

AverMedia Lesson Plan—Using document cameras with a Keyboard Lab Classroom

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Area of Discipline: Elementary School General Music

Grade Level: 4– minimum of two 40 minute class periods

Topic of Lesson: Using the electronic keyboard to identify
and perform half steps and whole steps
(creating scales)

Use of the Document Camera

- The document camera is in constant use for all keyboarding lessons. Its uses are twofold—the camera projects a PowerPoint demonstration to the students to follow, and is also used to project real-time images of the teacher’s keyboard to assist with the level of student success. As a class, students can observe the teacher’s modeling and modify their performance as necessary, rather than having to wait for individual assistance. This use of the document camera exponentially reduces the amount of “downtime” as students would otherwise have to wait their turn to receive help.

**Other Technologies
used with the document camera
in the lesson**

- **Dell Latitude D510 Laptop**
- **Microsoft PowerPoint**
- **Microsoft Office**
- **HP vp6320 Projector**
- **Yamaha PSR-E203 electronic keyboards**

Slide Show Format

- 4 slides showing classroom photos of the document camera's uses during the keyboarding lesson
- Frederick County Public Schools objective (goals) format for the lesson
- Lesson Outline—numbers in parentheses are taken from the Frederick County Public School's Grade 4 General Music Curriculum, viewable here: <http://www.fcpsteach.org/docs/Grade%204%20Vocal%20Music%20EC.doc>
- Accompanying PowerPoint used with the students

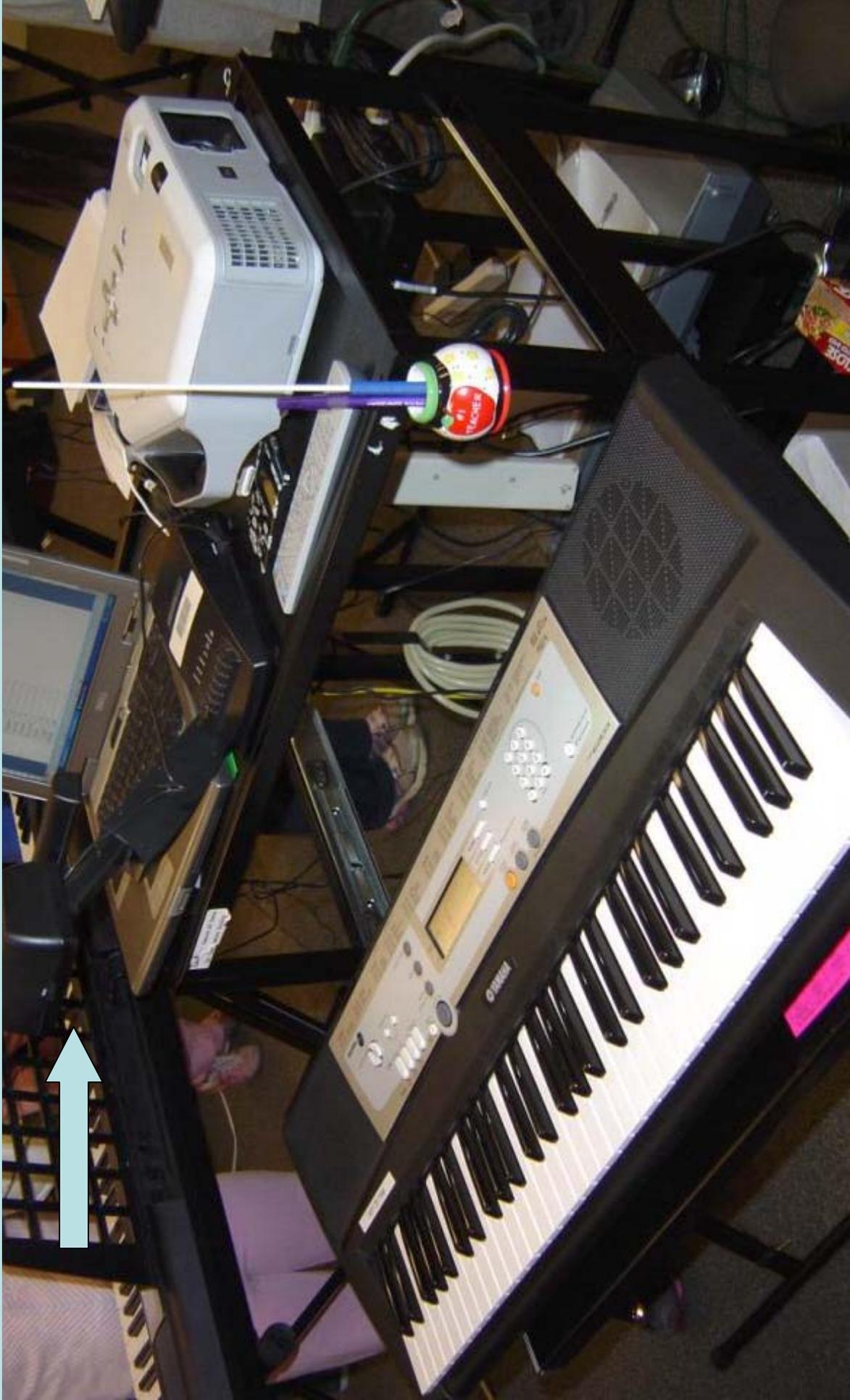
2nd graders working independently in the keyboard lab. Every CES student has one music class per week in the keyboard lab and one general music class in another music room.



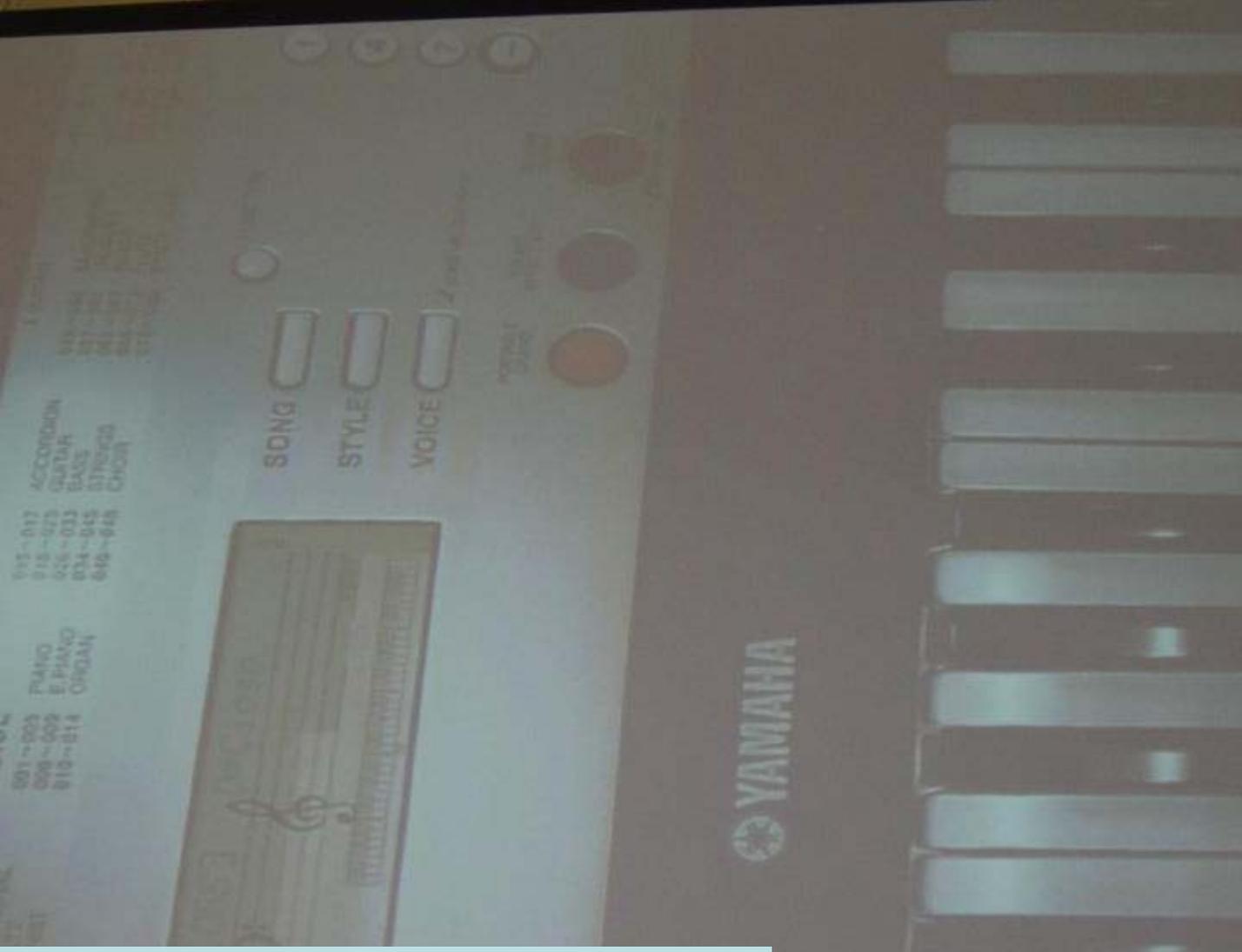
Large classes make it necessary to have a “demonstration” keyboard in the center of the room at the teacher’s workstation. A document camera greatly facilitates a student’s understanding through “live” multimedia examples.



The document camera is the primary source for displaying examples & information for the students to follow when achieving objectives on the keyboard. Objectives, PowerPoints, and the keyboard itself is projected onto a screen for students to use as reference.



The document camera projects a “live” image of the teacher’s keyboard onto a screen to aid students in performing key sequences, finding particular notes, and helps achieve objectives related to staff reading by providing a guided image of how to configure scales, chords and other theoretical concepts. The document camera is the single most important piece of multimedia equipment in helping ensure the success of all students in the keyboard lab.



Fourth Grade Keyboarding 3

- What? Identify and demonstrate half steps and whole steps
- How? By identifying and applying these relationships on the keyboard
- Why? In order to perform, identify and label complex melodic elements
- MU.400.15.02

Lesson Outline, Page 1

- Students assemble at the front of the classroom for a review of the previous lesson.
- Students are shown the objective slide (slide 11), and informed that they will be assessed formally in the following class by completing a worksheet requiring them to construct major scales in 3 different key signatures based on the information presented to them today. **Using the document camera, project the image of the teacher's keyboard onto the screen for students to use as reference when addressing the Prior Knowledge questions.**
- **Prior Knowledge:** In the last two keyboarding classes, how many students have experimented with the black keys? How many students can make a relationship between the setup of the keyboards and that of the attached bell sets? Can students make a connection by remembering how the black bells are labeled on the attached bell sets?
- **Introduction:** Students are shown PowerPoint Slides 15-17. **Using the document camera, project the image of the teacher's keyboard onto the screen for students to use as reference when addressing the Introduction questions.**
 - ✓ What are two differences between the black & white keyboard keys? (slide 16)
 - ✓ How are the black keys used? (slide 17)
 - ✓ What is an alternate name for the black keys? (slide 16)
 - ✓ What is the purpose of the black keys? (slide 17)

Lesson Outline, Page 2

- **New Knowledge:** Students are guided through PowerPoint slides 18-27— recognizing, labeling and applying the black keys to key signatures and creating a major scale. Using the document camera, project the image of the teacher’s keyboard onto the screen for the students to use as reference when answering the assessment questions.
- **Assessment:** Can students:
 - ✓ Give at least two purposes for a key signature (slide 24)
 - ✓ Explain what an accidental does to an unaltered note (slide 26). Can a student demonstrate on the teacher’s keyboard how to raise and lower a note?
 - ✓ Explain how a composer knows which name of a black key to use (slide 27)
 - ✓ Define sharp and flat (slide 26). Choose a note on the projected teacher’s keyboard and request for students to play that note for the class, then show where the “flatted” or “sharped” version of the note would be.
 - ✓ Recognize a correctly written major scale (slide 27)

Lesson Outline, Page 3

- *New Knowledge Part II:* Students are guided through PowerPoint slides 28-39— using key signatures, accidentals, and Whole/Half step patterns to create major scales. Using the document camera, project the image of the teacher’s keyboard onto the screen for students to use as reference when answering the assessment questions.
- *Assessment:* Can students:
 - ✓ Define tonal center and degree (slides 28-29). Choose a student to correctly play an octave (tonal center) using the projected teacher’s keyboard.
 - ✓ Recognize and describe the difference between whole steps and half steps on the keyboard (slide 35). Choose students to use the projected teacher’s keyboard to identify $\frac{1}{2}$ and whole steps based on given notes.
 - ✓ Articulate the pattern of whole & half steps in the major scale (slide 37)
 - ✓ Correctly identify the key sequence that creates a scale in F major (slide 39) Use the projected teacher’s keyboard for students to watch as the teacher demonstrates the correct playing of an F major scale.

Lesson Outline, Page 4

- **Application/Assessment:** Students are given opportunities to apply the knowledge gained of step patterns, accidentals and the creation of the major scale through: Identifying and performing the G major scale, as prompted in slide 40. **As students complete the written worksheets and examples described below, the document camera is to be used both to project answer keys on paper, and correct performances of each question asked.**
 - ✓ Configure and perform a major scale of the student's choice
 - ✓ Configure and perform a major scale of the teacher's choice (difficulty level determined by student's prior experience with keyboarding)
 - ✓ Visual/written recognition of the key signatures for C major, F major and G major, and the ability to perform the coinciding scales
- **Extension:** Mastery of major scale construction will enable students in future lessons to:
 - ✓ formulate the I, IV, V and V7 chord structures for the keys of C, F and G, enabling performance of complex harmonies. (MU.400.20.02)
 - ✓ Compose simple melodic ostinati and descants to familiar songs (MU.400.20.01) (MU.400.60.03)
 - ✓ Create simple melodies using standard notation within specific guidelines (MU.400.60.02)
 - ✓ Improvise short songs (MU.400.55.02)

The Black Keys

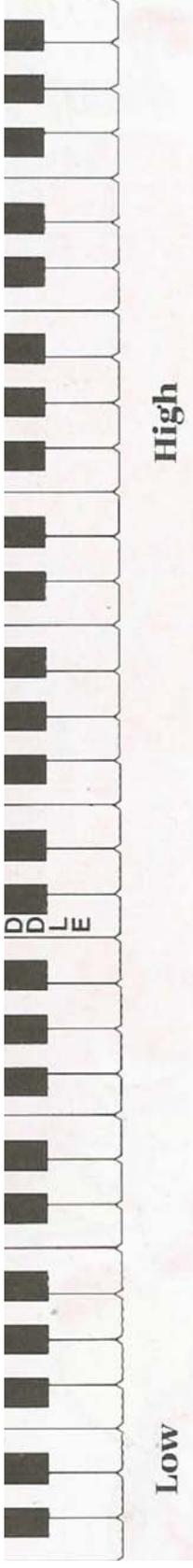


Today we will learn about and play the black keys on the keyboard, what their purpose is, and how to use them to create major scales

Black Keys

Take a close look at the black keys of the keyboard.

What do you notice about the black keys?



You might have noticed they are *shorter* than the white keys.

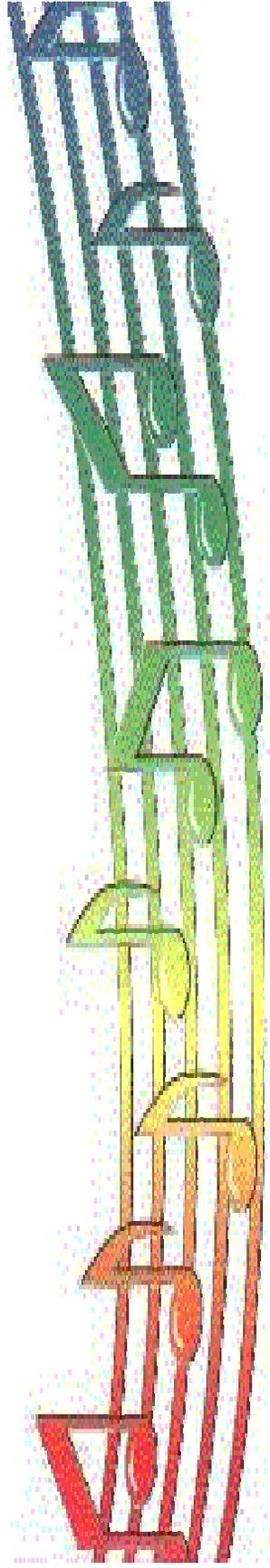
You might have noticed they are *in between* the white keys.

BUT MOST IMPORTANTLY...

They are grouped in sets of two and three.

So, what do I do with them?

- The black keys on the keyboard are also called **accidentals**. They are tones “between” the white tones, and are used to help create scales.
- We will use the following information to create major scales in the keys of C, F and G.



Creating the Major Scale

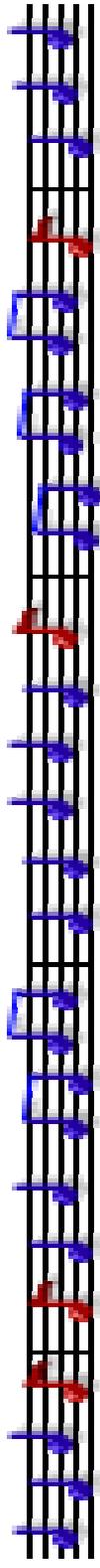
Or... "Whaddaya MEAN half steps
and whole steps?!"



By the time we're done, you'll

understand

- ◇ Some new vocabulary—anything that's printed in **red** is a new word that pertains to creating a scale
- ◇ What key signatures are & what they do to notes
- ◇ The pattern used to create every major scale
- ◇ How to create a major scale starting on any key

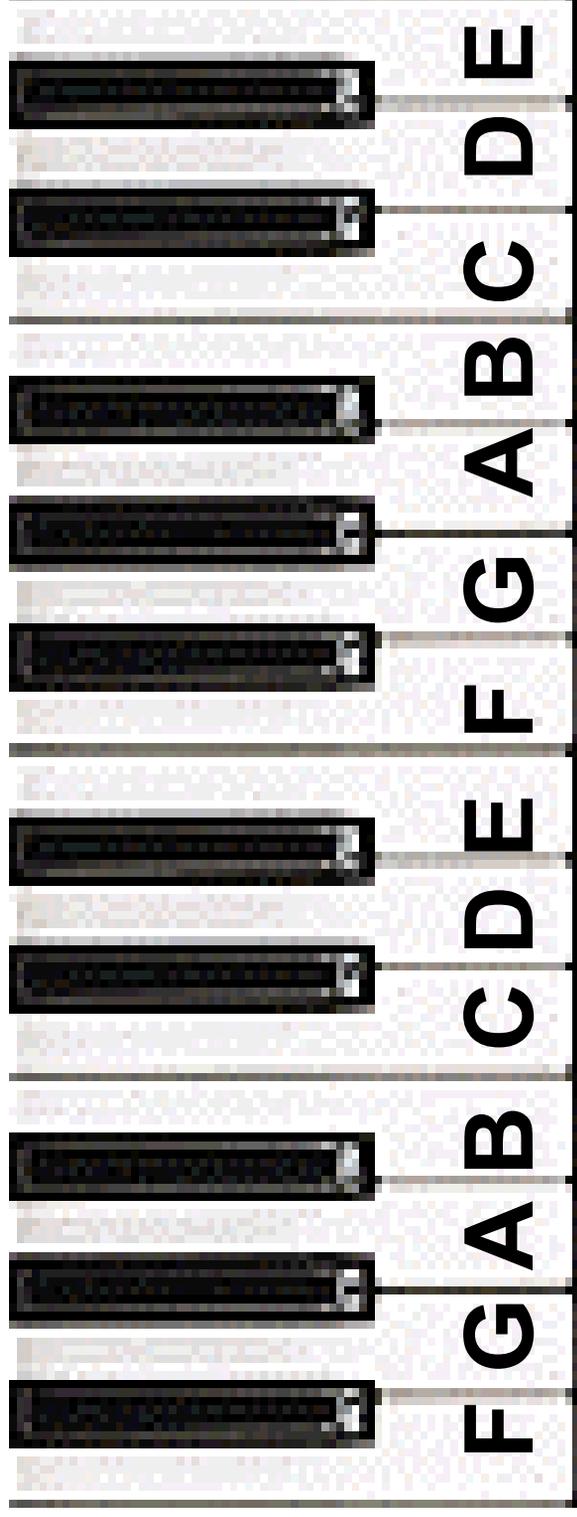


Major Scales Are...

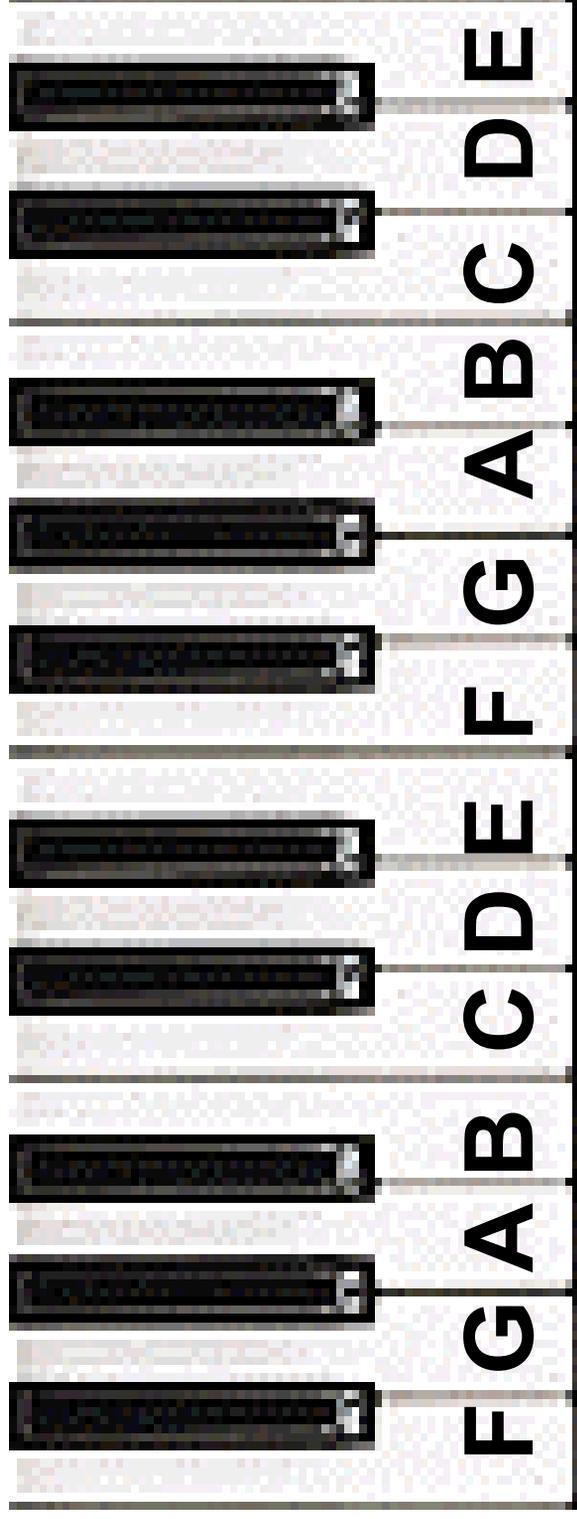
- ◆ Sequences of whole steps and half steps
- ◆ May be ascending or descending
- ◆ Made up of degrees
- ◆ Built from the tonal center
- ◆ Sometimes built with accidentals in the key signature



Let's take a look at a piano keyboard...

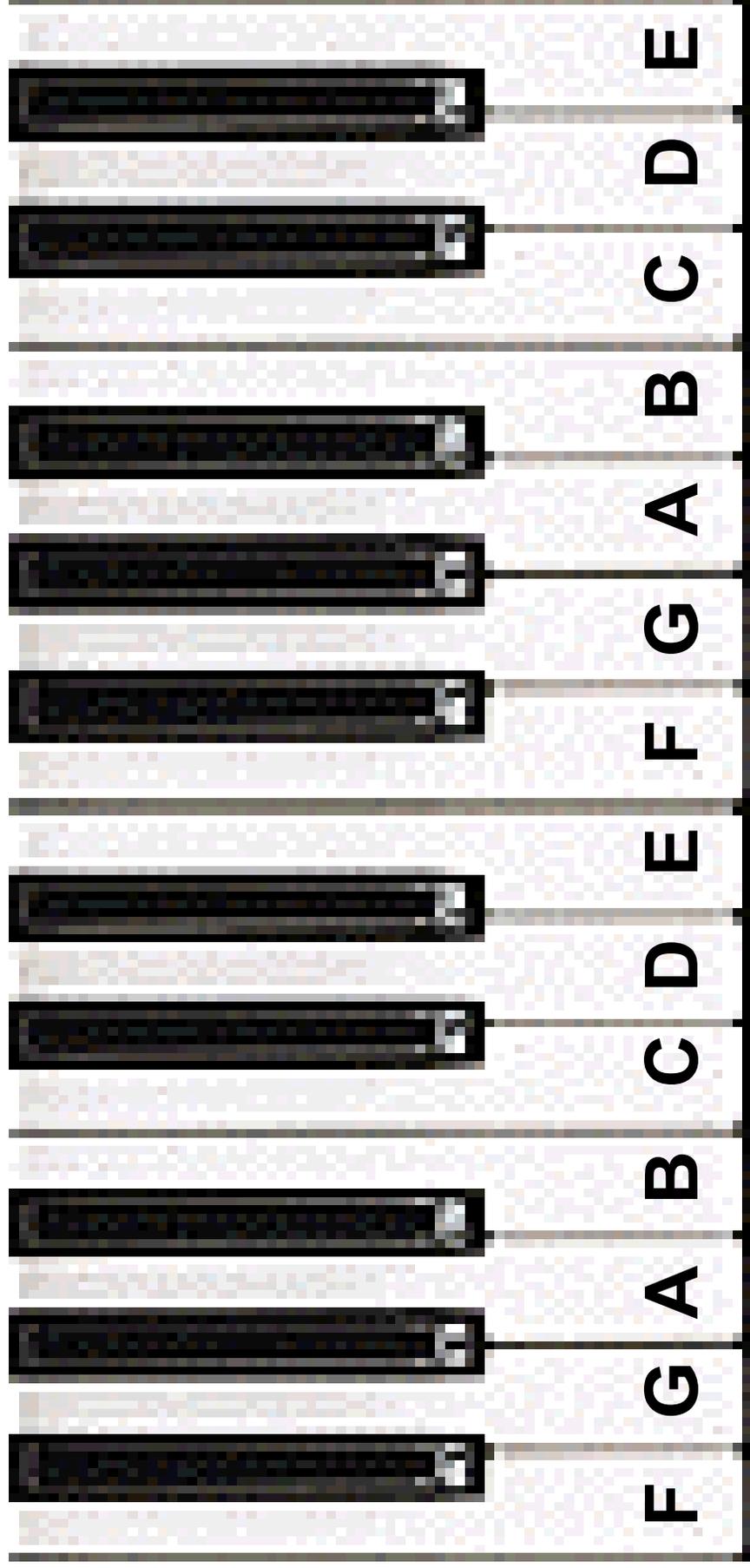


As you know, each key of a keyboard (or each note of a scale) is given an alphabet letter from A-G.

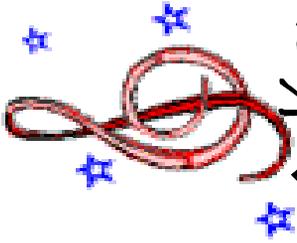


Up until now, we haven't done much with the black keys, but those black keys play an important part in creating scales. Each black key actually has two names—the name you use depends on what alphabet letters you need to create a scale without using any letters twice.

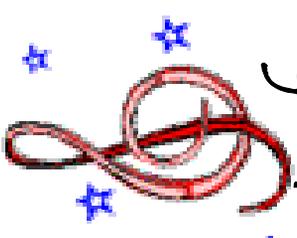
F#	G#	A#	C#	D#	F#	G#	A#	C#	D#
Gb	Ab	Bb	Db	Eb	Gb	Ab	Bb	Db	Eb



Here are the names for the black keys...



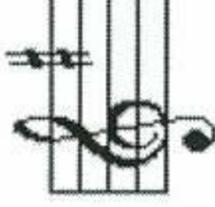
Key Signatures



- ◇ Key signatures are placed at the beginning of each line of music
- ◇ Key signatures show which note is the tonal center. The tonal center is the note that a scale is built on.
- ◇ Key signatures tell a performer which notes are always altered when they're to be played
- ◇ Key signatures save composers from having to write **accidentals** over and over

Key Signature Examples

G Major



All "F's" are raised by $\frac{1}{2}$ step

C Major



No changes to any notes

F Major



All "B's" are lowered by $\frac{1}{2}$ step

Accidentals

- ◊ An "accidental" is a symbol placed in front of a note (or in the key signature) that alters the note by $\frac{1}{2}$ step.
- ◊ A "sharp" looks like this: # and raises a pitch by $\frac{1}{2}$ step.
- ◊ A "flat" looks like this: b and lowers a pitch by $\frac{1}{2}$ step.

So...is it a sharp or a flat?

- ◇ Each letter of the scale can use an alphabet letter only once....

C D E F G A B

- ◇ Incorrect: C D E F G G# B

Why?!

- ◇ Correct: C D E F G Ab B

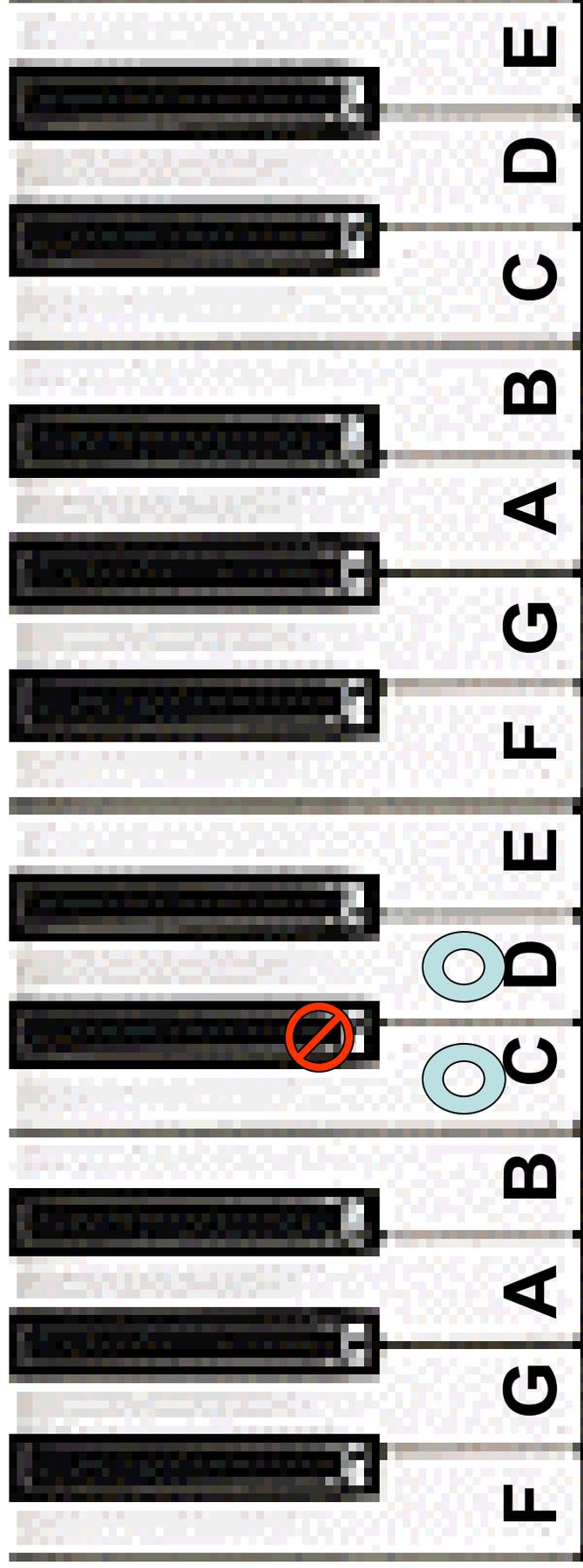
Why?!

How to Create a Scale

- ◆ Scales are made from a **sequence** (pattern) of **degrees**. A degree is a number assigned to a pitch of a scale.
- ◆ Scales use degrees from 1-8, and each degree is given a different letter pitch name
- ◆ Scale degrees 1 and 8 are the same pitch name, also called the **tonal center**.

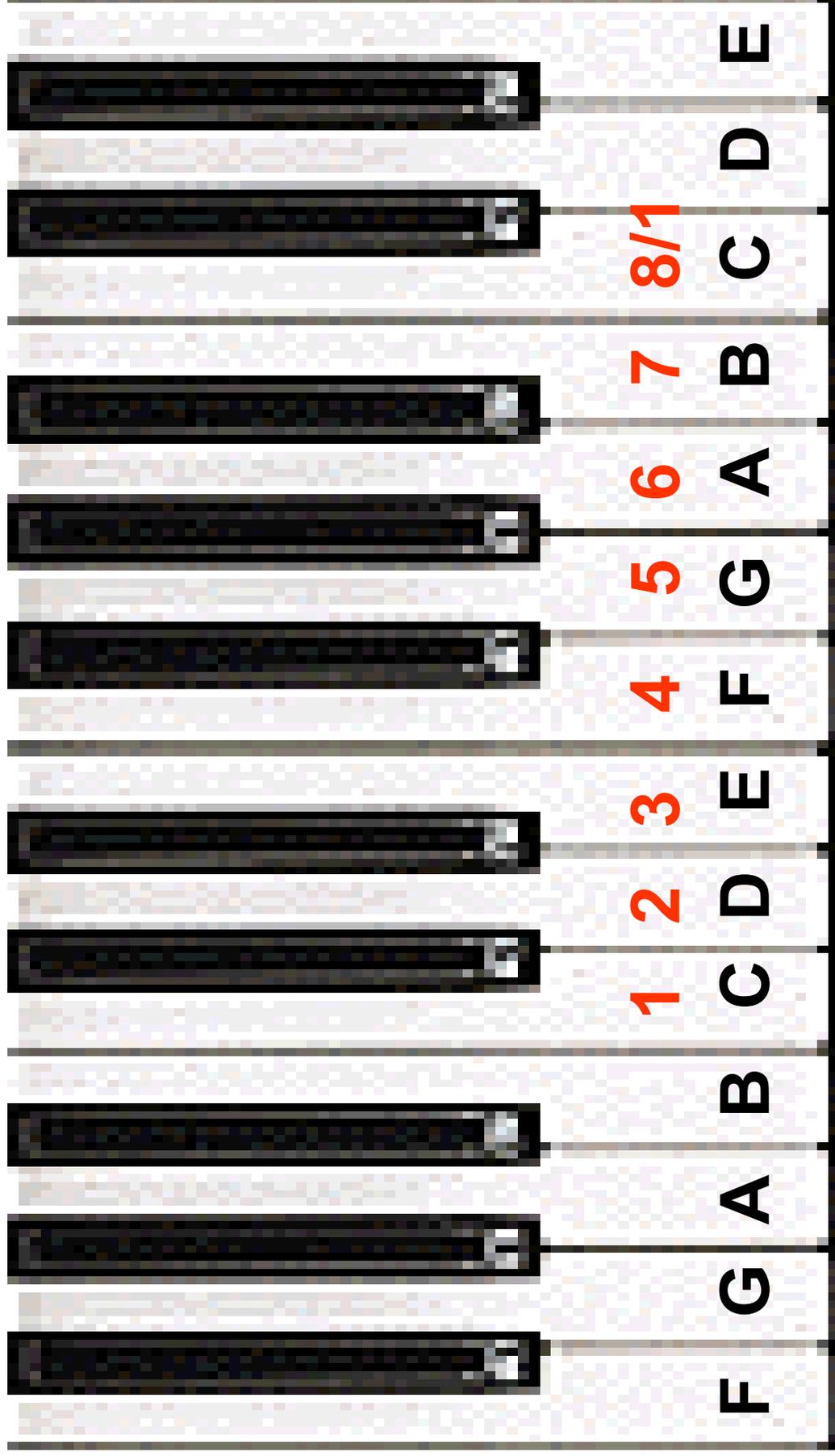
Whole steps

- ◊ A **whole step** on the keyboard has **ONE** key that is skipped between them....like this:



- ◊ They can be two black keys, two white keys, or one of each.

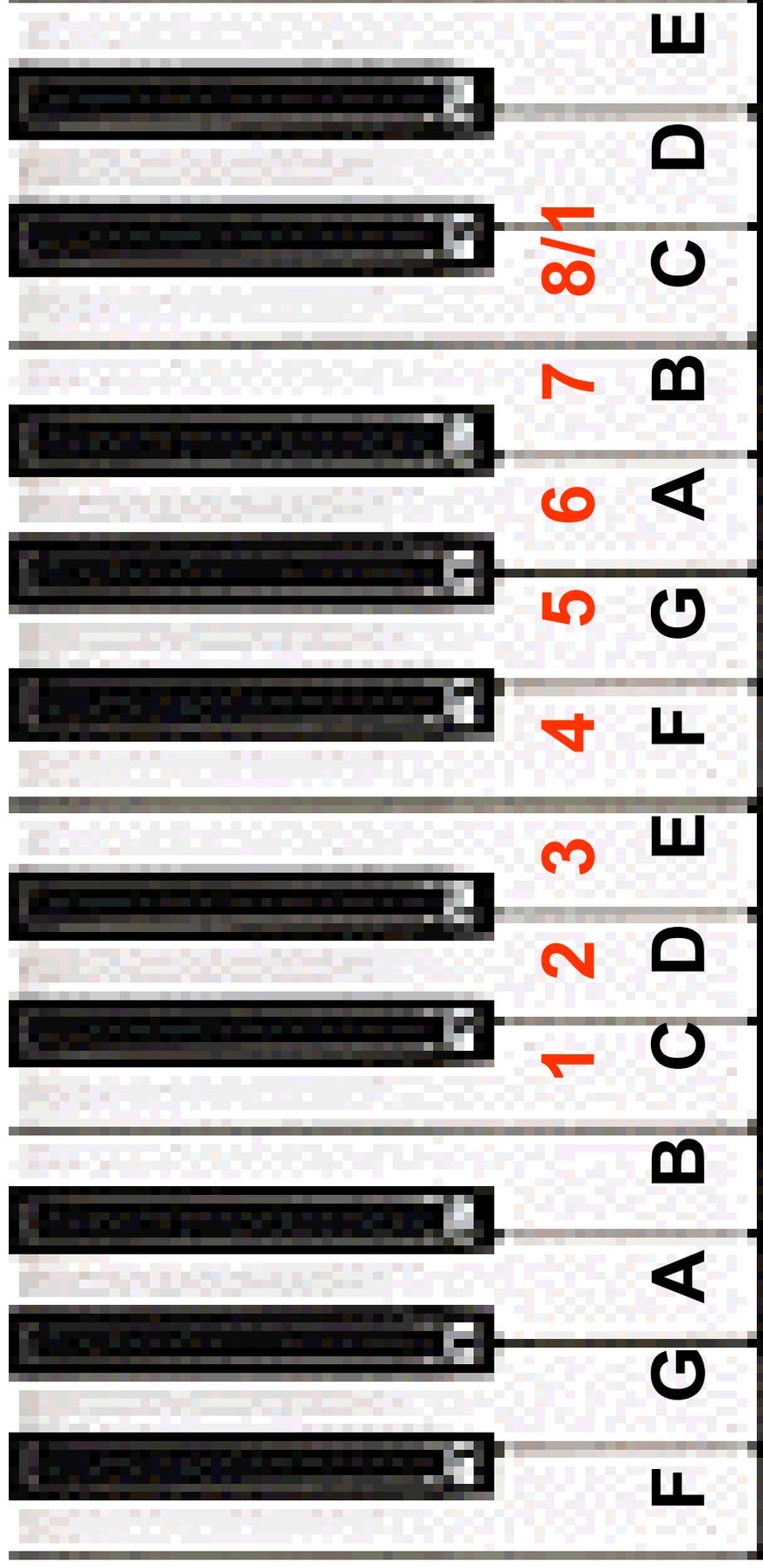
Here are the scale degrees for the C Major Scale. In the key of C Major, what kind of **accidentals** do we have?!



In C Major we have **NO ACCIDENTALS**,
meaning that no scale degrees are changed—
in this case, all the keys are white keys.

Again, here's what our scale looks like:

Here are the scale degrees for the C Major Scale:



Now we are going to figure out the pattern for a Major Scale.

Whole and Half Steps

- A WHOLE step on the keyboard has ONE key that is skipped between them.
- A HALF step on the keyboard has no keys that are skipped between them.
- It can be two black keys, two white keys, and in certain areas, one of each
- They are usually one black key to the next white key, but in special areas it can be two white keys.

Here's the Major Scale Pattern between the notes for the C Major Scale:

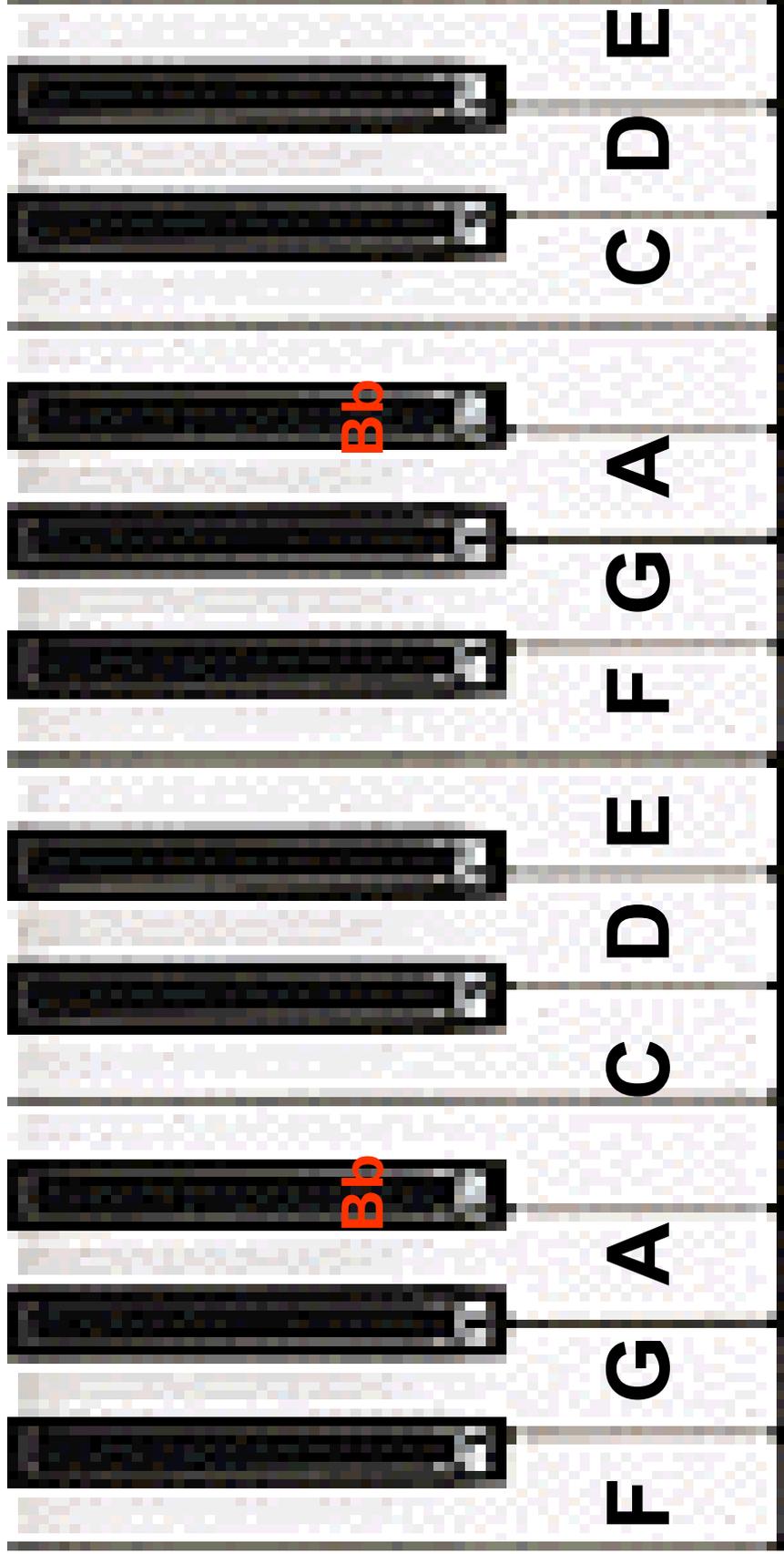
(1)	(2)			
C	and D	Whole Step	Why?	What note is skipped?
(2)	(3)			
D	and E	Whole Step	Why?	What note is skipped?
(3)	(4)			
E	and F	Half Step	Why?	
(4)	(5)			
F	and G	Whole Step	Why?	What note is skipped?
(5)	(6)			
G	and A	Whole Step	Why?	What note is skipped?
(6)	(7)			
A	and B	Whole Step	Why?	What note is skipped?
(7)	(8)			
B	and C	Half Step	Why?	

So the Major Scale Pattern is...

W W H W W W H

**Let's verify that this is correct with a
different Major Scale.**

F Major



Is this correct?

F G A A# C D E F

Why or why not?

Is this correct?

F G A B \flat C D E F

Why or Why not?



Let's use another Key Signature to check our Major Scale Pattern: G Major. We know that G Major has one #.

Using your keyboard, play a G Major Scale. As you are playing your whole and half steps make sure you are writing down which letter names you are playing so we can share the Major Scale with the class.

