sides of your tongue touching one of your molars, and making the movement as small as you can. Experiment with this position until it feels comfortable and the vowel change sounds clear.



6 Starting with "ee", move between vowels, returning to "ee" each time and making the movements as small as possible: **"ee-i"**, **"ee-e"**, **"ee-a"**, **"ee-er"**, **"ee-ar"**, **"ee-or"**, **"ee-oo"**. The vowels "or" and "oo" normally require a rounding of the lips to help distinguish them from other vowels, but you can create a similar sound using tiny tongue adjustments without moving your lips.

7 Repeat step 6 using the smiling position and then the shocked position.

Mastering the use of these tiny controlled movements of your tongue will help you to separate jaw, tongue and lips, and to speak clearly in character without the audience seeing any telltale facial movement.

Finding good replacements

However good you get at mastering your tongue, certain sounds in the English language cannot be produced without lip movements, including "b" (as in "baby"), "f" ("ferry"), "m" ("mime"), "p" ("paper"), "v" ("very"), "w" ("wet") and "y" ("yes"). These sounds need to be replaced with others that will sound similar. The following exercises show you how.

№33 Replacing "w"

1 The easiest sound to replace is "w". In normal speech you use lip rounding to make this sound – for example, "wet", "will" or "when". The replacement for the "w" sound in each case is a type of double o sound (**"oo"**).

2 Review Exercise 32 and practise making the vowel changes without any lip movements at all. On "ee-oo" you will be able to make a vowel that is close to "oo".

3 You may need to respell the word in your mind before you say it, so "wet" becomes **"oo-et"**, "will" becomes **"oo-ill"**, "when" becomes **"oo-en"** and "was" becomes **"oo-as"**. By making the almost-oo sound and moving fast onto the main vowel, you will lead your audience into hearing a "w".

№34 Replacing "y"

1 The replacement "y" sound is made in a similar way. Most people move their jaw and lips to make a "y" sound (for example, "yes you do!"). Use the relaxed mouth position and make an **"ee"** sound without moving your lips. Now replace the "y" with a quick **"ee"** – **"ee-es ee-oo do"**. Practise this sentence using the three different mouth positions.

№35 Replacing the "f" and "v"

1. The fricatives "f" and "v" are made with the gentle frication of air passing between the bottom lip and the top teeth.
2. Without disguising it, make the **"f"** sound (**"fffff"**). Move to a relaxed **"th"** (as in "think") – the tip of your tongue will be sticking out between your teeth. Say **"I caught a ferry today"**, and then say **"I caught a therry today"**.
3. Repeat the relaxed **"th"** sound but pull the tongue tip back slightly so that it is inside your mouth and still close to (but not touching) the top teeth. You'll feel the airflow hit the back of your lips. This is not quite the same position as a standard "th" – the tongue is further back and the friction is slightly looser.
4. With your tongue in this new position, increase the speed of your airflow on the replacement "f" and try the test sentence again: **"I caught a therry today"**. You can use a long or short burst of faster air to create the new "f" sound.
5. The replacement "v" is created using the same "th" sound. "It was very good" becomes **"It was thery good"**.

Challenging consonants

The trickiest replacement sounds to master are the bilabials "m", "p" and "b". In standard running speech all three consonants have both lips closed.

You need replacement sounds that use open lips. Solutions depend on the shape and size of your tongue, teeth and the hard palate, so you'll need to experiment by moving your tongue's contact point backwards and forwards behind your teeth until you find a "sweet spot" for each sound.

№36 Replacing "m"

The "m" sound is a nasal consonant – because your lips are closed, the air and sound must exit from your nose. The simplest solution is to replace the "m" with another nasal consonant – such as "n" or "ng". Unfortunately for ventriloquists, the audience is usually acute enough to realise this, so you have to fool them with a sound they would not normally hear. Two different tongue positions can help you to create a replacement "m" sound.

1. Start by saying **"mime"**. Notice that your lips close for both "m" sounds. Now say **"nine"**. When you make the "n" sound, part of the tip of the tongue usually touches the alveolar ridge, just above where your teeth join your hard palate, and the rest of your tongue hangs just underneath the roof of your mouth without touching it.
2. For the first replacement sound, say **"n"** and then move the tip slightly further forwards, to behind your teeth, and move the centre of your tongue up to touch your hard palate. Try this position to replace the "m" sounds in **"many men make music"**.
3. For the second replacement sound, start with the standard **"n"** and then move your tongue to lick the back of your front teeth. You will be using the tip and part of the blade of your tongue. From this position say **"many"**. Notice that you are now using different parts of your tongue (tip and/or blade) to differentiate between the "m" and "n" sounds. Again, say **"many men make music"**.
4. For both of these alternative tongue positions, the contact pressure is very gentle. If you press too hard it will sound too close to "n". The softer pressure muffles the sound slightly, mimicking the sound of a bilabial "m" more closely.

5 As a refinement to steps 1 and 2, practise making the replacement consonant sound then pull the tongue backwards quickly, away from the contact point. Making the consonant short and adding the quick backwards movement can help fool the audience into hearing the "m" sound.

№37 Replacing "p" and "b"

The "p" and "b" sounds are similar to the "m" replacement. The main difference is the stopping of the air. When making the sound "m" the airflow and sound travel through the nose and do not stop, which means that "m" is a completely nasal consonant. Both "p" and "b" are stopped consonants – the air is briefly trapped before being released through the mouth.

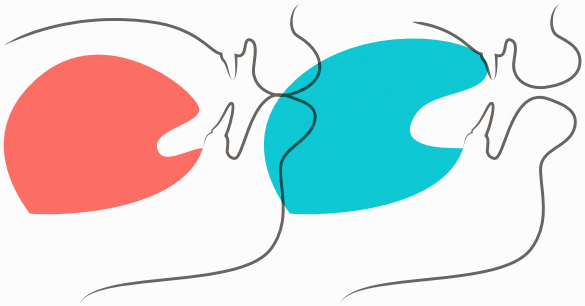
1 Put your tongue into your "m" replacement position.

2 Instead of saying "m", say **"be"**. Your tongue will pull away from your teeth and the air and sound will be released out of your mouth. Practise with the word **"baby"**.

3 Add the fast tongue pull backwards to your new "b" sound.

4 The "p" is made in exactly the same way as the "b", but it is completely unvoiced. Practise saying **"paper"**.

You may need to experiment with tiny alterations of your tongue's contact point to get real clarity on your "b" and "p" sounds. Remember that the contact pressure should be gentle for all these replacement consonants. One hint from several ventriloquists is to practise the replacements but think of the original letter.



The standard (red) and replacement (blue) tongue positions for the "m" sound. to replace "p" and "b".

Making non-verbal sounds

Non-verbal sounds are an important part of your stage character's personality as the puppet reacts to what you are saying. Most are easy for a ventriloquist to do because you do not need to include the difficult consonant sounds. All ventriloquists use at least one of the following sounds in their act.

№38 Making merriment

Laughter is very useful for a ventriloquist because different vowels and airflow will create different types of laugh even for the same puppet. Experiment with the following mirthful sounds and choose one for your character:

Happy	Hysterical	Suggestive	Sarcastic
Pitch a medium to high note and use **"hah-hah-hah"** or **"heh-heh-heh"** in a regular rhythm at medium pace.	Pitch a very high note and use a rapid repeated rhythm and **"hi-hi-hi"**.	Pitch a low note with a breathy tone and use **"hurgh-hurgh"**.	Say the words **"hah-hah-hah"** without emotion then repeat and vary the rhythm and speed.

Once you have chosen your puppet's laugh, decide on the physical movements (perhaps a head movement, facial expression or hand gesture) that accompany it. But be careful not to betray these movements in your own body!

№39 Butting in

Interjections make a great addition to a ventriloquism routine – your puppet is reacting to what you are saying without you having to use words. Experiment with different versions of the following:

Clearing the throat	Coughing	Sniffing	Sighing	Interruptions
A short dry **"ahem"** or a long, wet sound that might be spelled **"harrroura-gruh-uh-uh-uhrough"**.	A polite single sound or an expectorant-laden throat symphony.	Short or long.	Long or short, breathy or clear, **"hhhhh"** or **"fffff"**.	**"Er"**, **"ah"**, **"tch"**, **"uh-uh"**, **"uh-huh"**, **"urgh"** or **"ew!"**.

To discover more voice variations for your puppets, work the following exercises (intended for mimics) using standard lip and face movements before returning to your three mouth positions.

Mimicry

Preparing for something new

The goal of the mimic is to reproduce someone else's physical and vocal patterns. Since most people are not conscious of their own default patterns, this section begins with exercises to explore and extend your own vocal patterns and facial movements in preparation for imitating others.

№40 That reminds me of...

Use these four techniques to change your default patterns, and to begin to identify the patterns of others.

1. Facial movement

Look in the mirror and try different facial tensions or movements. For example, speak while moving your eyebrows fast, jut your jaw or open your mouth quickly when you breathe. How does this affect your voice, your breathing or your pitch pattern? Who do these movements and sounds remind you of?

2. Visible emotions

Scientists at Ohio University in the USA have classified 21 facial expressions that correspond to universally recognised emotions. Copy the six expressions shown on the next page, paying particular attention to the lip shapes, eyebrow positions and level of apparent tension in the facial muscles. Notice what each one does to your voice. Who do these emotions and sounds remind you of?

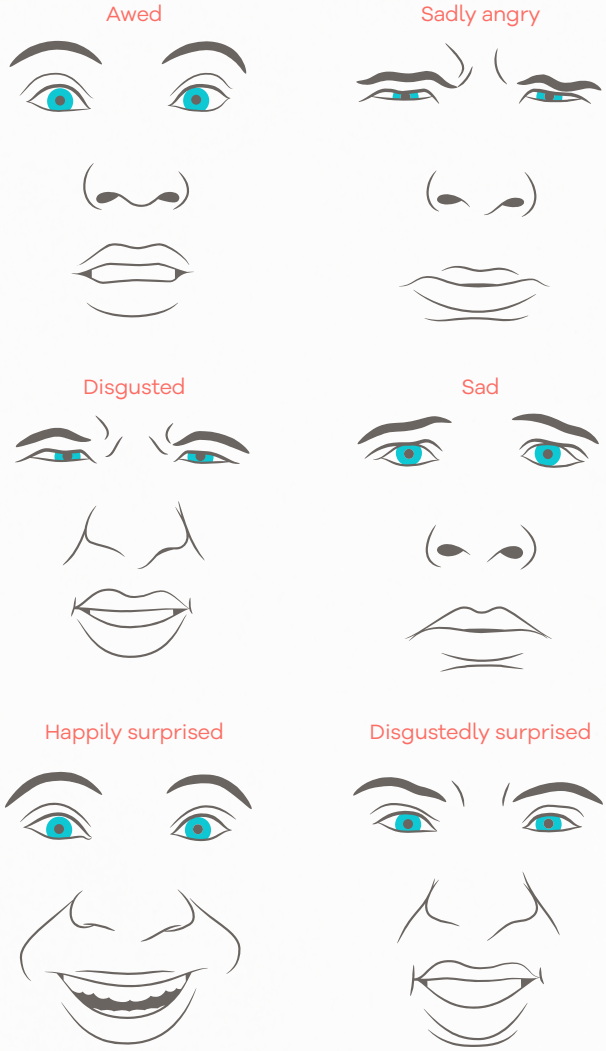
3. Pronunciation styles

Traces of different pronunciation styles can give your audience clues to the target's identity. Experiment when reading: replace an **"r"** with a **"w"** (**"wabbit"**), a **"sh"** with a **"s"** (**"fis"**) or a **"s"** with a **"th"** (**"yeth"**). You can also vary tongue positions – for example, your "s" will change if you pull your entire tongue backwards or push it forwards. Now combine these with any of the patterns you found earlier. Who do these sounds remind you of?

4. Accent

An accent is a distinctive way that any group of people pronounce words. East London, Sydney, Tyneside Geordie, Liverpool and New York Bronx are all distinct and specific accents. Everyone speaks with an accent, although they may not be aware of it. Speak a few lines in your own accent, then choose a different accent and speak the same lines. You do not need to be accurate, just find a few characteristic sounds.

Speakers of other languages often maintain their distinctive language pattern when speaking English. How would a Spanish or Swedish person sound when speaking English? Choose an accent and combine it with any of the patterns you found earlier. Who do these sounds remind you of?



Visible emotions: These six expressions will all make a difference to a voice.

Three vocal archetypes

When we recognise a celebrity's voice, even from a few words, it is often their voice quality that is familiar to us. Voice quality is the particular long-term "default" sound of a voice that comes from the size, shape and "setting" of your vocal tract. For example, someone who is perceived to have a shrill voice might speak habitually with a tight jaw and a high larynx. A vocal tract with a larynx held low and with loose vocal fold adduction produces a cooing, breathy voice quality. Yet because almost every part of the vocal tract is moveable, everyone is capable of training themselves to create different voice qualities. These exercises show you how to change your voice quality using three vocal archetypes:

Clear-strong
Breathy-light
Edgy-bright

Think of these as primary colours that you can build on when researching the voice of your "target" for mimicry.

№41 The clear-strong archetype

The physiology of this archetype is firm closing of the vocal folds that are resistant to the oncoming breath stream. It results in a clear, strong voice that can sound confident, definite and authoritative.

1 Using a buzz sound (page 54), make repeated sounds on either **"v-v-v-v-v"** or **"z-z-z-z-z"** – together but with a dip in energy between them, as if you were revving a motorbike.

2 Let your voice drop to a comfortably low pitch as you continue to "rev" and make sure that you are activating your abdominal wall.

3 Now say **"uh-oh"** and extend the final syllable – **"uh-ohhhh"**. Notice that the sound is strong and direct.

4 Keeping the same strong sound and tone, now say **"OK"**, **"all right"** and **"yeah-yeah-yeah"**, each time extending the final syllable. Extending the final syllable is essential for finding your setting. It needs to be held, almost as if you were intoning or singing.

5 Once you feel confident in this vocal setting, use it to read the first line of "Comma Gets a Cure" (page 71) or a line from a newspaper. Repeat the line and elongate every syllable to help you maintain this vocal setting.

6 Speak a few more sentences using the clear-strong archetype. You can vary your pitch and volume a bit, rather than keeping everything exactly the same. So long as your overall setting is in place, you will still be using the same voice quality.

This strong and direct archetype works well in male or female voice and is often used when giving speeches or presentations. In conjunction with a low pitch it can help with female-to-male impressions; with a high pitch it can make you sound angry or excited.

№42 The breathy-light archetype

The physiology of this archetype is a less firm closing of the vocal folds, so that some air can be heard. Since more air is released with the sound, you will need to breathe more often when using it.

1 Using a gentle **"fff"** or **"shhh"** sound, puff a little bit of air out through your mouth. Allow the air to float out rather than being pushed or directed.

2 Now bring a hand up close to your mouth and repeat the **"fff"** or **"shhh"**. Notice that you can feel the air coming onto your hand.

3 Say **"hey"** or **"hi"** as if greeting someone you like as they sit down close to you – an intimate sound created without projecting your voice.

4 Say **"heeeey"**, **"hiiii"** and **"hello-o-o"** using the breathy, light tone of voice you practised in steps 1 and 2. Make sure you breathe in between each sound.

5 As in the previous exercise it is important that you begin to extend the sounds so that you can get comfortable with the vocal setting. Read a line using this vocal setting. Repeat the line and elongate every syllable.

6 Speak a few standard sentences using this breathy-light archetype, taking care to maintain the vocal setting throughout.

The breathy-light archetype can sound intimate, earnest or persuasive and scientists have demonstrated that it can be perceived as either vulnerable or sexy in both men and women. In the UK it is typically used to voice adverts inviting people to purchase a treat. This archetype is also helpful for men wanting to portray female characters, especially if they wish to avoid falsetto. Listen to Robin Williams's characterisation of Mrs Doubtfire, for example.

№43 The edgy-bright archetype

The physiology of this archetype is a narrowed epilaryngeal tube (see page 39). The narrowing of the tube at this point in the vocal tract produces a bright, twangy sound. It is a voice quality often identified with American accents but it is widely used in other countries. In its extreme version it can depict an evil character, yet it can also be highly comedic, almost cartoon-like. In its more moderate form it can be useful as a call to action due to its natural projecting power.

1 Make the sound of a hungry cat, insisting on food (**"meeaow"**), then the mocking call of children at play (**"na-na-na-na-na"**) and finally a wicked cartoon witch cackling (**"hee-hee-hee-hee-hee"**).

2 Notice that in almost all of these sounds you will be using a higher pitch than your normal speaking voice and that it feels like you are making a smaller shape in your mouth to make them. The voice quality is sharp and edgy.

3 Repeat your sound of choice and start to elongate one of the syllables. It doesn't matter which one, the important thing is to hold the setting at some point.

4 Use a mirror to check inside your mouth: this voice quality is made with a high tongue position and a more lateral mouth space. Focus your energy on the sound as if it is travelling along the roof of your mouth.

5 Repeat your sound several times moving down a little in pitch so that if you started out on a higher pitch than usual you are now closer to your normal speaking pitch.

6 As in the previous exercise it is important that you begin to extend the sound to feel the vocal setting. Read something and elongate every syllable to help you maintain it.

7 Now speak a few standard sentences using the edgy-bright vocal archetype, taking care to maintain the vocal setting throughout.

There is a wonderful comedic use of this vocal archetype by the late Peter Sellers reciting the lyrics of The Beatles' "A Hard Day's Night" in the style of Laurence Olivier's famous characterisation of Richard III ("Now is the winter of our discontent/Made glorious summer by this sun of York"). This vocal setting can be used for a number of purposes, including expressing annoyance or anger, or as part of a vocal cartoon characterisation. It is also an excellent voice to use outdoors.

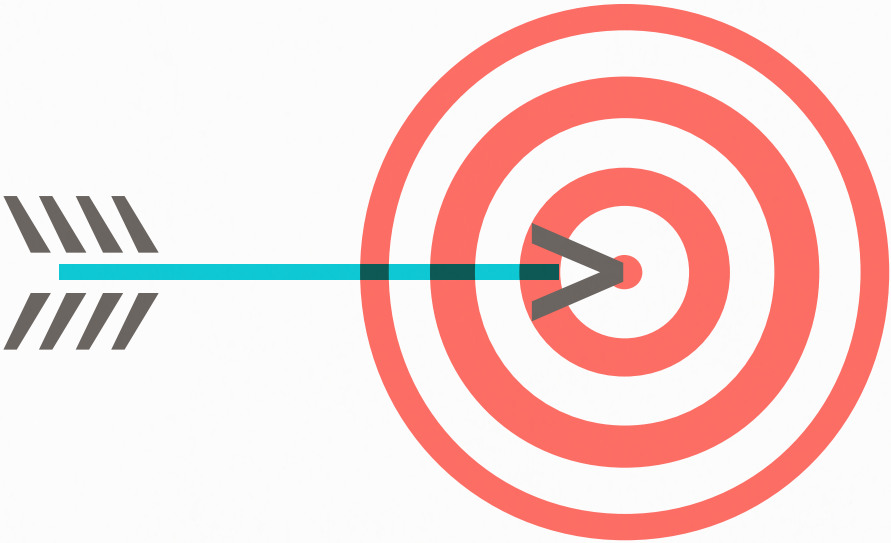
Observation and vocal modelling

Fundamental to the skill of mimicry is the ability to observe someone else, and then reproduce what you see and hear. To practise and perfect your imitation you need to study several recordings of your chosen target, preferably observing a wide range of emotion. Use the following five-part process to study and identify the different aspects of your target's "vocal fingerprint".

№44 Get that vocal "tune"

Tempo: Pay attention to the speed of your target's sentences. Is the tempo fast but clear, fast and slurred, slow and deliberate? Select two sentences from video footage of your target and speak the words, focusing on their tempo only. Now take any sentence from "Comma Gets a Cure" (page 71) and read it aloud, modelling the same tempo.

Pitch contours: Pay attention to the way your target uses pitch in speaking. Is the pitch monotonous, narrow in range, or demonstrating wild jumps? Is the pitch largely high, low or super-low as in a creaky voice? Select two sentences from video footage of your target and speak the words, focusing on their pitch only. Now take any sentence from "Comma Gets a Cure" and read it aloud, modelling your target's pitch contours.



Emotion: Pay attention to the way your target displays emotion in speaking. Is the effect self-contained, excitable, low-key, calm or forceful? Select two sentences from video footage of your target and speak the words, focusing on the type and level of emotion they displayed. Now take any sentence from "Comma Gets a Cure" and read it aloud, modelling your target's emotions.

Rhythm: While tempo is the overall speed of speech, rhythm is the relationship between words and groups of words. Pay attention to the rhythm of your target's speaking. Do the words tumble over each other but stop suddenly? Is the rhythm slow but relentless? Is the speech clipped and percussive or is it unpredictable with very changeable rhythms? Are short or long pauses used, or breaths in odd places? Select two sentences from video footage of your target and speak the words, focusing on their rhythm only. Now take any sentence from "Comma Gets a Cure" and read it aloud, modelling your target's rhythm.

Vocal tics: Many people use vocal tics to punctuate their thoughts. Try to pay attention to any non-verbal sounds your target uses and to any overall vocal setting. Is your target's speech peppered with grunting, growling, sighing, laughing, throat clearing – "er", "hmm"? Select two sentences from video footage of your target and speak the words, focusing on the non-verbal sounds. Now take any sentence from "Comma Gets a Cure" and read it aloud, modelling your target's vocal tics.

By putting together these five aspects of your target's voice you can create the rhythm and melody of your target's vocal "tune".

Finding *their* voice

In the previous exercises you have identified the speaking patterns that your target uses. This exercise is a linguistic trick to get you immediately into the sound of your target. English comedian Jimmy Carr bases a whole routine around identifying key phrases to achieve different accents – his phrases for Tyneside Geordie include "rollercoaster", "pooper scooper" and "Kawasaki". Professional impressionists need to recall dozens of voice qualities for their performance, and many use this trick of starting with a key word or phrase. This exercise helps you to find suitably personal key phrases for the accent, voice and personality of your target.

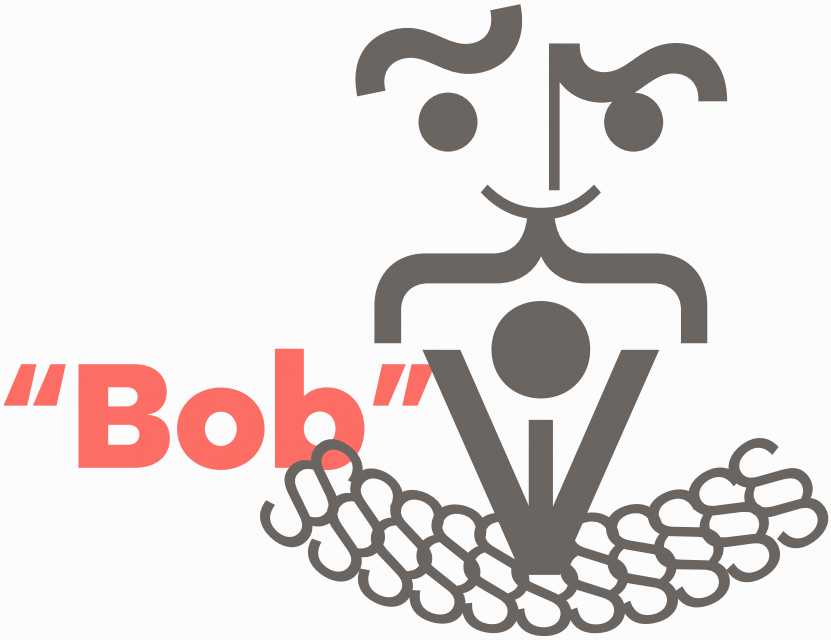
№45 The key phrase

1 Play a video of your target and listen for vocal mannerisms, pronunciation quirks, repeated vocal noises like "er", even jaw positions or body tensions – anything that stands out to you as distinctive. For example, in *Blackadder*, the actor Rowan Atkinson uses an exaggerated pronunciation of the letter "b" in the name of his new manservant "Bob", with both lips curling in between his teeth for the bilabial plosive. Practise this yourself, repeating the word in the exaggerated manner.

2 Having identified your target's unique characteristics, choose a different word of your own and say it as if you are the target. Longer words give more opportunities to display their characteristics whereas short words with different consonant triggers can make you focus on pronunciation quirks. Here is a list of unusual words with different consonant triggers to get you started: subliminal, exoskeleton, blimp, fruitcake, majority, tribulation, petticoat, sussuration.

3 Create a phrase that uses your chosen sounds and that your target might say, then practise it. You will know it works when using it takes you straight to your target voice without much preparation.

Adding your memorable phrase to the beginning of your script or improvisation will help you to find your target's voice quickly; it could even be adopted by your audience as a new catchphrase.



Beatboxing

Beatboxing is the art of making rhythmic and percussive sounds using only your voice. The aim is to provide a complete performance using just a microphone to capture and amplify the sounds. Beatboxing shares elements of tongue twisters, singing, humming, spoken voice techniques and extreme vocal sounds, with beatboxers demonstrating an astonishing level of control over their breathing and sound production. In beatboxing there is usually an underlying rhythm or pulse, with sounds grouped together to create a groove.

Beatboxing has developed as an oral and video tradition, with new sounds being created and posted online by the beatboxing community. Humanbeatboxing.com lists over 80 separate beatboxing sounds, most of which do not appear in Standard British English. Like ventriloquism and mimicry, the skills can take years to perfect but novices are able to have plenty of fun quite quickly.

Every art form has its problems, of course, and for beatboxers these include chapped lips, dehydration and fainting from lack of oxygen – so, collect your lip balm and a bottle of water, take a deep breath and dive in.

Fundamentals

Most singing and speaking sounds are made on modifying the airflow out of the lungs (egressive, pulmonic airflow). However, it is also perfectly possible to make sounds on ingressive air (breathing in) or to use non-pulmonic airflow (breath from above the closed vocal folds).

Beatboxing uses four different air supplies to make percussive sounds, with both in- and out-breath movements. These two exercises show you how beatboxers separate air from their lungs (pulmonic) and air trapped in their mouth (non-pulmonic).

№46 Separating your mouth and nose

1 Start by humming on an **"ng"** sound. You are using air from your lungs, your vocal folds are vibrating (voiced sound) and the air and sound are exiting via the nose. If you pinch your nose closed with your fingers, the sound will stop.

2 Continuing with your **"ng"** hum, open and close your mouth. The sound should not change. Remember that to make an "ng" sound the soft palate drops to open the doorway into the nose and the tongue moves up to touch the soft palate and block the exit to the mouth (see page 88). Practise opening and closing your mouth and moving your jaw slightly while maintaining the hum sound.

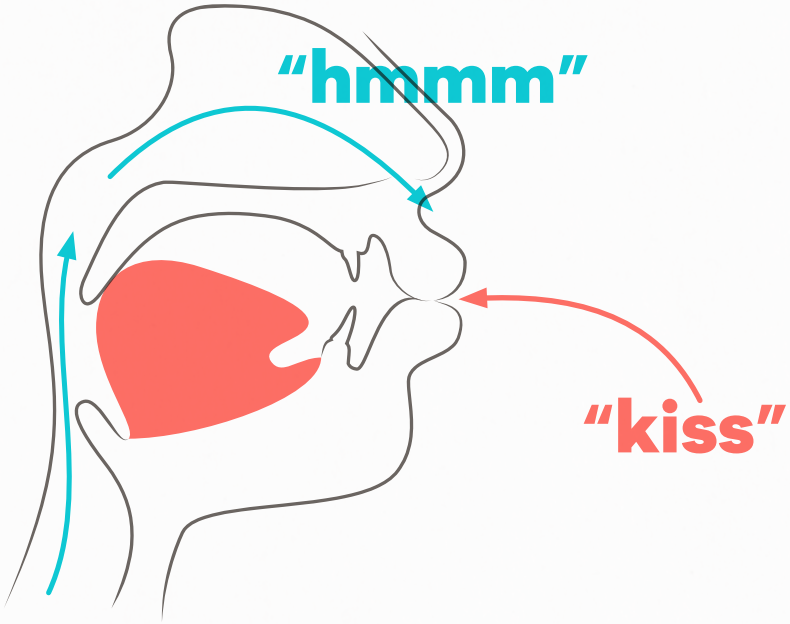
3 It is possible to maintain the soft palate/tongue connection in step 2 and move other parts of your tongue. Hum on the **"ng"** sound and move the tip of your tongue around. Find out how much of your tongue you can move while still maintaining the **"ng"** hum. This is important because many of the beatboxing sounds are created with tongue movements.

№47 Using the air in your mouth

1 Make a kissing sound. To do this you are sucking air into your mouth, but it is not going down into your lungs (non-pulmonic air). A kiss is an ingressive "p" or "pf" sound. The loudness of the smacking sound comes from the pressure of your lips before they release, in addition to whether you are just using lips or lips and teeth to form the closure. Your soft palate and tongue are together at the back of your mouth, so you are creating suction inside the oral cavity by pulling your tongue back.

2 With gentle lip pressure, make a soft kissing sound using the ingressive **"p"**. Repeat it four times.

3 Now change the airflow direction. Keep your tongue and soft palate in exactly the same position as before and push the air *out* to make a **"p"** sound. This is an egressive, non-pulmonic consonant because it does not use air from the lungs. To check this, use the **"ng"** sound to hum a note and make the egressive, non-pulmonic **"p"** sound four times. The hum should not stop.

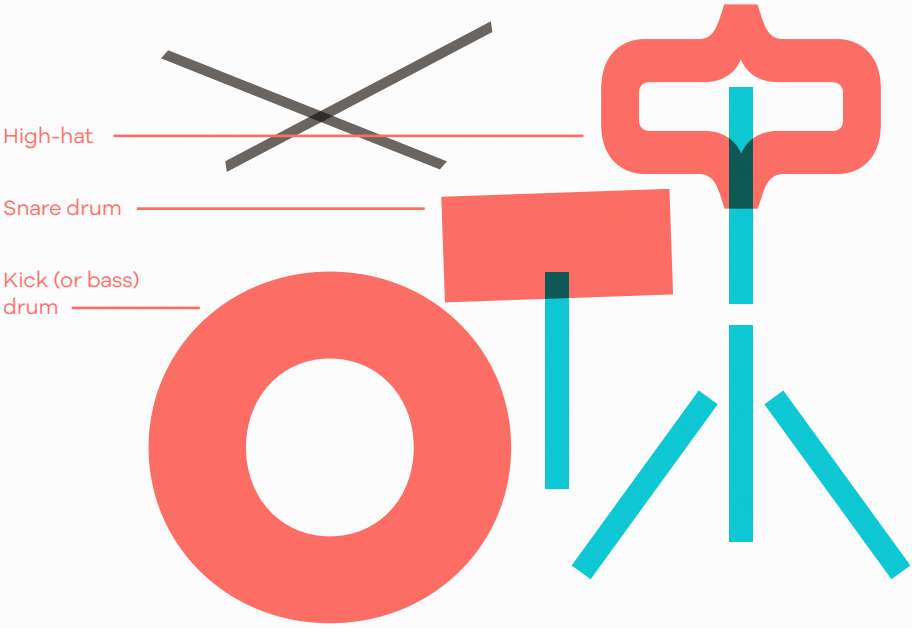


4 Return to the ingressive kissing sound and hum. This takes a little more coordination because you will be sucking air into your mouth with your tongue while at the same time humming down your nose using lung air.

5 Finally, practise four times with egressive **"p"** then four times with ingressive **"p"**, humming outwards all the time. This helps you to isolate your voice, your beatboxing, your pulmonic and your non-pulmonic air abilities.

Creating the kit

Although drummers in commercial music use a variety of instruments, every drum kit will have a kick (or bass) drum, high-hat cymbals and a snare drum. These three create the framework for most contemporary commercial beats. Individual beatboxers use slightly different methods to recreate the sound of each instrument, but these exercises will provide you with the basic techniques.



№48 Kick drum

An actual kick drum has two skins – the rear skin is played with a foot pedal and the front one often has a hole through which you can insert a cushion to muffle the sound.

1 Make the egressive, non-pulmonic **"p"** sound (opposite page), ensuring that you use only mouth air, not lung air.

2 The beatboxing version of "p" for the kick drum is more pressurised, so close your lips a little harder, build up more air pressure behind the closure, then open your lips to explode the air. If you put your hand on your larynx you will feel it move up when you make the **"p"** sound. Raising your larynx makes your vocal tract shorter. The air between your vocal folds and your lips gets compressed, which results in a higher pressure for the release of the "p". This more pressurised (or forced) sound is written as an uppercase "P".

3 You could even add a little lip vibration to the sound. When you press your lips together, purse them very slightly so that the area that presses is just inside the lip. When you push the air out you will get an additional noise, similar to the well-known "raspberry". This sounds like a pitch but it is made only with lip pressure and not the vocal folds. To change the "pitch" you can experiment with different amounts of pressure and different contact points for your lips.

4 Now experiment with using different unvoiced vowel shapes – **"Pih"**, **"Puh"**, **"Pah"** or **"Poh"** – to make it sound like kick drums of various sizes.

№49 High-hat

A high-hat is formed of two cymbals that can be struck when closed (for a short sound) or open (for a longer sound). This exercise shows you how to deliver the closed high-hat sound.

1 Say the consonant **"t"**. The beatboxing version of this sound is slightly stronger, so press your tongue a little harder into the alveolar ridge before releasing the air into the **"t"**.

2 Now learn the non-pulmonic version. Close the vocal folds and use your tongue to push the air through your front teeth.

3 You may also need to experiment with the contact point between your tongue and alveolar ridge to get a clean closed high-hat sound. Test it with different contact points closer to or further away from your teeth. You can also investigate using different parts of your tongue – the very tip, just behind the tip or further back onto the blade. Individual beatboxers ensure variation by using a range of contact points.

№50 Snare drum

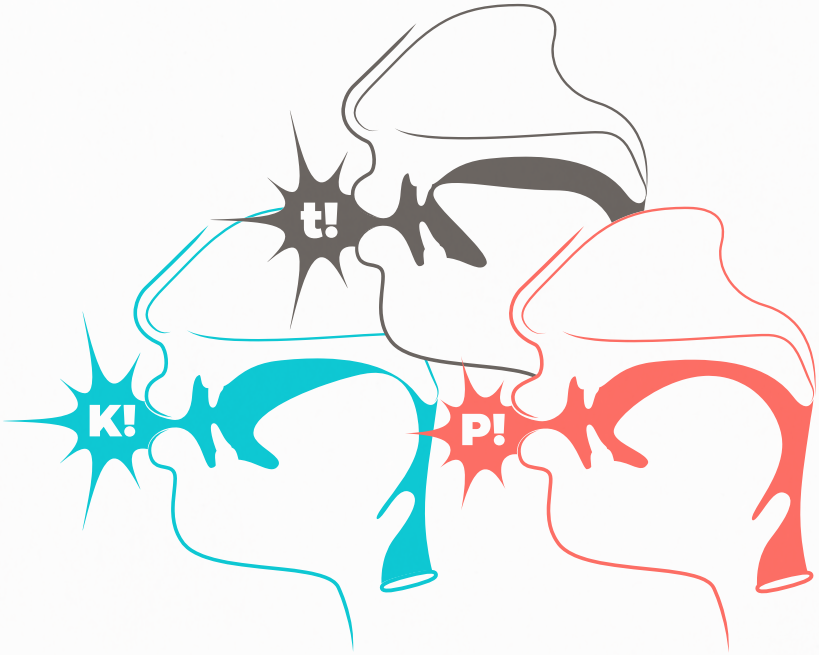
A snare drum has strings of metal beads (the snare) underneath it that can be added or removed from the drumskin for a more or less metallic sound.

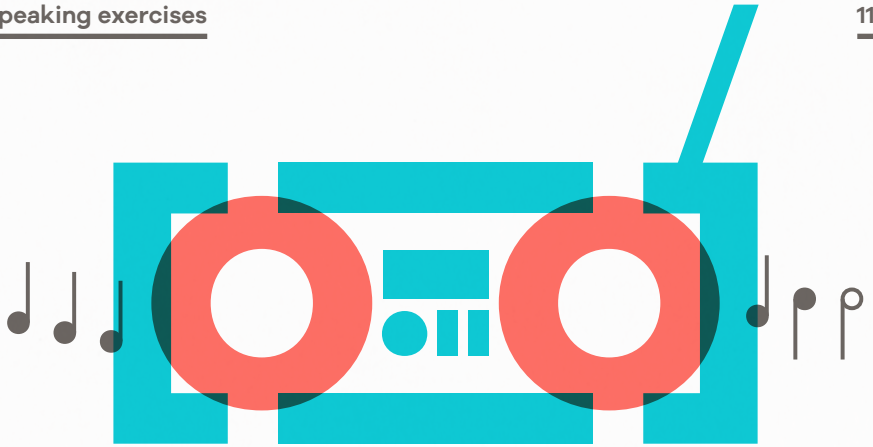
1 Say the consonant **"k"** – it's an unvoiced velar plosive. Again, the beatboxing version is more pressurised, so press the back of your tongue a little harder against the soft palate (velum) and build up the air pressure before you release the air into the **"k"**.

2 Now experience the non-pulmonic version. Hold your breath with your vocal folds closed while you make the strong **"K"** sound. You will be using the air that is trapped between your tongue/soft palate and your vocal folds.

3 Experiment with different vowel shapes, and also by letting the air out of different areas of your mouth (left, front, right).

All three of these sounds – the kick drum "P", the high-hat "t" and the snare drum "K" – use non-pulmonic air moving outwards, which means they belong together in a group of sounds known as ejectives.

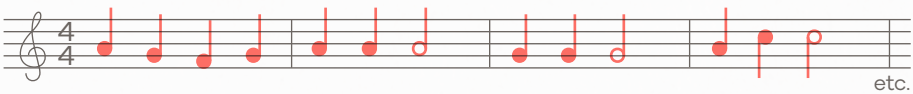




The groove

Creating a groove in beatboxing is a simple matter of putting short sequences of sounds together. However, beatboxing is an oral tradition using non-standard sounds in rhythm, which can make it tricky to notate on standard five-line music paper.

When writing on standard music paper, each musical phrase is written as notes in bars. Each bar is a fixed length, and the barline can be used to demonstrate the phrase's structure – so in 4/4 time, the first beat of each four is often emphasised (see the music example, below, for "Mary Had a Little Lamb").



Beatboxers do not use standard musical notation. Instead, beatboxing has a more flexible rhythmic system in which sounds are grouped into beat patterns. Unlike a music bar, the beat pattern can be any length yet each beat pattern will usually contain multiples of four sounds to reflect the strong four-feel of commercial music genres. Beat patterns are then joined together to create the "groove".

Places to breathe are never indicated, so the beatboxer needs to plan in-breaths and out-breaths carefully to avoid oxygen deprivation. An oblique, or slash, can indicate either the end of a beat pattern (similar to a music barline) or the end of a single beat. The brackets indicate a complete groove, with pressurised sounds – those being forced – written in uppercase letters.

№51 Creating a sequence

You can beatbox these sequences at any speed, but because there are elements of the tongue twister in beatboxing rhythms, it's good practice to start slowly and rhythmically and gradually increase your speed – between 80 and 100 beats per minute is a good target to aim for. Learn from this example in order to start creating your own grooves.

1 Let's start with the simplest rhythm, one that underlies a great deal of pop music. This widely used rhythm has just the three fundamental sounds: kick drum **"P"**, closed high-hat **"t"** and snare **"K"**.

[**P t K t** / **P t K t**]

2 Now add a double sound to your high-hat.

[**P tt K t** / **P tt K t**]

3 Using silent gaps can give your groove more shape.

[**P t K t** / **– t K –**]

4 You can also combine sounds to make new ones – adding an unforced snare sound **"k"** and high-hat **"t"** together gives a different groove.

[**P tt K t** / **– t kt –**]

5 Try this combination.

[**P t K P** / **t K tktk**]

This works best when it is performed fast. Even though the rhythm is written in groups of four, the "feel" turns it into a 3+3+2 rhythm.

[**P t K P** / **t K tktk**]

6 Rhythm patterns like this are usually played in groups of 8, 16 or 32. In its simplest form, a short pattern is repeated four times with small variations, with a "fill" at the end of the final group that is more complex.

You can start getting this effect by combining steps 3, 4, 3 and 5 above:

[**P t K t** / **– t K –** / **P tt K t** / **– t kt –** / **P t K t** / **– t K –** / **P t K P** / **t K tktk**][**P t K t** / **– t K –** /etc.]

Finding places to breathe

One of the biggest challenges for a beatboxer is keeping a continuous groove going for many minutes while still managing to breathe. Beatboxing is a competitive art form in which each performer does their best to outshine opponents. Because of this rivalry there is a tendency to want to keep the sounds going and not give another beatboxer the opportunity to jump in. Many of the sounds are non-pulmonic, which means there is a real danger of fainting from lack of oxygen during a beatboxing competition. There are two main ways to combat this – adding gaps and using ingressive sounds.

№52 Adding gaps

The novice beatboxer can forget that adding silences may give real structure to the groove. This exercise is to help you add gaps in your sequences, giving you a chance to take a breath without destroying your groove.

1 Start with your basic rhythm pattern:

[**PtKt** / **PtKt** / **PtKt** / **PtKt**]

2 If you add two gaps in the sequence you get a different groove and two different opportunities (indicated by the arrows) to breathe in.

[**PtKt** / **PtK–** ↑ / **PtKt** / **–tKt** ↑]

№53 The inwards "K"

A pulmonic, ingressive sound is made by sucking air into the lungs – the indrawn sound of shock is a good example. In beatboxing there are several sounds that use pulmonic, ingressive air passing a partial obstruction – the inwards "K" is an example of a sound you can use to top up your breath.

1. First, make a standard pulmonic **"k"** sound – the tongue and soft palate join, the air pressure builds up behind the join and then you release it outwards (unvoiced) to make the "k" sound.
2. Now make the same seal with your tongue and soft palate, but this time instead of blowing the air out, suck it in. Be careful the first time you do it – taking in too much air or sucking it in too fast can trigger a cough. Just pull the air in gently.
3. Practise a sequence of the outwards **"k"** followed by the inwards **"k"**. The only difference is the direction of the airflow. Notice how much air you use, and experiment with reducing the amount or the speed of the flow. Now increase the tempo of your sequence without increasing the airspeed. Your aim is to gain fine control of your in-breath and out-breath, and to use just enough to make the inwards and outwards "k" sounds happen.
4. To extend the inwards "k" sound, keep your tongue close to the roof of your mouth after the release – you'll get the **"k"** plosive followed by a gentle fricative as the air runs into the gap between the body of your tongue and your hard palate. Notice that you need a small build up of pressure before the release, but that you can then slow the speed of airflow down during the fricative section and still maintain the sound.
5. Now that you have learned to balance your in-breath and avoid coughing, you can pressurise the sound a little more. Press a little harder where the soft palate and tongue join, then release and allow the ingressive air to move a little faster. This is the forced, inwards "K".
6. Finally, experiment with changing your lip and vowel shape on the inwards **"K"**. You can also use the standard lip opening (at the front), or open just one side of your lips.
7. This "K" can be written down by using a symbol known as a carat for the inwards sound and an "h" to denote a pulmonic sound – "^Kh", which is an inwards (ingressive), forced, aspirated (pulmonic) sound. Adding it to the original basic pattern results in this:

[**P t ^Kh t** / **P t ^Kh t**]

№54 Adding air to your kick drum

Beware! You can also take in too much air on an inward sound or hold it for too long. If you feel like you are drowning, or are seeing stars, you have probably topped up too much! Get rid of excess air by adding an unvoiced fricative to your basic sounds.

1 Start with your basic kick drum sound **"P"**. This is an ejective (non-pulmonic outwards, unvoiced, forced sound).

2 Add an **"h"** aspiration after the sound – **"Ph"**. (Note that this is not the "f" sound in Standard British English but a "P" followed by a burst of air.)

3 Add a fricative **"f"** after the sound **"Pf"**.

4 Add the fricative **"sh"** after the sound **"Psh"**.

5 Now experiment with these different versions in your groove:

[**P t K t** / **Ph t K t**] [**P t K t** / **Pf t K t**] [**P t K t** / **Psh t K t**]

You may find that when you make each of these sounds, you actually turn the non-pulmonic "P" part of the sound into a pulmonic "P". This is fine – beatboxers use both the ejective and pulmonic versions of these sounds in fast sequences.

Additional sounds

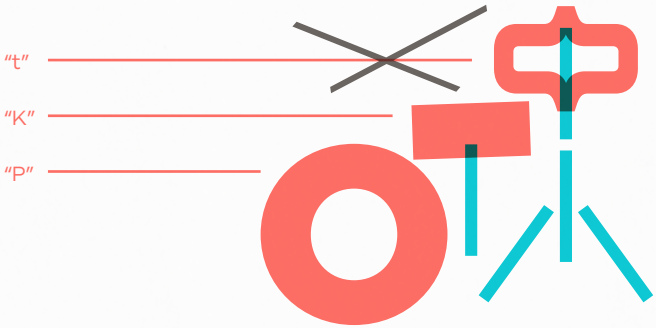
There are many variations you can create from the three fundamental sounds. They will add interest to your groove, and can help you shape your performance. Use any of them, singly or in combination, to replace the three fundamentals in your groove.

№55 Kick drum variations

In the previous exercise you discovered some of the variations you can make on one of the fundamental sounds. Having added pulmonic sounds to the basic "P" – **"Ph"**, **"Pf"** and **"Psh"** – you can also add a non-pulmonic sound or a pulmonic voiced sound.

1 To create the non-pulmonic kick drum, start with your basic kick drum sound – **"P"** – and add an **"s"** to the end of the sound – **"Ps"**. In this case both the "P" and the "s" sounds are ejective (non-pulmonic). This addition makes your kick drum sound crisp and tight.

2 To create the pulmonic voiced kick drum, start with a basic kick drum sound **"P"** again. This time, add an **"m"** sound at the end – **"Pm"**. Because you're adding a voiced pulmonic sound, you may find that your kick drum "P" changes to use pulmonic airflow. The voiced humming sound of the additional "m" adds a depth to the basic kick drum.



№56 The dry kick

The dry kick drum uses a type of "t" sound made with the tongue and alveolar ridge instead of the "P" sound (bilabial). It gives a slightly quieter, brighter, punchier sound – and works well with the microphone very close to your mouth.

1 Say the word **"duh"**. The tip of your tongue starts on your alveolar ridge to make the stop at the beginning of the "d" sound, then it drops away to move on to the vowel.

2 Make just the **"d"** sound but stop the voicing and use non-pulmonic air. It will become a non-pulmonic "t".

3 Because this sounds very similar to the "t" of the high-hat, it needs to be differentiated. Make the **"t"** with the tip of your tongue, but make sure the rest of your tongue drops into an **"uh"** or **"aw"** position (**"tuh"** or **"taw"**). Even though you are not voicing, we hear the vowel shape as a darker sound.

4 You can also change the direction of the airflow slightly to make the unvoiced dry kick sound bassier. Start with the high-hat **"t"**, which pushes the air out high along the roof of the mouth as the tongue tip releases forwards. To make a bassier dry kick **"t"**, think of your tongue dropping away or even pulling back slightly from the contact point rather than releasing forwards. When the air is released it has a deeper space to travel through.

№57 The techno bass or 808 kick

The techno bass or 808 kick, also called the throat kick or techno swallow, is designed to imitate the kick drum on an electronic Roland 808 drum machine, rather than a live drummer. The sound is created using a pulmonic burst of air inside the vocal tract that doesn't escape.

1 Say **"ugh"** quite strongly, as if you have been hit in the stomach.

2 Now repeat the word but close your mouth and nose. You are using a voiced vowel but not allowing the sound or the air out of your body.

3 Repeat the sound and experiment with pitch – lower pitches can sound more effective.

№58 The reverse kick

The reverse kick sounds like a kick drum recording being played backwards.

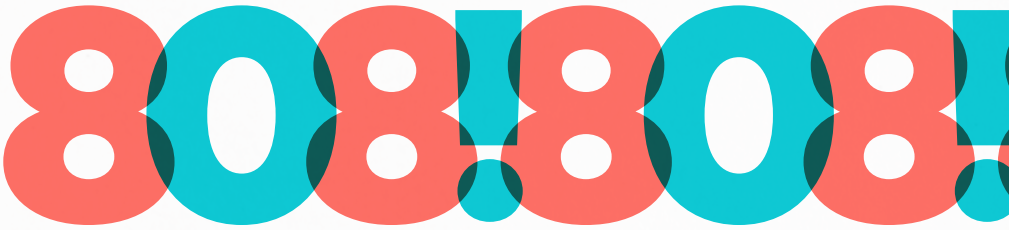
1 Say the word **"wup"**, then remove the vowel – **"wp"**.

2 Extend the **"w"** part of the sound and keep your lips very close together with only a tiny gap for the sound to emerge.

3 Get louder through the **"w"** part of the sound, then snap your lips closed for the **"p"** – **"wwwwwp"**.

4 You can use this sound as is, or add a lip oscillation through the **"w"**. Set up an unvoiced lip trill by blowing a raspberry with just your lips (keep your tongue inside your mouth). Then add a **"w"** sound while your lips vibrate, get louder through the oscillated **"w"**, and close your lips suddenly to stop the air and create the **"p"** – **"wwwwwp"**.

5 You can also use the dry kick **"t"** as a reverse kick drum sound. Use a **"v"** instead of a **"w"**, and the stopped part of the **"t"** instead of the **"p"** – **"vvvvvt"**.



№59 Snare variations – adding fricatives

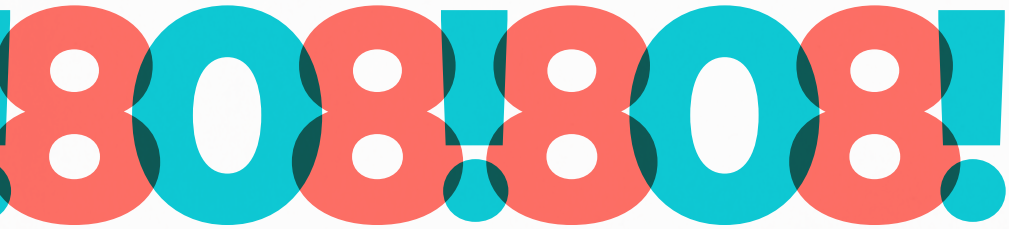
Adding fricatives to a basic (pressurised) snare "K" makes the sound last longer and can increase the tension in the sound, raising the impact.

1. Start with your basic **"K"** and add a **"sh"** sound at the end (**"Ksh"**) – this can be done using either pulmonic or non-pulmonic air.
2. Experiment with different fricative points for your **"sh"** – on the postalveolar ridge, further back along the hard palate (as in the German "ich") and even further back towards the soft palate (as in the Scottish "loch").
3. You can change the sound by altering the escape point of the sound – from the front of the mouth or from either side. Most people have a stronger and a weaker side of the mouth so test both the right and the left to discover which works best for you.

№60 Snare variations – the 808 snare

No beatboxing toolkit would be complete without the snare sound from the Roland 808. Similar to the dry kick and the closed high-hat, the 808 snare uses an alveolar consonant (in this case a "t") with more pressure.

1. Start with a non-pulmonic **"t"** sound, as with the dry kick – the tongue touches the alveolar ridge and releases to create the unvoiced burst of air.
2. Press your tongue harder against the ridge, then release it. This extra pressure changes the sound, making it slightly darker and more percussive.
3. Now when you release the **"t"**, keep your tongue close to the roof of your mouth. This channels the burst of air into a sound halfway between an "s" and an "sh". This combination of pressured "t" and "s/sh" burst gives you the 808 snare sound.



№61 High-hat variations – the open high-hat

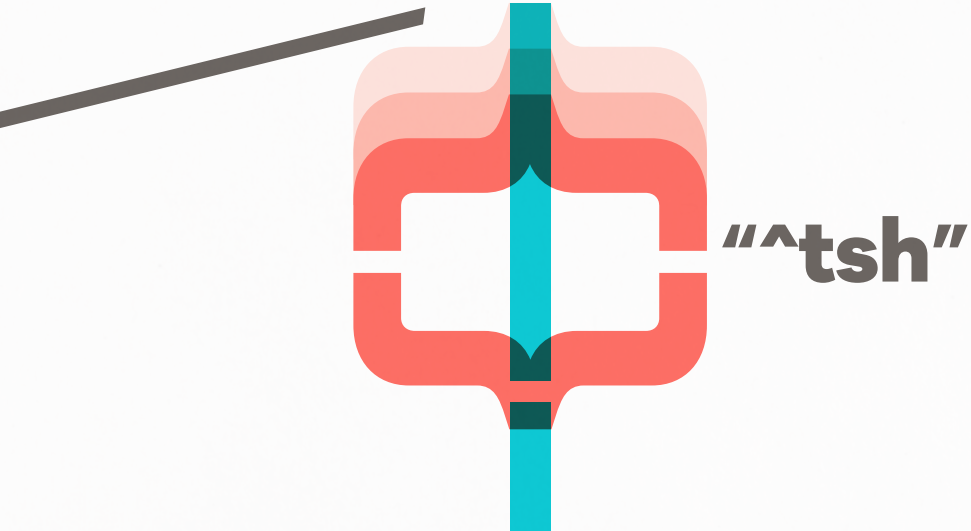
The open high-hat is similar to the 808 snare, but on an out breath and with a gentler pressure.

1. Start with your classic closed high-hat – **"t"**. The pressure between your tongue tip and alveolar ridge for the stopped part of the "t" is gentle.
2. Add a hiss on the release of the stop – **"tsss"**. This is a pulmonic sound.
3. This high-hat variation uses a hiss that is somewhere between an "s" and an "sh". To find this, start with the standard **"s"** position and drop your tongue tip down a little, leaving it hanging in mid-air – the air travels above and below the tongue tip on its way out. Now add this new sound to the gentle **"t"** to make the open high-hat **"tsh"**.

№62 High-hat variations – the reverse high-hat

The reverse high-hat is a sort of inward slurp that replicates the sound of the open high-hat being struck then closed. Start with the open high-hat sound you discovered in the previous exercise – **"tsh"**.

1. Repeat the open high-hat but this time make the sound on an in-breath (pulmonic). So when you release your tongue from the stopped part of the **"t"**, the air will "slurp" inwards across the tip of your tongue – **"^tsh"**.
2. To make the sudden stop of the high-hat being struck then closed, make the inward **"ts"** sound from the previous step **"^tsh"**, then close your mouth suddenly to stop the sound.



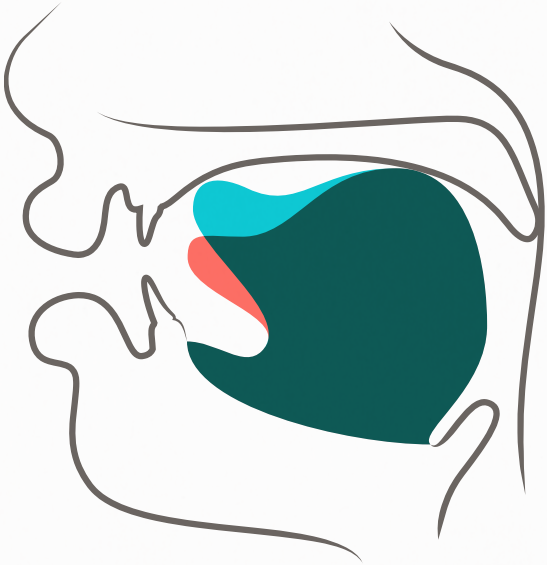
Clicks, claps and scratches

While you can create complex rhythms from the three fundamental sounds, there are more than 80 different beatboxing sounds that you can add to your groove. Clicks, claps and scratches, as shown on the following pages, are just a few of the ways to add variation to the standard repeated patterns – they are a "spice" rather than a feature, so use them sparingly.

№63 The clave click

The clave click is one of the most useful additions to your groove. This sound is similar to tutting at something.

1. Start with your soft palate and tongue touching each other. You should be able to breathe in and out through your nose. Your mouth is open but the oral cavity is blocked by the tongue position, which means that no air can enter.
2. Keeping the soft palate/tongue closure, move the tip of your tongue up to touch your hard palate just above the alveolar ridge. Your tongue will be up at the back, dipped in the centre and up at the front.
3. Start to build up air pressure as you try to suck the air into your mouth then release the tongue tip closure to make the clave click sound.



The clave click is like a "tut" sound made using the tongue tip touching two different parts of the mouth, front and back: the alveolar ridge (blue) and the hard palate (brown).

4 Different contact points will give different click sounds, so experiment with using different parts of the tongue – the tip of the tip, the flat of the tip, the underside of the tip and the front part of the blade.

5 Also, the sound will change depending on where your tongue touches – experiment with the tongue touching the alveolar ridge, the join between the teeth and alveolar ridge, or the hard palate further back.

№64 The side click

The side click is similar to the clave click but you pull the air in through only one side of your mouth.

1 Set up your click position as described in steps 1 and 2 of the clave click above.

2 Open just one side of your mouth – the lips part on one side but are held together on the other.

3 To make the side click sound, release just one side of your tongue (the side with the open lips). The air is sucked in and the funnelling of the sound through one side of the mouth produces a high, clear, loud click.

4 Experiment with different amounts of lip rounding – for example with lips extended or in a wide grin.

"cll"

№65 The classic handclap

The classic handclap is not a click as such, but is used in the same way in a beatboxing phrase to add spice to a groove. It uses a slightly unusual tongue position, so start with the closest spoken equivalent – the Welsh double l, or "ll", sound that is pronounced like "thl" in the English word "athlete".

1 Say the word **"llan"** in your best Welsh accent (as in the town Llandudno). The tip of the tongue is up on the alveolar ridge and the sound spills over the sides. Before you voice the "ll", there is some unvoiced air leakage around the sides of your tongue. This is the position that we use in the classic handclap.

2 Keep your tongue in the "ll" position and use just the unvoiced part of the sound – the air will be leaking over the sides of your tongue. Repeat and add a **"c"** at the start of the sound. To do this you start with the tongue up on the hard palate so that no air can escape. Then keep the tip of the tongue where it is and drop the sides – **"cll"**.

3 The classic handclap is an ingressive, pulmonic sound, so this time do exactly the same movement but breathe in instead of out.

4 To make your handclap cleaner, add another **"c"** at the end of the sound – **"cllc"** to stop the sound suddenly.

5 This sound works best when a small amount of air is sucked in quickly – the quicker the airspeed, the stronger the handclap.

6 If the "cllc" doesn't work for you, try using a **"t"** at the beginning and end of the sound – **"tllt"**.

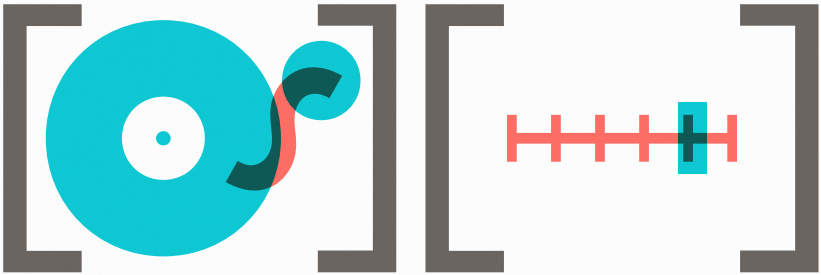
7 Now experiment with your mouth resonance. Make the classic handclap with an **"ee"**, then **"ah"**, **"aw"** and **"oo"** shapes and listen to the "pitch" change as you adjust the resonating space in front of the tongue. The classic handclap is an ingressive aspirated forced sound, which means it's written like this: "^Clh".

The basic rhythm with the classic handclap added might look like this:

[**P t ^Clh t** / **P t ^Clh t**]

№66 The crab scratch

Scratching is the sound DJs make when they run the needle backwards and forwards on the vinyl disc during a set. Beatboxers use a variety of methods to add this sound to their groove and the crab scratch is created by using ingressive breathing around your thumb or finger. Some beatboxers do not consider this to be a pure beatboxing sound because you also use your hand rather than solely your vocal instrument, but it is popular with audiences.



1. Start by pursing your lips into a kiss. Keep the pursed lips but open your mouth. Then put your finger up to your lips. Your lips should spill around the sides of your finger.
2. Suck air into your mouth, past your finger. The "wind noise" you hear is caused by the friction of the air.
3. To get the scratching noise, keep your finger in place and say **"Tuku tuku"** on an in-breath.
4. Now start to play with rhythm. Try this eight-beat cross-rhythm:

1 2 3 4 5 6 7 8

[**Tuku** / **tuku** / **Tuuu** / **tuTu** / **uutu** / **Tuuu** / **Tuku** / **tuku**]

5 As a replacement for the finger on the lips, some beatboxers use their thumb or the area between their thumb and forefinger because these are easier to access when holding a microphone in the same hand.

6 You can also add a rolled **"r"** to this sequence using a trill either on an outward or an inward breath.

An ingressive uvular trill

A snore is usually made with air breathed in through both the nose and the mouth. By blocking off the nose with your soft palate, you can produce an oral uvular trill. If you add this trill to the sequence you do not have to change air direction – both this and the crab scratch are ingressive, pulmonic sounds.

An unvoiced alveolar trill

Start with a standard rolled **"r"** sound. Stop voicing but keep the airflow going. This is an unvoiced rolled "r". Notice that if you add this sound to the sequence above you have to change air direction from inwards to outwards.

7 So your sequence will now look like this:

1 2 3 4 5 6 7 8

[**Tuku** / **tuku** / **Tuuu** / **tuTu** / **uutu** / **Tuuu** / **rrrr** / **rrrr**]

№67 The electro scratch

The electro scratch is a simple replacement scratch sound that is easy to do in a fast beat sequence. You can use this to replace the high-hat in your groove.

1 Say **"chewychewy"** or **"chewychica"**.

2 Stop voicing and say each word unvoiced. The unvoiced "chewychewy" or "chewychica" sounds can be used just as they are but there is a refinement that makes them more authentic.

3 Move the main part of your tongue up much closer to your hard palate, so that there is only a small gap for the sound to travel through. This adds turbulence or distortion to the unvoiced sound.

4 Experiment with mouth shapes – extending your lips or moving your bottom jaw forwards.

Singing exercises

Singing exercises

An introduction to singing
Opera, oratorio and classical
Rock, pop, soul, jazz and country

An introduction to singing

Singing is enjoyed worldwide across cultures, ages and a variety of levels – from karaoke to opera. A 2009 study reported that 42.6 million people were participating in choir singing in the USA alone and noted the important positive social and psychological effects of doing so. Research studies have also reported the health benefits of choir singing, including a boost to the immune system. So it's official – singing is good for you!

Speaking and singing share the same physiological mechanism, yet not everyone thinks they can sing. A surprising number of people feel, or perhaps have been made to feel, that they cannot sing. There appears to be a cultural mystique about what comprises a "good" singing voice, but almost anyone can learn to sing. In this section we aim to break down the components of singing with a range of accessible and inclusive exercises for those interested in learning classical or commercial music styles. However, always remember to warm up your voice first (see pages 52–65).

Before beginning the exercises in this section, it is useful to think about what *really* differentiates speaking and singing. It boils down to three things: pitch, duration and timbre.

Pitch

When we speak the focus is on language: the syllables that make up the words of that language and the pitch, volume, intonation patterns and semantic meaning. In singing we also have language, pitch and volume, but the pitch range is usually wider and the pitches themselves will be more sustained. Singers will spend a considerable part of their training developing the pitch range of their voices. In sung words syllables are often more elongated: this affects the relationship between the length of vowel to consonant and may feel unnatural compared to speaking.

Duration

In running speech we do not consciously use a beat, but we do emphasise certain words or syllables to express meaning – this gives an underlying sense of rhythm. In singing, the duration of the pitches is often predetermined and organised into rhythmic patterns, with a recognisable pulse or beat.

Timbre

When we speak we use our tone of voice to express moods and emotions. We can usually tell if someone is sad, angry or happy, not just by what they say but how they sound. These voice qualities are known as "vocal settings" if they are present for more than one syllable. Singers also use vocal settings for expressive purposes but often in a more structured way. Certain styles of singing demand a particular sound palette and singers may spend many years developing the requisite voice qualities to create this palette. For example, opera and musical theatre singers tend to sound more "trained" – due to the theatrical origins of the genre. Popular music singers, by contrast, tend to sound less "formal" – they are singing in a more vernacular style because their music comes from oral traditions.

All of these elements lead to a different *use* of the voice when we speak and when we sing. In turn this means a different use of breath, tone production, resonance shaping and word articulation – and between the myriad of music genres there are further differences. So, while there will be certain common underlying principles between vocal styles, there is no single "right way" to sing: it's all about context. The exercises in this section guide you through some of the core vocal skills required for both classical and contemporary commercial singing, including work on breath use, key vocal settings, phrasing and note approaches.

Opera, oratorio and classical

The term "classical singing" is often used in a non-specific way to describe a number of different musical styles that really come under the broader title of "Western Lyric Singing". This singing style evolved for a written music tradition that dates back to the tenth century and includes the categories of opera, oratorio and classical song. Within this rather broad framework there are many differences in practice, either due to the specific music epoch, geographical region or performing context. For example, singing Wagner with a full orchestra in an opera house is very different from singing a Handel oratorio in a church, or singing a Schubert song in an intimate concert hall. Nevertheless, there are certain widely recognised and practised features.

A powerful, vibrant and resonant tone is expected of classical singers. The sound palette is clear – not breathy – and is usually produced with a lower larynx, which gives fullness and depth to the sound. At the same time, resonances are adjusted to add "brightness" and "ring" to the tone, and the contrast between the two sounds provides what is known as the "chiaroscuro effect".

Singers of these musical styles need excellent dynamic control, a range of at least two octaves, and to be able to match tonal quality across that pitch range. The exercises that follow will guide you through creating consistent tone, graded volume and smooth phrasing, which are all hallmarks of classical singing.

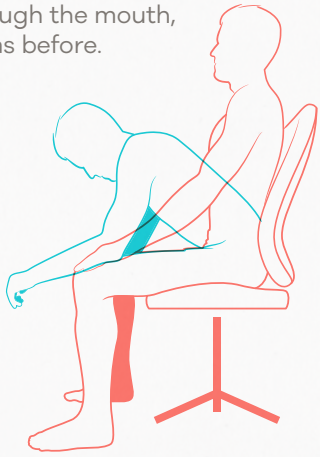
Breathing

Throughout this book you will have seen how the sound is powered by breath. In classical singing the musical phrases are typically longer than in other styles, which means that a large volume of air may be needed and control must be developed so that this air is not all released at once. Where musical phrases are back to back, the singer also needs to learn to breathe in quickly. Breath "support" is also one element of vocal loudness, and classical singers often need to sing at loud volumes. The next three exercises will help you to master these techniques.

№68 When you need more air

The diaphragm is lower at the rear than at the front, which allows for greater lung expansion around the back. In this exercise you are focusing on a sense of expansion in the back and the lower ribs at the side during the in-breath.

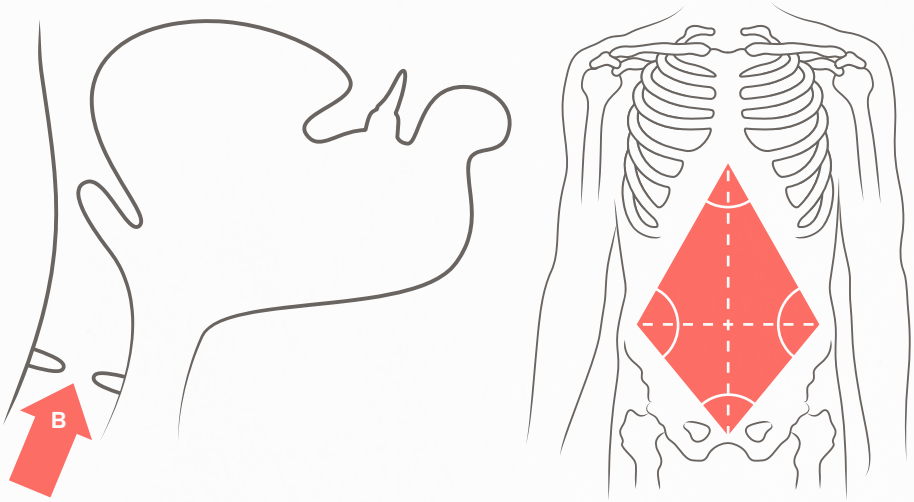
1. Sit in a chair with a firm base at a height that places your feet flat on the floor. Then lean forwards, placing your elbows on your thighs.
2. Keeping the spine long and the head and neck in line with the spine, lower your torso until the abdomen touches the upper thighs. In this position, any movement of the front of the abdominal wall will be slightly restricted.
3. Inhale deeply through your nose and notice that you can feel an expansion around your lower back and sides.
4. Breathe out and repeat, still breathing through the nose.
5. Now drop the jaw a little and take the air in through the mouth, aiming to keep the same amount of expansion as before.
6. Puff the air out on a slow **"fffff"**, feeling the abdomen engage. Notice that the muscles at the side of the body contract a little as you get towards the end of your breath.
7. Breathe in again and sing a quick five-note scale on a voiced fricative such as **"v"** or **"z"**. Use a pitch range that you find comfortable.
8. Breathe in *again* and sing the scale on a vowel of your choice.
9. Repeat and sing a longer phrase from a song or an aria of your choice.



№69 The "hover" breath and "smooth onset"

Whenever we breathe in, the vocal folds are open. In this exercise you will learn to hold the breath in your body while still keeping the vocal folds open – an excellent preparation for the "smooth onset" characteristically used in classical singing.

1. Start by taking a relatively small breath in through your mouth, then silently breathe out. There should be no sense of friction in the throat when you do this, or any sound of whispering.
2. Take a slightly larger in-breath and – again – breathe out silently. Notice that your vocal folds are open for both the in-breath and the out-breath.
3. Repeat step 2, but let your breath "hover" for a few seconds before letting it out silently. Notice what you are doing to enable this to happen. The vocal folds should still be open.
4. Do the same again but this time use the out-breath to sing a gentle, clear note. Notice that because the vocal folds are interrupting the breath stream you can make the sound last longer than the silent out-breath.
5. Sing several short repeated notes on the same vowel, with a gap or musical rest between each. Notice that you can "hover" the breath between notes because the vocal folds are open but you are not breathing in. This gentle approach to the notes helps your voice and breath coincide in a controlled release, which is the secret of the "smooth onset" used in classical singing.



№70 The "diamond of support"

For breath support, the classical singing teacher Janice Chapman uses the image of a "diamond" (see illustration, below left) to help singers to understand how the muscles of expiration are engaged during energised voice use for operatic singing. She also coined the acronym SPLAT (Singers Please Loosen Abdominal Tension) to remind singers of her approach to "diaphragmatic/belly release inhalation". The two key points to remember are: muscle engagement at the junction points of the diamond is for support of the out-breath during singing, and SPLAT is *releasing* for the in-breath.

1 Stand with a balanced posture (pages 22–23). With this stance you will be able to co-opt the muscles of the abdominal wall for the active expiration needed when singing, and also to release the centre of the abdominal wall for the in-breath.

2 First, check your muscle junction points. If you cough gently you will be able to feel these junction points. The top of the diamond is just underneath the small piece of cartilage at the base of the sternum while the bottom is just above the pubic bone. The sides of the diamond will vary in position depending on the length of your rib cage, but if you place your hands on either side of the torso between the lowest rib and the pelvis, you will feel where those muscles contract when you cough. Note that the cough is used for physical awareness only.

3 Now make a vigorous **"pshhh"** sound as you breathe. As the muscles contract at the junction points of the diamond, you will feel them push out a little under your hands. At the same time, the centre of the diamond will pull in to feed the air up to the vocal folds.

Opposite, far left: The position of the vocal folds when "hovering" the breath (B) in preparation for the "smooth onset".

Opposite, left: The body's muscle junction points that form the "diamond of support" and the central area (+) that must be released for the "SPLAT" in-breath.

№71 The "SPLAT" in-breath

1 Make the vigorous **"pshhh"** sound in step 3 of the above exercise, noting that the centre of the diamond pulls in a little.

2 This time, when you have finished making the **"pshhh"** sound, immediately "let go" of the muscles of the abdominal wall. Notice that the central part releases outwards, allowing your breath to drop in lower as you breathe. This abdominal release to breathe in is the "SPLAT".

№72 Sustaining airflow

You will need to sing either on a rolled "r" or a lip trill. A lip trill means vibrating the lips at the same time as vocalising a note. Both of these sounds require a strong expiration, so they are excellent ways of making sure that you have sufficient airflow for energised singing tasks.

1 Using either the rolled "r" or lip trill sing a five-note scale up and down (as on page 137). At the end of the scale, be sure to release the abdominal muscles by using the "SPLAT" in-breath. This will enable you to breathe in again easily.

2 Repeat step 1 several times, making sure that you "SPLAT" in between each one.

3 Now change to a longer scale pattern of nine notes.

4 Take a series of phrases from a song or an aria, singing them first on a rolled "r" or lip trill, then with the words.

Tone quality

№73 The "whinge setting"

Classical singing generally uses both cricothyroid and vocal fold muscle activity. The vocal folds are slightly elongated, giving a clear, focused sound quality that can also be moved easily across the range. In this exercise the desired vocal setting is accessed by using the emotional and auditory cue of whingeing or whining.

1 Make some energetic whimpering noises – like a puppy seeking attention. Male voices should adjust to a lower pitch and avoid doing this in the female range; female voices should use their upper-mid notes.

2 Notice that, as you do this, the abdominal muscles are engaged in the manner described as the "diamond of support" on pages 138–139 – the centre of the diamond moves inwards and the corners will move outwards.

3 Keeping this vocal setting, try some phrases such as:

"I don't want to DO this"
"WHY do I have to?"
"Woe, woe and THRICE woe"

Practise elongating the vowel sounds where you see a word in upper case. Your voice will have a wailing, moaning sound that is excellent for singing classical music.

4 Whichever phrase worked best for you, now sing it on a single note, remembering to elongate one of the words as before.

5 In a whingeing voice, speak the first two lines of the song "Amazing Grace": **"Amazing grace! how sweet the sound that saved a wretch like me"**. You are aiming to elongate at least one vowel in each word so that you can really feel the sensation of holding the "whinge setting".

6 Now elongate the syllables in the same way that they are elongated in the song. For example, in the first line there are two counts on the second syllable of **"ama-zing"** and two counts on the vowel in the word **"grace"**.

7 Sing the words on a single note, using the rhythmic pattern of the song. Move up a note in pitch and repeat.

8 Continue going up in pitch for a few notes, and then down again.

9 Sing the whole song with the notes of the melody. The song covers a range of one octave (eight notes), so start in a comfortable part of your pitch range.

10 Now choose a classical song or aria that you want to sing and go through exactly the same process as described in steps 5–10, speaking the words in a whingeing voice, then elongating them in the rhythm of the music, and finally singing the words and melody together.

№74 Low-larynx singing

The Italian term chiaroscuro, which contrasts clear and dark, is most often used in the visual arts, but it also applies to a kind of singing in which contrasting techniques are used in combination to give both brightness and depth. The depth and fullness of the oscuro component of this sound quality is achieved by using a "comfortably low" larynx, which elongates the tube of the vocal tract. This laryngeal posture is often referred to as the "sob setting" because in speaking voice it is similar to the position of the larynx during the act of sobbing. The next two exercises are aimed at getting you to lower your larynx in pursuit of the desired oscuro sound. In the first (two-part) exercise you will be monitoring your laryngeal position by touch. In the second you will be using the auditory cue of "sobbing". For the chiaro component of chiaroscuro, see Exercise 80 (page 150).

Part one: Getting in touch

1 First, get in touch with how your larynx moves. Put the fingers of one hand on the front of your throat.

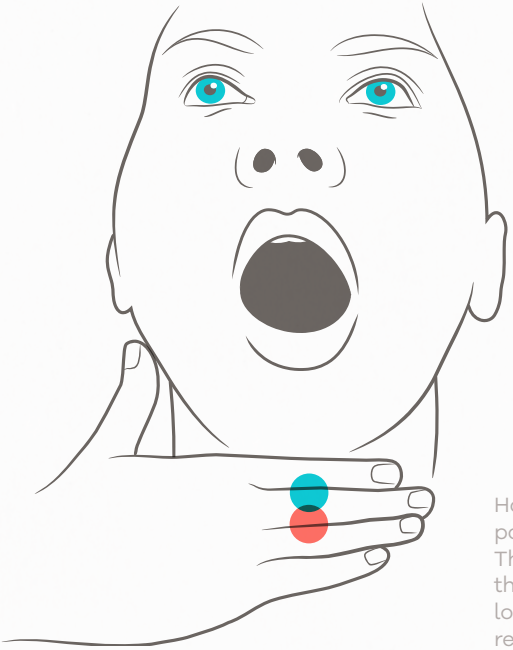
2 Swallow, and notice that your larynx moves upwards, pushes forward a little and then settles down again.

3 Keeping your fingers in position, breathe normally through your nose. Notice which finger is most in contact with your larynx – this is a good way of finding your habitual larynx height.

4 Hum a comfortable note without moving your larynx. Use your fingers to help you monitor the position.

Part two: Lowering

1. Yawn while keeping your lips closed. Notice that your larynx moves down quite a long way – for most people this is lower down than "comfortably low". Holding your larynx that low can stop you accessing your higher notes easily.
2. Using the very start of a yawn will take you to a "comfortably low" larynx position, so repeat step 1 but stop the feeling of a yawn almost immediately. Your larynx will now be a little lower, perhaps half or a finger's depth lower than your habitual position.
3. Using this position sing the vowels **"ee"** / **"eh"** / **"ah"** / **"aw"** / **"oo"**. You should be able to make all the vowels clearly if you have found "comfortably low". If you move your larynx down too far, the vowels will become distorted.
4. If you are singing in a language other than English, repeat the previous step, starting with **"ee"** but moving to the long vowels of the language you are singing in. For example, in German you would include the "ü" and "ö" vowels.

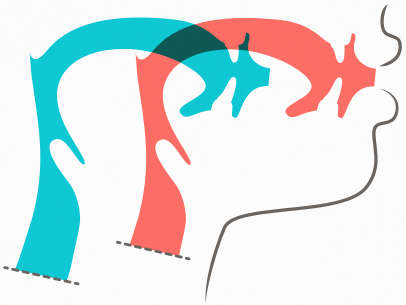


How to monitor the larynx position using four fingers. The two dots represent the habitual (blue) and low (red) positions, respectively.

№75 Finding the "sob setting"

1 Imagine watching a play or movie where you empathise strongly with a sad scene and it makes you want to cry. However, you do not want to cry aloud.

2 Notice the sensation in your throat: you will feel your larynx change position and may also feel a slight tension as muscles work to pull the larynx down.



The vocal tract showing the position of the vocal folds with a habitual (top line) and a lowered (bottom line) larynx.

3 Hold the sensation and breathe in and out. This helps you avoid "choking back" the feeling or closing your throat completely.

4 Make some silent sobbing noises on an out-breath. Your larynx will be lowered and your vocal folds will be open. In this "sob setting" the pharynx is also widened.

5 When you run of breath, breathe in again on a short "catch-breath" just as you would if you were really sobbing. This is very similar to taking a breath in between long phrases in classical singing.

6 Now make some energised sobbing sounds on a vowel: **"ohhh/ohhh/ohhh"**. As you do so, apply what you learned in Exercises 70 and 71 (pages 139–140).

7 Keeping the "sob setting", now sing the vowels **"ee"** / **"eh"** / **"ah"** / **"aw"** / **"oo"**. You should be able to make all the vowels clearly when using the "sob setting" so that the colour is somewhat "darker" but not distorted. Remember that the tongue and lips can still be involved in shaping the vowels (pages 42–45).

8 If you are singing in a language other than English, repeat step 7 starting with **"ee"** but moving to the long vowels of the language you are singing in. For example, in German you would include the "ü" and "ö" vowels.

№76 Making clear vowels

Classical singing generally requires "clear" rather than nasalised vowels. This exercise builds on the work closing the doorway to the nose (pages 89–90), applying it to a sung scale pattern and a selection of vowel sounds.

1 Locate your soft palate by using an **"ng"** hum. Do this with your mouth open so that you can feel the contact between the soft palate and tongue at the back.

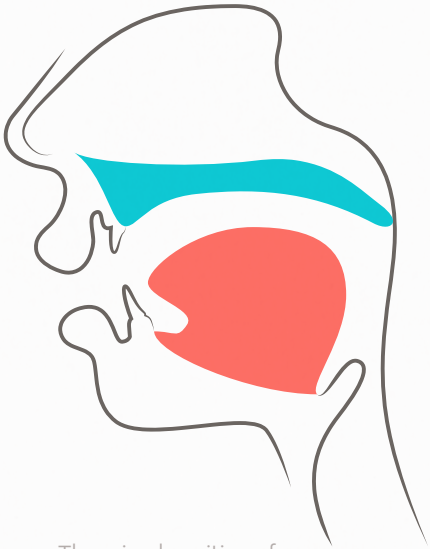
2 Move from the sustained **"ng"** into the preparation for making a hard **"g"** sound. In singing it is sometimes difficult to coordinate a "stop" in the middle of a note, so make sure that you allow the breath and sound to stop at this point so that the door to the nose can be closed.

3 Now release the back of the tongue into an **"ee"** sound. If you made your "stop", as at step 2, then you will now be producing a "clear" vowel.

4 So the complete sequence is a hummed **"ng"**, a hard **"g"** and a sung **"ee"**.

Repeat the sequence three times on single notes. You can then vary the vowel sequence thus: **"ng-gee"/"ng-geh"/"ng-gah"**, and so on.

The lowered position of the soft palate and tongue for the articulation of the "ng" hum.

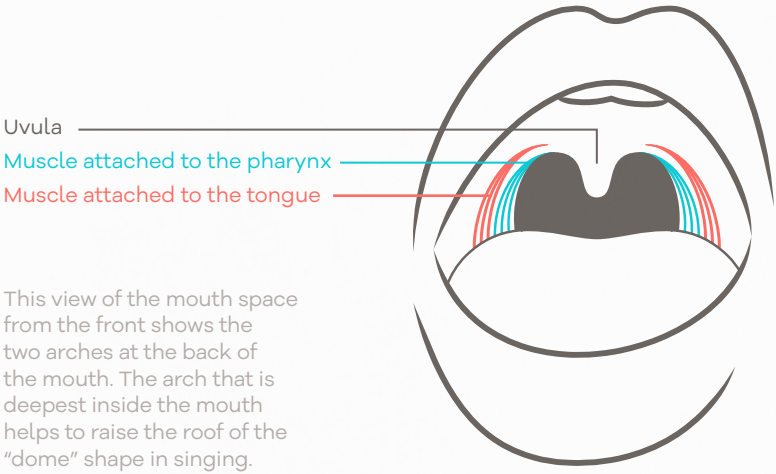


The raised position of the soft palate for the articulation of oral vowels.

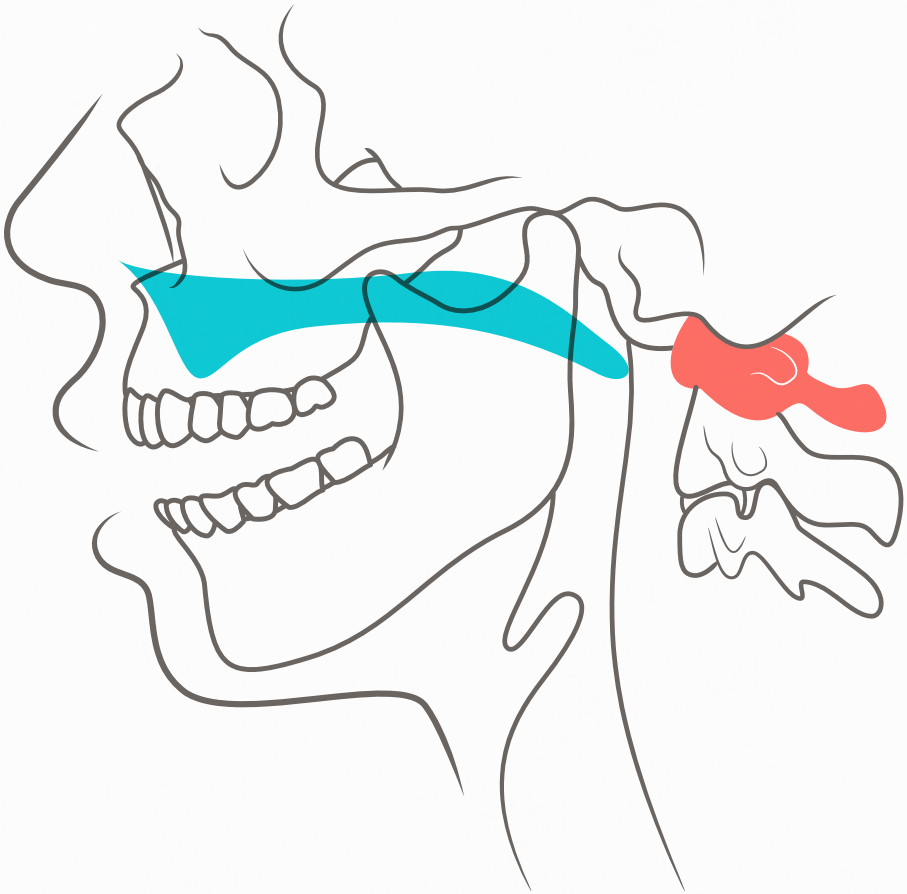
№77 Finding the extra "lift"

Teachers of classical singing talk about finding an extra "lift" in the soft palate that is not just to do with making clear vowels. If you open your mouth and look in a mirror you will see a shape at the back like a double arch, with the uvula hanging down. This shape is made by two sets of muscles: the nearest layer of the arch is attached to your tongue, while the furthest layer is attached to the back wall of the vocal tract (the pharynx). This exercises isolates the rearmost arch to pull the soft palate up and enlarge the resonating space.

1. Hum on an **"ng"** (page 145). Imagine that the "ng" is at the end of the word s**i**ng rather than s**u**ng, which will help to keep the back of the tongue relatively high in the mouth. Make sure you use a quiet to medium volume. It is important that you do not push your voice.
2. Still humming on the **"ng"**, make octave pitch-glides that move gradually upwards through your pitch range. As you go higher, notice if the back of your tongue and soft palate want to part company. This does not have to happen. Aim to "pull up" with the soft palate and tongue together as you reach towards the top of the octave glide each time.
3. Avoid opening the jaw too much as you do this because that can counteract the high tongue position.
4. Once you have reached your target pitch you can move smoothly from the "ng" hum to the vowel of your choice. Maintaining this sense of "lift", sing the octave glide up and down on a vowel.



This view of the mouth space from the front shows the two arches at the back of the mouth. The arch that is deepest inside the mouth helps to raise the roof of the "dome" shape in singing.



Orientation of the raised soft palate (blue) in relation to the atlas joint of the spine (red) and the roof of the mouth.

№78 Vowel tuning to "ee"

As explained above (page 36), we can adjust – or tune – our resonance by widening or narrowing some of the interconnecting chambers within the vocal tract. Classical singers learn to do this by adjusting their vowel positioning. These exercises provide two different options, using "ee" and "ah" vowel tuning, respectively. Tuning to an "ee" vowel is advantageous to classical singers because it allows for a wide space in the pharynx, while at the same time providing "brightness" from the smaller space at the front of the mouth. When combined with the "sob setting" it is an excellent way to achieve the desired chiaroscuro sound quality.

1 Say the word **"sheep"** and elongate the **"ee"** sound of the vowel. Notice where your tongue is positioned for the vowel – the sides of the tongue are touching the upper molars and the tip of the tongue is relaxed. This is the normal positioning for an "ee" vowel.

2 Now sing the word on a comfortable note, without adjusting the position of your tongue for the vowel. If your jaw feels too tight for singing, open it a little more but not so much that your tongue can no longer touch the upper molars at the side.

3 Now sing just the **"ee"** and slide your tongue backwards and forwards on your upper molars as if you had something sticky on your teeth. Do this a few times until you have found a spot that feels comfortable and resonates well. You can recognise this if the sound seems to come out easily.

4 Choose a comfortable note in your range and glide smoothly between these pairs of vowels: **"ee-eh"**, **"ee-ah"**, **"ee-aw"**, **"ee-oh"**, **"ee-oo"**. Aim to keep all the vowels sitting within that resonant spot that you found with the "ee". Use a forefinger between your teeth to keep your jaw still. There will be some movement of the tongue – in the middle for the "eh" and "ah" vowels and at the back for the "oh" and "oo" vowels. You may also use lip rounding for these last two.

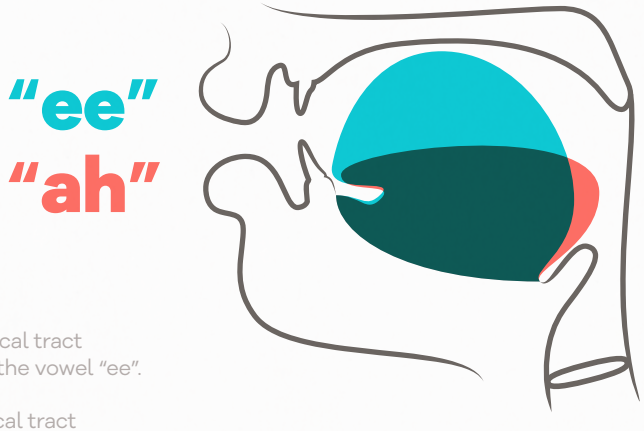
5 Remove your forefinger and sing the word **"Hallelujah"** from Handel's *Messiah* on one note, using the "ee" position as your reference point.

6 Finally, sing the musical phrase using the normal melody, adjusting the start note if needed.

№79 Vowel tuning to "ah"

This alternative vowel tuning exercise, using "ah", is useful for singers who might have a large, thick tongue and a relatively small mouth space; it also produces a more open sound than the "ee" tuning in the previous exercise. The overall process for this exercise is the same as for the previous one, except you are now tuning to the "ah" vowel, which gives more depth but less projection to the tone.

1. Say the word **"sharp"** and elongate the vowel. Notice where your tongue is positioned – lying relatively flat but not pulled backwards or cupped downwards in the mouth space. The tip of the tongue will be relaxed. Your jaw will also be more open for the "ah" than for the "ee".
2. Now sing the word on a comfortable note. Check that you can still use the tongue blade or tip to articulate the **"sh"** – if your jaw is opened too wide, your tongue may not be able to reach. Test this by singing **"ah-sh-ah"**.
3. Now you are going to glide from the "ah" vowel into some of the others and match the resonant spot that you found with the "ah". After choosing a comfortable note in your range, glide smoothly between these pairs of vowels: **"ah-eh"**, **"ah-ee"**, **"ah-aw"**, **"ah-oh"**, **"ah-oo"**. There will be some movement of the tongue – up at the sides for the "eh" and "ee" and at the back for "oh" and "oo". You can also use lip rounding for these last two.
4. Now sing **"Hallelujah"** using the "ah" position as your reference point, first on one note and then as in the familiar Handel music.



Blue: The vocal tract shaping for the vowel "ee".

Red: The vocal tract shaping for the vowel "ah".

Phrasing and dynamics

№80 Adding the *chiaro* to your sound

A resonance phenomenon called the "singer's formant" helps a singer's voice carry unamplified through an orchestra in a large auditorium. This power results from a coupling effect between two of the resonating chambers in the vocal tract – the pharynx and the epilarynx (pages 36–9).

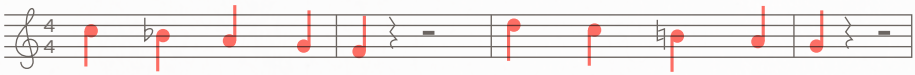
This exercise builds on the edgy-bright voice archetype (pages 105–6) by using it as a "resonance setting". At step 5, by combining this setting with the low larynx (page 142) you will achieve a projected and chiaroscuro tone that is typically used by opera singers.

1 Make the following sounds in spoken voice – you are aiming to make a small, piercing sound: a naughty child calling **"nyea-nyea-nyea-nyea-nyea"**, a witch cackling **"hee-hee-hee"**, a duck quacking **"quack-quack-quack"** or a hungry cat going **"meeaow"**. Usually to make these sounds you will pitch your voice a little higher than normal speaking pitch. That is fine.

2 All of these sounds are made with a high, forward-placed tongue and a narrowed epilarynx. Because the epilarynx is so close to the true and false vocal folds, make sure that you are not constricting inside the larynx.

3 Choose your favourite sound for accessing the edgy-bright voice and then sing it on a comfortable note. For example, you might sing **"meeaow-meeaow-meeaow"** or **"quack-quack-quack"**. On its own this "twangy" sound is not particularly nice to listen to and will not make you feel like an opera singer yet. Later we will adjust it. For now, stay with the bright, piercing sound.

4 Sing your chosen sound in a short vocal exercise such as a descending five-note scale (such as the example below). You can repeat the scale on lower and higher notes in your range.



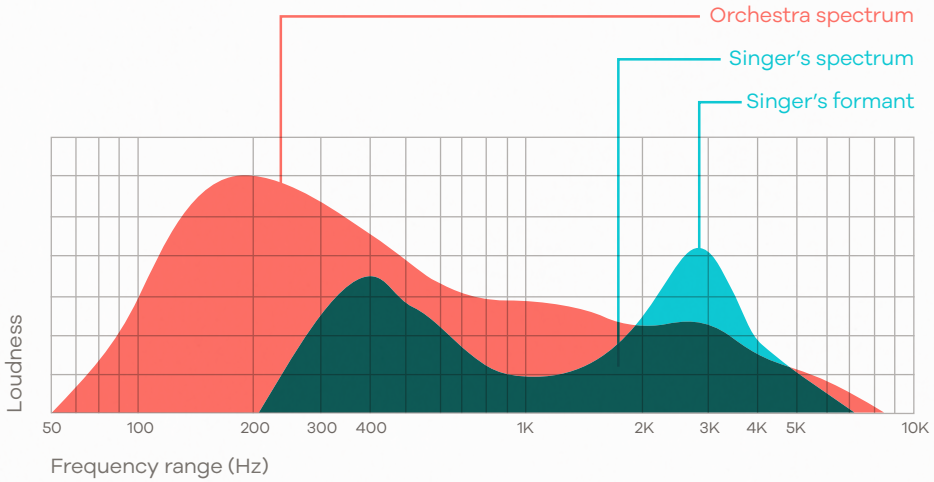
5 Use the first two lines of "Amazing Grace" and speak them first in your "edgy-bright setting", then in your "sob setting" (page 144). Ideally you should not change pitch when you do this. Only the positioning of your vocal tract should change (which will produce a different vocal timbre).

6 Sing the first two lines of "Amazing Grace" on a single note – first using the "edgy-bright setting" then the "sob setting". Make sure you do not change your note between the two settings.

7 Now combine the two settings. Still singing the words of "Amazing Grace" on a single note, start with the "edgy-bright setting" and then allow your larynx to drop a little, moving towards the "sob setting". You want to keep some of the "edgy-bright setting" while lowering your larynx and widening your vocal tract.

8 Repeat, still singing on one note, until you can feel a sense of balance in your vocal muscles and the sound has both "ring" and "depth". Once confident, you can move up or down in pitch.

9 Take a song or aria that you want to practise and go through steps 6–8 until you are satisfied with your sound quality.



The orchestra spectrum (red) and the singer's voice spectrum (blue) showing the "singer's formant". The peak of the "singer's formant" can "cut through" the orchestra at the centre peak of the formant, between 2.5 and 3.5kHz (as indicated).

№81 The *messa di voce*

Volume control in the voice is a delicate balance of changes in the vocal folds, the breath and the resonators. Skilled classical singers must learn how to adjust volume levels from *pianissimo* (very soft) to *fortissimo* (very loud). The musical terms for making gradual volume changes are the Italian words *crescendo* and *decrescendo*. Volume changes must always be managed within the context of the potential of an individual voice, so when you do the following exercises it is essential that even at your softest your tone is still clear and stable, and that at your loudest you are still "comfortably loud".

The most commonly used exercise to help classical singers develop dynamic control is the *messa di voce*, which literally means "mass of the voice". It is an advanced exercise, which can be broken down into four parts.

Part one: Starting quietly

1. Using a comfortable note in your range and a vowel of your choice, sing a "smooth onset" (page 138) several times in a row on the same vowel, until you are satisfied that you have the control needed to make this note approach. The sound should be quiet and clear – not breathy. You will find it helpful to start with a relatively small mouth opening, which gives you a smaller resonating space.
2. Now start a note with a "smooth onset" and maintain a small, clear sound for four beats.

Part two: Adding chiaroscuro

1. Begin by reviewing the edgy-bright and sob resonance settings used to find the "singer's formant" (page 150).
2. Using the same note and vowel as before, start with a "smooth onset", hold the small, clear sound for three beats, then gradually add the "singer's formant" through the next three beats. The aim is to keep the sound neat and compact but with added dark and bright resonances.

Part three: Adding volume

1. Repeat part two and extend the note to a total of nine beats – three beats of small, clear sound; three beats of adding "singer's formant"; and a further three beats increasing breath pressure and vocal fold activity. You will need to take a deeper breath in order to achieve this. As the exercise develops, this extra volume of air will become essential because you will not be able to get louder without it. In fact, as you start the first note you will probably feel as though you are "holding" your breathing muscles in the in-breath position. This is fine at the beginning of the long, quiet note.
2. Try holding a note for nine beats – three with the small, clear sound, and six adding the "singer's formant".
3. Taking in a larger volume of air, start with a "smooth onset" and sing quietly (three beats), then for three beats adding the "singer's formant".
4. For the next three beats add more volume by working your voice slightly harder, pulling in the abdominal wall and engaging the muscle junctions at the corners of the "diamond of support". This will help you to increase subglottal pressure and will allow your vocal folds to thicken as they resist the breath. Make sure that, however loud your *crescendo*, you remain vocally comfortable – there should be no sense of tightness or pressing in the larynx and you should not feel as though you need to clear your throat afterwards. This is "comfortably loud".

Part four: The *decrescendo*

The classic *messa di voce* manoeuvre now reverses the process you have just gone through by moving in a *decrescendo* from your loudest to softest sound.

1. Take a breath in, and start at exactly the same level of loudness you achieved at the end of part three. You will be using your voice energetically and engaging the muscles of the "diamond of support". Sing at this level of loudness for three beats.
2. Now gradually decrease in volume. Start by slowing down your airflow, holding back a little so that vocal fold contact decreases. Then release the sensation of the "edgy-bright setting" that is part of the "singer's formant". If you aim to relax a little inside the tube of the larynx, this will help. A useful tip for becoming quieter still is to make your mouth space smaller. This is often a signal to the voice mechanism to sing more softly and it also decreases the resonating space.

3 A classical *messa di voce* starts very softly, with a *crescendo* to your "comfortably loud" and a *decrescendo* to your softest sound – all in one breath. Practise this over 12 beats as follows: "smooth onset" with two beats of small, clear sound; two beats of adding "singer's formant"; two beats of adding breath pressure and resistance; then two beats of decreasing breath pressure; two beats of removing "singer's formant"; two beats of holding the quiet, clear sound. Once you have practised this sequence, concentrate on moving gently from stage to stage, gradually increasing and decreasing volume.

№82 Finding your legato line

Legato is the art of joining notes and words into smooth, seamless phrases. It is an essential part of classical singing and contributes to the evenness of tone and carrying power of an unamplified voice. The human voice creates a pitched note by vibrating the vocal folds at a particular speed. When a singer wishes to connect one note to another, they can choose to slide slowly, so that all the pitches between the target notes can clearly be heard, or they can slide quickly, fooling the ear into hearing just the pitches of the two target notes. This exercise shows you how to achieve both.

1 Choose a comfortable note to sing in the middle of your range, using an **"ah"** vowel at a moderate volume. This is your first target pitch.

2 Next, sing a separate **"ah"** vowel a major third higher (**do** to **mi**). This is your second target pitch.

3 Start on your first target pitch and slide very slowly up to the second target pitch, keeping your volume and tone the same. Take at least three seconds to slide. It may help you to externalise this by sliding your thumb along a surface as you sing, keeping the same thumb contact pressure throughout. Do not be tempted to get quieter when you slide – you will need to feel and hear everything that happens between the target pitches.

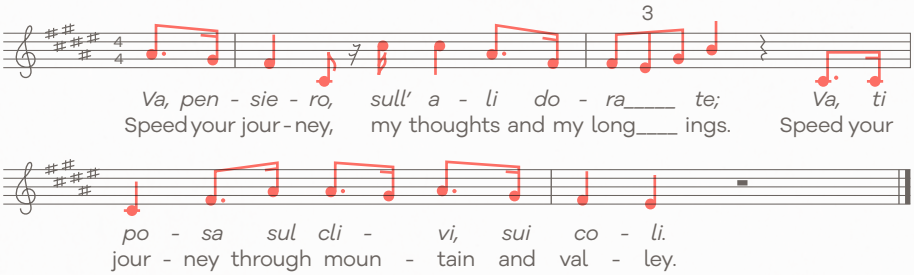
4 Now reverse the process, starting on the upper note and sliding very slowly back down to the original target note, using the same volume and tone throughout. There should be no sense of "gripping" but there should be a feeling of contact in your voice throughout the sliding.

5 Next slide up and down between the target notes in one movement, noticing whether you keep the *same* volume and tone throughout.

6 Using the interval of a third (do to mi) and a moderate volume, hold the first note a little longer and then slide quickly to the second note. Remember to keep the same volume and tone in the slide.

7 Finally, hold the first note again but slide quickly up to the second, backing off the volume – but only very slightly – until you arrive on the second note. It is easy at this point to lose the feeling of contact in your voice during the sliding. It can help to model the slide with your thumb moving from left to right on a surface, loosening the thumb pressure as you slide (to reflect the slightly lower volume) but keeping the contact with the surface. You can use the intervals of a third or a fifth, or slide between the notes of a five-note scale ("do-re-mi-fa-sol").

8 Now apply this to some lines from the "Chorus of the Hebrew Slaves" from Verdi's *Nabucco* (below). Sing the excerpt once, sliding slowly and evenly between the notes. Sing the excerpt a second time, holding each note and sliding quickly to the next using the same tone and volume throughout. This exercise will feel very slow and unmusical the first time you do it, but repetition and a faster tempo each time will enable you to maintain the notes and move quickly between them to keep a good legato line.



Rock, pop, soul, jazz and country

Contemporary music genres arise from oral traditions such as gospel, blues, jazz and folk, whereas classical music is a written tradition. In contemporary singing, this oral tradition has led to very different practices in terms of musical style, the type of performance venue, the singers' vocal production and the sheer variety of vocal and phrasing effects that are acceptable, even within the same genre. Unlike classical music, which has more rigid style conventions, a contemporary artist is expected to interpret any song using their own sound and style of pronunciation, altering rhythms, adding notes and changing phrase lengths. Think for a moment about Norah Jones, Diana Krall and Sarah Vaughan – all successful female singers of jazz – and you will hear that they do not use the same type of voice production.

The online AllMusic database lists more than 600 styles of contemporary sung music. Within and between genres there is so much cross-fertilisation that it would be impossible to assign one particular way of using the voice to an individual genre, although certain trends may be noticeable. For all of these reasons, training for the contemporary music vocalist needs to be different from that of a classical singer.

In the exercises that follow, all of the techniques are used to a lesser or greater degree by rock, pop, soul, jazz and country singers. Use them to find the types of tone quality, pronunciation styles and vocal idioms that are commonly used, and then experiment with different combinations of the various elements so that you can develop your style and put *your* personal vocal stamp on the songs *you* want to sing.

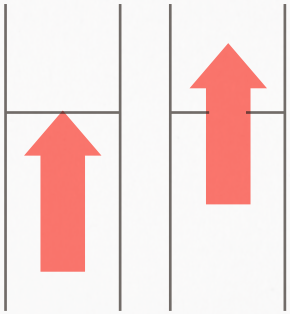
Styling

The term "tone onset" is used in singing to describe how the breath and vocal folds come together to start a note. A "tone offset" describes the manner of finishing a note. In classical singing the onset used most often is the "smooth onset" (page 138), but in contemporary music singing many other onsets and offsets may be used, even within the same phrase. This varying of onsets and offsets is an important part of what's refered to as "styling". The five exercises that follow teach a variety of different tone onsets and offsets that can help to make a song your own, using as a practice phrase the title from the song "I Don't Wanna Lose You" by Albert Hammond and Graham Lyle, as sung by Tina Turner.

№83 The glottal

The glottal onset gives a clean, sudden sound to a note and helps you find a strong tone. This onset has a feeling of directness and strength – it can be used in any contemporary genre and features particularly in many rock styles.

1. First, say the word **"uh-oh!"**. Slow down your pronunciation and notice what you do in between the two parts of the word. Your vocal folds close to stop the air and the sound, and then they reopen with a very small pop.
2. Set up the glottal onset by holding your breath (imagine you are jumping into a cold swimming pool). Your vocal folds are closed and there is a tiny amount of air banked up underneath them, ready to come out. The closing of the vocal folds *before* the sound is the crucial part of a glottal onset.
3. Feel the closure and the air banked up, and then say **"ah!"**. The sound should start immediately with no breath and no gradual volume increase.



Each vertical tube represents a vocal tract containing the vocal folds (horizontal lines) and the breath (arrow). In the glottal onset, your breath is stopped before the sound by closed vocal folds (left), then the vocal folds vibrate as air passes through (right).

4 Any tone onset can also be used as an offset. The glottal offset is a very sudden stop to the sound. The vocal folds close, stop vibrating and stop the airflow – you end up holding your breath with your vocal folds closed. The movement is small but definite and the sound stops immediately. Say **"ah!"**, starting with a glottal onset and ending with a glottal offset. Make sure that you do not move your chin, tongue or lips – the glottal happens at vocal fold level. This is an unusual tone offset and it is therefore rarely used, but it is extremely effective for making the audience sit up and take notice.

5 Now you are ready to apply what you have learned, using the practise phrase **"I don't wanna lose you"**. You can either sing these on one note or use the tune from the original song.

6 First say and then sing **"I"** with a glottal onset, followed by the word **"you"** with a glottal offset. Then sing the whole phrase using the onset/offset on those specific words.

№84 The breath

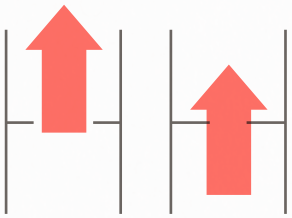
The breath onset has a feeling of intimacy and ease – it is a feature of many jazz styles, although it is used in most contemporary singing genres.

The airflow moves through the vocal folds before they start to close, so the first thing you hear is the sound of breath.

1 Say **"hah"**. You have started with an **"h"**, so the breath is flowing before the voiced sound. So the practice phrase "I don't wanna lose you" becomes **"hI don't wanna lose you"**.

2 Now do some negative practice. You are going to increase the speed of the airflow beyond what is needed. Blast the airstream out fast at the beginning of the onset. You will use most of your air supply, and not gain much from it in terms of sound.

3 Go back to your gentle breath onset – the air leaks out before the voiced sound starts. The "h" sound in the breath onset gives a "fuzzy" start to the note.



In the breath onset, breath is passing through open vocal folds before the voiced sound (left), then the vocal folds vibrate as air passes through (right).

4 Any onset can be used as an offset, so at the end of the word **"you"** stop the sound but let the airflow continue gently. You will be adding an "h" sound to the end of the word: **"hI don't wanna lose youhhh"**.

5 Even though you are not voicing the final "h" sound, you can still hear which vowel shape you are holding. Experiment with holding the same vowel shape by not moving your tongue or lips (**"oohhh"**), or by changing the shape to an **"er"** (**"you-erhhh"**). Each of these gives a different effect.

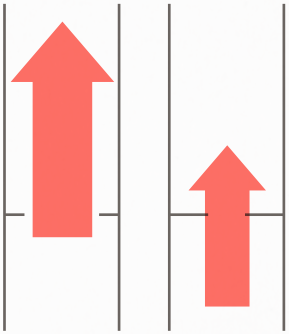
№85 The gasp

The gasp onset and offset are variations of the breath onset – the difference is the speed of airflow. Start with the breath onset and offset above: **"hI don't wanna lose youhhh"**. The airflow for the added "h" sounds is gentle and fairly slow.

1 To practise the gasp, breathe out and in quickly on an unvoiced **"huh^huh"** (remember that the ^ sign means inwards). Notice that your breath moves fast, both out and in – similar to panting.

2 Now you are going to add the gasp onset and offset to your phrase. You can either use just the outward gasp, or the inward–outward, or the outward–inward. This example shows the outward onset and the outward–inward offset: **"huhI don't wanna lose youhuh^huh"**. Both the onset and the offset are fast gasps. Obviously you will need to take in a larger amount of air to complete this phrase, as you have fast-moving airflow at the beginning and the end. By adding the inward gasp at the very end of the phrase you are topped up and ready to go for the next one.

This onset has a feeling of powerful emotions, desperation and pleading, helping to make it a feature of gospel and soul styles.

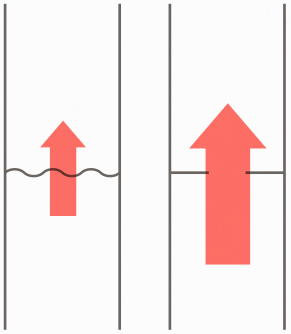


In the gasp onset, breath is passing fast through the open vocal folds before the voiced sound, similar to the breath onset, but the amount and speed is slightly higher (left), then the vocal folds vibrate as air passes through (right).

№86 The creak

Also called the fry onset, this onset has the feeling of sexual intimacy or exhaustion. While you might hear this onset in any of the contemporary genres as a generic onset, it will certainly be used in most pop styles.

1. Start by finding your creaky voice (see page 180). You will notice that creaky voice happens at a fairly low pitch, usually far below the note you will be singing.
2. To add creak to a note, start with your low creaky sound (indicated by **~~~**) and quickly increase your airflow and slide up to your target pitch (**"~~~/I don't wanna lose you"**). The key to the creak onset is a very low airflow at the start.
3. Do some negative practice. You are going to squeeze to make a creaky sound. Tighten your throat, press down for a low pitch and squeeze to make the creak. You will probably be successful creating a creaky sound, but it will sound different to the healthy creak you made earlier. The squeezed creaky sound might be a little louder but it will definitely sound tighter and possibly higher in "pitch".
4. Go back to your healthy creak – open throat, a trickle of airflow, low pitch and not much volume. Then move into your target pitch by increasing the airflow and energy.
5. Try the creak offset, so at the end of the word "you" slow your airflow down to a trickle and relax – the pitch will drop without you making it move and you will end the note in creaky voice (**"~~~/I don't wanna lose you\~~~"**). The effect of the offset is to make you sound too tired or emotionally overwhelmed to continue singing.

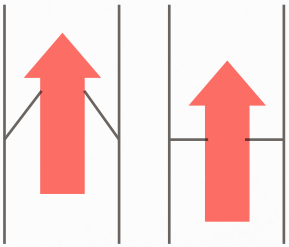


In the creak onset, breath is passing very slowly and sparsely between the vibrating vocal folds (left) before the airflow increases and the vocal folds vibrate more strongly as air passes through (right).

№87 The yodel/flip

The main feature of the yodel/flip onset is to change the vocal fold vibrational mode very quickly – cracking from one mode to another. The yodel/flip in contemporary singing usually cracks from a falsetto down into a chest-voice-based sound.

1. Begin by finding your falsetto. Women should start on a medium-high note (men start on a high note), and say **"hoo"**. You are aiming for a sound that is hooty and hollow and feels completely relaxed with free-flowing breath.
2. Now on a much lower note say **"ah!"**. You are aiming for a strong chest-voice sound.
3. Link the two words together – **"hooah"** – keeping the big pitch change in the middle and moving from light and hooty to strong and clear. When you join them together you will feel the shift or "crack" as the vocal folds change vibrational pattern. This is the yodel/flip vocal effect.
4. Repeat step 3, but this time use just the **"ah"** vowel on both notes. You can then bring the two pitches slightly closer together. Make sure that you start in the hooty sound, and that you move to a strong chest-voice sound. With practice you can make the shift on the same note.
5. When you use this manoeuvre as an onset, you need to start on a much higher note (indicated by ^{I}) than your target note and snap down to your target note: **"^{I}I don't wanna lose you"**.
6. To add the yodel/flip offset at the end of the word "you", relax, let go and flip up to a hooty high note (**"you^{u}"**), indicated by ^{u}. Keep the flipped note short to maintain the effect of the yodel – the high note is just touched and released. The effect of this offset is to make you sound at the end of your tether – so emotional that your voice cracks. R&B female singers are now extending this offset by cracking up into falsetto and then riffing.



In the yodel/flip onset, the breath passes through the vocal folds vibrating in falsetto with very little resistance (left), then the vocal fold muscles activate and vibrate more strongly against the breath (right).

The yodel/flip has long been associated with country singing. However, it is currently in widespread use in many other contemporary music genres, including pop, gospel and particularly R&B.

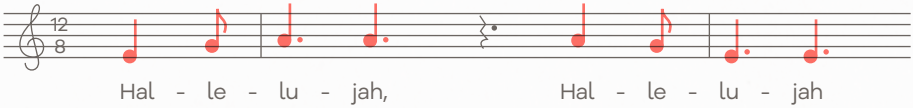
Adding your own imprint to a song is a vital part of being authentic in contemporary music singing. One thing you will notice right away is that each onset/offset has its own emotional impact. This can really make a difference to the expressiveness of a performance. Record yourself as you do this exercise and listen to the effect. Then adjust the onsets/offsets according to how ***you*** want to interpret the meaning and feel of the song.

Note approaches and releases

The "note approach" is used to get the singer to the target note via other notes – these can be an extra note or a pitch-glide, or even complete patterns of notes and pre-target riffs. The key to understanding note approaches is being able to identify the target note you are aiming for – any notes sung before the target note count as note approaches. A "note release" is simply the opposite – a way of getting off the target note using a glide or a step. The next series of exercises use part of the chorus from Leonard Cohen's song "Hallelujah" to explore the single-note approach, glides and note releases.

№88 The upward single-note approach

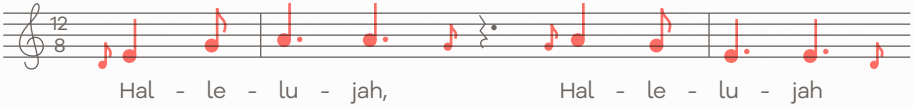
1 The single-note approach adds a note before the target note. First, sing the first two words of the chorus of Cohen's "Hallelujah", reproduced on the music score below. If you do not read music, the notes are: mi-sol-la-la – la-sol-mi-mi.



2 To add a single-note approach, you have to start one note lower – that means adding a re before the first mi, and a sol before the third la: **re mi, sol, la, la – sol la, sol, mi, mi**. Practise on the word **"Hallelujah"**, knowing that you are going to be starting each word one note lower than your target note.

3 Although you are definitely starting on a lower note each time, this single note is sung faster and quieter than the target note. Practise slowly to start with, singing the note approach quietly and the target note slightly stronger. With practice this single-note approach will become second nature.

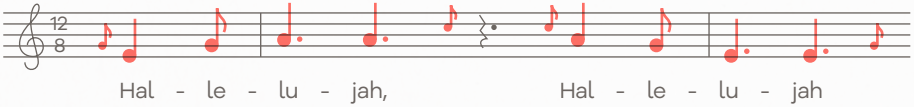
4 As with the tone onsets, you can "bookend" the phrase or word with the note approach as a note release. To provide symmetry for the phrase, add an extra note at the end, one note *lower* than your last official note. So your two "Hallelujah"s will now look like this: $_{re}$**mi, sol, la, la**$_{sol}$ **–** $_{sol}$**la, sol, mi, mi**$_{re}$. Again, practise the extra note release slowly and clearly, then speed it up and drop the volume. The effect of this release is to very gently drop away from the word and relieve the apparent "tension" of the sound.



№89 The downward single-note approach

1 This is similar to the upward single-note approach, but in this case the extra note in the onset is higher, meaning that you drop onto the target note. In the case of the two "Hallelujah"s this is two notes higher rather than one, because the music seems to be written in a pentatonic mode. This means that the fourth and seventh notes of the scale – fa and ti – are not used. The "Hallelujah"s will look like this: ^{sol}**mi, sol, la, la –** ^{do}**la, sol, mi, mi**.

2 This note approach is not often used, but the symmetrical version is popular as a note release, particularly in gospel and R&B, to give an extra twist to the tension of the phrase. The added note at the end is still very short, but it can be used as a "push", which means the singer may sing the extra note louder. Just using the release would look like this: **mi, sol, la, la**^{do} **– la, sol, mi, mi**^{sol}. This is typically combined with the gasp offset (page 159).



№90 The pitch-glide note approach

1 The pitch-glide is a variation of the single-note approach. However, here the addition is not a single, identifiable stepped note but a slide. The pitch-glide can be small or large – the larger it is, the more dramatic the emotion. Many rock singers use large pitch-glide approaches to get up to their scream notes, and world music uses fast pitch-glides as note releases. Begin with your two phrases, starting on your target pitch:

2 Pitch a note at least three notes lower than your target pitch and slide up to your target pitch on an **/æ/** vowel (the vowel in "trap").

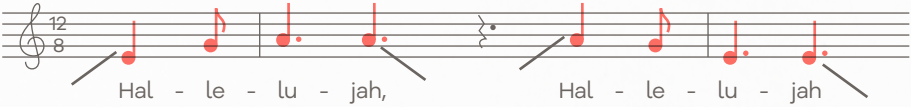
3 Add your pitch-glide to the word **"Hallelujah"**. The timing of a pitch-glide approach is crucial. Because the target pitch arrives on the beat, the pitch-glide must begin *before* the beat. Effectively, you are starting to sing the syllable **"Hal"** at the end of the previous beat.

4 Now use a bigger pitch-glide, starting on a much lower note (up to an octave lower). The slide will have to be faster in order to complete it in time, but the effect is more dramatic.

5 You can also use a pitch-glide at the end of a note as a note release. This can make you sound very emotional. Practise dropping off the final note at least three notes down. It helps to fade in volume through the pitch drop. You do not have to be accurate about the number of notes you drop. In fact, the less accurate you are, the better the drop-off sounds. This distinguishes the pitch-glide note release from the single-note release, which is more specific. Experiment with the size of the pitch-glide – a small drop, a medium drop and a large drop (the difference between falling into a small hole and falling off a cliff).

6 One variation to step 5 is to add breath to the sound as you pitch-glide downwards. The sound will fade as you fall off the note. This is similar to the single-note gasp offset (page 159), but the pitch-glide offset's drop is larger and the breath flow is gentler – closer to a descending sigh.

7 Another variation of step 5 is to *increase* volume when you add the pitch-glide, getting louder as you fall. This adds a very dramatic flourish to your note for high-energy moments in power ballads or rock songs.



Adding a variety of note approaches and releases to your phrases gives your voice an impressive amount of flexibility – in fact, they are vital tools for contemporary singing styles. Record yourself as you experiment with using the different note approaches and releases shown here. Make a note of which ones you like and which best reflect the way *you* want to interpret the song.

№91 Volume changes

One of the major differences between classical and contemporary singing is in the way volume is used. Classical songs and arias tend to have long, arching phrases, demonstrating an expansive architecture with carefully graded volume. However, in contemporary styles sudden and extreme changes of volume can happen within phrases, or even within a single word. Volume changes like this allow you to express yourself on a particular word or the peak or trough of a phrase.

1 Sing the phrase **"Amazing Grace, how sweet the sound"**. For this first step you are aiming for consistent volume on each note and between the notes, so that everything matches.

2 Working slowly, sing the phrase again and this time change the volume on each syllable, starting with a louder sound and getting softer. The result is a series of loud-to-soft volume "hairpins".

3 Sing the phrase again, but now start each syllable softly, getting louder and then dropping back for the next syllable. The result is a series of soft-to-loud volume "hairpins".

4 The next stage is more complex. Sing the phrase slowly, and make each syllable a different volume from the previous one. You need to maintain the volume of that syllable until you finish it, then change quickly to another volume level for the next syllable and maintain that. The result is a series of volume "platforms" – different volume levels that are maintained and then changed quickly.

5 The steps above are discovery points, so to make them work musically, refine all the steps in this final exercise. Sing the phrase several times, and include one sudden change of volume or voice quality in each complete phrase. You will discover many versions that work well and that take you away from the consistent volume/phrasing/legato line of classical singing towards a more contemporary delivery.

Tone quality

Contemporary singers adopt a versatile approach to tone quality in which the voice may change between phrases, words and even individual syllables. Typical vocal settings used by contemporary singers are the breathy tones of intimacy and vulnerability, the strong-clear tones of conversational voice and the edgy-bright sounds of excitement or intense complaint.

№92 The "strong-clear setting"

Because it sounds like speaking voice, the "strong-clear setting" is sometimes referred to as the "speech setting". People familiar with the terms "head" voice and "chest" voice will also identify this setting as being based on a chest register. Finding this setting is essential for authenticity in contemporary singing.

1 Begin by "revving" on a series of buzzing sounds such as **"v-v-v-v-v"** or **"z-z-z-z-z"** (pages 72–73). As you do this, make sure you engage the abdominal wall, as described earlier (page 139).

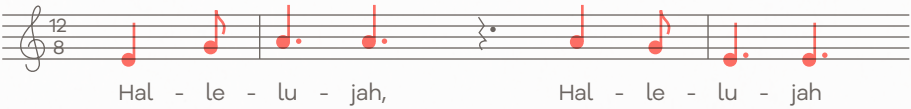
2 Using the glottal onset (page 157), say **"uh-oh!"** – extending the final syllable a little so that you can feel the vocal setting.

3 Using a comfortable pitch in your low to mid-low range, now sing the sounds **"uh-oh"** on a descending major third (mi–do) holding the final syllable for a count of three beats.

4 Repeat step 3 a few times on different start notes within your lower to middle pitch range. Use a volume level that is similar to a conversational speaking voice. The strong energetic tone encouraged in Exercise 41 (page 103) is not needed here because contemporary singers normally use a microphone.

5 Now take the vowels – **"ah"**, **"eh"**, **"oo"**, **"ah"** – that you are going to use in the song. Sing them slowly on one note, closing your vocal folds before you start each time. Avoid filling up with air between notes if you are breathing in each time.

6 Look at the music from Leonard Cohen's song "Hallelujah" (below). The phrases are from the first two bars of the chorus and cover a pitch range of four notes, making them comfortable for all voices using this vocal setting.



7 Sing the phrase, aiming to keep the same type of conversational tone quality you used when speaking it. Use the access sound **"uh-oh!"**, first speaking it then singing it on your target start note.

8 Next move up a note in pitch, and sing the phrase again. Note that you will need to speak your access sound **"uh-oh!"** and the song words at a slightly higher pitch each time as you do so.

9 Finally, move up and down in pitch, exploring your comfortable pitch range for using this vocal setting.

The "strong-clear setting" is a staple of much rock and blues singing. Industry examples are Liam Gallagher of Oasis singing "Wonderwall" and Adele's cover version of Bob Dylan's "Make You Feel My Love". In the female voice it is perfectly possible to sing about ten notes quite easily in this setting; in the male voice the range can be as much as two octaves. Notice as you move up in pitch that you may need less breath "pressure" underneath your vocal folds (a smaller feel of the "buzz") and more breath pressure as you move down to your lower notes.

№93 The "breathy-light setting"

1 The breath onset (page 158) gives you easy access to this vocal setting. Bring your hand up close to your mouth and say **"hah"**, making sure that you aspirate the "h" a little. Repeat, extending the vowel and maintaining the same breath flow and volume throughout. The feel of this "breathy-light setting" is loose and flowing, and the sound is slightly fuzzy and diffuse.

2 Say **"hah"** / **"heh"** / **"hoo"** / **"hah"** – the vowels you are going to use in the song. Take a breath between each sound.

3 Now sing the vowels on a comfortable note in your pitch range. It is useful to feel a little bit of warm air on your hand as you start each sound.

4 Take your hand away from your mouth but continue singing **"hah"** / **"heh"** / **"hoo"** / **"hah"** and experiment with different notes in your pitch range, going higher and lower.

5 Now sing the "Hallelujah" phrases from Exercise 92 (page 166–7), aiming to stay in the "breathy-light setting" throughout. You may need to breathe in more often than for the "strong-clear setting" as this setting uses more air. To breathe in again quickly, release the centre of your abdominal wall.

6 Next, move up a note in pitch, and sing the phrase again. Be aware that you may need to say your access sound **"hah"** and then sing it on your target note each time to make sure you stay in your "breathy-light setting".

This setting is quite versatile in terms of vocal range and may be taken across at least an octave (eight notes) in both the male and female range. It is useful for expressing intimacy, ease and "coolness", and because it blends well in harmonies it is commonly used in backing vocals. Industry examples of this setting are Norah Jones singing "Don't Know Why" and the opening phrases of Justin Timberlake's "What Goes Around...Comes Around".

№94 The "edgy-bright setting"

The start of this exercise is the same as for finding the "singer's formant" in classical singing (page 150). However, in contemporary singing styles, this "edgy-bright setting" is not combined with a low larynx and widened pharynx.

1. Begin by reviewing steps 1 and 2 from Exercise 80 (page 150) and practise making your favourite access sound in speaking voice.
2. Using your access sound, now sing it on a single note.
3. Then use the sound to sing the vowels you are going to be using in the song "Hallelujah" – **"nyah-nyeh-nyoo-nyah"** or **"quah-queh-quoo-quah"**, making sure to keep the sound piercing and bright.
4. Still singing on single notes and using the vowels of the song, experiment with different notes in your pitch range, moving lower and higher.
5. Using the "Hallelujah" phrases, sing in the "edgy-bright setting" throughout. The sound should be piercing and bright. Make sure you do not constrict the false vocal folds.
6. Next, move up a note in pitch, and sing the phrase again. Use your favourite access sound again if you need to, first saying it and then singing it on your start note.
7. If you feel the sound is too narrow and cartoon-like, keep the sensation of sound resonating along the roof of your mouth and keep the narrowed epilarynx, but open your mouth space a little more. This will reduce some of the piercing quality in the sound while retaining the brightness.

This setting is strongly associated with some American accents, and is typically used by country singers. An excellent example can be heard in the chorus of "Not Ready to Make Nice" by the Dixie Chicks. Adding the "edgy-bright setting" to your sound as you move through your range can also be extremely useful for balancing volume levels on the weaker notes in your range, or to boost volume for those high-intensity moments in a song.

№95 Adding nasality

While nasality may be avoided in classical singing it is often used as a positive choice in contemporary styles. This is not surprising because many of the vernacular accents preferred in contemporary genres have nasality in their soundscape. In this exercise we show you how to add nasality as a variant to the vocal settings you have just learned. Before you begin, you may like to review Exercise 28 (page 88).

1 Slowly say the word **"amazing"**. There are two nasal consonants (underlined) in the word. You can check this by holding a finger and thumb just underneath your nostrils. On the nasal consonants you will feel a little pressure against your fingers as the air and sound come out.

2 Now slowly sing the same word, elongating the vowels a little **"a—ma—zi—ng"**. Check that the sound is coming down your nose on the "m" and "ng" as before.

3 Now sing the word again, this time aiming to allow a little bit of air and sound to "leak" into the nose even on the vowels. Again, use your fingers to check. You will find it helpful to open your mouth only a little while you practise.

4 Take the fingers away from the nose and sing the word again, keeping the same feel of a little bit of leakage into the nose on the vowels.

5 Now you are going to apply this nasal resonance to the chorus of "Hallelujah". There are no nasal consonants in this word, so it is an excellent test of your new skill.

6 First say **"ng-allelujah"**, gliding slowly away from the "ng" sound into the first vowel. For the moment we have respelled the word to avoid confusion.

7 Now sing the word like that, replacing the **"h"** with **"ng"** (**"ng-alleluja"**). Check to see if you are using a bit of nasality on the vowels by using your finger and thumb as before.

8 Now sing the phrase, deliberately allowing some of your sound to leak into the nose on some of the vowels.

Experiment with adding a bit of nasality to the "strong-clear setting" or the "edgy-bright setting" – it is a personal choice.

№96 Adding whinge

Adding a little whinge or moan to the "strong-clear setting" has two main advantages: it can sweeten the sound for emotional moments, and it can make higher notes easier.

1 Begin by revisiting the "strong-clear setting" (page 166) using your mid-low speaking range. Now say **"I don't want to!"**, in a wailing tone of voice, or exclaim **"oh no!"**, with strong dismay. Notice that this gives you a particular sensation in your voice: more space at the back of the larynx and/or a feeling of "pull" on the front of the larynx. Don't worry if you don't feel a big difference, the changes are quite subtle.

2 Keeping the sound of strong dismay or wailing, sing the words (**"oh no!"**/**"I don't want to!"**) on a single note. Notice that the quality is slightly different from that of the "strong-clear" archetype. Singers often talk about the "strong-clear setting" being more "straight" in feel and sound, whereas the "whinge setting" seems to have a "roundness" and "curve" to it.

3 Now say the word **"hallelujah"** four times (as in the Cohen chorus) using this mixed setting of "strong-clear" and "whinge", elongating the syllables to match the rhythmic pattern of the song.

4 Sing the **"Hallelujah"** phrases using this mixed setting throughout. Sing the phrases in different parts of your range. Notice how this subtly adjusts the tonal quality, changes the emotional "feel" of the word and also assists with accessing the higher notes in your range.

This particular mix of settings is especially useful in the female voice for power ballads (Celine Dion) and contemporary R&B (Beyoncé).

Pronunciation styles

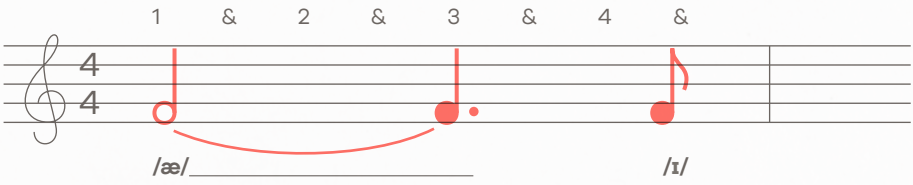
Unlike the rounded, more formal styles of pronunciation in classical singing, those used in contemporary singing are colloquial and conversational. Word intelligibility is less important than the groove and "feel" of the song, and it is essential that you do not sound "posh" or "trained". It is normal to hear regional accents, and many songs written in the English language may also be influenced by the sounds of American speech. Some genres – such as rock, pop and R&B – adopt a hybrid American accent. It is common to hear the long "mid-Atlantic" shallow **/æ:/** being used (think of the general American pronunciation of the word "bath") and the distinctive vowel colouring of the rhotic "r" (as in the word "start"). The length of vowel to consonant also changes, depending on the music style and the audience's expectations.

Use Exercises 97–99 to learn some of the pronunciation styles that are used in many commercial singing genres.

№97 Diphthongs and vowel transitions

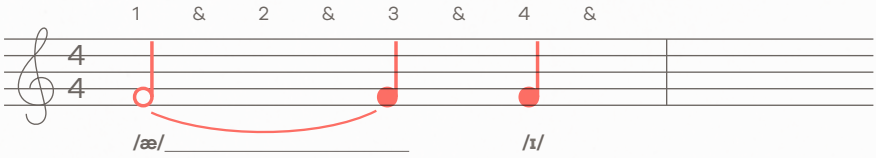
1 The pronoun "I" has one letter, but in phonetics it is classed as a diphthong as it is made up of two vowel sounds. In contemporary singing, the first part of the diphthong is closest to the "tr**a**p" vowel, and the second part is closest to the "k**i**t" vowel (denoted in the music by the symbols **/æ/** and **/ɪ/**, respectively).

2 Start with the classical version of this diphthong for the purposes of comparison. Sing the word **"I"** for four beats, holding the first vowel **/æ/** for almost the whole four beats, and moving to the second vowel **/ɪ/** at the *last half of the fourth beat*. (See illustration below.)

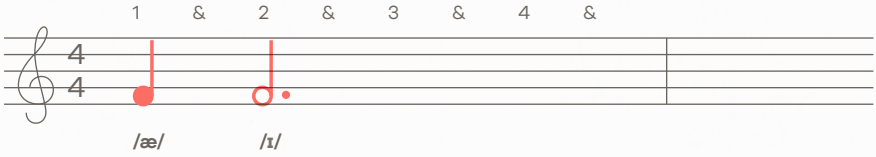


3 Here are four options for making the transition between the two sounds of the diphthong.

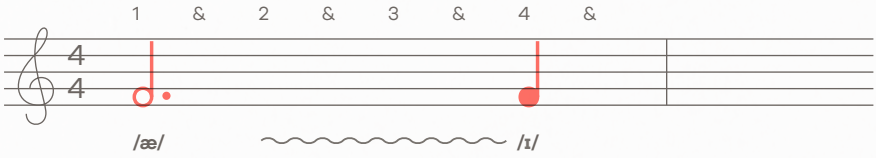
First option: Change the transition point, moving to the **/ɪ/** vowel on the *beginning of the fourth beat*.



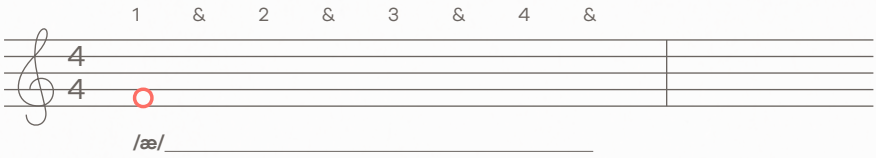
Second option: Move the transition point to the *beginning of the second beat*, giving one beat on the **/æ/** and three beats on the **/ɪ/**.



Third option: Change the *speed* of the transition between the vowels. Start on **/æ/** and use beats two and three to make a slow transition from **/æ/** to **/ɪ/**.



Fourth option: Remove the transition completely, singing just the first vowel **/æ/** for the full four beats.

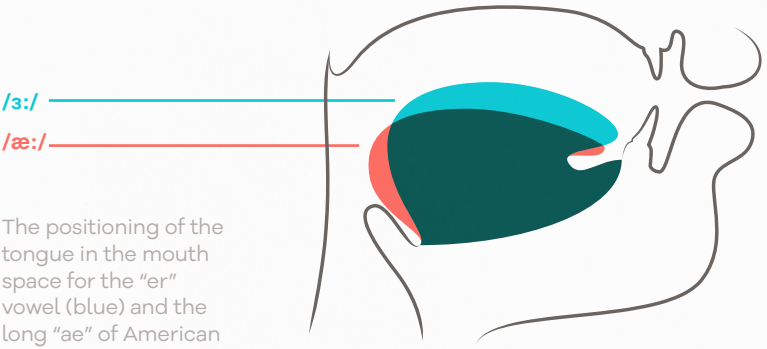


Any of the four options might be used in commercial singing. Listen to your favourite recording artists and notice which versions of "I" they use.

№98 Vowel resonance

Contemporary singers do not have the same need to maximise vowel resonance as classical singers because invariably a contemporary music singer performs with a microphone close to their mouth. Nevertheless, contemporary singers do colour their resonance with certain vowel shapes. On the following pages are a few options that might typically be used in contemporary genres.

1. First, review Exercises 78 and 79 (pages 148–149) for the sequence on vowel tuning for classical singers. You can use the same sequence with more neutral vowels to colour your vocal resonance towards a more contemporary sound.
2. Speak the vowel **"er"**, as in the English word "n**u**rse". It is represented by the phonetic symbol **/ɜ:/** and is the most relaxed tongue position of the English vowel sounds. Sing the vowel on one note, moving your tongue, jaw and lips around a little until you find the most comfortable resonant spot for that vowel.
3. Now extract the vowels from the phrase **"I don't wanna lose you"** and sing them slowly on one note using the "er" positioning as your reference point. So, "**I** d**o**n't w**a**nn(**uh**) l**o**se y**ou**" would be **"er-I"** / **"er-o"** / **"er-a"** / **"er-uh"** / **"er-o(o)"** / **"er-ou"**.
4. Then sing the whole phrase using the Tina Turner melody and lyrics, keeping as much of the "er" positioning as possible.
5. Repeat steps 2 to 4 above, but this time using the long mid-Atlantic vowel **/æ:/** – as in the American pronunciation of the word "b**a**th": **"æ:-I"** / **"æ:-o"** / **"æ:-a"** / **"æ:-uh"** / **"æ:-o(o)"** / **"æ:-ou"**.



The positioning of the tongue in the mouth space for the "er" vowel (blue) and the long "ae" of American speech (red).

№99 Finding your dark R

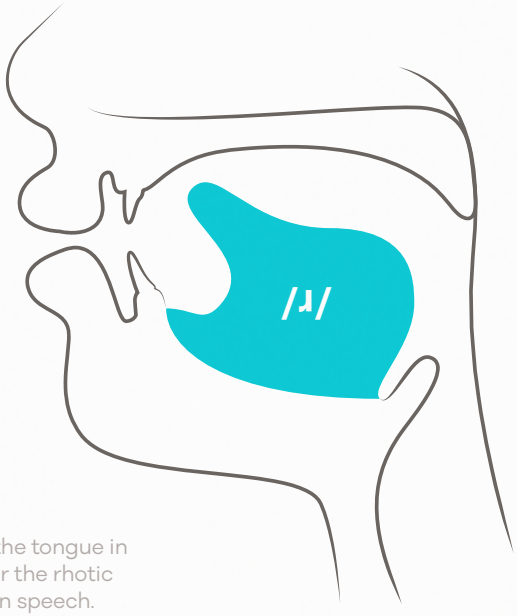
Think of the American pronunciation of the word "w**eir**d". The rhotic "r" (**/ɹ/**) that follows the diphthong becomes part of it and colours it, changing the sound – this is an effect known as R-colouring.

1 Imitating the sounds of American speech, say the words **"start"**, **"near"**, **"cure"** and **"force"**. Notice that you are curling either the tip or the blade of your tongue upwards to make the "r".

2 Keep the curling of the tongue and sing those words on one note, sustaining the vowel for each one. Notice that when you are singing the words **"start"** and **"force"** the tongue has to move a bit to make the final consonant.

3 Now say and then sing the phrase **"I don't wanna lose you"**, maintaining the R-colouring on the vowels.

R-colouring is an excellent way to produce a dark sound in styles such as rock and roll, soul and R&B. Many contemporary music singers use it as part of their overall sound palette. A good example is the artist Cher singing "The Shoop Shoop Song (It's in His Kiss)".



The positioning of the tongue in the mouth space for the rhotic "r" used in American speech.

After the exercises

Cool downs and refreshers

Muscles are designed to contract and relax, and can also be stretched using other muscles. If the neural network that fires a muscle does not get a clear message to "switch off", that muscle may well stay in work mode. This can reduce the responsiveness in that muscle, which will lead to problems in the longer term.

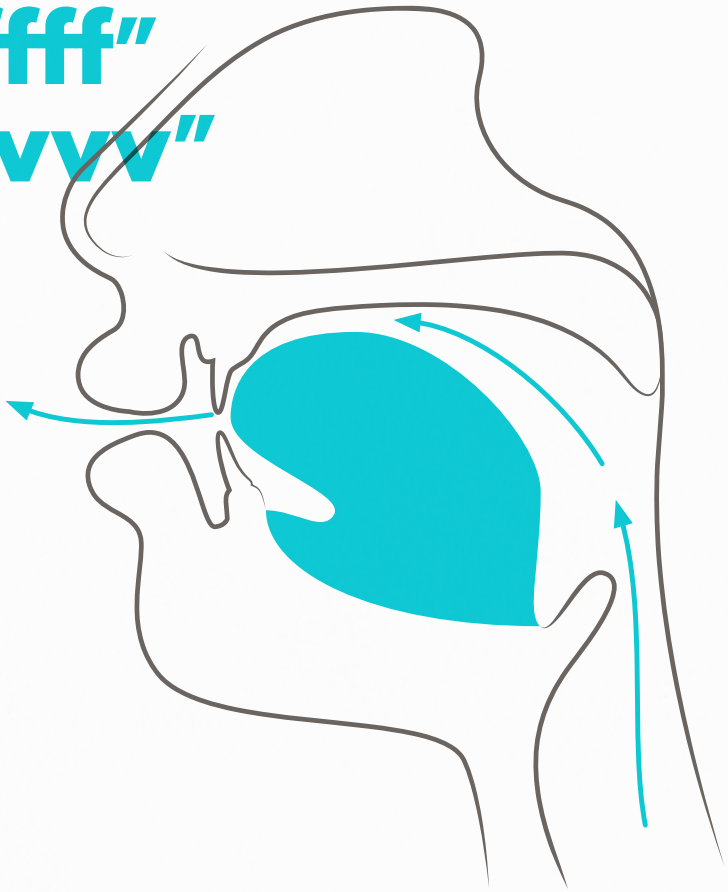
In the same way that stretching after physical exercising can prevent injury, cooling down will help to protect your voice. A typical example is a singer who sings the top line in the choir and finds that their speaking voice does not work properly afterwards, or an actor who continues to project their voice loudly when they go to a restaurant. The following exercises are quick tips for vocal and physical cool downs. You can also use any of them to help you "refresh" your voice during a long working day or to relax your voice after a stressful day. The exercises are not presented sequentially, so it is fine to use any or all of them and discover which ones work best for you.

№01 Reduce your phonation threshold

When you make a voiced sound, your lungs provide pressurised air to keep your vocal folds vibrating. The minimum pressure needed is called the "phonation threshold pressure" (PTP). When your voice has been working hard, the amount of energy you use to bring your vocal folds together is likely to be high. To cool down, so that you can return to normal conversational levels after a performance or presentation, you will need to find your PTP again.

1. Make the sound **"sssss"**. You need use only minimal energy. Your top teeth and bottom lip are close together but very loose. Just use the air you already have in your lungs (you don't need to breathe in), and release it really gently through the "sssss" sound.
2. Repeat with the **"zzzzz"** sound. Aim to keep the pitch low, close to the lowest part of your speaking voice, and the sound quiet. Do not try to keep the sound on the "z" going if it "falls away". Allowing this point of relaxation in a cool down is good.
3. Repeat up to five times. Avoid turning this into a rhythmic sequence and do them in your own time. Breathe in between the repeats of each sequence, but just allow the breath to come into the body rather than "taking" it in. Aim to have the feeling of sighing as if you are sinking into a warm bath.
4. This exercise helps you to find a very gentle sound and takes any pressure away from your vocal folds. It can also be done using the sounds "fffff" and "vvvvv".

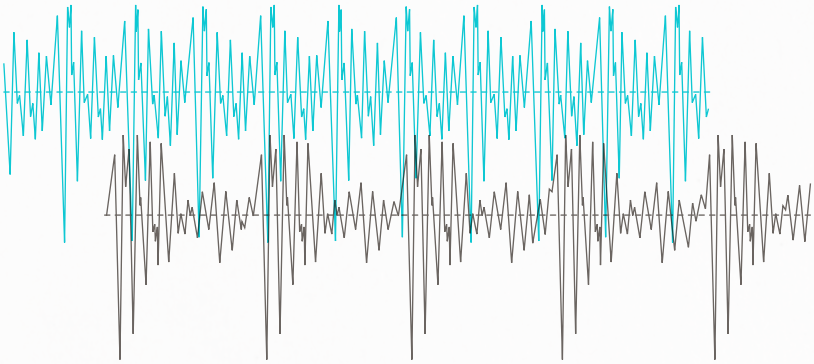
"sssss"
"zzzzz"
"fffff"
"vvvvv"



№02 Sighing into "creaky voice"

Creaky voice (the voice science term is vocal fold "fry") is an excellent cool down for anyone who has been shouting or projecting their voice all day, or has been singing a lot of high notes. The vocal folds are at their most relaxed and the air bubbles through in tiny puffs.

1. Make an audible, voiced sigh that starts with an **"h"**. So, **"haaah"** or **"huuuh"** might be the sound. Do it exactly as you would when feeling tired and sitting down after a long day.
2. Let the breath and sound "fall away" as you get to the end of the sound – you are aiming to relax your voice, not work it.
3. Do this a couple of times and then allow your out-breath to slow down until your "haaah" turns into a loose, creaky voice sound. The pitch is likely to be much lower than your normal voice.
4. Creaky voice uses very little air, so breathe out before you repeat the exercise. Your creaky voice will quickly feel easier, more relaxed and the sound will be slightly fuller. This means your vocal folds have released their stretch, and you are good to go.

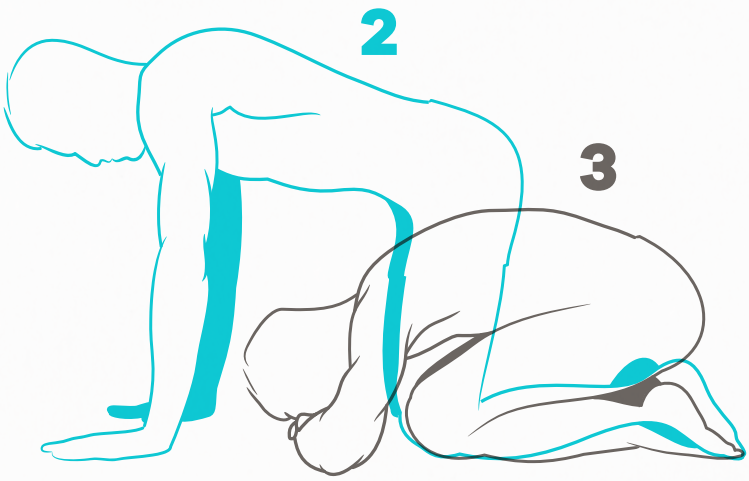


Waveforms of creaky and non-creaky voice. The blue image is a tenth of a second of a chest voice, the black image is a tenth of a second of a creaky voice.

№03 Head, neck and shoulders

When we have been working our voice hard the extrinsic muscles of the larynx that are part of the neck have been working too. Often this excess tension can spread upwards to the back of the skull and downwards to the shoulders. Give in to gravity and use this exercise to relax the muscles that suspend the larynx inside your neck. If you have trouble getting into position, try the chair-based exercise opposite as an alternative.

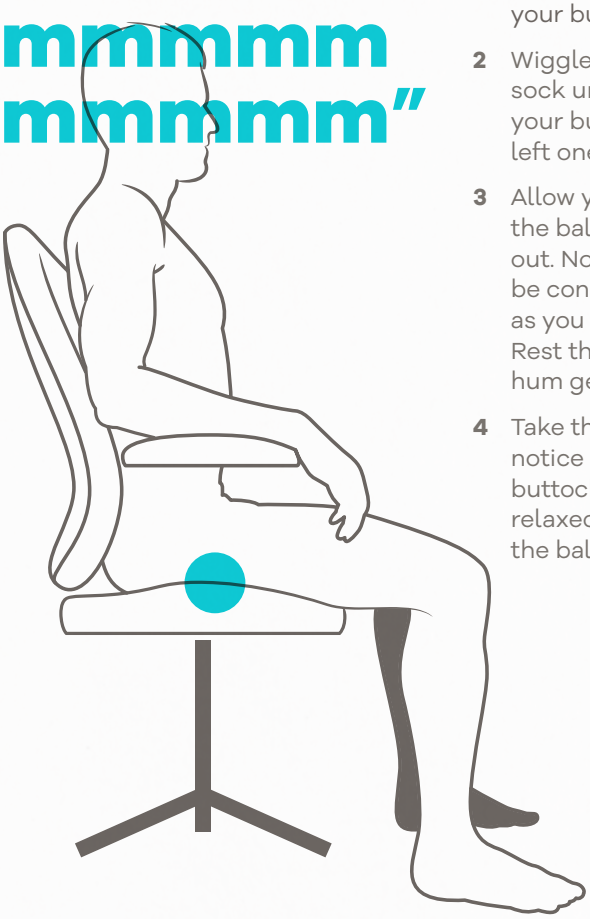
1. Get down onto all fours, balanced on your hands and knees.
2. Breathe out in this position, then in again. Allow your belly to relax and drop as you breathe in.
3. Breathe out and sink backwards, moving your bottom towards your heels. It doesn't matter if you cannot get all the way down, just allow your body to sink in this direction. Although still supported by your knees, your torso is sinking on to your thighs.
4. Put your forearms on the floor in front of your body so that you can relax your head down on to your hands. If you have a very stiff neck you could use a cushion underneath your hands.
5. Allow your body to soften into this position. Breathe gently through your nose for several minutes. You can also alternate between breathing out silently and humming gently.



№04 Spine, pelvis and sitting bones

This exercise can work as an alternative for anyone who might have difficulties getting down on the floor, or who has spinal problems. You might also find it more practical to do in an office setting. You will need either a small, soft ball (about the size of a tennis ball) or a pair of rolled-up socks.

"hmmmm mmmmm mmmmm mmmmm"



1. Sit in a chair, with your feet flat on the floor and the lower part of your spine touching the back of the chair. Place the soft ball or rolled up socks underneath one of your buttocks.
2. Wiggle around a bit on the ball or sock until you can feel the bone in your buttock (either the right or left one).
3. Allow your buttock to sink around the ball or sock and breathe out. Nose-breathing is fine but be conscious of breathing out as you sink down into the chair. Rest there for a few moments and hum gently.
4. Take the ball or sock away and notice how that side of your buttock feels different, more relaxed. Repeat the exercise with the ball or sock on the other side.

Troubleshooting

Vocal hygiene

Do

1. Warm up! A few minutes a day while dressing or driving can make the difference between a comfortable and a tired voice at the end of the day.
2. Invest in training. A few voice coaching lessons or a training workshop can give you the tools to improve your skills, confidence and vocal presence.
3. Drink water. Eight glasses through the day.
4. Use the straws and bubble exercise (pages 60–61) to give your voice a gentle workout.
5. Use steam if your voice is tired – just don't add anything to it.

Don't

1. Gargle with salt, aspirin or anything vaporous. You're likely to irritate the soft tissues of your throat.
2. Whisper. It's bad for you because you'll use your false vocal folds to make noise.
3. Clear your throat continuously. You are literally rubbing your vocal folds together. Instead, swallow a few times or do some gentle glottal onsets (page 157) to clear interference.

Acid reflux

One in five people in the UK suffer from acid reflux.

There are two main types of acid reflux:

Gastro-oesophageal reflux (GOR) is when acid from the stomach comes up into the oesophagus (experienced as heartburn and indigestion).

Laryngo-pharyngeal reflux (LPR), also known as silent reflux, where the acid comes up further into the larynx and pharynx (experienced as coughing or choking, croaky voice in the morning, or burning in the throat, and occasionally adult asthma or dental decay).

Do

1. Eat your evening meal early. This will give the stomach acid time to settle before you are lying down.
2. Raise the head of your bed. Placing blocks beneath the pillow end of your bed will create a slight incline and mean that you are no longer lying horizontal.

If in doubt

If your voice has been sore, hoarse or weak for more than three weeks, have it checked by your doctor. If the problem persists, go to a voice clinic or ask your doctor for a referral to an Ear, Nose and Throat specialist.

Acknowledgements

Vocal training is not a fixed entity but a living, breathing thing. Excellent training builds on existing traditions of best practice while at the same time evolving to meet new needs, performing environments and levels of experience. Wherever an exercise in this book has been inspired by the specific work of others, we have acknowledged that person or organisation in our source notes. For those readers who might want to take things further than the scope of this book allows there are suggestions for further reading and other learning media.

In particular the authors would also like to extend their sincere thanks to Mr Tom Harris FRCS and Mrs Sara Harris, Specialist Speech and Language Therapist, for reading and advising on the content of "How the Voice Works"; to Alistair McGowan, for his help on the Mimicry section; and to the Vocal Process eZINE subscribers who contributed the practice paragraphs that appear in Exercise 24 and Exercise 30.

Further reading

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Web-based resources and training media

Many good video-based tutorials can be found on the internet. Anyone interested in mimicry and ventriloquism, for which video is especially useful, and beatboxing will find countless techniques and tips on YouTube – from vocalising with straws to practising key mimicry phrases.

For more information about Vocal Process DVDs, downloads and articles on singing and performance techniques: vocalprocess.co.uk

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Beatboxing resource run by TyTe with techniques, examples, videos and articles: humanbeatbox.com

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13 Cawdrey, Robert. *A Table Alphabeticall Conteyning and Teaching the True Writing, and Understanding of Hard Usuall English Words*... (London: I. R[oberts] for Edmund Weaver, 1604), sig. D5v.

13 Phillips, Edward. *The New World of English Words*... (London: E. Tyler for Nathaniel Brooke, 1658), sig. N4r.

13 Shaw, George Bernard. *Pygmalion*, ed. Dan H. Laurence and Nicholas Grene (London: Penguin, 2003), p.26., p.13 and p.19.

14 Curry, S. S. *Mind and Voice: Principles and Methods in Vocal Training* (Boston: Expression Co., 1910), p.44 and p.35.

16 "Not the least important of these powers..." Connor, Steven. 'Choralities'. Online at: http://stevenconnor.com/choralities.html

Exercise sources

The system of naming notes used in the book (Do Re Mi) is the Solfège system.

Where any references are to exercises inspired by or adapted from existing ones, permission has been sought and obtained by the authors.

40 Chart of average vocal fold lengths during lifespan, based on Thurman and Welch (2000), p.360.

41 Ranges for speaking and singing voices chart adapted from Harris, Tom, et al (1998), p.347.

44 Vowels in English, information from Wells, John (1982).

59 Five wows adapted from Shewell, Christina (2009), pp.313–314.

71 Practice paragraph Comma Gets A Cure: © 2000 Douglas N. Honorof, Jill McCullough & Barbara Somerville. As cited in Dal Vera, Rocco (ed.), (2003), pp.106–122.

81 Original practice paragraphs submitted by Alison Skidmore, Hilary Jones and Pamela Hall.

83 Toothbrush intelligibility, adapted from Angela Caine, VoiceGym Voice Exercises with Audio CD, © 2003–2014 VoiceGym Ltd (voicegym.co.uk).

90 Original tongue twister paragraph submitted by Alison Skidmore.

139 Exercises 70 and 71, The "diamond of support" and SPLAT adapted from Chapman, Janice, 2006, pp.41–47.

151 Chart for Exercise 80: bnoack.com/graphics/formant_singer.jpg

155 Extract *Va Pensiero* from Nabucco, by Giuseppe Verdi, composed 1841.

159 Exercises 83–87 adapted from the presentation "Inside the Singing Voice – Vocal Technique Unpacked", by Vocal Process Ltd., May 2015.

Other useful information

Vocal health resources

Various free articles are available for download through the website of the British Voice Association. See britishvoiceassociation.org.uk/downloadable-resources.htm for further details, including information about the effects of stress and emotion on the voice and how to take care of your voice. These include an excellent article about acid reflux and your voice.

National voice organisations

The Australian Voice Association: australianvoiceassociation.com.au

The British Voice Association: britishvoiceassociation.org.uk

The National Center for Voice and Speech (USA): ncvs.org/products_health.html

The Voice Care Network (UK): voicecare.org.uk

World Voice Day (16 April)

This is an annual worldwide event celebrating voice use in all its diversity but with a focus on sustaining and maintaining healthy voice use: world-voice-day.org/

This is a Voice: The exhibition

This book is published on the occasion of THIS IS A VOICE, a major exhibition at Wellcome Collection London and at the Museum of Applied Arts and Sciences, Sydney. The exhibition traces the material quality of the voice – its form, weight and body – in order to understand and capture its complex psychological and physiological origins.

By casting the spotlight on the emotions that resonate in the voice through rhythm, pitch and tone, as well as non-verbal forms of communication, THIS IS A VOICE explores how our voice locates us socially, geographically or psychologically. Yet it also demonstrates how utterly flexible the voice is, and how it can be dramatically changed with treatment and training. Enhanced forms of communication, such as singing and extended vocal techniques, are central to the exhibition, displaying compositions of experimental vocal pioneers alongside birdsong or ventriloquism.

Conceived as an acoustic journey, THIS IS A VOICE includes works by artists and vocalists including Laurie Anderson, Joan La Barbara, Anna Barham, Sam Belinfante, Erik Bünger, Marcus Coates, Steven Cottingham, Enrico David, Danica Dakic, Asta Gröting, Lawrence Abu Hamdan, Matthew Herbert, Mikhail Karikis, Meredith Monk, Emma Smith, Imogen Stidworthy, Gregory Whitehead and Katarina Zdjelar, punctuated by paintings, manuscripts, medical illustrations and ethnographic objects. It presents a daily programme of live vocalizations and exercises within the gallery space.

The exhibition is presented in association with the Royal Opera House, London.

wellcomecollection.org/thisisavoice

Curators

Wellcome Collection: Bárbara Rodríguez Muñoz
MAAS: Katie Dyer

Curatorial Advisor

Shamita Sharmacharja

Glossary

active respiration The quicker, shorter in-breath and considerably more extended out-breath needed for vocal tasks.

adduction Bringing the vocal folds to the midline of the body, to stop the breath or to produce voiced sound.

airflow The flow of breath from the lungs that powers song and speech, which can be **ingressive** (breathing in) or **egressive** (breathing out).

airway The passageway for air to travel in and out of the lungs.

alveolar ridge The bony ridge of the upper and lower jaw that contains the sockets of the teeth.

articulators The lips, the tongue, the jaw and the soft palate, key players in how we produce consonants.

bilabial A sound produced using both lips.

breath onset and offset A styling technique often used in jazz that has a feeling of intimacy and ease, created by passing breath through open vocal folds before or after voicing a sound.

breathy-light setting A flowing diffuse vocal setting commonly used in backing vocals.

edgy-bright setting A piercing and bright vocal setting commonly used by country singers.

chest voice A vocal register commonly used in speaking voice, produced by vibrating the superficial and deep layers of the vocal folds. Also known as **modal voice**.

creak onset and offset A styling technique often used in contemporary singing that has the feeling of sexual intimacy or exhaustion.

diphthong Sounds made of two vowels that form a single phoneme.

cricothyroid The paired muscles that elongate the vocal folds and contribute to pitch change.

diaphragm The main muscle for breathing in. Separates the chest and abdominal cavities.

ejective A type of sound made by non-pulmonic air moving outwards.

egressive Sound or airflow produced by breathing out.

expiration Breathing out.

epilarynx The part of the larynx between the vocal folds and the epiglottis that acts as a resonating chamber in the vocal tract.

falsetto A vocal register generally used in higher pitches, produced by vibrating only the superficial layers of the vocal folds.

fricatives Sounds such as "f" or "v" produced by a continuous airstream passing through a narrow channel.

fry (vocal fry/vocal fold fry) The scientific term for creaky voice.

gasp onset and offset A variation on the breath onset used in gospel and soul styles that has a feeling of powerful emotions, desperation and pleading.

gastro-oesophageal reflux (GOR) Otherwise known as acid reflux or heartburn and a common cause of voice problems.

glottal onset and offset A styling technique used in many rock styles that gives a clean, sudden sound to a note and a strong tone.

hard palate The roof of the mouth.

harmonics The multiple frequencies above the note we hear or sing, produced by complex vocal vibrations.

head voice A term commonly used for singing above the chest voice range.

ingressive Sound or airflow produced by breathing in.

intonation The varying pitch pattern of speech.

inspiration Breathing in.

laryngo-pharyngeal reflux (LPR) Sometimes known as "silent reflux" and a serious cause of voice problems, occurring when gastric juices reach the larynx and pharynx, often when lying down.

larynx The voice box.

legato The art of joining notes and words into smooth, seamless phrases, an essential part of classical singing.

messa di voce A common exercise used to help classical singers develop dynamic control. It literally means "mass of the voice".

modal voice See **chest voice**.

onset Coordinating breath and vocal folds to start a sound. See separate entries for **breath**, **glottal**, **gasp**, **smooth** and **yodel onsets and offsets**.

offset Coordinating breath and vocal folds to finish a sound. See **onset**.

pharynx The most important resonating chamber in the vocal tract, extending from the back of the larynx up into the back of the nose and mouth.

phonation Voiced sounds produced by vibrations of the vocal folds inside the larynx.

phonation threshold pressures (PHP) The minimum pressure of air needed to vibrate the vocal folds for voiced sounds.

phoneme A single sound within speech. For example, "bat" has three phonemes, "b", "a" and "t", or /b/, /æ/ and /t/.

pitch The auditory perception of how high or low a note is, in relation to other notes. Closely related to frequency of vibration. Slower vibrations are perceived as low, whereas faster vibrations are perceived as high.

pitch-glide A slide of several notes, often used as an approach or a release.

pitch pattern The grouping of several pitches to make a melody in singing or prosody in speaking.

pitch range The lowest to highest notes of an individual voice, instrument or musical composition.

plosive Sounds such as "p" or "b" produced by the complete obstruction and subsequent release of the airstream.

pressurised sounds Strong sounds created by building up extra air pressure behind firmly closed articulators, followed by a fast release. A technique commonly used in beatboxing.

prosody The pattern in a spoken sentence created by pitch, tone, stress, rhythm and intonation.

pulmonic/non-pulmonic sound Vocal sounds created with/without air from the lungs.

range See pitch range.

resonation Vocal resonance is the enhancing of the sound waves produced by the vocal folds. The different surfaces and shapes of the air-filled cavities of the vocal tract boost and reshape the sound as it travels to the outside air.

rhythm While tempo is the overall speed of speech or music, rhythm is the arrangement of individual musical or spoken sounds in relation to each other across time.

rising inflection The distinctive higher pitch on the last word of the phrase or sentence, also known as "upspeak" .

running speech Joining individual spoken words together to form connected phrases.

singer's formant A special clustering of resonance frequencies used by opera singers to project their voice through an orchestra acoustically.

smooth onset and offset A styling technique typically used in classical singing, in which the breath is held while keeping the vocal folds open prior to making the sound.

sob setting A comfortably low laryngeal posture used to lengthen the vocal tract similar to the position of the larynx during the act of sobbing.

soft palate The fleshy, flexible part towards the back of the roof of the mouth also known as the velum that acts as a doorway between the nose and mouth.

strong-clear setting A singing style that sounds similar to the spoken voice, a staple of much rock and blues singing. Also referred to as "speech setting".

styling A term used by contemporary singers, describing the use of varying **onsets** and **offsets**, see above.

tempo See **rhythm**.

timbre The quality and tone of voice used when we sing and speak, denoting mood and emotion.

tone See **timbre**.

unvoiced sound Sound made by the vocal mechanism in which the vocal folds do not vibrate. For example, "s" and "f". See also **voiced sound**.

vocal folds The tiny layers of muscle, ligament and mucous membrane that lie inside the larynx. They open for breathing and close/vibrate for speaking or singing.

vocal tract The flexible tube that runs from the vocal folds to the lips, containing the collection of structures that make up the voice.

voiced sound Sound made by the vocal mechanism in which the vocal folds vibrate. For example, "z" and "v" and all vowels. See also **unvoiced sound**.

yodel/flip onset and offset A styling technique usually associated with country singing, but now also in widespread use in pop, gospel and R&B.

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