

## Intervals

An interval is the distance between one note and another. It is *always* measured from the lower note. Working out intervals can be very similar to working out scale degrees. The smallest interval in western notation is a semitone (or half-tone) and there is no real limit (other than the range of human hearing – 20Hz to 20kHz) for the largest interval.

### Major and minor intervals

The distance from C to D is a whole tone. D is the second degree of the scale of C major, so it is known as a '*major second*'. The distance from C to E is a '*major third*'. However: the distance from C to Eb is a '*minor third*', as the note E is lowered by one semitone.

1 to b2	=	minor second
1 to 2	=	major second
1 to b3	=	minor third
1 to 3	=	major third
1 to b6	=	minor sixth
1 to 6	=	major sixth
1 to b7	=	minor seventh
1 to 7	=	major seventh

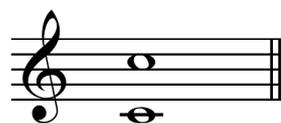
### Perfect intervals

You will have noticed that the fourth, fifth and octave are missing from the table above. These intervals are considered '*perfect*', and different rules apply to them. For example, instead of 'major' the interval between note 1 and note four is known as a 'perfect' interval. There are no minor intervals when using the 'perfect' intervals – a perfect interval that has been lowered by a semitone is known as 'diminished'.

1 to b4	=	diminished fourth
1 to 4	=	perfect fourth
1 to b5	=	diminished fifth (the 'devil's interval')
1 to 5	=	perfect fifth
1 to b8	=	diminished octave
1 to 8	=	perfect octave



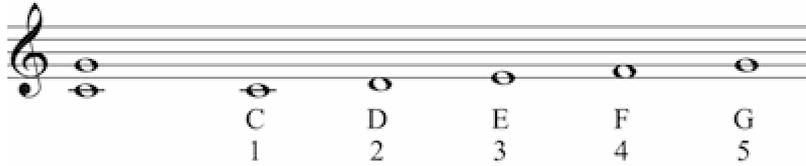
N.B. It is rare to come across diminished octaves, as they are enharmonic with (sound the same as) a major seventh interval.



(A perfect octave on C).

## How to calculate an interval

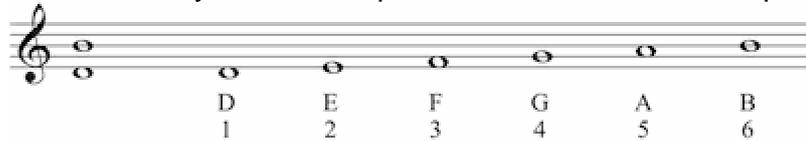
To find the interval between 2 notes just find the pitch of the *lowest* note and start counting until you reach the top note. When counting intervals you always **start from the bottom note** and **count both notes**. E.g., to find the interval between C and G, begin on C and count up the scale until you reach G.



E.g. C(1) D(2) E(3) F(4) G(5)

So the interval between C and G is a perfect fifth.

See how easy the first step is? Here is another example



In the example above we count

**D(1) E(2) F(3) G(4) A(5) B(6)**

So the interval from D to B is a major sixth.

### Exercise 1 (Major, minor and perfect):

Remember – always work it out from the lowest pitch note:

## Diminished intervals

If a minor interval is flattened further it becomes 'diminished'. *Non-perfect intervals only become diminished when lowered by two semitones, whilst perfect intervals only become diminished when lowered by one semitone.*

## Augmented intervals

Any interval that has been raised by a semitone is known as an 'augmented' interval e.g. if the distance between note 1 and note 4 is raised it becomes an 'augmented fourth'. N.B. augmented fourths are the most common augmented notes, due to the fascination of the 'devil's interval', which can either be an augmented fourth or diminished fifth (as they are *enharmonic* – i.e. the same note).

Major 7th    Augmented 7th    Major 6th    Augmented 6th    Major 3rd    Augmented 3rd

Perfect 4th    Augmented 4th    Perfect 5th    Augmented 5th

### Here's the full list so far:

1 to #1	=	augmented 1 <sup>st</sup>	
1 to bb2	=	diminished 2 <sup>nd</sup> (sounds the same as 1 to 1 – a perfect 1 <sup>st</sup> )	
1 to b2	=	minor 2 <sup>nd</sup>	_____
1 to 2	=	major 2 <sup>nd</sup>	_____
1 to #2	=	augmented 2 <sup>nd</sup>	
1 to bb3	=	diminished 3 <sup>rd</sup>	
1 to b3	=	minor 3 <sup>rd</sup>	_____
1 to 3	=	major 3 <sup>rd</sup>	_____
1 to #3	=	augmented 3 <sup>rd</sup>	
1 to b4	=	diminished 4 <sup>th</sup>	
1 to 4	=	perfect 4 <sup>th</sup>	_____
1 to #4	=	augmented 4 <sup>th</sup> (devil's interval)	
1 to b5	=	diminished 5 <sup>th</sup>	_____
1 to 5	=	perfect 5 <sup>th</sup>	<u>e.g. Twinkle, Twinkle Little Star</u>
1 to #5	=	augmented 5 <sup>th</sup>	
1 to bb6	=	diminished 6 <sup>th</sup>	
1 to b6	=	minor 6 <sup>th</sup>	_____
1 to 6	=	major 6 <sup>th</sup>	_____
1 to #6	=	augmented 6 <sup>th</sup>	
1 to bb7	=	diminished 7 <sup>th</sup>	
1 to b7	=	minor 7 <sup>th</sup>	_____
1 to 7	=	major 7 <sup>th</sup>	_____
1 to #7	=	augmented 7 <sup>th</sup>	
1 to b8	=	diminished 8 <sup>ve</sup>	
1 to 8	=	perfect 8 <sup>ve</sup>	_____
1 to #8	=	augmented 8 <sup>ve</sup>	

### Exercise 2:

Try thinking of and associating a song with each interval. Use the lists above and write a song or melody title next to each. e.g. Twinkle, Twinkle Little Star starts with an interval of a perfect fifth. Stick with the 12 highlighted for now.

### Exercise 3:

Have a go at learning to hear the intervals, using the reminders in exercise 2.  
<http://www.musicalintervalstutor.info/>

## Intervals greater than an octave

If the interval is greater than an octave the same rules apply, so a b9 is a 'minor ninth', as it is similar to being a minor second. C to Db (minor second) is still C to Db (minor ninth), but an octave higher. By using '9' rather than '2' we make it clear that this note is an octave higher.

### Compound intervals

Another way of writing that the interval is greater than an octave is to use the term 'compound'. If we look at the example above again, we can use 'compound' to mean that it is an octave or more higher e.g. a compound minor second would mean the same as 'minor ninth'.

We can continue our list for the next octave and beyond as follows:

1 to bb9	=	compound diminished 2 <sup>nd</sup>	=	diminished 9 <sup>th</sup>
1 to b9	=	compound minor 2 <sup>nd</sup>	=	minor 9 <sup>th</sup>
1 to 9	=	compound major 2 <sup>nd</sup>	=	major 9 <sup>th</sup>
1 to #9	=	compound augmented 2 <sup>nd</sup>	=	augmented 9 <sup>th</sup>

and so on...

The *most common* octave-plus intervals in popular music are 9ths, 11ths and 13ths as they make the most difference to how chords sound, but in theory all intervals follow the same principles.

**Compound Intervals**

**Their Simple Equivalents**