

# Giant Keyboard



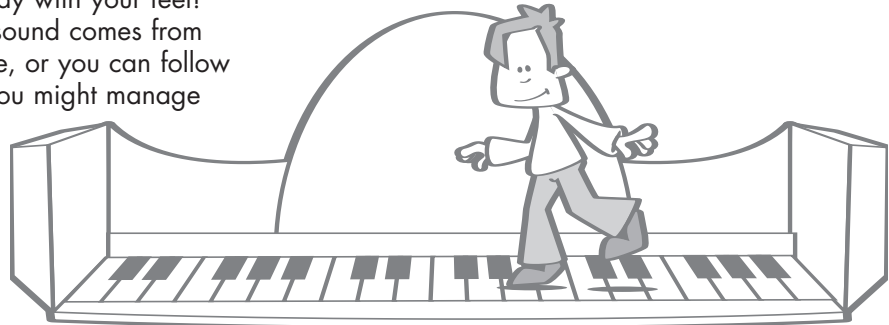
## What to do:

Walk on the Keyboard to produce a sound.  
Follow the lights to play a tune.

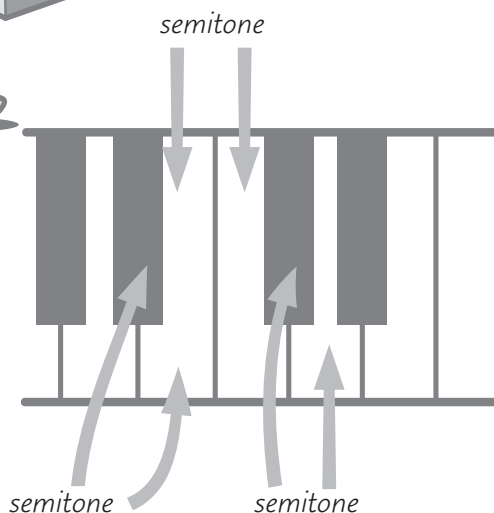
**What happens:** This Keyboard contains a synthesiser, which makes sounds using sampled notes from a "real" piano.

## HOW IT WORKS

1. This exhibit has a huge keyboard which you play with your feet! The notes are produced electronically and the sound comes from two loudspeakers. You can make your own tune, or you can follow the sequence of lights to play a stored piece. You might manage chords by using two feet placed together!

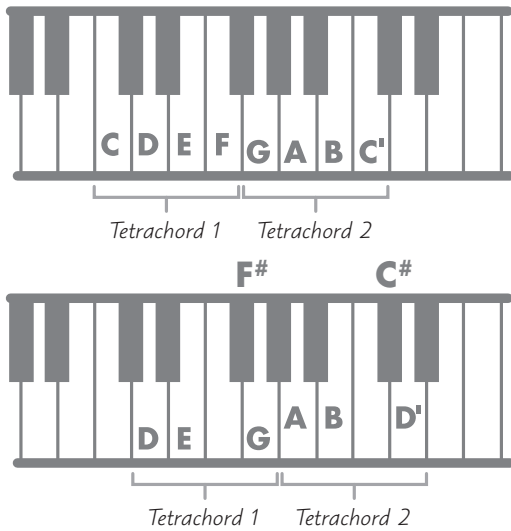


2. The pattern of the modern keyboard originated in Europe in the fifteenth century. Before that time there were no "black notes". Only the notes of the "white" keys were used, in the sequence which we now call a "major" scale, starting at C. If you start on another note, and use only the white notes, you get a different sounding scale.

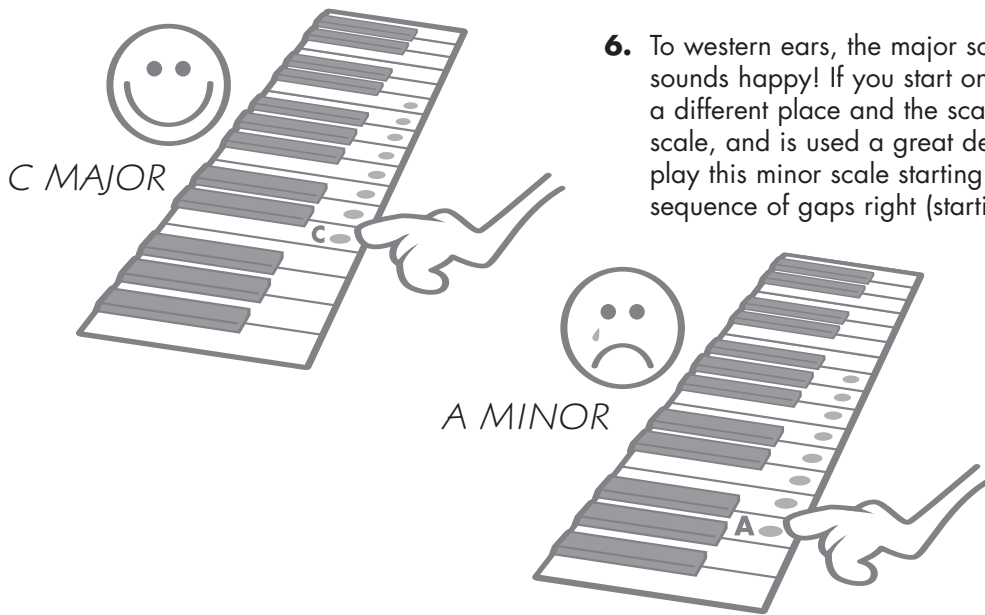


3. The modern keyboard is arranged so that the difference in pitch between adjacent keys (whatever their colour) is the same. This interval between one key and the next is called a semitone. You will notice there are two places where there are no black keys between two white ones. These positions are where the semitones come in the ancient white-note scale.

4. The choice of intervals in this white-note scale goes back to the music in Ancient Greece, where tunes were based on “tetrachords” – each a sequence of four notes. Our major scale is made up of two similar tetrachords, each with a semitone at the end. Try them on a keyboard, one starting at C, the next one at G.



5. As keyboard music developed, extra semitones were introduced, so that you could “change key”. These extra semitones are played on the black keys, which are placed between the whole tones in the scale. You can now pick any note on the keyboard to start a major scale. The sequence has to go up by two keys for a whole tone and only one key for a semitone, Give it a try – the note-gaps have to be: starting note, then 2, 2, 1, 2, 2, 2, 1. The picture shows the major scale starting on D.



6. To western ears, the major scale (starting on C on the white notes) sounds happy! If you start on A, instead of C, the semitones come in a different place and the scale sounds sad! This is called a “minor” scale, and is used a great deal in western music. You can, of course, play this minor scale starting on any note, so long as you get the sequence of gaps right (starting note, then 2, 1, 2, 2, 1, 2, 2.)

7. Although most western music is based on a seven-gap scale (eight notes forming an octave), much of eastern music uses a five-gap scale (six notes, also forming an octave). Use the white notes starting at C and leave out F and B. Then try starting at A and leaving out B and F. Do these sound like familiar eastern scales?



8. Lots of web-sites deal with musical scales. Start with: <http://www.teoria.com/reference/scales/01.htm>