

Range, registers and the break

Your range describes the range of notes you can reach, both comfortably and at the extremes. The lowest note you can reach is determined by how thick your vocal chords are. This is harder to change by much (although getting a bit lower is usually possible), so it's often used as a reference what what type of voice (soprano, alto, etc) you have. The highest note you can reach is determined by how thin the vocal chords can stretch. This is something that can change with practice, and if you're interested in seeing if you can add a few notes on top, there are some particular exercises that help with this. Adding an octave on to the top of your range is wholly possible.

Range isn't a big thing in determining your capability or potential as a singer. Billie Holiday had a relatively small range of around an octave and a half, but she used it very effectively. It can just be a useful thing to identify, because then you can also identify the most comfortable part of your range (known as 'tessitura') where you feel the most confident. It also means you have a reference point and shows where you could extend it if you wanted to. Untrained voices tend to start out with a comfortable range of about an octave to an octave and a half. As you stretch your vocal muscles, they'll become more flexible and responsive.

The head and the chest are the two most common resonating areas. Try placing your hand on the top part of your chest (your *sternum*, or breastbone) and singing a note from the lower end of your range. Can you feel a slight vibration? Now, try singing in a high pitch. Where is the vibration now? It should feel as if the vibration is in your eyes, nose, even your forehead.

This is because your *chest voice* and *head voice* are actually in different registers. When you produce sounds that resonate in the top of your chest or throat, your vocal cords vibrate along their full length, produce long sound waves of a low pitch. When you produce sounds that resonate in your head, the ends of the vocal cords close off until only one-third their length is free to open and close. As a result they move much more rapidly, producing short sound waves of a high pitch.

You also have a *middle voice*. This is when about half the length of your vocal cords is free to vibrate. The goal in training your voice is to eventually move smoothly between your chest voice, middle voice, and head voice. When you can do this, your voice is said to be *connected*.

Approximate Chest, Middle and Head Ranges for Female Singers

E below middle C – G above middle C = chest

Eb octave above middle C = middle voice

D/Eb – top = head voice

Approximate Chest, Middle and Head ranges for Male Singers

up to E above middle C = chest

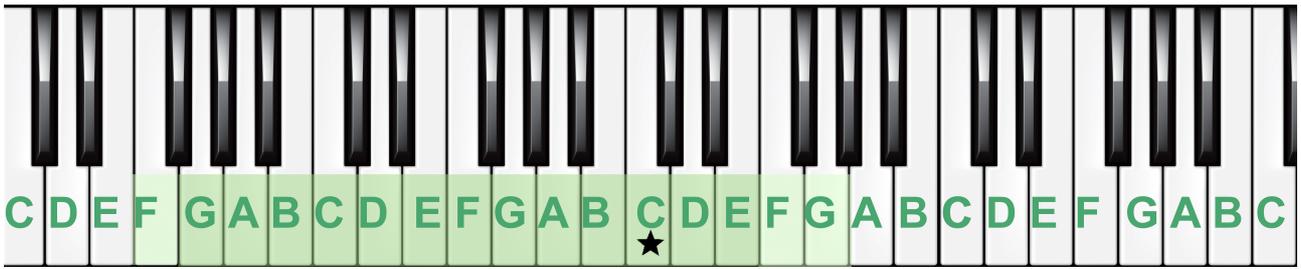
E-B above middle C = Middle

B – top = head voice

Mark in your range and if you like your chest, middle and head on the keyboards below.



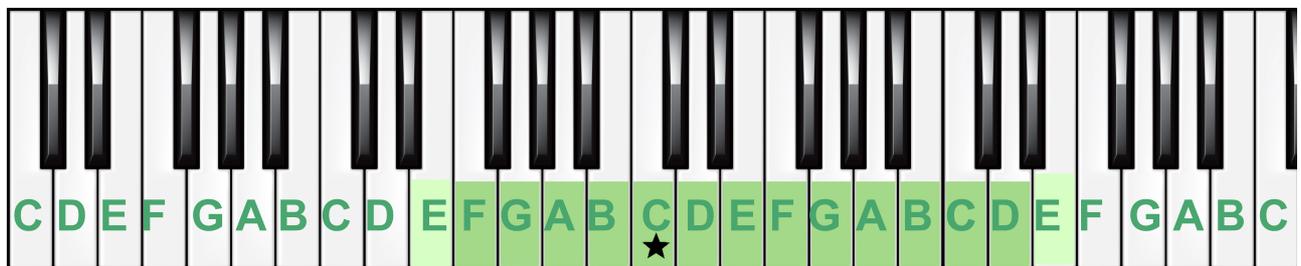
Bass



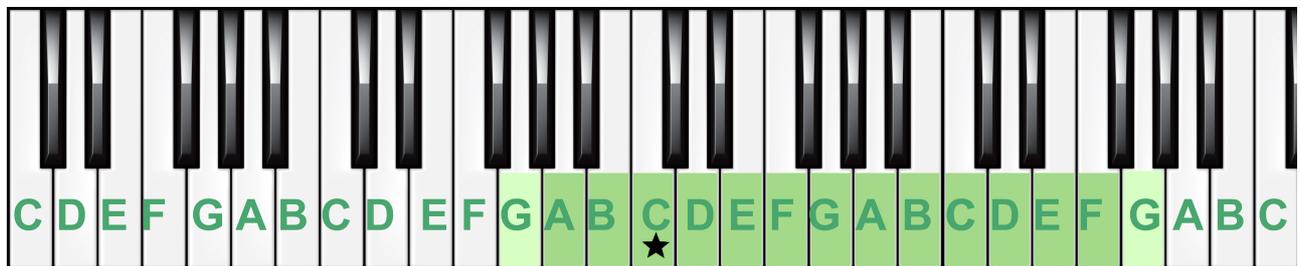
Baritone



Tenor



Alto



Mezzo Soprano



Soprano

The darker shaded portions are typically the more comfortable parts of each range, and the lighter shaded parts are typically at the periphery of the range. The star marks Middle C.

Sliding is an excellent way to build strength and flexibility to work towards increasing your range. As ever, check your body for tension, move your breathing into abdomen and thorax. Bear in mind the ongoing objective to bring the sound forward. We will do more on extending your range and blending (moving between registers smoothly) in future sessions.

If you have some concerns or aims relating to your range (eg extending it, or making the transition smoother), it's a good idea to note down where your comfortable range is now. It is entirely

regularly with these exercises-you need to train both your expectations around what's possible for you, and the actual muscles, and that takes time and repetition.

The break and the registers

In chest voice, the full weight of the vocal cords is used. As pitch goes higher, the cords thin and the sound resonates in the head cavities instead of in the chest, producing a lighter sound.

Pitch is controlled by the two muscle groups that the vocal cords attach to, the arytenoid and thyroid muscles. The arytenoid muscles are located at the back of the larynx and control the higher register. The thyroid muscles are a little heavier and attach at the front of the larynx, controlling the lower register. If one of these groups of muscles is weak, it'll be hard to stay on pitch. When you're singing in the lower register, the lower you go, the more the thyroid muscle group stretches and tilts slightly downwards. To stay on pitch, the back of the throat – arytenoid muscles – must be strong enough to provide bracing tension. When you go higher, the arytenoid muscles stretch and pull back, and they need to have something to brace against as they stretch.

For both muscle groups to be strong enough to hold and act as bracing tension for each other, they must be isolated and developed separately. As you sing up and down, you will notice a 'break' between your chest and head voice. Generally, people don't like how this sounds and if they could wave a magic wand to make it vanish, they would.

This 'flip' sound happens when the cords can't stay connected-and that's often because there's a point where the two muscle groups need to hold the tension evenly. If they are not strong enough, or if they haven't learned to co-ordinate the change in register (which can happen if you're very used to singing in one register but not another) the cords will collapse and you will hear a crack as you change registers. This is completely normal and will correct itself when the muscle groups become strong enough to hold the tension.

Your voice can also break when you are nervous or tense, as anxiety can cause these muscle groups to tense to the point of spasm, which again means the cords can't stay together. Too much breath pressure can do the same thing-which is why using a lot of air to go for a high note can be counter productive.

Each pitch has its own size opening through which the air must pass as you sing. The lower you go, the bigger the opening, the higher you go, the smaller the opening and the thinner the chords. If there's too much air pressure under those tiny cords, the cords will have to separate to accommodate it, and that might make the opening too wide for the pitch – which might cause the note to go flat.

The more you sing, and the more you get used to deliberately calling in relaxation while you are singing, the easier it will be to instantly relax when you are singing anywhere.

A common error with singing higher is to just blast as much air as you can and hope you get there. This is inconsistent as a strategy! One of the problems with this approach is that you can end up 'pulling up chest voice' which risks straining your voice. When your cords are strong, you can apply more pressure/cord effort, but if you are just getting back into a routine, they won't necessarily be that way now, even if you've sung like this in the past.