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## UNIT 2 <br> THE MUSICAL KEYBOARD

## AIMS

To:

- understand the structure of the musical (piano) keyboard
- identify semitones and tones on the keyboard
- name enharmonic equivalents


## THE MUSICAL (piano) KEYBOARD

The piano keyboard is a very useful reference tool that all musicians need to be able to use. It is made up of a series of black and white keys.
Tones and Semitones

- One step on the keyboard (the distance from one key to the next closest key, regardless of colour) is called a semitone.
- Two steps on the keyboard are known as a tone.
- Semitones can be found between black and white keys as well as consecutive white keys in some positions on the keyboard. See the diagram below.



## Keyboard Design

The keyboard is designed:

- with smaller black keys placed between larger white keys.
- so that the black keys form a pattern of 2 blacks, a space and then 3 blacks.


## Notes Names

- The white notes represent the seven letters of pitch (A-G).
- The note immediately to the left of the two black notes is always the letter C.
- The rest of the notes follow in alphabetical order from left to right.
- When you run out of letters you simply start at "A" again.
- The black notes are used for sharp or flat notes.


## Sharps and Flats on the Keyboard

When naming the black notes on the keyboard:

- the black note to the right of any white key is the sharp \# note of that letter name.
- the black note to the left of any white key is the flat $b$ note of that letter name.


## A Point to Remember

- To sharpen or flatten any note move one step regardless of the colour of key.
- When using double flats and double sharps move two steps (a tone).


## Enharmonic Names

- The black keys have two different names - a sharp and a flat name (eg F ${ }^{\#}$ or $G^{b}$ ). These notes are known as enharmonics.
- The white keys can also be given enharmonic names (eg. $F=E \#, B=C^{b}$ etc.).


## Double Sharps and Double Flats

- bb's and ${ }^{x}$ 's can also be used if necessary to name keys (eg. $\left.A=B^{b b}, D=C^{x}\right)$.
- $\quad x$ indicates that you should raise the note two semitones.
- $\quad b b$ means that you should lower the note two semitones.

Use the keyboard on your Musicians Slide Rule to check your answers to each of the following questions.

1. Write each of the notes given below one semitone higher by changing the accidental only (ie. Do not change the position of the note on the stave).

2. Write each of the notes given below one semitone lower by changing the accidental only. (ie. Do not change the position of the note on the stave)



## PROCEDURE - NAMING INTERVALS

1. The lower note of the interval is considered to be the key note.

2. Check the key signature and notes of the scale for the given key note (eg. C major).

3. Count the number of letter names (lines and spaces on the stave) covered by the interval.

4. Check if the top note of the interval belongs to the key note's major scale.
5. If yes! - the interval is called either:

- Major
- $\quad 2 \mathrm{nd}, 3 \mathrm{rd}, 6$ th and 7 th
- Perfect unison, 4th, 5 th \& octave ( 8 va )

In the example below, the top note of the interval " $G$ " belongs to the scale of the key note (lower note) "C". Therefore the interval is called a perfect 5 th.

6. If no! - the interval is a chromatic interval and will be named either:

- Minor - intervals of a 2nd, 3rd, 6th or 7th which are a semitone smaller
- Diminished - intervals of a 4th or 5th which are a semitone smaller
- Augmented - intervals that are a semitone bigger

CHROMATIC INTERVALS in major keys are those in which the both notes do not belong to the same major scale.


In the example above the top note of the interval " $G$ "" does not belong to the key of $C$ major. As a result the interval is a semitone bigger than a perfect 5 th and is therefore called an augmented 5th.

## UNIT 4 TRANSPOSITION

## AIMS

To:

- transpose music by semitones
- transpose music by interval
- transpose music by key


## TRANSPOSE

The word "transpose" is a combination of two words:

- "Trans..." (transport) = to move the notes of pitch.
- "...pose" (position) = to change the position of the notes.

Therefore to transpose a melody means "to move the position of the notes".

## Why transpose?

Transposition is a important musical tool. It gives us the ability to:

- place music in an easier key (ie. less sharps or flats)
- move music so that it better suits the range of a given instrument or voice type
- add interest to compositions
- write music so that instruments pitched in different keys can play together
- give the music a different instrumental or vocal colour


## How is transposition done?

Transposition can be achieved by a number of methods. We can transpose by:

- Semitones (eg. 5 semitones higher)
- Interval (eg. perfect 4th higher)
- Key (eg. from D major to G major)

Although a melody can be transposed either up or down by a given interval it is important that we maintain the same "melodic contour" (shape of the melody).

PROCEDURE No. 1 - TRANSPOSE by SEMITONE (without a key signature)

1. Locate the first note of the original melody on a keyboard diagram.

2. Count the number of steps (semitones) for the required transposition (eg. 5 semitones) on a keyboard diagram (do not count the starting note).


5 Semitones
3. Count the number of lines or spaces that the first note has moved on the stave.


In this example the first note of the original melody has moved up three positions on the stave and therefore the remainder of the melody must also move up similarly.
4. Move up the remainder of the notes of the original melody the same number of lines and spaces on the stave.

5. Using a keyboard diagram, check the semitone intervals between each of the notes of the original melody and the transposed melody. Add accidentals as necessary.
In the example above a sharp is required on the first note of the second bar to ensure that the 5 semitone interval transposition is maintained.


5 semitones

Original Melody
Transposed Melody


1. With reference to the keyboard on your Musicians Slide Rule, transpose the following $\downarrow$ melody up 3 semitones, using procedure No. 1 outlined on the previous page.

2. A student was asked to transpose the melody below 5 semitones higher. Although the melody sounds correct, wrong enharmonic names were chosen for some of the notes.

Original Melody


Transposed Melody
(a) Circle the incorrect enharmonic notes used in the transposed melody below.

(b) Rewrite the transposed melody using the correct enharmonic notes.

3. State two reasons why transposing a melody may make it easier to play?
(a)
(b)
4. Transposition means to . . . . . . . . . . . . . . . . . . . . . . the of the
$\qquad$
5. Name the three ways to transpose.
(a)
(b) $\qquad$
(c).
6. Name the number of semitones and direction that each of the following melodies have been transposed. Use the keyboard on your MSR to check your answers.

Original Melody
Transposed Melody

(a) The melody above has been transposed $\qquad$

## Original Melody

Transposed Melody

(b) The melody above has been transposed $\qquad$
7. Using the information on page one of your Musicians Slide Rule instruction manual answer the following questions.
(a) What should the original and transposed melodies have in common?
(b) Does the lower static keyboard on the Musicians Slide Rule represent the:
(i) original key
or
(ii) transposed key?

Circle the correct answer.
(c) To ensure that the melodic contour is maintained all the notes of the melody must be taken either up or down not a
of both.

## PROCEDURE No. 3 - TRANSPOSE by KEY

Example: Transpose the original melody below into the key of A major

1. Using a Music Theory Computer as a reference determine the key of the melody. Answer $=$ the melody is written in the key D major

2. Build the scale of the melody (D major). Use a key signature and add degree numbers.

## D major Scale (original scale)


3. Add degree numbers to each of the notes of the original melody using the original scale that you have built as a reference.

4. Using a Music Theory Computer as a reference build the scale of the key to which the melody is to be transposed ( $A$ major). Use a key signature and add degree numbers.

## A major scale (transposed scale)


5. Place the new transposed key signature at the start of the transposed melody.

6. Using the transposed scale as a reference rewrite the melody in the new key using the same degree numbers as the original melody.
11. Using the procedure outlined on the previous page, transpose the following melody up into the key of A major.


Step 1. Which key is the above original melody written in? . . . . . . . . . . . . . . . . .
Step 2. Build the scale of the original melody on the stave below. Use a key signature and add degree numbers.


Step 3. Place degree numbers under each note of the original melody.


Step 4. Build the scale of the transposed key. Use a key signature and add degree numbers.


Step 5. Place the new key signature at the start of the transposed melody on the stave below.


Step 6. On the stave above, rewrite the melody using the same degree numbers from the new transposed scale.

Step 7. Check the transposition using your Musicians Slide Rule.

## UNIT 10 MODULATION

## AIMS

To:

- understand the role of pivot chords in modulation
- modulate via the $2-5^{7}$ progression
- modulate by permission
- modulate by demand


## DEFINITION

Modulation means to move from one key centre to another.

## PROCEDURE

The most effective method to create a change key is by using the Dominant seventh chord of the new key. Often a Pivot chord (a chord which is common to both keys) precedes the dominant to effect a smoother transition between the two keys.


## TASKS

1. What is meant by the term modulation?
2. What is a Pivot chord?
$\qquad$
3. Which chord of the new key creates the most effective key change?
$\qquad$
4. Name the dominant seventh chords which naturally occur in each of the following keys.
(a) F major
(b) B major
(c) $\mathrm{G}^{b}$ major

Check your answers using a Music Theory Computer. Rotate the disks until the key name appears in the large yellow MAJOR window. The name of the dominant chord for that key will now appear in the yellow dominant window immediately to the left.
5. On which scale degree does the dominant seventh chord naturally occur?
9. Examine the following chord progression and then:

- circle the $\left(2-5^{7}\right)$ modulation point.
- name the keys used in the harmonic progression below in the boxes provided.

[3]


## MODULATING THROUGH KEYS

In jazz and related contemporary styles, the music often modulates through a number of key centres rather than modulating to one new key centre.


In the example above the music has passed through several keys by using the progression $2-5^{7}$ in the stated keys.
10. Using standard chord symbols name the chords required to complete the following modulations through the keys stated.
(a)

| KEY | Key of C | Key of $\mathrm{B}^{\text {b }}$ | Key of F | Key of C |
| :---: | :---: | :---: | :---: | :---: |
| CHORDS | C / Em ${ }^{7}$ |  |  | C / |
| DEGREE No's | / / 3m ${ }^{7}$ | $2 \mathrm{~m}^{7} / 5^{7} /$ | $2 \mathrm{~m}^{7} / 5^{7}$ | $2 \mathrm{~m}^{7} 5^{7} \quad 1$ |

[6]
(b)

| KEY | Key of F | Key of Am | Key of Gm | Key of F |
| :---: | :---: | :---: | :---: | :---: |
| CHORDS | F / Dm ${ }^{7}$ |  |  | F / |
| DEGREE No's | $1 / 6 \mathrm{~m}^{7}$ | $2^{\varnothing} / 5^{7} /$ | $2^{\varnothing} / 5^{7} /$ | $2 m^{7} 5^{7} 1$ |

