

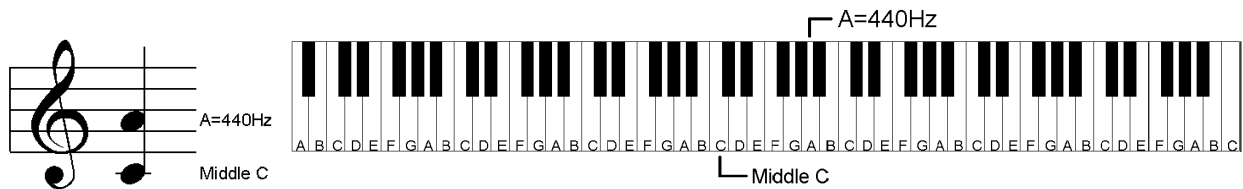
3 SCALES

Scope: Music is made up of tones from scales. This chapter covers the most used scale and the pitch distances between the tones of that scale.

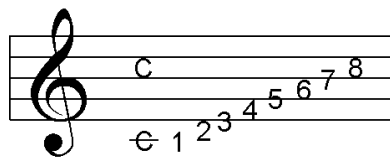
Absolute and relative pitches

Absolute is a term applied when comparing against a standard. Relative is a term applied when comparing against something like itself. Pitches can be compared against a standard, in which case they are called *absolute pitches*. Or they can be compared against one another, in which case they are called *relative pitches*.

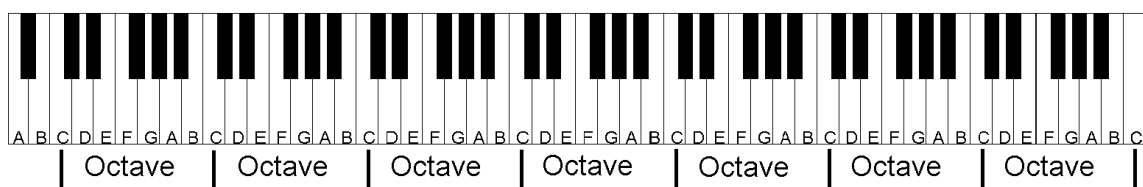
A multi-national conference held in Washington D. C. in the year 1900 set the pitch of A on the second space from the bottom of the G Clef staff to 440 Hz. A = 440 remains the International Pitch Standard. "A" is therefore an absolute pitch. Mathematically the rest of the absolute pitches (B, C, D, E, F, and G) can be found. However, their absolute pitches are not important to the development of our discussion in this text. The keyboard below shows where the absolute pitch A of 440 Hz is located.



Another relationship between tones is the relationship called an *octave*. When the vibrations per second (Hz) of one tone are twice those of another, the two tones are one octave apart. C on the first ledger line below the G Clef staff is one octave below the C on the second space from the top.

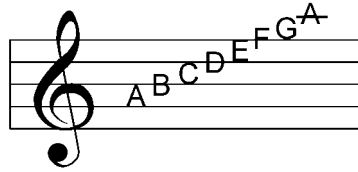


Notice that there are eight degrees involved in an octave, hence the name octave, meaning eight. It can be seen in the keyboard below that every eight degrees the pitch name repeats. It is an octave from any A to the A on either side, or from any pitch to the next pitch of the same name.



Scales

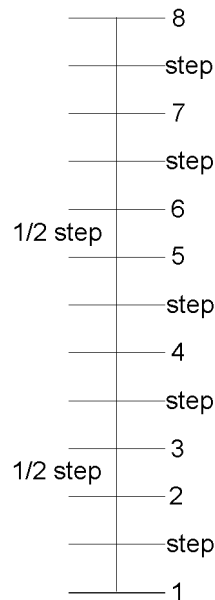
A *scale* is a series of tones starting on a tone and proceeding upward to a tone one octave above. One scale starting on A is shown below.



The relationship of tones to one another differ from culture to culture, thus scales from one culture may sound different than scales from another. This is because the tones will differ in their pitch distance. Some Eastern countries have only five tones in some of their scales. Six different scales were in common use before the 1600's in the Western World. Today only two are in common use.

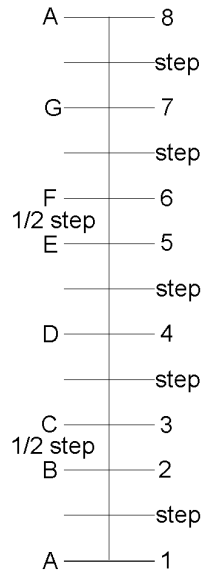
The difference between the two scales is not the number of tones in the scales, for both have eight. The difference lies in the relationship between the tones of the scales.

When the tones of the *Natural Minor Scale* are numbered from 1 to 8, the pitch distance between tones 2 and 3 and tones 5 and 6 are not as large as the pitch distances between the others. The larger pitch distances are called *whole steps* and the smaller pitch distances are called *half steps*. Shown graphically, the Minor Scale would look like the next figure, where the distance between adjacent bars on the gauge represent what is called a half step. Two bars form a whole step.

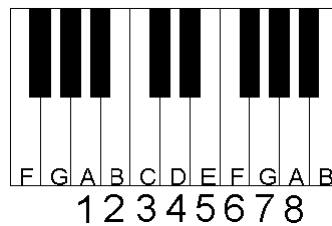


When music notation reached its current form, the Minor Scale was the common scale in use for church music. When the names for the degrees were applied to the staff, "A" became the "1" tone of the Minor Scale, "B" the "2" tone, etc. Since this scale starts on "A", it is called the "A Minor Scale".

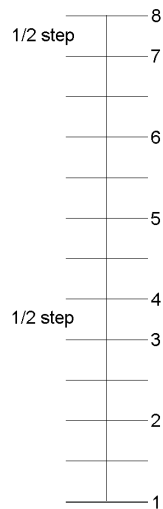
When the tones of the A Minor Scale are placed on the half step gauge along with the absolute pitch names, it becomes apparent that pitches B and C and pitches E and F are half steps apart.



The Minor Scale is played on a keyboard by starting on an A and playing each of the white keys until the next A is played.

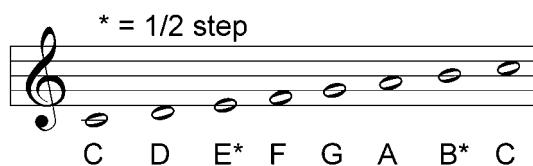


The other scale in common use today is the *Major Scale*. When its tones are numbered from 1 to 8, tones 3 and 4 and tones 7 and 8 are half steps apart.



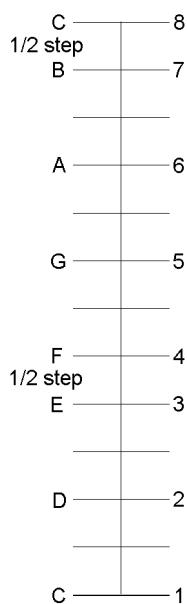
It is important to notice that the pitch distances between B and C and between E and F are half steps when the rest are whole steps. It is not apparent from looking at a qualified staff that this

relationship exists. Only degrees are shown on a staff, NOT THE ACTUAL PITCH DISTANCES.

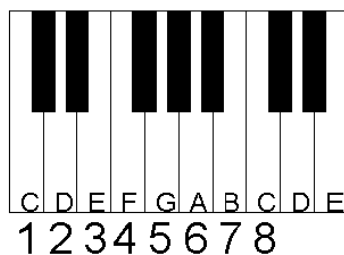


The beginning tone of a scale is called the *keytone*. The keytone of the Minor Scale earlier in the chapter is A. The keytone this Major Scale is C.

When C is placed as the 1 tone of a scale, half steps are found between positions 3 and 4 and between positions 7 and 8, the positions for half steps for the Major Scale.



The Major Scale is played on the keyboard by first playing C and playing each white key until the next C is reached.



Summary: Most of our music is written using the Major Scale. All the tones of the Major Scale are a whole step apart except the 3rd and 4th tones and the 7th and 8th tones.

Exercises

1 - 4 Define the Following:

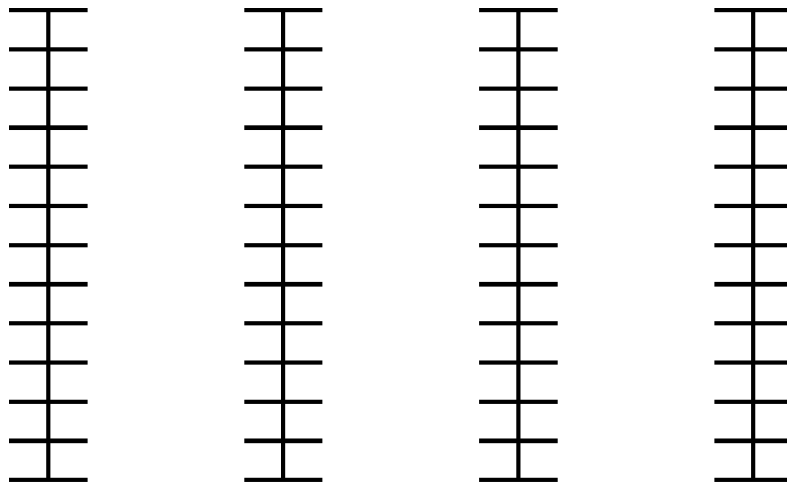
1. Absolute Pitch _____

2. Relative Pitch _____

3. Scale _____

4. Octave _____

5. Place the absolute pitches on one of the gauges below observing proper half and whole step spacing. Use the others as directed to do so by the instructor.



6. Name the degrees on the following staves and draw arrows to the degrees that are only 1/2 steps apart:

Additional Notes