

Scales

If you were to collect all the notes in a simple piece of music and arrange them in order from lowest to highest you are likely to find within this collection of notes what is called a "Scale". Scales are the basic building blocks of music. There are many kinds of scale, each with its own character which it lends to the music upon which it is based. The most common scales are the "Major" and "Minor" scales. Each note, or "degree", of these scales has been given a name and a number as follows;

Major Scale

Tonic Supertonic Mediant Subdominant Dominant Submediant Leading note Tonic

^1 ^2 ^3 ^4 ^5 ^6 ^7 ^8 (^1)

Natural Minor Scale

Tonic Supertonic Mediant Subdominant Dominant Submediant Subtonic Tonic

^1 ^2 ^3 ^4 ^5 ^6 ^7 ^8 (^1)

This is the version minor scale according to the key signature, with no altered notes (see below).

Harmonic minor scale.

You may have noticed that the ^7 in the natural minor scale is called 'subtonic' and not 'leading note'. A 'leading note' is called so because of its tendency to move towards the tonic: ^7 - ^8. This helps give the music a sense of direction so composers often raised the ^7 in a minor key work, turning the subtonic into a leading note. The scale that results is called the "harmonic minor" scale.

Tonic Supertonic Mediant Subdominant Dominant Submediant Leading note Tonic

^1 ^2 ^3 ^4 ^5 ^6 ^7 ^8 (^1)

The interval between the submediant (^6) and the leading note (^7) in the harmonic minor scale is an "augmented" 2nd (see Intervals). This interval can be difficult to sing was considered an disagreeable melodic interval so composers would often also raise the submediant (^6) by a semitone as well (this doesn't change its name like the subtonic). However, with both the ^6 and ^7 raised the scale sounded too similar to the major scale. Therefore composers would tend to use a raised ^6 and ^7 when going up but a natural ^6 and ^7 when going down (of course either form could be used going up or down). The "melodic minor" scale represents this.

Melodic Minor Scale

Tonic Supertonic Mediant Subdominant Dominant Submediant Leading note Tonic

^1 ^2 ^3 ^4 ^5 ^6 ^7 ^8 (^1)

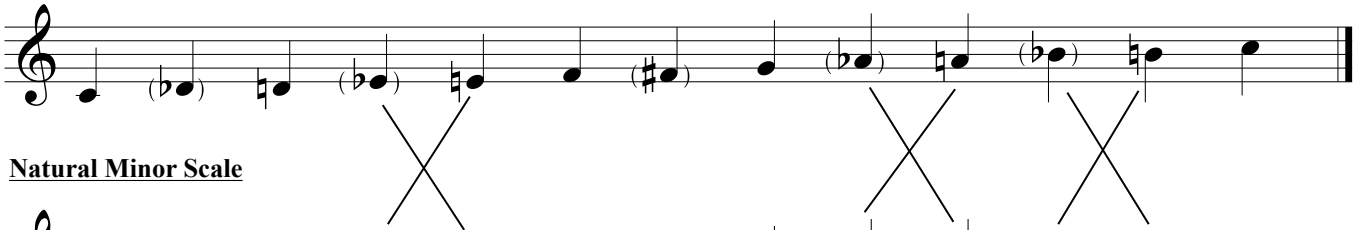
Tonic Subtonic Submediant Dominant Subdominant Mediant Supertonic Tonic

^8 (^1) ^7 ^6 ^5 ^4 ^3 ^2 ^1

(On the way down the melodic minor scale is the same as the natural minor scale)

The three scales above are the most common types of scale use in "classical" music, but there are many other types of scale also. What makes one scale different from another is the intervals between successive notes - in other words, it is not so much the notes you play that make a scale but the notes you don't play.

Major Scale



Natural Minor Scale

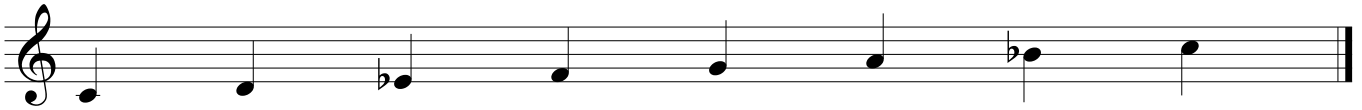


Probably the easiest way to learn new scales is to learn them in reference to the major and minor scales. That way, instead of learning a whole new scale, you would just use the scale that is most similar, major or minor, and then take note of what is different about the new scale. I'll illustrate this method as I introduce the "Church modes", seven of the other most common types of scale.

Ionian Scale; Exactly the same as the major scale.



Dorian Scale; The same as the natural minor scale except with an A# instead of Ab.



Phrygian Scale; The same as the natural minor scale but with a Db.



Lydian Scale; The same as the major scale but with an F#.



Mixolydian Scale; The same as the major scale but with a Bb.



Aeolian Scale; Exactly the same as the natural minor scale.



Locrian Scale; The same as the natural minor scale but with a D \flat and a G \flat .



I should point out that there is a difference between a "mode" and a "scale", and the way the church modes are used in music today (or, indeed, music of the last 200 years or so) is quite different to how they were used in medieval Europe, which is where they originated.

Also, the "Locrian" scale is not a real church mode but was invented later to complete the set of scales that can be played entirely with white notes on the keyboard. Below, each mode is derived by playing the C major scale but starting on a different note.

Ionian Scale

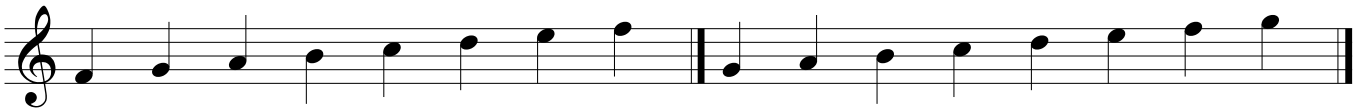
Dorian Scale

Phrygian Scale



Lydian Scale

Mixolydian Scale



Aeolian Scale

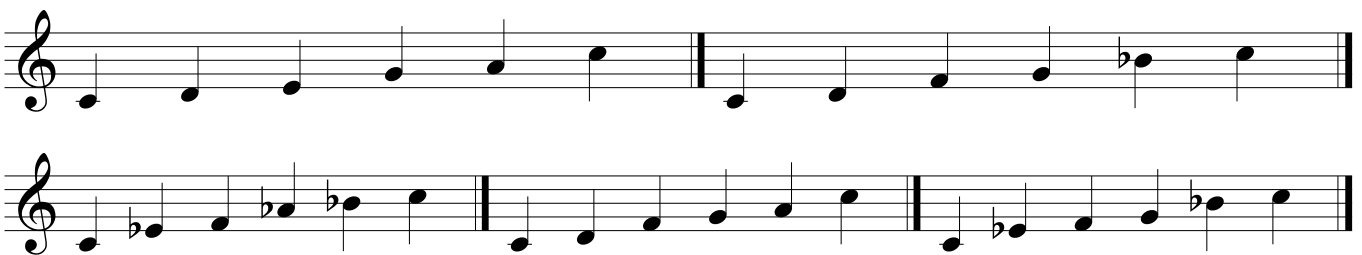
Locrian Scale



Below is a selection of other scales that composers have used to write their music.

Pentatonic Scales

These scales are common in the music of Asia, and are also used in Scotland. Just as the church modes can be derived by playing the C major scale starting on different notes, so the various pentatonic scales are derived by playing a pentatonic scale but starting on a different note.



The pentatonic scales above come are forms, or modes, of the "diatonic" pentatonic scale. Other kinds of pentatonic scales include;

Pelog

Hirajoshi

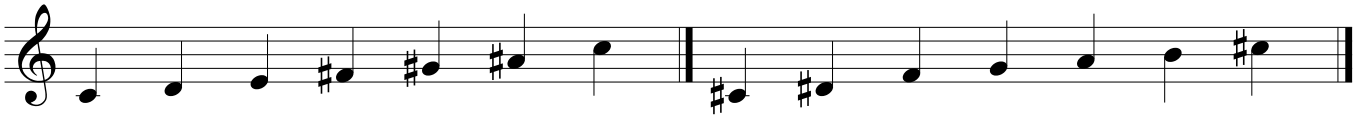
Kumoi



Each of these also, has a number of different modes.

Whole-tone Scale

The whole-tone scale, as its name implies, is made up entirely by tones and has only one form - that is, if you take one whole tone scale and begin it on a different note, the order of intervals in the new scale will be identical to those in the original scale. The two whole-tone scales you see here are the only two possible. No other whole-tone scale will produce a different combination of notes.



Here are some other examples of six note scales;

Six-tone Symmetrical; Alternates between semitones and one and a half tones.

Prometheus

Prometheus Neapolitan

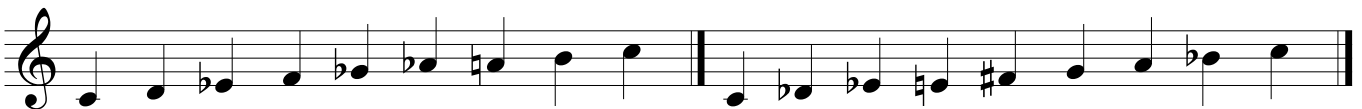


Octatonic Scales (also known as "Diminished" or "(Eight-tone) Symmetrical")

Octatonic scales have eight notes and are built by alternating tones and semitones. There are two forms of the octatonic scale;

Major Octatonic; Begins with a major 2nd (tone)

Minor Octatonic; Begins with a minor 2nd (semitone)



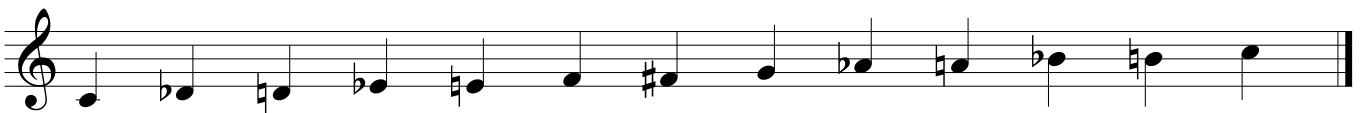
Just like the whole-tone scale, the octatonic scale is a "mode of limited transposition" meaning there are only a small number of different combinations of notes on the keyboard which will produce an octatonic scale. In other words, if you try to produce "modes" of the octatonic scale by starting it on a different note you will just end up with one of the two forms of octatonic scale, albeit at a different pitch.

Here is the third and last octatonic scale available to the keyboard player;



Chromatic Scale

In many ways, the chromatic scale is the most prominent and important scale of them all. Luckily it is also the easiest to learn since it consists simply of every note on the keyboard. The reason it is so important is because western "classical" music is structured around the chromatic scale and musical instruments today are tuned specifically to allow for a chromatic scale. Arguably the most significant event in the history of music was the invention of tuning systems which allowed instruments to play harmoniously in major and minor keys beginning on each of the twelve notes of the chromatic scale.



Here are a few more scales for the 1/2% of people who made it this far and still want more;

Super Locrian

Neapolitan Minor

Neapolitan Major



Oriental

Double Harmonic

Enigmatic



Hungarian Minor

Hungarian Major

Major Locrian



Lydian Minor

Lydian Mixolydian

Overtone



Leading Whole-tone

Mixolydian (b9)

Augmented Lydian



Spanish Folk

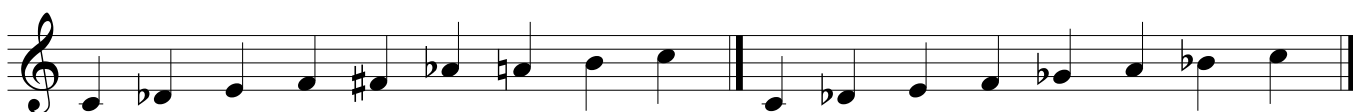
Eight-tone Spanish

Spanish Phrygian



Exotic Mode 1

Exotic Mode 2



All the scale presented here are just a fraction of all the possible scales. The possibilities are nearly infinite with scales that contain any number of notes and span more or less than an octave. The possible combinations of notes, or should I say intervals, within an octave is 2048, and that's just the tip of the iceberg.