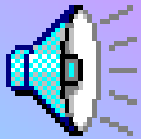


How Electric Guitars Work



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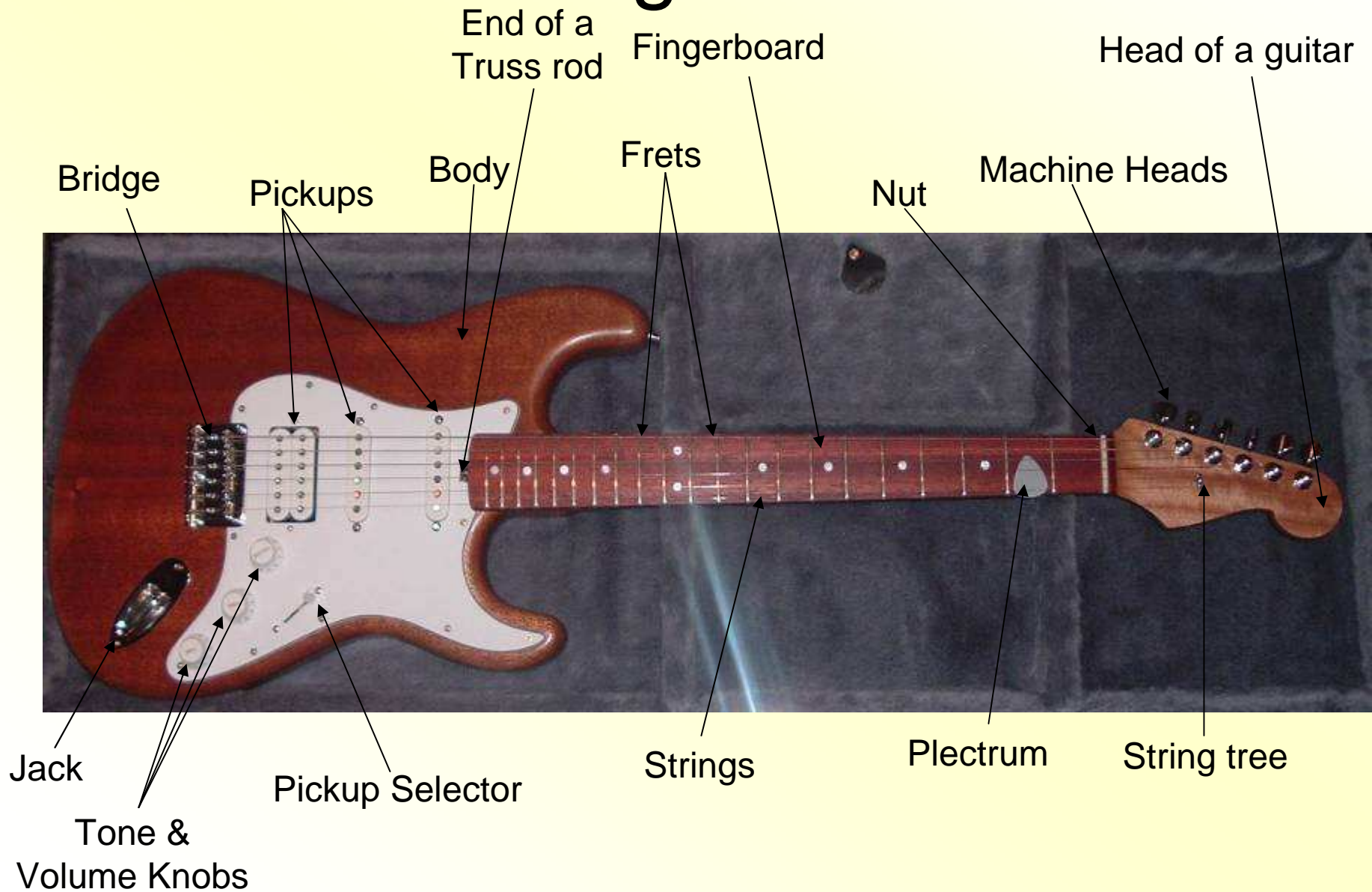
By Ruth Singe
and
Jaclyn Allwood

BARANDUDA PRIMARY SCHOOL

What is a guitar?

A guitar is a musical instrument that is used to make different sounds. To make a sound you need to strum a string, which in this case they are held tightly over a group of things called pick-ups. Although at the other end of the fret board, there are small devices called tuning pegs which pull the strings tightly so that the string vibrates at the correct pitch.

Labeled Diagram of a Guitar



Pick-ups

Pick-ups are small mechanical devices which convert the vibration of the string into an electric current. It then goes through a series of valves and wires that are kept in a box called an amplifier which makes the sound slightly louder. If the vibration of the string didn't go through an amplifier it would make a very soft sound. When the amplifier gets the vibration from the guitar string it makes it louder. They are located in about the center of the body.

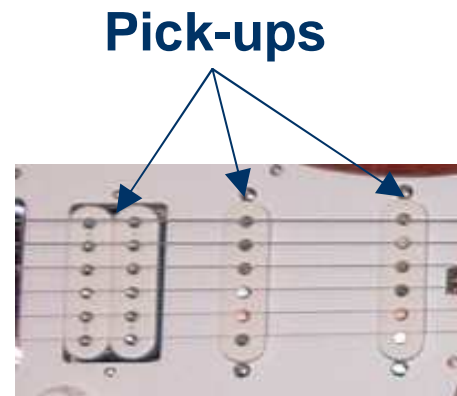
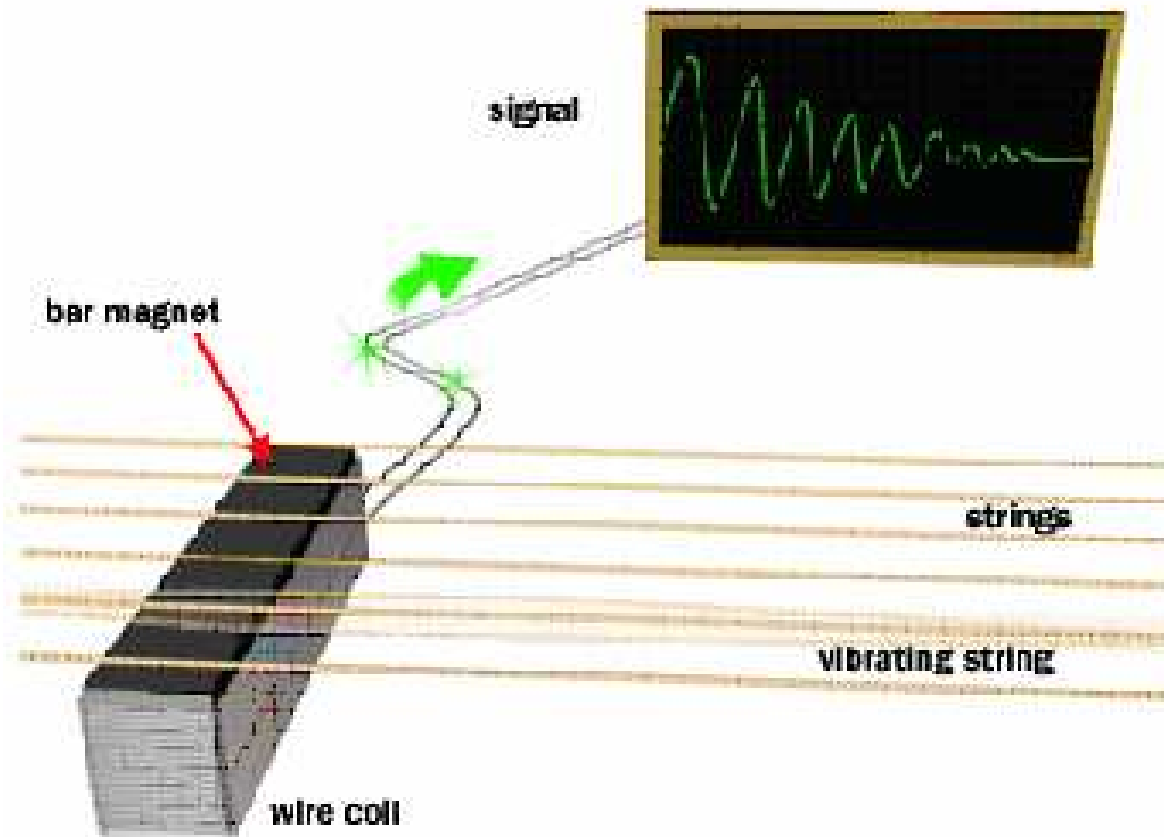


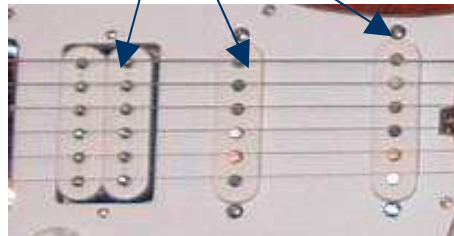
Diagram of how Pick-ups work



Pick-up selector

The Pick-up selector is used to select which Pick-up or Pick-ups you want to use. There are 5 possible combinations on this guitar. You can choose between having either the 1st, 1st & 2nd, 2nd, 2nd & 3rd or the 3rd Pick-up being used at each time. It is located just below the pick-ups

Pick-ups

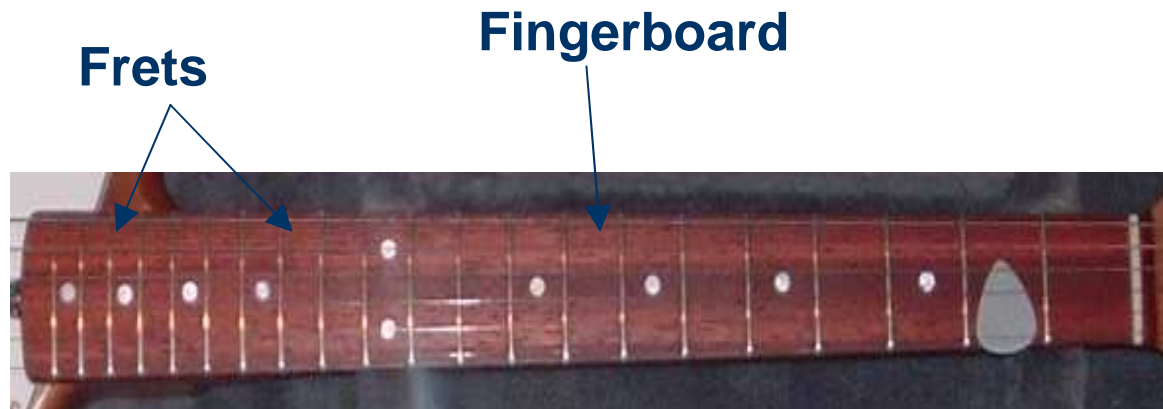


Pick-up selector



Frets and Fingerboards

Fingerboards and frets are one of the main parts of a guitar. You need to know the correct formula to get the fretting correct or otherwise it won't sound any good. Frets are the small metal pieces slotted into the gaps on the fingerboard which you put your fingers behind to make a different sound. For a chord you need to put your fingers behind a group of these on the right string and that is what makes a chord. The frets are located on the fingerboard between the neck and the body.



Machine Heads & String Tree

The machine heads are located at the end of the fingerboard. They are used to tension the string so that it vibrates at the correct pitch. They are also small geared mechanisms that coil the strings around them so that the string is pulled at the right tension.

String trees are also located at the same end of the fingerboard. They hold the strings down so they are pulled down tight enough over the nut to make it sound more in tune.

Machine Heads

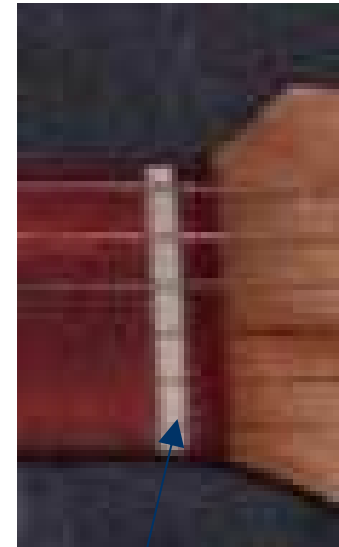
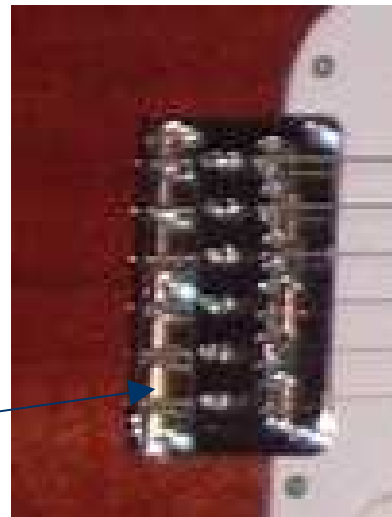


String Tree

Bridge and Nut

At one end of a guitar there is a Bridge. It is on the body of the guitar and at the other end of the guitar there is a Nut which is at the end of the fret board closest to the Machine heads. They are both used to keep the strings clear of the playing area. The length in between the bridge and Nut is known as the scale length.

Bridge



Nut

Strings

The strings are one of the most important parts of the guitar because if you take them off, your guitar won't make a noise. Strings can either be made out of steel, nylon or steel-coated nylon, although only steel strings are used on an electric guitar. Nylon ones are normally only used for the bottom 3 strings on your guitar because they have the highest pitch. They are located between the Machine Heads and the bridge.



Strings

Body

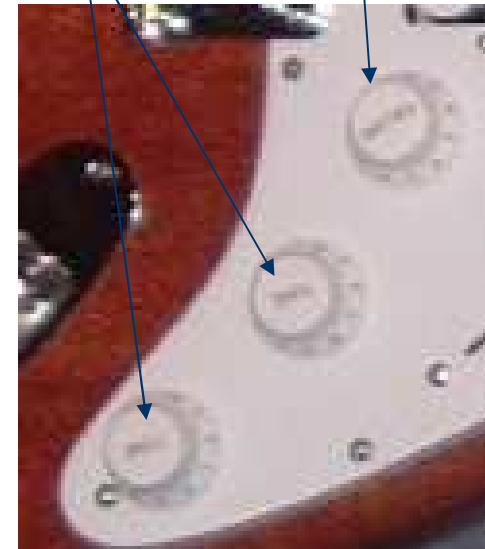
The body is the area that holds all the wires and cords that connect the electricity to the rest of the guitar. It also holds the Bridge, Pick-ups, Jack, Volume and Tone Knobs and the Pick-up selector.



Volume & Tone Knobs

The Volume and Tone knobs are what you use to control the volume and tone of your electric guitar. They are located just below the 3rd pick-up on the body.

Volume Knobs
Tone Knobs



Jack

The Electric guitar Jack is the part of your Electric guitar that gets the electronic signal from the pick-up that sends it through a cord to the amplifier. It is the output part of the guitar that connects it to the amplifier to make the sound slightly louder.

Jack



Truss Rods

A Truss Rod is what makes sure the neck is bowed at the right amount but not too much that it is easily noticed. The neck needs to be bowed a little bit so when you put your fingers behind some of the frets the strings don't touch the rest of the frets, vibrate and make an annoying noise. They are located inside the neck in a thin channel where they are tensioned to the right amount so they bow enough, but not too much.



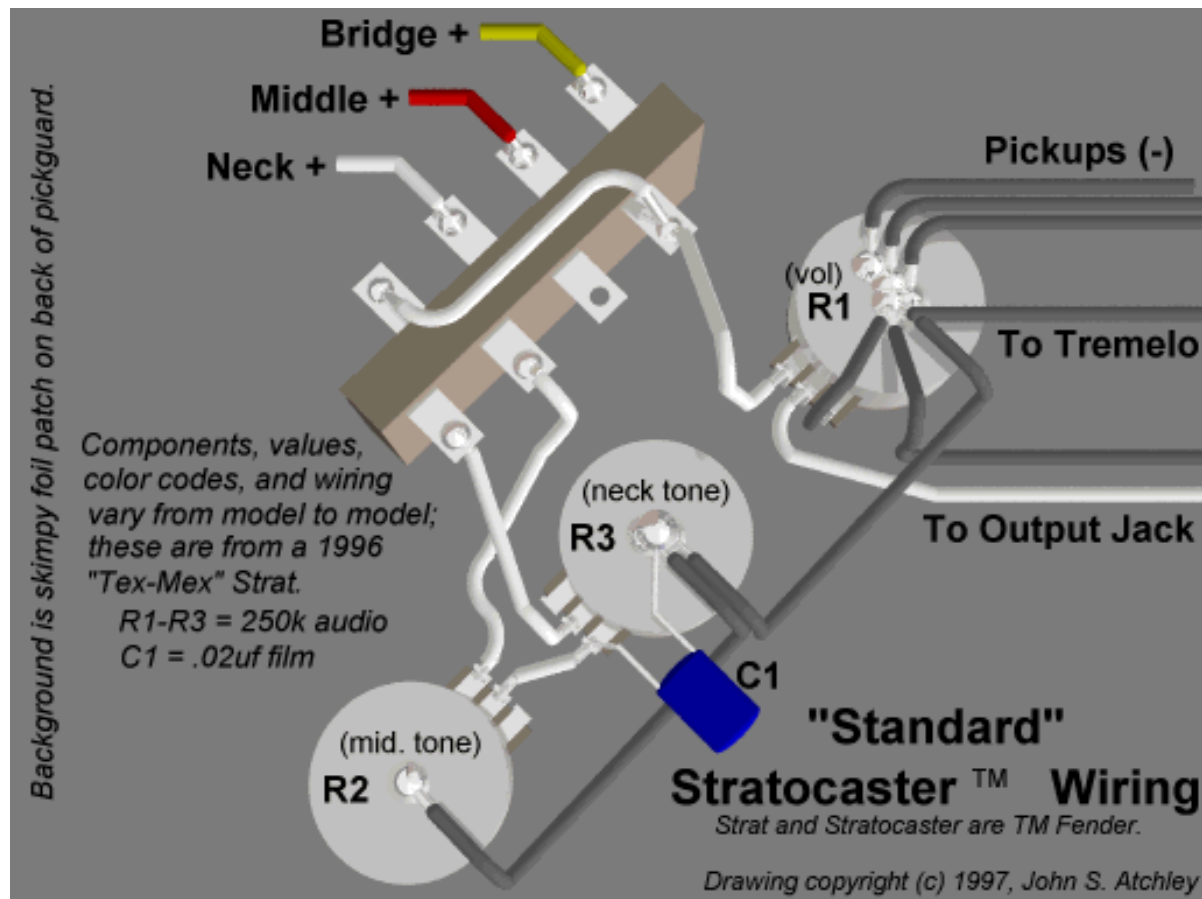
Plectrum

A Plectrum is a small piece of ivory, plastic or wood that is used to pluck the strings of a guitar. A Plectrum can make a guitars strings vibrate differently to when you pluck strum the strings with your fingers. Also if you use a harder or softer Plectrum that can also make a guitars strings vibrate differently.



Plectrum

Diagram of a Stratocaster (guitar model) wiring



Amplifier

An amplifier is what's used to make the electronic current of the string louder so it can be heard, by the audience. If the electronic current didn't go through an amplifier you would barely be able to hear it. This Amplifier is called a Valve Amplifier.

Back



Front



Acknowledgements

Information and pictures from:

My Dad (*built his own Electric Guitar*)

Google (*internet*)

Make your own Electric Guitar by
Melvyn Hiscock

*Thankyou for watching our
PowerPoint presentation on
Electric Guitars.*

