



# Teaching a Computer to Sing

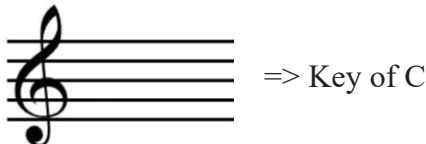
University of Massachusetts Lowell  
Bartlett Community Partnership School



## Understanding Key Signatures

Key signatures determine which sharps and flats are added automatically throughout an entire song. This eliminates the need to put sharp (#) and flat (b) symbols before specific notes.

If no key signature is specified, the key signature is C.



The sharps go on the staff in the order F – C – G – D – A – E – B. The way to remember this order is to use the sentence “**F**ather **C**rawford **G**oes **D**own **A**nd **E**nds **B**attle.”

The cool thing about this little memory trick is that the flats go on the staff in the exact opposite order. Therefore, for flats, the sentence is “**B**attle **E**nds **A**nd **D**own **G**oes **C**rawford’s **F**ather.”

### Sharp Keys

For key signatures containing sharps, the key is always the next higher note from the last sharp. Thus, with 1 sharp on F, the key is F+1 = G. With 2 sharps, F and C, the key is C+1 = D. And so on. Here’s the entire list of key signatures containing sharps.



Last sharp on F  
=> Key of G



Last sharp on C  
=> Key of D



Last sharp on G  
=> Key of A



Last sharp on D  
=> Key of E



Last sharp on A  
=> Key of B



Last sharp on E  
=> Key of F#



Last sharp on B  
=> Key of C#

## Flat Keys

Now let's look at key signatures containing flats. This is a little bit different, because in these cases, the key is always three notes down (or four notes) up from the last flat. But there's a trick to this, too: except for 1 flat, in which the key is F, the key is always the next-to-the-last flat. This is easier to see and understand by looking at the staff charts below.



1 flat  
=> Key of F



Next-to-last flat on B  
=> Key of Bb



Next-to-last flat on E  
=> Key of Eb



Next-to-last flat on A  
=> Key of Ab



Next-to-last flat on E  
=> Key of Db



Next-to-last flat on G  
=> Key of Gb



Next-to-last flat on C  
=> Key of Cb