A Level Harmony

1. Keys & Intervals

1.1 The Concept of Key

- Most music has a **key signature**, with one particular note more important than all the others.
    - This is called the **tonic**, or **key note**, and occurs frequently.
    - It is also heard at the end of a piece, to provide a sense of completion, a feeling of arriving home.

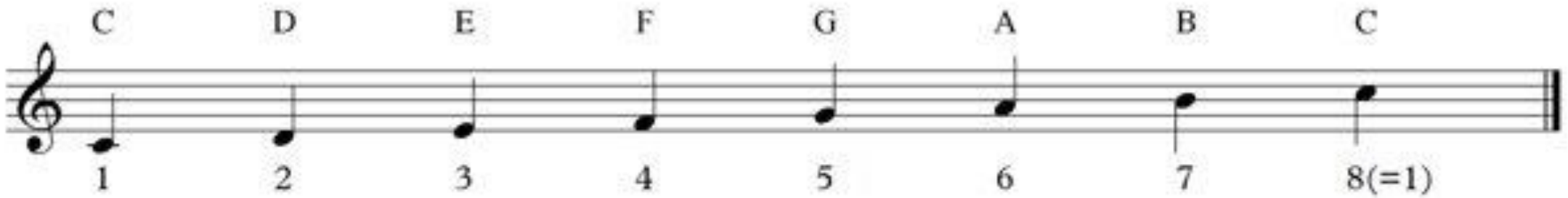
1.2 Scales

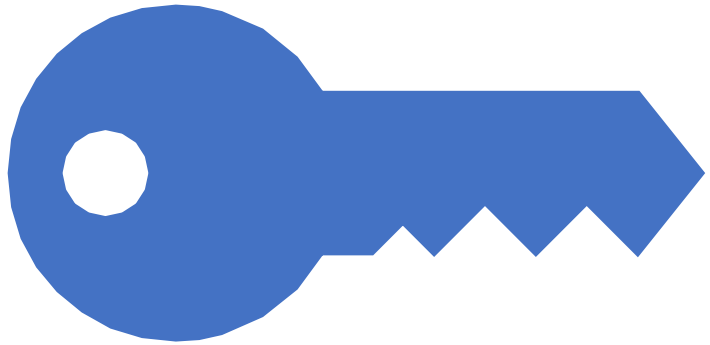
Each key is based on a particular set of notes known as a **scale**. For instance, the key of C major is based on the scale of C major.

This kind of scale has eight notes. Numbers 1 and 8 are an octave apart and share the same letter name. Numbers 2 to 7 use all the letter names in between, once each, in alphabetical order with no gaps.

- The scale shown below is an **ascending** scale of C. The notes C B A G F E D C form a **descending** scale of C, falling from one C to the C an octave lower.

- Scales must move in **stepwise** fashion to the next note of the scale. If there are gaps we call these **leaps**.



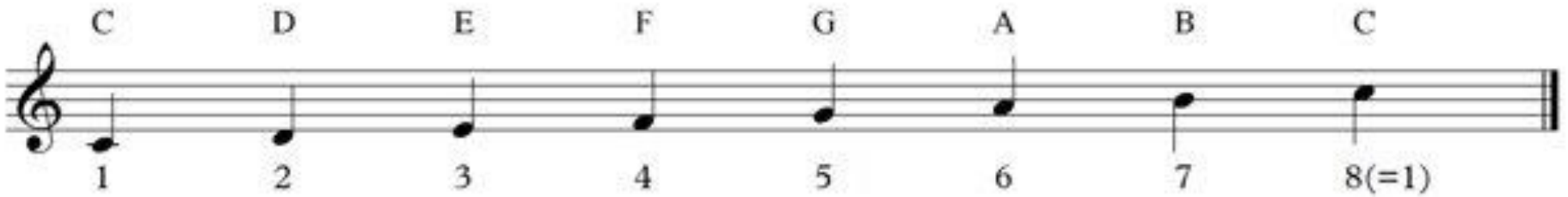


1.3 Major & Minor Scales & Keys

- Two types of scales are particularly important – **major** and **minor**.
  - Major scales belong to major keys
  - Minor scales belong to minor keys

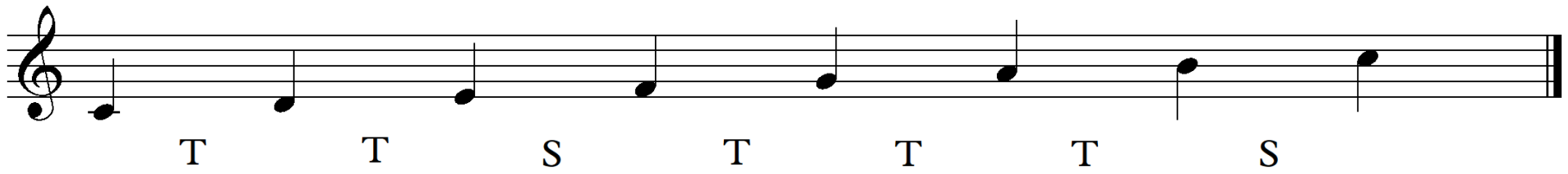
1.4 Major Scales & Major Keys

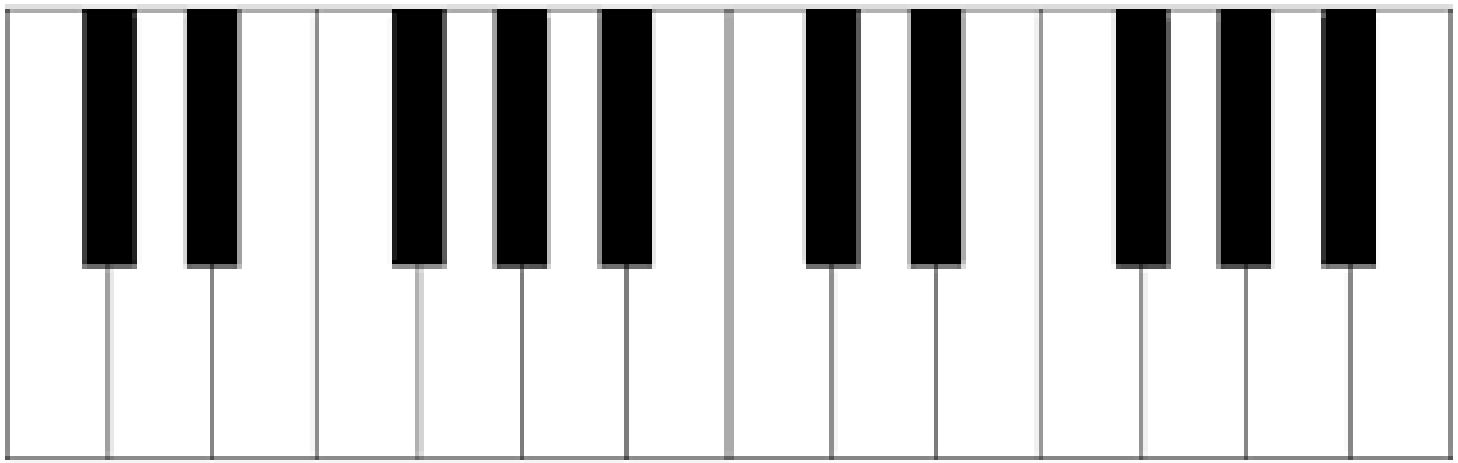
- How do we know the scale below is a major scale?



  - It *sounds* like one!
  - The pattern of notes used

- Every major scale has the same pattern of intervals. Therefore a D major scale sounds similar to a C major scale.





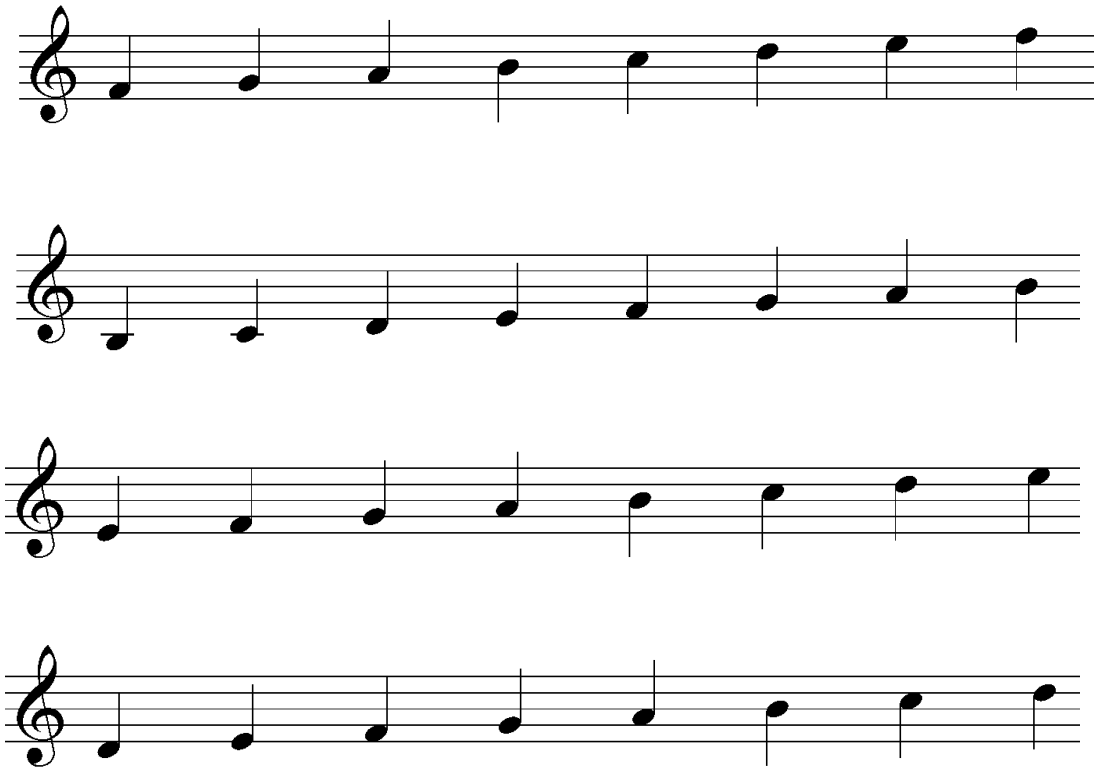
The **T T S T T T S** pattern is the essence of all major scales. Whatever note you start on, provided you keep to the **T T S T T T S** pattern you will hear a major scale.

Activity 1 - Add in the correct sharps and Flats to create the correct scale.

Scale

- F major
- B flat major
- E major
- D major

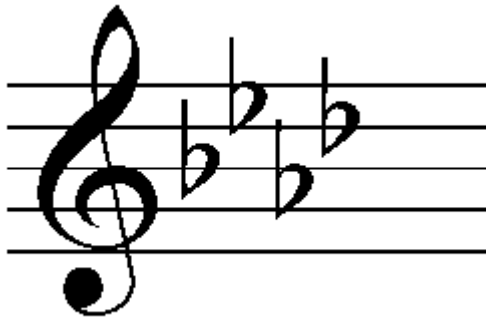
Answer



Handy Information

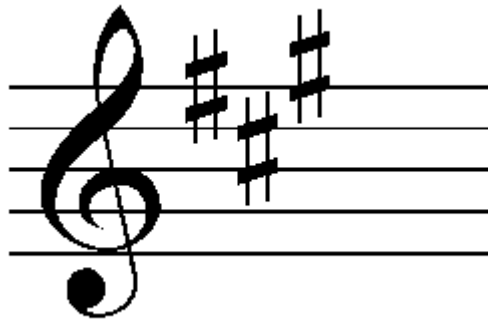
If the key signature contains flats

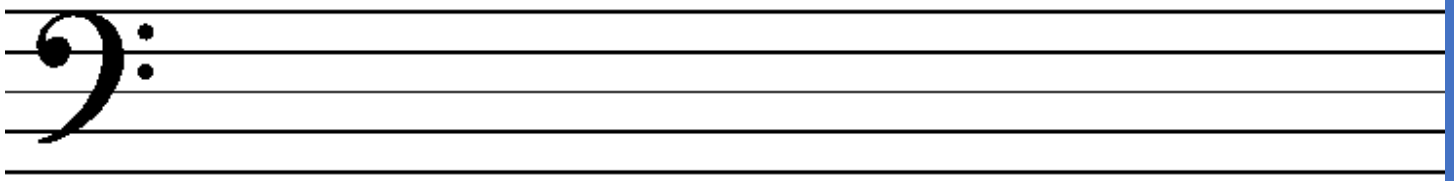
- The last flat is the **4th** note.
- The second to last flat is the key signature.



If the key signature contains sharps

- The last sharp is the **7th** note.





Activity 2

- Write one octave of each of the following major scales in bass clef. Do not use key signatures but add all necessary sharp or flat signs. Show where the tones (**T**) and semitones (**S**) come.

  - F major
  - G major
  - D major
  - A major
  - A flat major

1.5 Degree Numbers & Names

Numbers	Degree names	Example Scale of D major	Tonic sol-fa
1	Tonic	D	doh
2	Super tonic	E	ray
3	Mediant	F#	me
4	Sub dominant	G	fah
5	Dominant	A	soh
6	Sub mediant	B	lah
7	Leading note	C#	te
8 (=1)	Tonic	D	doh

- Sometimes the numbers 1-8 are used to refer to the various notes of a scale. Another way is to use **degree names**. You **need** to know this information:

Activity 3a

- Write one octave ascending of each of the following scales:
  - On a treble stave: E major; B flat major; A flat major
  - On a bass stave: E major; E flat major
- Write each scale (i) with accidentals, and (ii) with a key signature. Label the tones and semitones (**T** or **S**) and write the number of each note (1-8).

Activity 3b

- Write, using accidentals (*not* key signatures), one octave *descending* of each of the following scales:

  - On a treble stave: F major; E flat major
  - On a bass stave: D major; A flat major

Activity 3c

- Give the degree names and numbers, plus the letter names, for each degree of the G major scale. Begin as follows:
    - Tonic = 1 = G

Activity 3d

A well-known melody begins:

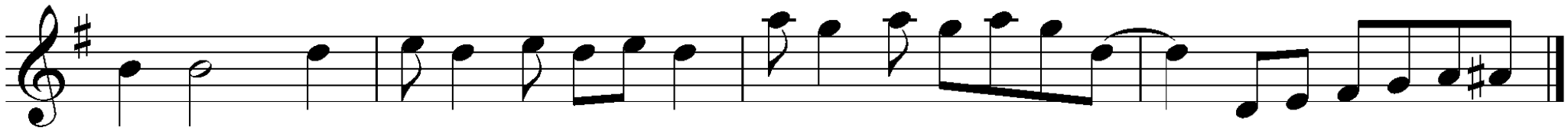
- 8 8 7 6 6 5 5 4 3 3 4 5 1 2 4 3 2 1

Write the pitches in C major on a treble stave. If you know the melody, try to notate the rhythm as well.

Activity 3e

- In what key is the melody below? Label each note with its degree number (1-8). The final note is marked for you: 2(#). Which degree of the scale never appears in this excerpt?

Joplin: *The Easy Winners*

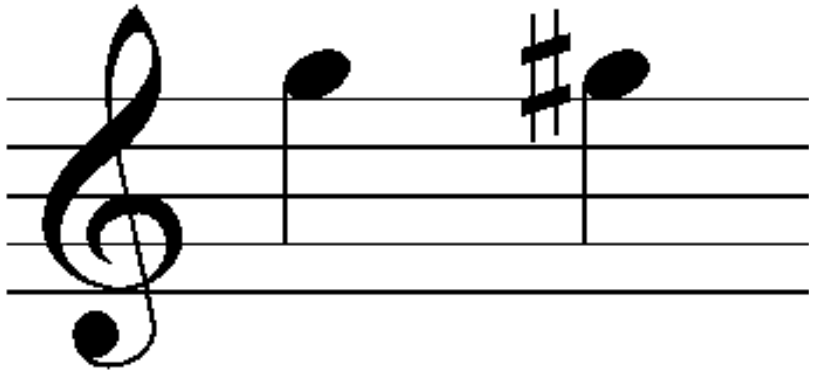


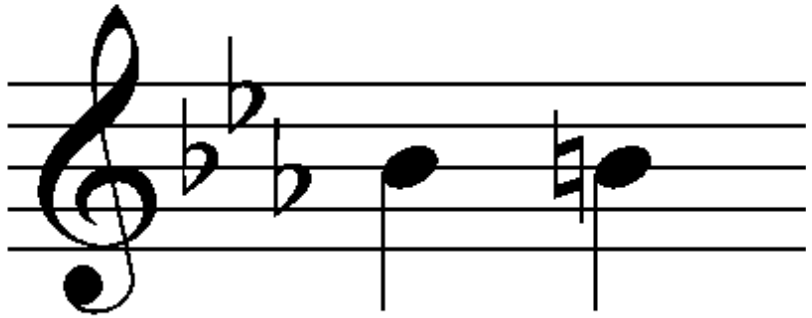
2(#)

1.6 Minor Scales & Minor Keys

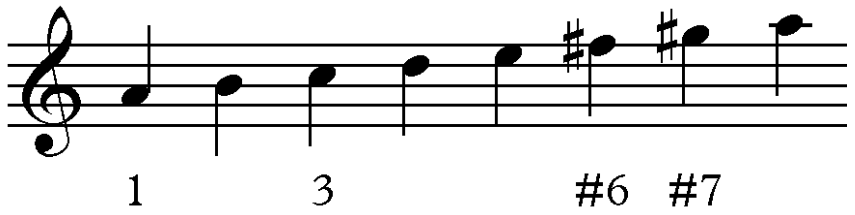
- Each major key has a related minor key, called the **relative minor**, which has the same key signature. The notes of a relative minor scale can be found by starting three semitone steps below the tonic of the major scale.
    - For example, the relative minor of C major is A minor

- Minor scales rise in steps, using every letter name once, just like major scales, and they follow any sharps or flats given in the key signature. However, note 7 of a minor scale (and sometimes also note 6) is frequently raised a semitone.

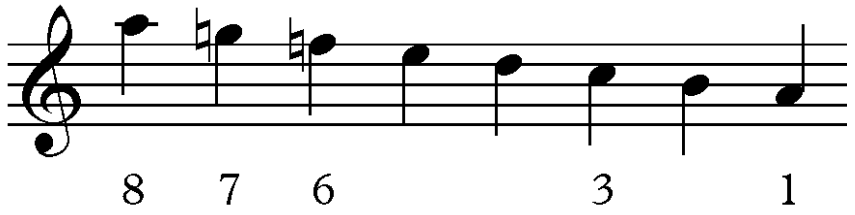




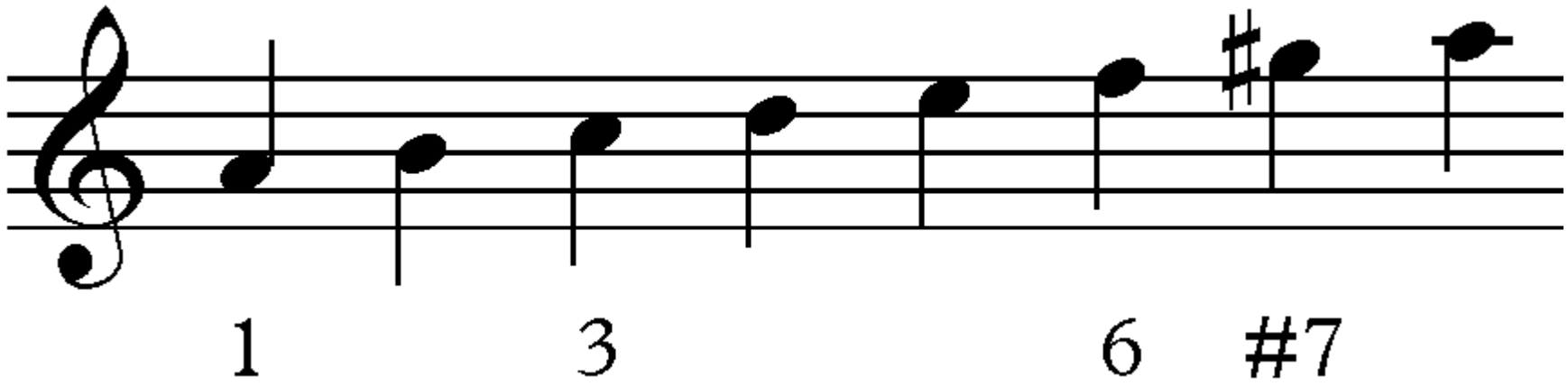
- In the following example, notes 6 and 7 of the A minor scale are both raised by a semitone. This form of the scale is usually found in ascending melodic passages and is known as the **ascending melodic minor.** It is very similar to A major, except in one vital respect – note 3 is a semitone lower.



- In the following example notes 6 and 7 are in their unaltered state. Use of the unraised versions of 6 and 7 is typical of descending melodic passages, and this form of the scale is known as the **descending melodic minor**. This scale is often known as the *natural minor* or the *aeolian mode* in pop and jazz, where it may be used both ascending and descending.

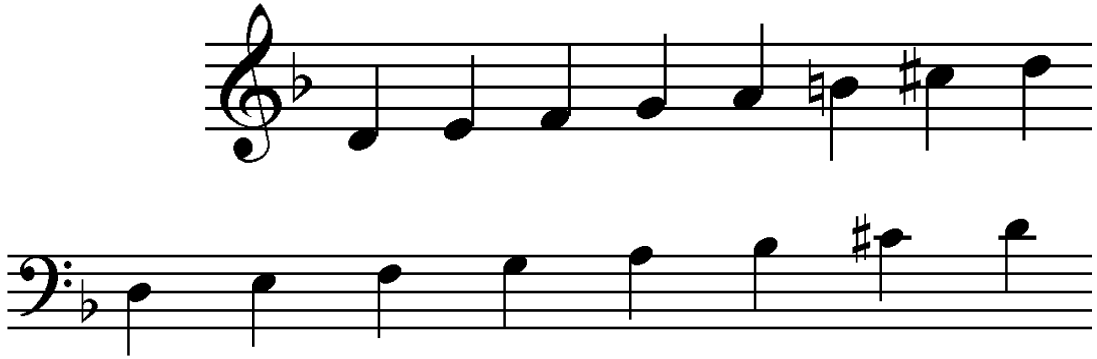


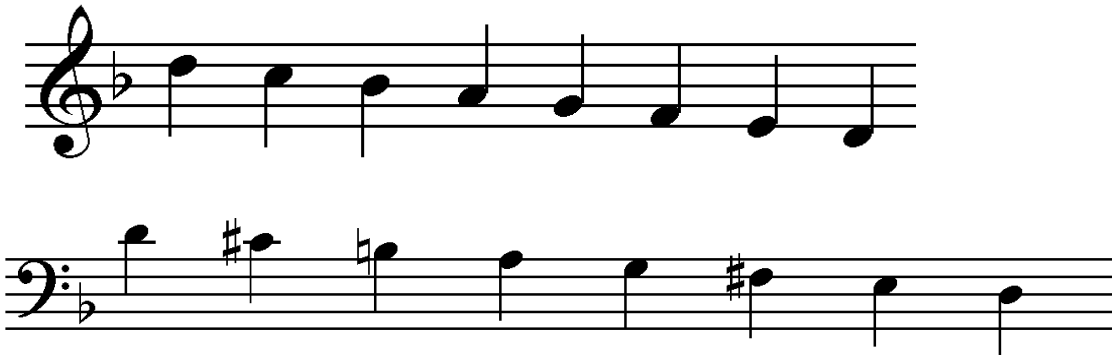
- In this example only note 7 is raised, and so requires an accidental. The unraised sixth degree and raised seventh degree are separated by three semitones. This can sound awkward, and rarely appears in melodies. However, the type of scale shown here is ideal when you want to create chords. It is called the **harmonic minor** scale and is the same in both ascending and descending forms.



Activity 4

- Look at these four scales and label each one as either D ascending melodic minor, D descending melodic minor, D harmonic minor or D major.
- Remember that you need to look at notes 6 and 7 to differentiate between the various forms of minor scales, and at note 3 to distinguish between a major scale and a minor scale.





- What is the relative minor of D major? Once you have that write out one octave of the harmonic minor scale of that minor key, on a treble stave.

- On a bass stave, write out the complete melodic minor scale, ascending and descending of E minor.

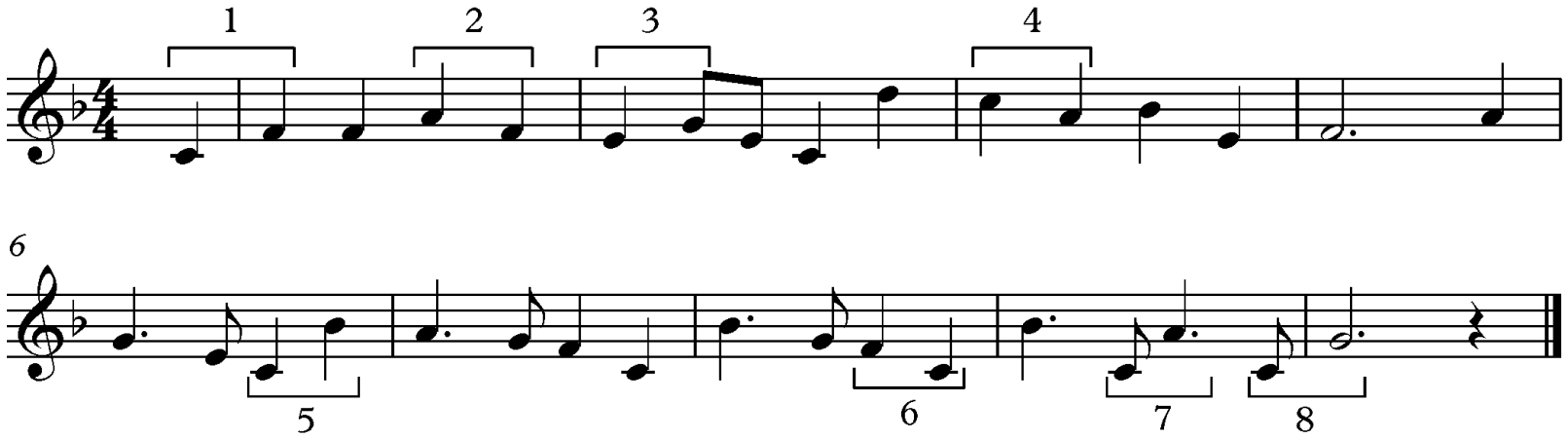
1.8 Melodic & Harmonic Intervals

An interval is the distance between two pitches. If the two notes sound one after the other, they form a **melodic interval**. If they sound at the same time, they form an **harmonic interval**.

Intervals are the building blocks of melody and harmony, and you must understand them in terms of both sound and notation.

1.9 Counting Intervals by Letter Names

- When working out the size of an interval, start with the lower note and imagine that it is the tonic of a major key. Call this note 1, and then count up the notes of the major scale until you arrive at the upper note.
- Look at the interval marked **1** at the start of the example below. The lower note is C, so count up a scale of C major until you arrive at the upper note (F). You should have counted four notes (C D E F). This interval is therefore a 4th.
- Now look at the interval marked 2. This time the higher note comes first, but you should still calculate the interval from its lower note (F). Count up a scale of F major until you arrive at the upper note (A). You will have counted three notes (F G A), so this interval is a 3rd. We can be more precise. Because the note is A is note 3 in the major scale of F, we can call it a **major 3rd**.
- Next look at the interval marked 3. The lower note is E, so you need to count up the scale of E major – E F# G#. The note in our interval I G, so we describe it as a **minor 3rd**.
- Finally, look at the interval marked 4. Is this a major 3rd or a minor 3rd
- The large interval between C and D at the end of the second complete bar is a 9th (the nine notes are C D E F G A B C D). A 9th is an octave plus a 2nd. We can also call it a **compound 2nd**.

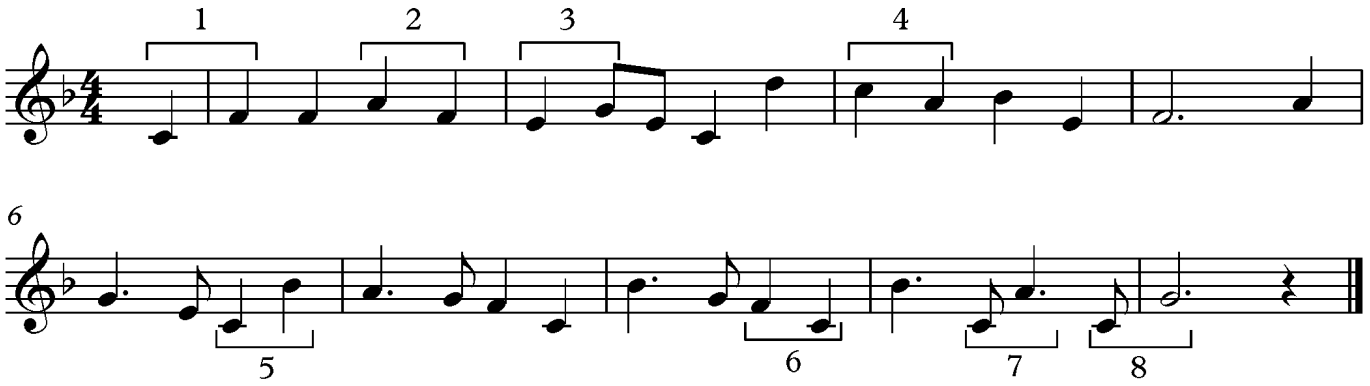


1.10 Naming Intervals by Type

- Numbering intervals by counting letter names allows us to tell the difference between 2nds, 3rds, 4ths etc. But as we saw when we looked at intervals 2 and 3 in the previous example there can be two types of 3rd – major or minor. Intervals of a 2nd, 6th and 7th also come in major and minor varieties.
- When referring to the type of interval it is important to realise that *major* means greater and *minor* means lesser – a minor interval is always a semitone smaller than a major interval. This use of major and minor is nothing to do with the key of the music – tunes usually include both major and minor intervals, whatever their key.
- 4ths, 5ths and 8ths don't have major and minor versions. They are known as perfect intervals or, in the case of the 8ths, simply as an octave.

1.11 Table of Intervals

Interval	Number of semtitone steps	Example
Minor 2nd	1 (a semitone)	C – D flat
Major 2nd	2 (a tone)	C - D
Minor 3rd	3	C – E flat
Major 3rd	4	C - E
Perfect 4th	5	C - F
Augmented 4th	6*	C – F sharp
Diminished 5th	6*	C – G flat
Perfect 5th	7	C - G
Minor 6th	8	C – A flat
Major 6th	9	C - A
Minor 7th	10	C – B flat
Major 7th	11	C - B
(Perfect) Octave	12	C – C an octave above



- Give a full description of each of the intervals marked 5 – 9

- Which four intervals on the previous slide do **not** appear anywhere below?

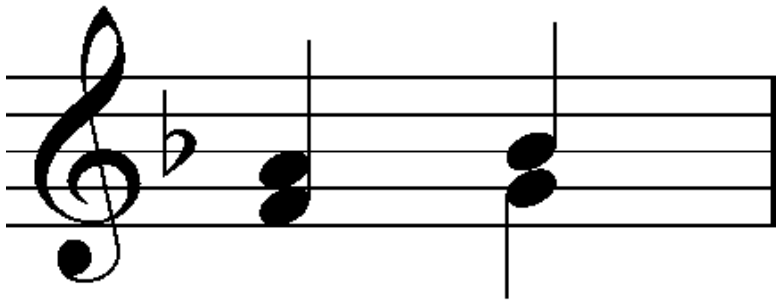
Activity 5

1.12 How to Identify Any Interval

- The table in section 1.11 listed only the most common intervals, but the principles can easily be extended to include indentifying any interval:

  - Imagine that the lower note of the interval is the tonic of a major scale
  - Count from this note to the upper note
  - Find out whether or not the upper note belongs to the major scale of which the lower note is the tonic
  - If it does:
    - A 2nd or a 3rd is major
    - A 4th or a 5th is perfect
    - A 6th or a 7th is major
    - An octave is perfect
  - If it does not, the interval is:

Minor	If it is a semitone smaller	Than a major interval
Dimished	If it is a semitone smaller	Than a perfect or minor interval
Augmented	If it is a semitone larger	Than a perfect or major interval

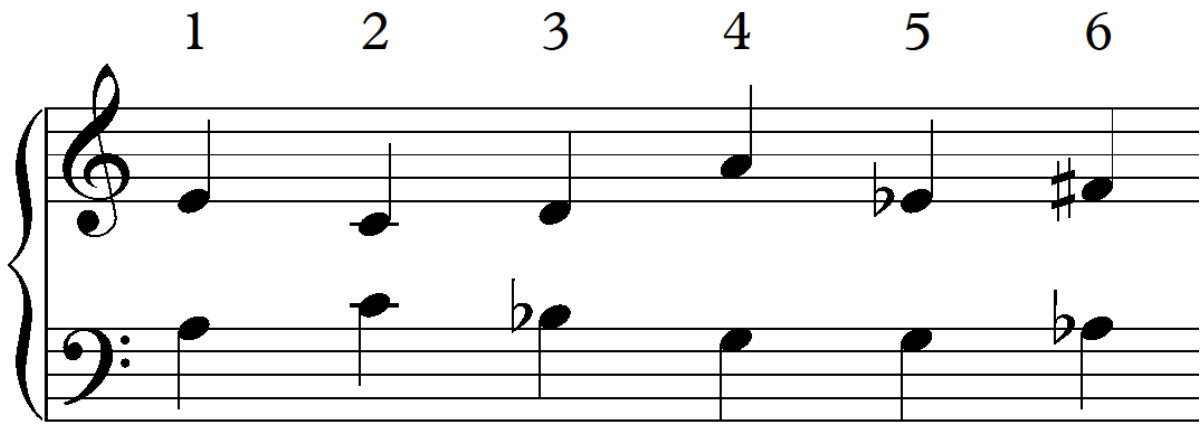


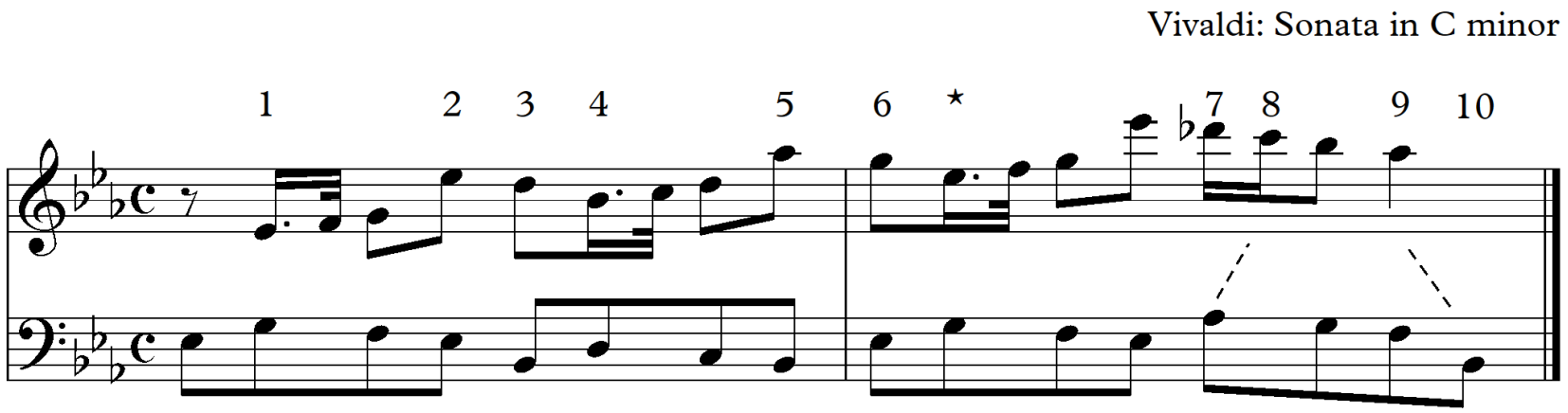
1.13 Harmonic Intervals

- Notes sounded together form harmonic intervals, and these are calculated and named in just the same way as melodic intervals, counting up from the lower note.
- In the example below the first interval is a major 3rd and the second is a minor 3rd. Notice that the notes in harmonic intervals are sometimes written with a single stem and sometimes with separate stems in opposite directions.
- Sometimes musicals notes can be in the same harmonic position. This is called **unison.**

- Sometimes the notes in an harmonic interval are on different staves. The method is no different – just remember how the bass and treble staves overlap and count in the usual way.

- Interval 1 is a perfect 5th. Interval 2 is a unision, because both notes are middle C. Finish off intervals 3 – 6.



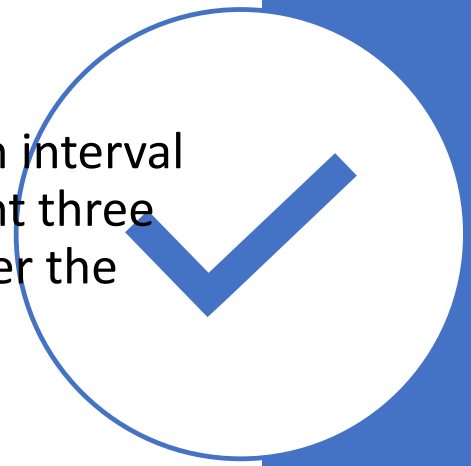


Activity 6

- Name the harmonic intervals 1-10 in the music below. Ignore the difference in octaves for intervals larger than a 9th – for example, the note marked * could be described a compound minor 6th. Notice that new harmonic intervals can be created when a previous note hangs on, as shown by the lines in intervals 8 and 10.

1.14 Writing Intervals

- The method for identifying intervals will work just as well if you have to write an interval *above* a given note. For instance, if you want to write a minor 3rd above G, count three notes up the scale of G major to B. This will give you the major 3rd, so then lower the upper note by a semitone (to B flat) to form the minor 3rd.



- If you want to write an interval *below* a given note, such as a major 3rd beneath G, first count down 3 letter names (G F E). Then, in the usual way, count 3 notes up the scale of E major to see if you arrive back on G. You don't. You arrive on G#, a semitone too high. Since G if fixed, move the *lower* note down a semitone, to E flat. Confirm that this is right by counting up a scale of E flat major to check that note 3 is G.

Activity 7

- Add a note to each of the following to make the named harmonic intervals: