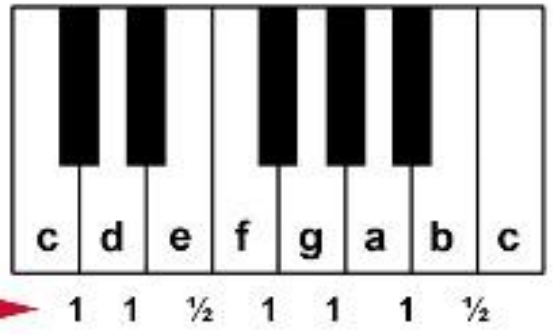
Do re mi fa sol la ti do

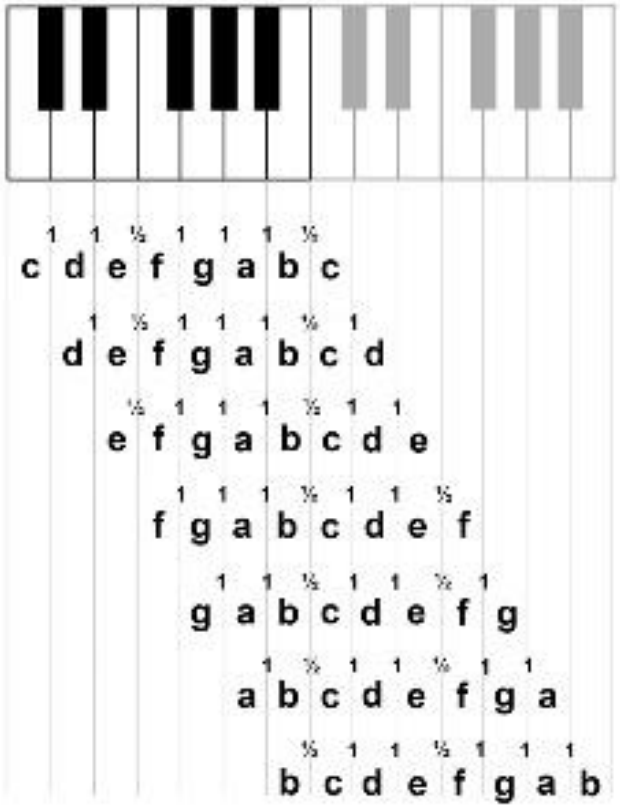
Do re mi fa sol la ti do
tells something about the
distances between the notes.
This is clearly visible on a piano
when you look at the notes c d e f g a b c.
Half-steps represent the smallest
possible movement from one note
to another note.
When there is a black key between
two white keys or when there is a white
key between two black keys
it is called a whole step.



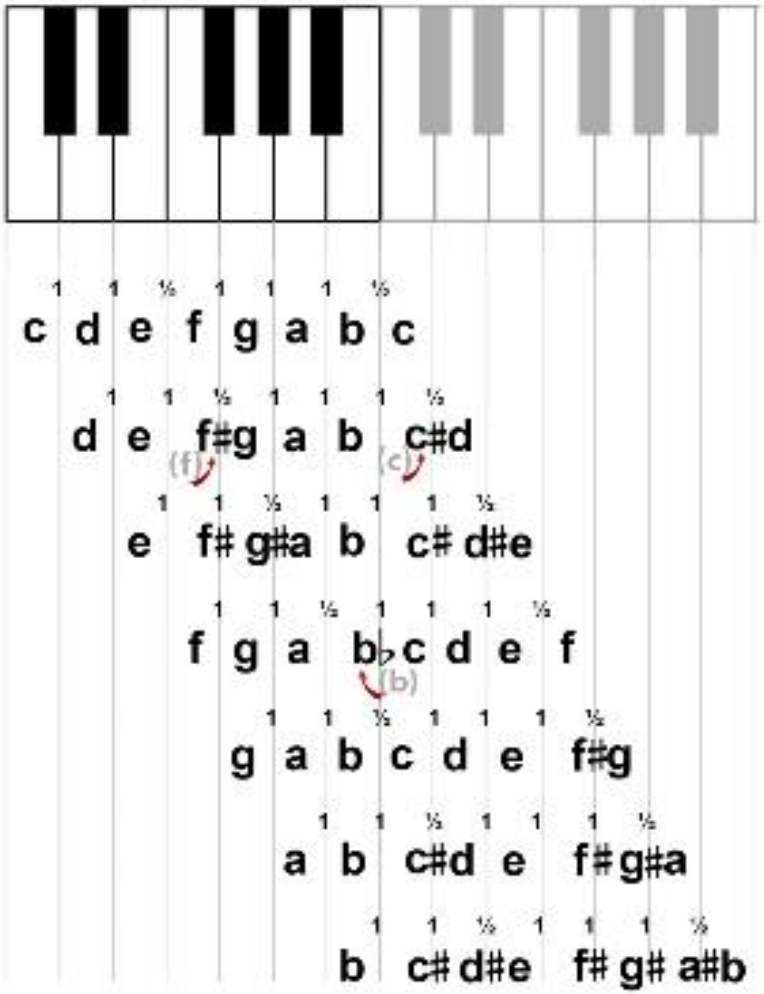
So the formula of do re mi fa sol la ti do is 1 1 ½ 1 1 1 ½

When you mention the notes further on your keyboard without the black keys you get the next formulas.

These are the formulas of the church scales.



	Formula
Ionian	1 1 ½ 1 1 1 ½
Dorian	1 ½ 1 1 1 ½ 1
Phrygian	½ 1 1 1 ½ 1 1
Lydian	1 1 1 ½ 1 1 ½
Mixolydian	1 1 ½ 1 1 ½ 1
Aeolian	1 ½ 1 1 ½ 1 1
Locrian	½ 1 1 ½ 1 1 1



You can also stay in the formula of c d e f g a b c (1 1 ½ 1 1 1 ½).

By adding sharps and flats you can make a scale with this formula in any pitch.

These scales are called the major scales (or ionian modes).

We call the notes of the major scale
1 2 3 4 5 6 7 8.
The notes of the ionic scale are also called 1 2 3 4 5 6 7 8,
because the major scale and the ionic scale are equal.

we have one formula for the major scales.
So the notes of each major scale can be called 1 2 3 4 5 6 7 8.

The distances between the notes of the church scales
are not equal to those of the major scales.

To determine the character of these ladders
we have to compare them.

For example, if you compare the major scale of D
with the dorian scale you see these differences:

Major scale		Dorian scale	
d e f♯ g a b c♯ d	1 2 3 4 5 6 7 8	d e f g a b c d	1 2 -3 4 5 6 -7 8

The third note in the major scale (the f sharp) is in the dorian scale
a semitone lower, so -3 and the 7th tone (the c sharp) also, so -7

On the next page you see this story
worked out for all the church scales

Major scales

c d e f g a b c	1 2 3 4 5 6 7 8
d e f♯ g a b c♯ d	
e f♯ g♯ a b c♯ d♯ e	
f g a b♭ c d e f	
g a b c d e f♯ g	
a b c♯ d e f♯ g♯ a	
b c♯ d♯ e f♯ g♯ a♯ b	

Church scales

ionian	c d e f g a b c	1 2 3 4 5 6 7 8
dorian	d e f g a b c d	1 2 -3 4 5 6 -7 8
phrygian	e f g a b c d e	1 -2 -3 4 5 -6 -7 8
lydian	f g a b c d e f	1 2 3 +4 5 6 7 8
mixolydian	g a b c d e f g	1 2 3 4 5 6 -7 8
aeolian	a b c d e f g a	1 2 -3 4 5 -6 -7 8
locrian	b c d e f g a b	1 -2 -3 4 -5 -6 -7 8

Church scales

ionian	c d e f g a b c	1 2 3 4 5 6 7 8
dorian	d e f g a b c d	1 2 -3 4 5 6 -7 8
phrygian	e f g a b c d e	1 -2 -3 4 5 -6 -7 8
lydian	f g a b c d e f	1 2 3 +4 5 6 7 8
mixolydian	g a b c d e f g	1 2 3 4 5 6 -7 8
aeolian	a b c d e f g a	1 2 -3 4 5 -6 -7 8
locrian	b c d e f g a b	1 -2 -3 4 -5 -6 -7 8

Under lydian and mixolydian
you play a major chord (3)
in the same key,
e.g. G under G mixolydian

Dorian, phrygian, aeolian and locrian
are minor scales (-3),
see red circles.

This includes a minor chord
in the same key,
e.g. Dm under D doric

An m7-5 chord also is possible under locrian
(1 -3 -5)