Three approaches to thinking about major key signatures, from David McCarthy:

1) Generally, major keys with a white-key tonic use sharps in their key signature, and those with a black-key tonic use flats, except for F and C (and F#/Gb, which is six either way). The number of accidentals in the key signature follows a pattern: 0246135 going up from C for sharps, and the same coming down for flats:

You still have to know the order of sharps and flats: FCGDAEB forward for sharps, and backward for flats.

So, for example, if you see four flats (Bb, Eb, Ab, and Db in the key signature), you know it’s Ab major, and if you want to write in D major, you’ll write F# and C# (the first two sharps) in the key signature.

2) Each letter has a white- and a black-note version (e.g., B and Bb, or F and F#). The pair’s key signatures will be opposite in terms of flats and sharps, and the total number of accidentals will add up to 7. The rare keys of C# major (7 sharps) and Cb major (7 flats) make sense under this system.

3) The key signatures are symmetrical, by number of accidentals, around C, but with opposite sharp/flat polarity, making a pattern of 0523416 in each direction, alternating flats and sharps: