

HALF STEPS AND WHOLE STEPS*

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Abstract

The pitch of a note is how high or low it sounds. The distance between two pitches can be measured in half steps and whole steps.

The **pitch** of a note is how high or low it sounds. Musicians often find it useful to talk about how much higher or lower one note is than another. This distance between two pitches is called the **interval** between them. In Western music, the small interval from one note to the next closest note higher or lower is called a **half step** or **semi-tone**.

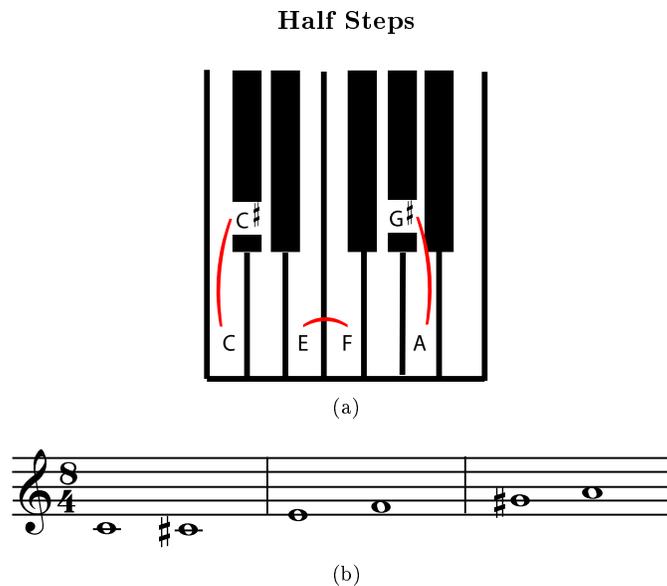


Figure 1: Three half-step intervals: between C and C sharp (or D flat); between E and F; and between G sharp (or A flat) and A.

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Listen¹ to the half steps in Figure 1 (Half Steps).

The intervals in Figure 1 (Half Steps) look different on a staff; sometimes they are on the same line, sometimes not. But it is clear at the keyboard that in each case there is no note in between them.

So a scale that goes up or down by half steps, a **chromatic scale**, plays all the notes on both the white and black keys of a piano. It also plays all the notes easily available on most Western instruments. (A few instruments, like trombone and violin, can easily play pitches that aren't in the chromatic scale, but even they usually don't.)

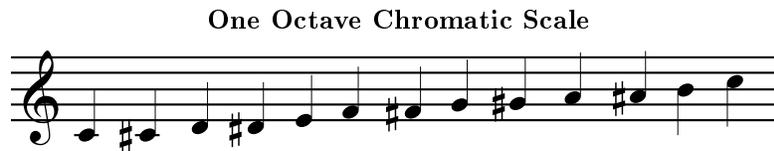


Figure 2: All intervals in a **chromatic scale** are half steps. The result is a scale that plays all the notes easily available on most instruments.

Listen² to a chromatic scale.

If you go up or down two half steps from one note to another, then those notes are a **whole step**, or **whole tone** apart.

¹See the file at <<http://cnx.org/content/m10866/latest/6f.mid>>

²See the file at <<http://cnx.org/content/m10866/latest/6a.mid>>

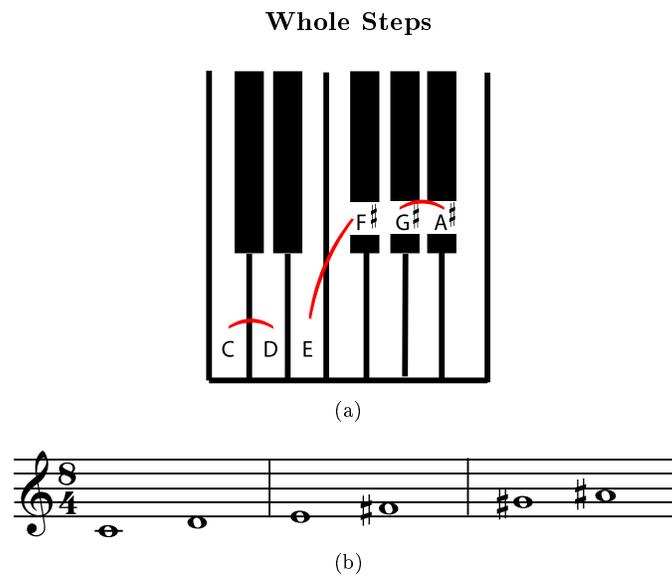


Figure 3: Three whole step intervals: between C and D; between E and F sharp; and between G sharp and A sharp (or A flat and B flat).

A **whole tone scale**, a scale made only of whole steps, sounds very different from a chromatic scale.

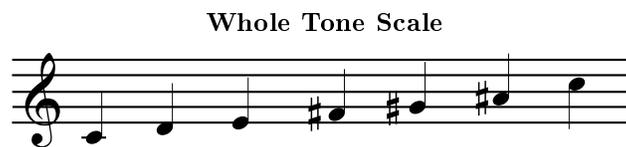


Figure 4: All intervals in a **whole tone scale** are whole steps.

Listen³ to a whole tone scale.

You can count any number of whole steps or half steps between notes; just remember to count all sharp or flat notes (the black keys on a keyboard) as well as all the natural notes (the white keys) that are in between.

Example 1

The interval between C and the F above it is 5 half steps, or two and a half steps.

³See the file at <<http://cnx.org/content/m10866/latest/6b.mid>>

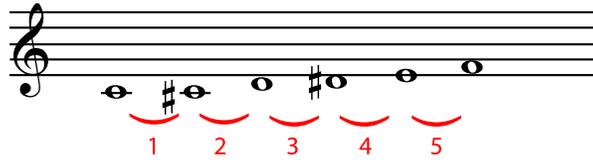


Figure 5: Going from C up to F takes five half steps.

Exercise 1

(Solution on p. 6.)

Identify the intervals below in terms of half steps and whole steps. If you have trouble keeping track of the notes, use a piano keyboard, a written chromatic scale, or the chromatic fingerings for your instrument to count half steps.

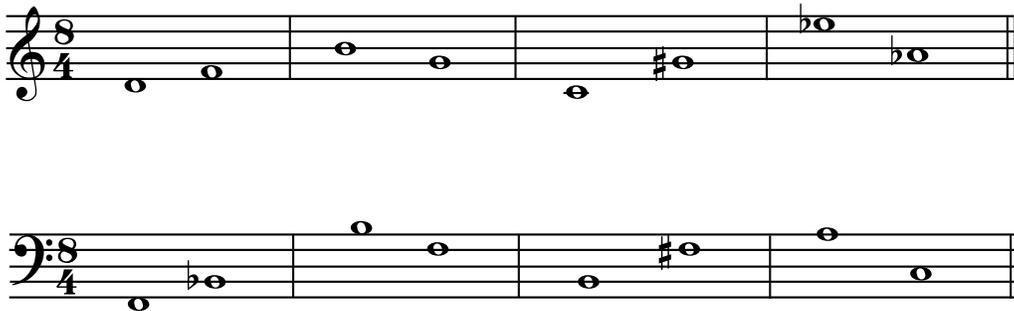


Figure 6

Exercise 2

(Solution on p. 6.)

Fill in the second note of the interval indicated in each measure. If you need staff paper for this exercise, you can print out this staff paper⁴ PDF file.

⁴See the file at <<http://cnx.org/content/m10866/latest/staffpaper1.pdf>>

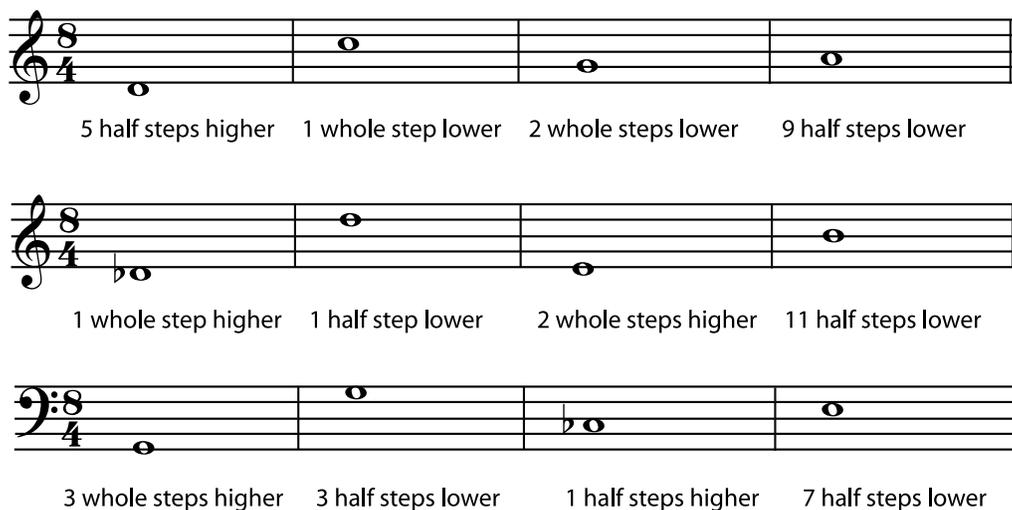


Figure 7

NOTE: Thanks to everyone who participated in the survey! It was very useful to me, both as a researcher and as an author, to get a better picture of my readers' goals and needs. I hope to begin updating the survey results module in April. I will also soon begin making some of the suggested additions, and emailed comments are still welcome as always.

Solutions to Exercises in this Module

Solution to Exercise (p. 4)

Figure 8 displays two musical staves, treble and bass clef, with four measures each. Below each measure, the interval between the first and second notes is specified in half steps and whole steps.

Staff	Measure 1	Measure 2	Measure 3	Measure 4
Treble Clef	3 half steps (1 1/2 steps)	4 half steps (2 whole steps)	8 half steps (4 whole steps)	7 half steps (3 1/2 steps)
Bass Clef	5 half steps (2 1/2 steps)	6 half steps (3 whole steps)	7 half steps (3 1/2 steps)	9 half steps (4 1/2 steps)

Figure 8

Solution to Exercise (p. 4)

Figure 9 displays three musical staves, two treble clef and one bass clef, with four measures each. Below each measure, the interval between the first and second notes is specified in half steps higher or lower.

Staff	Measure 1	Measure 2	Measure 3	Measure 4
Treble Clef (Top)	5 half steps higher	1 whole step lower	2 whole steps lower	9 half steps lower
Treble Clef (Middle)	1 whole step higher	1 half step lower	2 whole steps higher	11 half steps lower
Bass Clef	3 whole steps higher	3 half steps lower	1 half steps higher	7 half steps lower

Figure 9: If your answer is different, check to see if you have written a different enharmonic spelling of the note in the answer. For example, the B flat could be written as an A sharp.