

# Tuning

It sounds terrible when a guitar is out of tune with itself or with other instruments.

And the guitar does go out of tune a bit and will need to be tuned a couple of times each week (at least!!).

So it's a great idea to practice tuning so that you can quickly and accurately tune your guitar, whether it is with itself or to other instruments. This way you will always be playing in tune for yourself and in a band situation.

So what does it mean to be in tune?

Being in tune means that your sounds are exactly at the right pitch with pitch meaning how high or low the sound is.

When a string is perfectly in tune with another string or instrument it should sound as though only one note is being played. The only difference will be an increase in the volume. Aim for this perfection in your tuning.

There are several ways to keep your guitar in tune. The first way we'll look at is using an electronic tuner.

# TUNING - GOAL 1.

## Using an electronic tuner - part 1.

This is the easiest way to keep your guitar in tune - the tuner does all the listening for you. It will tell you if you are on the right note, whether the string sounds too high or the string sounds too low. The tuner will even do all of this as you are changing the string to bring it into tune. All you have to do is follow the names and the needle or lights.

The other advantage of electronic tuners is that they are set to the world wide accepted pitches for notes. This is called concert pitch. So when you tune your guitar to this concert pitch you will be in tune with every other musician in the world. Very handy when you want to play along with recordings.

Most tuners give you a choice of modes. Most will have the choices like guitar, bass, violin, ukulele and chromatic.

Our advice to always use chromatic. This is usually shown as "chro" or "C" on the tuner.

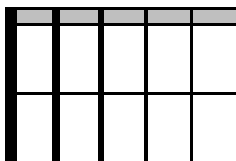
When you use chromatic mode the tuner can tell you more about the names of the notes you are playing.

You will need to know the note names of the open strings for the guitar. When you play a string the tuner will recognize the note - so you have to know if your guitar is giving the right pitch.

Here are the names of the open strings -

**E**lephants **A**nd **D**onkeys **G**row **B**ig **e**ars

String Names **E A D G B e**  
String Numbers 6 5 4 3 2 1



(Notice the two different E notes a capital E is used for low E and a small e is used for high e).

So when you pick a string the tuner will show the musical name. So hopefully when you pick string 1 the tuner will show the name E.

If the note is in perfect tune the needle will be standing straight up and maybe your tuner will show a colour.

If the note is little low the needle will be to the left. The more to the left the lower it is.

Then if the note is too high the needle will be to the right of centre. The more to the right the higher it is.

So if a string is out of tune then you'll need to move the tuning peg the right way to change the string. To make a string sound lower you'll need to relax the tension. To make a string sound higher you need to add more tension.

It's a bit hard to say which way you turn the tuning peg. This is best worked out by yourself. Listen as you turn the peg and hear what is happening.

## TUNING - GOAL 2.

### Using an electronic tuner - part 2.

Sometimes your strings may be so far out of tune that they have the pitch of the next note higher or lower, or even two notes higher or lower.

Sometimes the next note may be a standard name e.g. A, D or G. Other times it might be an "accidental" name - these can be either a sharp name (shown as #) or a flat name (shown as b). So you might see A#, C#, Eb or Gb. Some tuners only show these accidentals as sharps, others show them only as flats, and then some tuners will use a mixture of names.

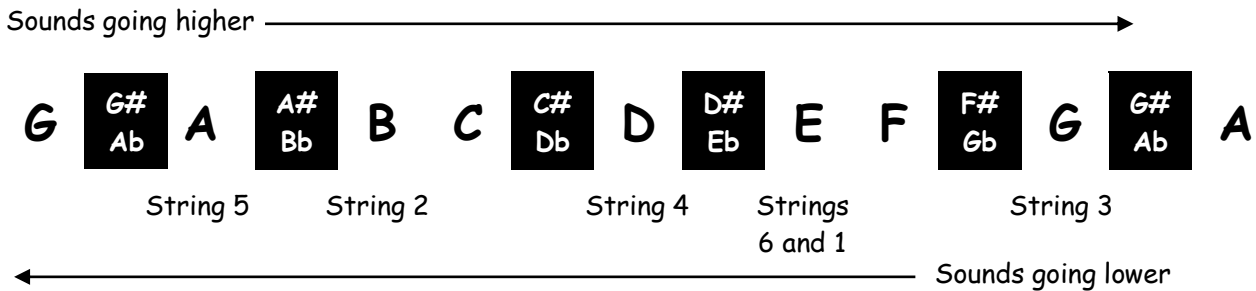
For example if your high string E is the next note

higher it would show on your tuner as F. Or string 2 would become an A note if it's a lot too low.

Other times you could see string 3 as G# or Ab meaning the string is too high. You might see string 6 show as D# or Eb meaning it is too low.

In these cases you have to lower or raise the string until it shows as its correct name.

The full musical alphabet is shown below to help you.



Some tuners have another function to be aware of. This is called calibration. Most tuners are permanently set to concert pitch which is measured as 440hz for an A note. Some tuners though have the function to change this. So if your tuner is one of these make to check that the calibration is set to 440.

Here's a quick reminder of the main steps when you are using your electronic tuner -

1. Turn the tuner on.
2. Use the "chro" or "C" mode if possible.
3. **Check the note name.** Remember this could be one or two notes low or high.
4. Check needle and light.

## TUNING - GOAL 3.

### Some more info about pitch.

Pitch is a lot like time.

We know that days have a morning, midday and afternoon. We could say that midday is the "perfect" time of the day and that the morning is early in the day and the afternoon is late in the day. So even though there are different times of the day it is still the same day.

So notes follow this same idea. Notes can be a little lower than they should be (like the morning of a day), be perfect pitch and then notes can be a little higher than they should be (like the

afternoon of a day). Even though there are different pitches of a note it is still the same note name.

You can see this idea of low, perfect and high easily on an electronic tuner. When the needle is to the left of the screen the note is low, when the needle is on centre of the screen the note is perfect and when the needle is to the right of the screen the note is high.

Have a look at this chart that shows the idea of days and notes.

MONDAY			TUESDAY			WEDNESDAY		
morning	midday	afternoon	morning	midday	afternoon	morning	midday	afternoon

E			F			F#		
low	perfect	high	low	perfect	high	low	perfect	high

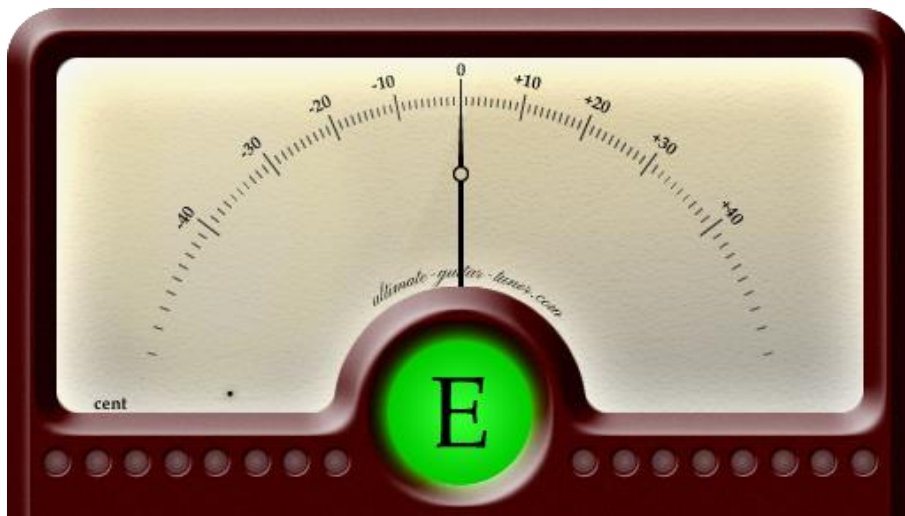
So days are divided into 24 equal hours.

Notes are divided into 100 equal parts. These parts are call "cents".

Instead of going from 0 to 100 the cents are arranged a little differently. 0 is in the middle

which is the perfect note. If the note is lower than this is from 0 to negative 50. If the note is higher than this is from 0 to positive 50.

Some tuners will show the cents with 0 in the middle as well as the negative and positive sides.



## TUNING - GOAL 4.

### Tuning by ear - intro.

Let's now look at tuning using your musical ear. There are several ways of doing this. The first thing to conquer is getting a good sense of pitch.

Here is a drill to help you hear higher and lower pitches. The drill is done along the same string. Choose a string where the pitches are comfortable for you to hum or sing. LISTEN to the way the pitch changes.

To really focus your listening try singing "Jingle Bells Jingle Bells" for each note. This part of the song is all on the same note.

Play these frets on your chosen string -  
Pitches going higher - 5 6 7 8.  
Pitches going lower - 5 4 3 2.

Your string = \_\_\_\_\_

#### Hints for listening when tuning by ear.

The "secret" to tuning by ear is to LISTEN. This seems obvious but you have got to listen hard. What you should be listening to is the PITCH of the notes. Pitch means how high or low a note sounds. To help you focus your listening to the pitch you should hum or sing the notes. Hum the note that is your guide note and then hum your string. Listen to your hum - did you go higher or lower when you hummed your string?

When listening, play the guide note a few times to let the pitch sink in and then play the string your checking a few times to let the pitch sink in. Remember to hum or sing the pitches - this will focus your listening.

Be careful of not listening to the colour of the notes. For example if you are tuning to a trumpet then the colour of the trumpet is brighter and thinner than your guitar. So by only listening to the colour it appears that the trumpet sounds 'higher', but when you concentrate on the pitch you will get the correct tuning. This problem of instrument colour will also happen between acoustic and electric guitars, steel string and

nylon string guitars.

It will even happen when you are tuning on your own guitar and you compare a wound string with a plain string. So you must be careful not to let yourself listen to the colour rather than pitch. Remember to hum or sing to focus your listening. Your voice will act as a common colour and make listening easier.

#### Hints for turning strings when you tune.

When you have to change your string as you tune you must keep listening. Make sure to play the string so can hear it as you change it. You can only gauge the change of tuning by listening to the pitch of the string and not by how far you turn the tuning peg. Bring the string into tune with a smooth motion towards the correct pitch.

Make sure you are holding the right tuning peg before you start turning.

With some of the tuning methods you will lose one or both of your tuning notes when you move your chord hand to the tuning peg. There are two ways to get around this problem.

Firstly you can tune "overhanded". Use your picking hand to change the tuning peg while leaving your chord hand on the guitar. Listen to the string as you change it - keep comparing it to the guide note and in one smooth move you should have the string almost in tune.

The second solution is to remember the pitch of the guide note in your head and tune the new string to the remembered pitch. Keep humming or singing the pitch of the in-tune string and change the out of tune string. Remember to listen to the pitch of the string you're changing. Keep comparing it to the pitch you've remembered. Move the out of tune string in a smooth action towards the correct pitch.

When your string is close to being in tune with the guide note you will hear the two notes start

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to "beat". Beating means you will hear a "wavy" and "wooh-wooh" sound. Beating will only happen between two pitches and not just one. Beating also only happens when the two notes are very close in pitch - when there is less than a semitone or 1 fret difference. Hearing beating gives you the clue that you are close to being in tune. You still have to decide if your string is flat or sharp. The speed of the beating will give you a clue to how far flat or sharp you are. The faster the beating the further apart the two notes are. As you bring your string into tune the beating will slow down. When your string is in tune the beating will stop, and it will sound as though only one note is being played.

Another handy hint is to slightly stretch the strings to make sure they are holding their pitch and that there is no slackness in the windings on

the tuning peg. Once you get the string in tune hook your finger under it and pull the string lightly. Then check the tuning again.

Think of these following steps. ALL THE TIME LISTENING HARD! :

(a) Play a guide note. Maybe another instrument or a string on your guitar.

(b) Comparing. Is your string in tune or out of tune? If it's out of tune is it flat or sharp?

(c) Adjusting (if necessary). When adjusting be sure to play the string so you can hear it change, and then come into tune. Adjust the tuning peg smoothly, not in jerky movements. Keep listening.

# TUNING - GOAL 5.

## Tuning by ear to another instrument.

This might be a guitar, piano, trumpet or synthesizer. You will have to listen to pitches and not the colour.

### Hints for tuning to another guitar.

The main hint is to really focus your listening onto the pitch of the strings.

Listen to the guide string - really get it's pitch into your ear.

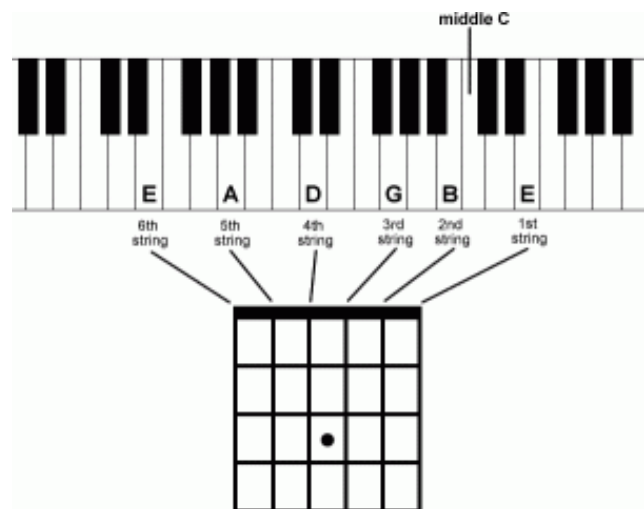
Then listen to your string and really get it's pitch into your ear.

The compare your pitch to the guide pitch. Now you have to the tuner!!!

### Hints for tuning to a piano.

Here is a diagram showing the piano and the notes to play for each guitar string.

Again it's all about listening to the guide note pitch and then your string pitch and comparing.



## TUNING - GOAL 6.

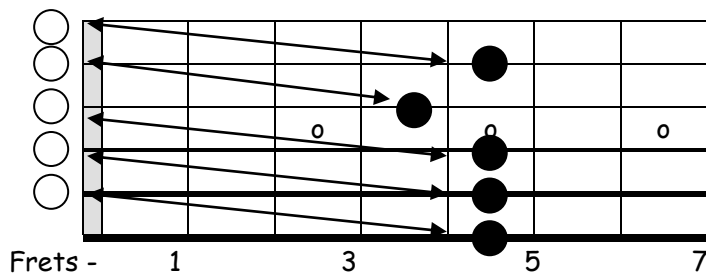
### Tuning to your own guitar - string to string.

Here one string with a finger on at a certain fret and a neighbouring open string should have the same pitch. Most of the fingered notes are at

fret 5, except for string 3 which is at fret 4. You can use this method to tune either the fingered or open string. Remember the secret to tuning is to listen hard to the pitches.

Follow the diagram below -

● - Fingered note. ○ - Open string. ↔ - Connects notes of equal pitch.



A danger to using the string method is that any mistake will be carried across the strings. If you don't get the string into perfect tune then when you use it as a guide note the next string will be out of tune also. If you make a small mistake on each string then the little mistake will multiply to a larger and larger mistake by the time you have

finished. This danger will disappear as your listening skills improve and become fine-tuned.

Another disadvantage is that you are only comparing two strings at a time. Some of the latter tuning methods avoid this.



## TUNING - GOAL 7.

### Tuning to your own guitar - chord method.

Here we use a chord that uses all six strings e.g. E or G open. By doing this you are comparing all the strings to each other rather than just two at a time.

Form the chord (E or G), and slowly pick across all the strings going from string 6 to string 1, then slowly pick back from string 1 to 6. Do this a few times listening carefully to the progression of notes. They should sound melodious and flowing, as if they were made to follow each other. You should try to imagine the next note before you play it.

It is important to start picking from both the sixth and first strings, as it is possible to get "false" sounds due to you accepting the first note heard as correct. If you hear a starting note that is out of tune while the rest of the strings are in tune, you would hear the in tune strings as being out. So starting alternatively on the sixth and first strings overcomes the problem of hearing false sounds.

When you need to change a string hold the chord on, pick across the strings and use your strumming hand to change the tuning peg. This way you can let the chord ring, hear all the strings relating to each other as well as hear the string your changing move into tune.

## TUNING - GOAL 8.

### Tuning to your own guitar - octave method.

Another way of tuning is to use octaves. Octave means that two notes have the same alphabet name (e.g. E), but their pitches are different. You can play an E note and then play the same named note either lower or higher. It may be one or more octaves higher or lower.

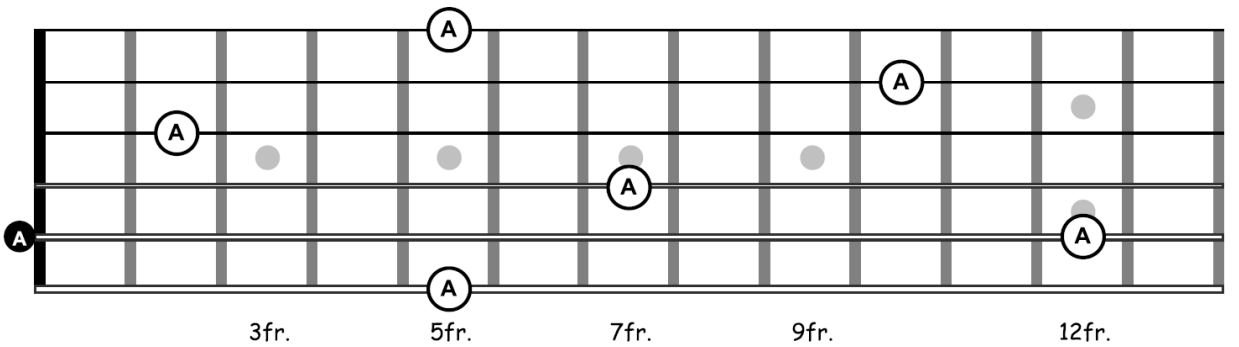
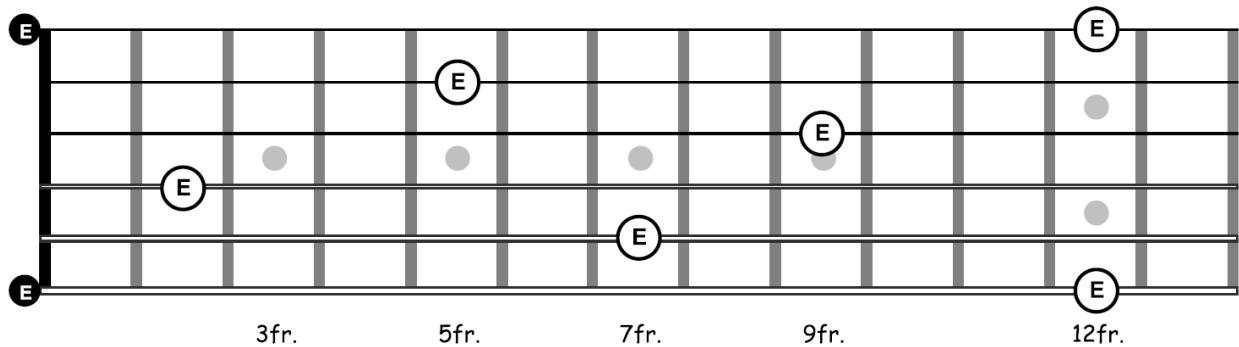
An easy example on guitar is any open string and then the note on the same string at fret 12. Both notes have the same alphabet name but the note at fret 12 is an octave higher than the open. You can also say that the open is an octave lower than the fret 12 note.

When tuning we use the same named note for each string e.g. you can tune all the six strings by comparing E notes at different octaves on different strings to the E note on open string

6. You could of course choose any note for this purpose. Quite often we use the A note as the preferred tuning note. It would be ideal if your guide note was tuned to concert pitch. This approach has the advantage that all the strings are compared to the same string and not to each other. So any small mistakes that can happen between two strings won't affect your tuning of the next string.

The same principle of listening is essential. Even though the notes are not the exact same pitch they will still have an in tune sound when they are one or more octaves apart. Beating will still happen when notes are one or more octaves apart.

Check these diagrams that show all the E and A notes.



## TUNING - GOAL 9.

### Tuning to your own guitar - harmonics method.

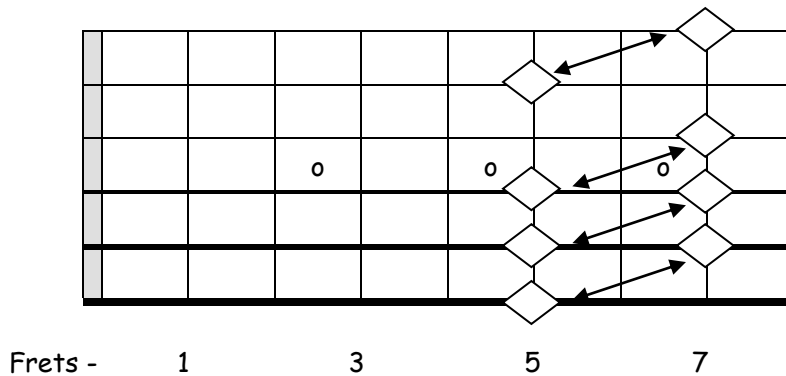
Tuning this way is similar to the string to string method, but instead of using normal notes we use harmonics.

To make a harmonic you lightly touch a string directly above the fret metal and then pick it. You can leave your finger on or take it off. The touch should be so light that the string is not pushed down. Harmonics only work at certain places on the guitar with frets 12, 7 and 5 being the strongest.

Harmonics have two distinct advantages over normal notes. Firstly, they have a clearer sound and are therefore easier to tune with. Secondly, once played you can take your note hand away and the harmonic will still sound. This allows the two strings to keep sounding while you move the tuning peg to bring the out of tune string into tune. With normal notes the fingered note would be lost as soon as you moved your hand to the tuning peg. Some people get around this problem by using their picking hand to change the tuning peg while leaving their note hand on the guitar.

Most pairs of strings use fret 5 and 7.

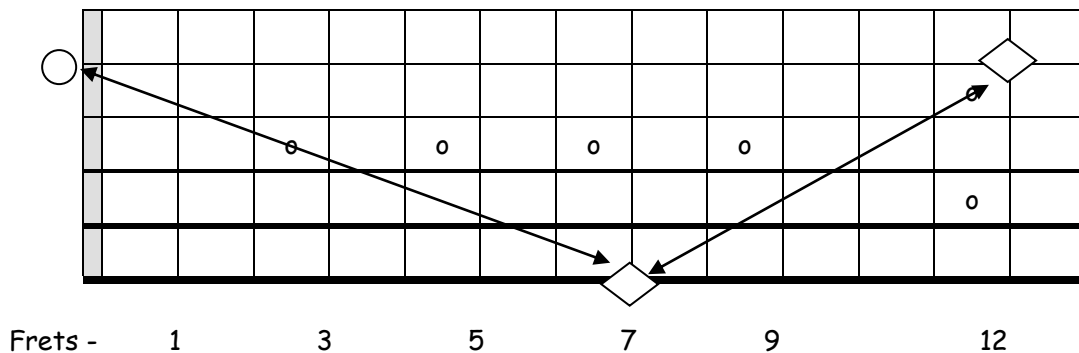
◊ - Harmonic Notes.      ↔ - Connects notes of equal pitch.



Again string 2 has to be tuned differently. Play the harmonic on string 6 fret 7 as your guide note and tune string 2 to this - either string 2 open normal note or string 2 fret 12 harmonic.

String 1 can be tuned in a similar way using string 5 fret 7 harmonic as the guide note.

◊ - Harmonic Notes.    ○ - Open String      ↔ - Connects notes of equal pitch.

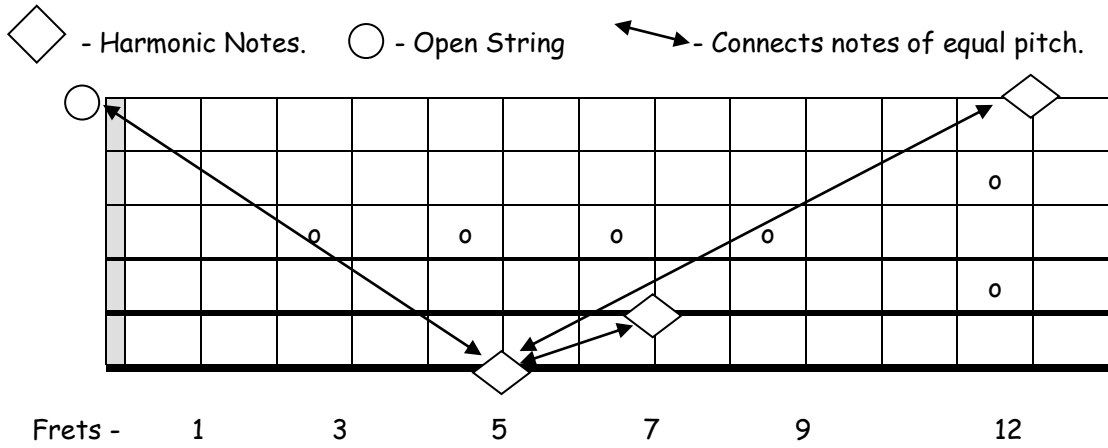


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An interesting point is that you can use string 6 to tune strings 5, 2 and 1. So altogether you can tune four strings off this one string. This will

help to cut down on making small mistakes on each pair of strings and carrying these mistakes across the strings.

We can use the harmonic on fret 5 to tune strings 5 and 1.



We can use the harmonic on fret 7 to tune string 2.

