Describing exactly what we need to do with our mouthful of air in order to speak English inevitably gets a little complicated. But don’t worry:
- Take a comfortable chair – and sit back.
- Take the CD – the first recorded pronunciation model is on page 21.
- Take a deep breath …

Voicing
In fact, strictly speaking, the airstream that becomes a mouthful of air originates in the lungs, and the first modifications are made to it before it reaches the mouth. We can either allow it to pass the vocal cords (note the spelling: cords, not ‘chords’) in our throat unobstructed, or we can bring the vocal cords closer together so that they vibrate as the airstream is forced through them:
- Sounds made without vibration of the vocal cords are called voiceless (or unvoiced) sounds.
- Sounds made with vibration of the vocal cords are called voiced sounds.

When we whisper, we’re speaking without voicing.

Note that the terminology is slightly unfortunate: even when we whisper, we are of course using our voice, in the everyday sense of the word, but without voicing!

Try this: Put a finger in each ear, and alternate between whispering and normal speaking. As you switch the voicing on and off, you should hear and feel a buzzing resonance come and go as the vibration of the vocal cords is transferred to the bones of the head. You can also feel this resonance if you put your hand on your throat (not surprisingly, since that’s where the vocal cords are), on the top of your head and, who knows, maybe on other parts of your body – something to experiment with, perhaps!

Consonants: stops/plosives
The speech sounds that we call consonants are all made by blocking or restricting the airstream at a certain point. It’s probably easiest to appreciate this in the case of the consonants /p/ and /b/, as the obstruction is caused by closing the lips – this is easy to feel, or to see in a mirror.

Note the convention of writing symbols for sounds between slant brackets. Among other things, this distinguishes them from the letters of the alphabet that we use in writing – in the case of ‘p’ and ‘b’ we use the same symbols for sounds and letters.

Try this: If you say words like ‘super’ or ‘maybe’ slowly, you can feel that you close your lips together to form the /p/ or the /b/ in the middle of the words, and then open them, allowing the air to be expelled suddenly. The lips don’t normally stay closed very long, but you can extend the period of closure. Trying it may help you become aware of how the sounds are produced by the eventual release of air.

At the beginning of a word – in word-initial position, eg ‘pea’ or ‘bee’ – we also produce /p/ and /b/ by closing our lips, allowing pressure to build up behind them and then opening them to release the air.

At the end of a word – in word-final position, eg ‘sip’ or ‘mob’ – you can release the /p/ and /b/ in the same way as for ‘super’ and ‘maybe’. But you don’t have to: you can also say such words without releasing the air. You can simply block the airstream and then stop, relaxing the lips without opening them and either expelling excess air through the nose, or taking air in through the nose if you need to. This has the result of making the words less easy to recognise, because phonetic information is withheld.

Find a willing partner to help you with this experiment. On a piece of paper, write:

1 sip 2 sick 3 sit

These words are identical, apart from the final consonant:

sip /stp/ sick /stk/ sit /st/  

- Speaker A turns away from Speaker B (this is important, so that B can’t see A’s mouth, which would provide visual evidence of the final consonant sound) and says one of the three words without releasing the final consonant.
- Speaker B has to say the number of the word they heard, and may well find that this apparently simple task is unexpectedly tricky.

Normally, of course, we don’t say words in isolation, and the context helps us to decide what we’ve heard. For example, if we hear: I didn’t know what was in the bottle, so I just took a tiny sï, we will interpret the final word as ‘sip’ even if the phonetic evidence is ambiguous. This is also a strategy learners will need to adopt:
- Because /p/ and /b/ are formed by obstructing, or stopping, the airflow, they are called stops (or stop consonants).
- Because they are often, but not always, produced with a sudden release or explosion of air, they are also called plosives (or plosive consonants).

Aspiration
- So, as regards their place of articulation (where in the mouth they are produced), /p/ and /b/ are both bilabials, or bilabial consonants (bi = two, labial = lip).
As regards their manner of articulation (how they are produced) they are both stops/plosives. The terms ‘stop’ and ‘plosive’ highlight two different aspects of these sounds; ‘plosive’ is used more frequently than ‘stop’, but it’s important to remember that the air which has been stopped is not always released.

What, then, is the difference between /p/ and /b/?

* A common answer is that /p/ is voiceless and /b/ is voiced. This is actually an oversimplification, but one that teachers find to be of practical use.
* In fact, /b/ often has little or no voicing, and it is more accurate to say that /p/ is a fortis (strong) consonant, while /b/ is lenis (weak).

This strong/weak distinction refers to the amount of energy with which the sounds are articulated. One effect of the energetic articulation of /p/ is that, unlike /b/, it is aspirated, ie accompanied by a strong burst of air, especially at the beginning of a stressed syllable.

Try this: Hold a sheet of paper (a slightly higher-risk alternative is a lighted candle!) in front of your mouth and say, for example, ‘pin’ and ‘bin’. You should find that ‘pin’ makes the paper flutter (or the flame flicker) but ‘bin’ doesn’t.

This aspiration of /p/ and non-aspiration of /b/ is actually more important in distinguishing these two sounds in word-initial position than the presence or absence of voicing, and the paper or candle trick is a practical way of helping learners to tell the difference, if they find this difficult.

So, three parameters – voicing, place of articulation and manner of articulation – can be used to define the two sounds:

* /p/ is a voiceless bilabial plosive (or voiceless bilabial stop).
* /b/ is a voiced bilabial plosive (or voiced bilabial stop).

If you change any of these parameters, you can produce different words, with different meanings. For example, by varying the voiceless/voiced parameter, you can produce:

- pet /pet/ or bet /bet/
- rip /rɪp/ or rib /rɪb/
- simple /ˈsɪmpl/ or symbol /ˈsɪmbəl/

(The mark before the /s/ is a stress mark – see page 21 – and the mark under the /l/ is a syllabic consonant mark – see page 15.)

You can also produce non-existent, but possible, words:

- tip /tɪp/ vs the possible word /tɪb/  
- bless /bles/ vs the possible word /ples/

**Phonemes and minimal pairs**

Because substituting one of these sounds, /p/ or /b/, for the other has the potential to create two different words, these two sounds are called phonemes. A pair of words distinguished only by one phoneme, such as ‘pet’ and ‘bet’, or ‘rip’ and ‘rib’, is called a minimal pair.

It’s important for learners to distinguish between phonemes in listening and in their own speech, since failure to do so can result in confusion or misunderstanding, especially in combination with other shortcomings or uncertainties about the language. For example, there might be confusion between It’s simple and It’s a symbol.

There are two other pairs of stop/plosive phonemes in English: /t/ – /d/ and /k/ – /ɡ/:

- /t/ and /k/ are voiceless/fortis.
- /d/ and /ɡ/ are voiced/lenis.

For /t/ and /d/, the airflow is obstructed by putting the tip of the tongue against the alveolar ridge, just behind the top teeth (see the diagram above) so these phonemes are called alveolar:

* /t/ is a voiceless alveolar plosive (or voiceless alveolar stop).
* /d/ is a voiced alveolar plosive (or voiced alveolar stop).

Many languages, in contrast to English, have dental /t/ and /d/ phonemes – ie the airflow is obstructed by putting the tip of the tongue against the back of the upper teeth. The difference between the dental and alveolar articulations is small, though audible.

For /k/ and /ɡ/, the airflow is obstructed by putting the back of the tongue against the soft palate, or velum, towards the back of the mouth, so these phonemes are called velar:

* /k/ is a voiceless velar plosive (or voiceless velar stop).
* /ɡ/ is a voiced velar plosive (or voiced velar stop).

For /t/ and /k/, like /p/, are aspirated at the beginning of words.

* /d/ and /ɡ/, like /b/, are unaspirated.

Try the paper/candle test with ‘time’ and ‘dime’ or with ‘kilt’ and ‘guilt’.

By varying only the voicing parameter, you can produce, for example, these minimal pairs:

- too/tuː/ or do /duː/
- beat /bɪt/ or bead /bɪd/  
- crate /kret/ or great /ɡreɪt/
- ankle /ˈæŋkl/ or angle /ˈæŋgl/