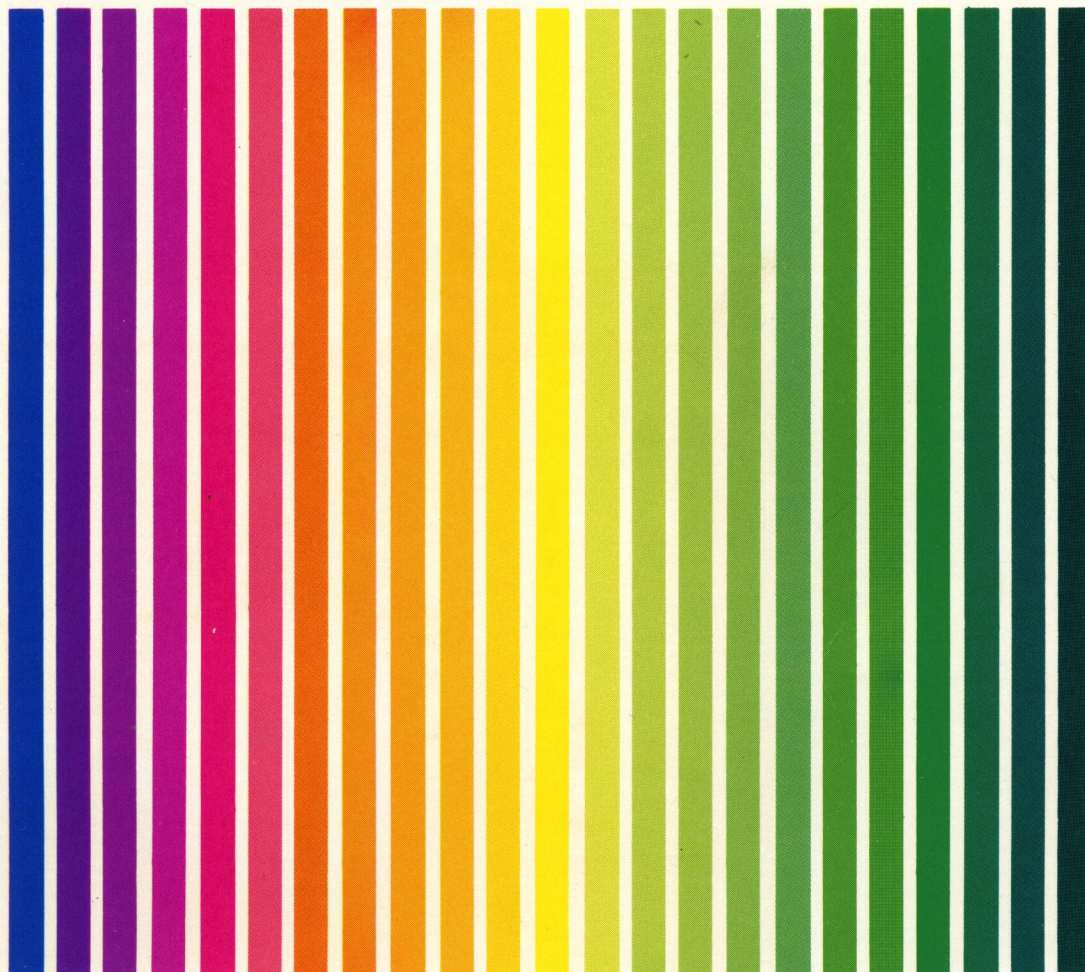


APX ATARI® PROGRAM EXCHANGE



Minnesota Educational Computing Consortium

MUSIC1-TERMS & NOTATIONS

Drills for identifying notes, keys, and terms

Diskette: 16K (APX-20139)

User-Written Software for ATARI Home Computers



MUSIC I - TERMS & NOTATIONS

by

Minnesota Educational Computing Consortium

Program and Manual Contents © 1982
Minnesota Educational Computing Consortium

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MUSIC I - TERMS & NOTATIONS

Version 1

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INTRODUCTION

Music I - Terms and Notations is the first of a series of three modules to be developed by MECC Instructional Services for music theory drill and practice. The diskettes of programs make use of the capabilities of the ATARI Computer to generate tone and produce high-resolution graphics. Each program is designed to allow students to choose the difficulty of the problems to be presented and to select exercises of increasing difficulty as skills improve.

Music theory is a skill-oriented discipline that requires much practice. Typically this practice is not a solitary activity. A teacher must evaluate the student's efforts and, in the case of ear training, also present the music to be heard. This is a tedious and time-consuming task. The ATARI Computer presents both visual and aural stimuli and can provide instant feedback to student responses. In addition, it can produce many problems of a given type randomly, thus relieving the teacher of tedious drill work while providing students with individualized activities.

Handout pages in this booklet are numbered sequentially in the upper right corner and may be duplicated for use with students.

INDEX TO PROGRAMS ON DISKETTE

INTRODUCTION

acquaints students with the ATARI Computer and demonstrates the capabilities of the computer that are used on some of the programs on the three music theory diskettes.

The following music theory programs are listed in order of suggested use (See General Description).

NOTE TYPES

a drill on recognizing different types of notes and rests. Students identify a note or rest as a quarter, an eighth, etc. and determine the number of beats it is to be held.

NAME THE NOTE

a drill on identifying notes in both treble and bass clefs. Students specify the clef(s) to be used and decide whether sharps, flats, and ledger lines are to be included.

KEY SIGNATURES

a drill on recognition of key signatures. Students can choose to work with major keys only, minor keys only, or a combination of both.

TERMS

a drill on the definitions of fifty-seven words used in musical terminology. Three levels of problem difficulty are available.

ENHARMONICS

a drill on notes that are equivalent in pitch but can be written differently. Students decide whether or not to use double sharps and double flats.

GENERAL DESCRIPTION...

The three diskettes of music programs for the ATARI Computer can be used singly or in a combination to drill students at successive levels of difficulty.

Below is one possible sequence of instruction for using the five programs on Music I - Terms and Notations; the seven programs on Music II - Rhythm and Pitch; and the five programs on Music III - Scales and Chords. Each diskette has a menu of programs with an END option. The END option provides for ending work on the current diskette and inserting of a different one. This instruction is divided into nine levels. The student does Level One first, and when all parts of level one are successfully completed, moves on to Level Two, etc. While a student is using a program, the microcomputer keeps track of which problems have been answered correctly and selects subsequent problems from ones the student has not tried or has answered incorrectly.

<u>Sequence of Instruction</u>		<u>MUSIC diskette</u>
Level One	- NOTE TYPES (all sets)	I
	- NAME THE NOTE (all sets)	I
	- ENHARMONICS (all sets)	I
Level Two	- TERMS (set 1)	I
	- KEY SIGNATURES (major only)	I
	- COUNTING (all time signatures)	II
	- AURAL INTERVALS (major and minor 2nds)	II
	- VISUAL INTERVALS (2nds)	II
	- WHOLE-HALF	III
Level Three	- WRONG NOTE (2nds)	II
	- MISSING NOTE (2nds)	II
	- RHYTHM (set 1)	II
	- RHYTHM PLAY (set 1)	II
	- AURAL INTERVALS (3rds, and a mix of 2nds and 3rds)	II
	- VISUAL INTERVALS (3rds, maximum of 1 sharp or flat)	II
Level Four	- WRONG NOTE (3rds, maximum 1 sharp or flat)	II
	- MISSING NOTE (3rds, maximum 1 sharp or flat)	II
	- RHYTHM (set 2)	II
	- RHYTHM PLAY (set 2)	II
	- AURAL INTERVALS (4ths and 5ths)	II
	- VISUAL INTERVALS (4ths, maximum of 1 sharp or flat)	II

<u>Sequence of Instruction</u>		<u>MUSIC Diskette</u>
Level Five	<ul style="list-style-type: none"> - WRONG NOTE (4ths, maximum 1 sharp or flat) II - MISSING NOTE (4ths, maximum 1 sharp or flat) II - RHYTHM (set 3) II - RHYTHM PLAY (set 3) II - FIND THE HALF (3 notes) III - TERMS (set 2) I - VISUAL INTERVALS (5ths, maximum 1 sharp or flat) II 	
Level Six	<ul style="list-style-type: none"> - WRONG NOTE (5ths, maximum 2 sharps or flats) II - MISSING NOTE (5ths, maximum 2 sharps or flats) II - FIND THE HALF (4 notes) III - VISUAL INTERVALS (6ths, maximum 3 flats or sharps) II - AURAL INTERVALS (sixths) II - TRIADS (major and minor only, both fixed and random root) III 	
Level Seven	<ul style="list-style-type: none"> - WRONG NOTE (6ths, maximum 3 sharps or flats) II - MISSING NOTE (6ths, maximum 3 sharps or flats) II - FIND THE HALF (5 notes) III - VISUAL INTERVALS (7ths, and mixture of 6ths and 7ths) II - AURAL INTERVALS (7ths, and mixture of 6ths and 7ths) II - TRIADS (all types, both fixed and random root) III 	
Level Eight	<ul style="list-style-type: none"> - WRONG NOTE (7ths, maximum 4 sharps or flats) II - MISSING NOTE (7ths, maximum 4 sharps or flats) II - SCALES (major and minor) III - SEVENTHS (major, minor, dominant, both fixed and random root) III - AURAL INTERVALS (all intervals) II - KEY SIGNATURES (set 2) I - TERMS (set 3) I 	
Level Nine	<ul style="list-style-type: none"> - SCALES (major, minor, and modal) III - SEVENTHS (major, minor, dominant, half diminished, fully diminished, both fixed and random root) III 	

Sequence of Instruction

MUSIC Diskette

Level Nine	- KEY SIGNATURES (set 3)	I
	- VISUAL INTERVALS (7ths, maximum 6 flats or sharps)	II
	- WRONG NOTE (7ths, maximum 6 flats or sharps)	II
	- MISSING NOTE (7ths, maximum 6 flats or sharps)	II

Recording Sheets

A student Recording Sheet is provided for each music theory program so that teachers have a record of student progress and students are given direction and can see progress.

The preceding Sequence of Instruction is one example of a plan for moving students through nine levels using the three diskettes of the music theory programs. To use the programs effectively, students will need direction. While teachers know that students should be familiar with the sounds of fourths and fifths in order to use these intervals in a program like WRONG NOTE (see Music III - Scales and Chords), students may not know this. Students who try programs that are beyond their level of competence usually gain nothing and feel they have failed. Therefore, if the three diskettes of the music programs are to be used with students, a plan should be devised for each student individually or for the class as a whole.

After the decision has been made on which programs to use and in what order, a Recording Sheet should be prepared for each program each student is to use.

Here is how a Recording Sheet might be filled out for a hypothetical student named Sue Collins who has advanced through the beginning levels of the music theory programs. Sue is now ready to work with AURAL INTERVALS, on the Music II - Rythmn and Pitch diskette.

Sue has some background in intervals and can usually identify major and minor 2nds. She can identify a third, but has trouble distinguishing between major and minor thirds. Sue is very weak on most other intervals. One plan for Sue could be the following.

1. Give her a few drills to discriminate between major and minor 2nds (both low to high and high to low). This will familiarize her with the equipment and build her confidence.
2. Give drill on a mixture of major and minor 2nds and minor 3rds (lh and hl).

3. Give drill on major and minor 3rds (lh and hl).
4. Give drill on major 3rds, minor 3rds and perfect 4ths (hl and lh).
5. Drill on perfect 4ths and perfect 5ths (hl and lh).
6. Drill on all intervals, minor 2nd through perfect 5th, excluding the tritone (lh and hl).
7. Drill perfect 4ths, perfect 5ths, minor 6ths (lh and hl).
8. Drill minor 6ths, major 6ths (lh and hl).
9. Drill perfect 4th, perfect 5th, major 6th, minor 6th, minor 7th (lh and hl).
10. Drill minor 7th and major 7th (lh and hl).
11. Drill major 6th, minor 6th, major 7th, minor 7th, tritone (hl and lh).
12. Drill all intervals (lh and hl).

Structure and sequence is provided through the student recording sheets. The instructor fills in:

The student's name

The number of problems to do each session

The total needed for mastery

The sequence of instruction

At each computer session students use the Recording Sheet for the directions the instructor has filled in at the top. After work is finished on each program, students enter their scores and mark NO if mastery is not achieved and repeat the session. If mastery is achieved, they mark YES and move on to the program that is next in the sequence by returning to the menu and:

1. pressing the number of the new program, or
2. selecting the END option on the menu and inserting a different diskette.

INTRODUCTION

MUSIC ON THE ATARI COMPUTER

Specific Topic: ATARI capabilities on music theory programs

 Type: Demonstration

Reading Level: 7 - 8 (Dale-Chall)

DESCRIPTION...

INTRODUCTION acquaints the student with the ATARI Computer in a non-threatening setting and demonstrates the capabilities that will be used in some of the music theory programs.

OBJECTIVES...

1. to experience the ATARI keyboard before the beginning of the music theory lessons.
2. to see and hear ATARI sound and graphics used in some of the music theory programs.

INTRODUCTION

BACKGROUND INFORMATION...

Music theory is a fruitful area for computer-enhanced curriculum. Visual and listening skills are combined in the drill and practice routines presented for mastery of music fundamentals. This program demonstrates the sound and graphics capabilities used in some of the programs and also gives students a chance to try the ATARI touch sensitive keyboard before they begin the drill lessons. The programs do not require prior work with computers.

INTRODUCTION

SAMPLE RUNS

THE COMPUTER CAN DISPLAY TEXT RAPIDLY

HOWEVER, YOU WILL STILL BE ABLE TO
READ AT YOUR OWN PACE AND LEARN TO
RECOGNIZE MUSICAL TERMS LIKE THESE...

Allegro	Al Segno
Adagio	Cantabile
Dolore	Crescendo
Piano	Forte

Press **RETURN** to continue.

After a brief introduction to the music theory programs, students see an example of how the computer can display text rapidly using music terms. They also learn that they will be able to work at their own pace.

EXAMPLES OF SCREEN OUTPUT

THE COMPUTER CAN DISPLAY MUSIC NOTATION



IN SOME OF THE PROGRAMS YOU WILL SEE
NOTES, KEY SIGNATURES, AND OTHER
MUSIC SYMBOLS.

Press **RETURN** to continue.

Students hear tones generated by the computer, are told to adjust the volume of their TV set, and see music symbols displayed on the screen.

NOTE TYPES

TERMS AND NOTATION

Specific Topic: Rest and Note Types
Type: Drill and Practice
Reading Level: 5 - 6 (Dale-Chall)

DESCRIPTION...

NOTE TYPES drills on recognition of different types of notes and rests. Students identify a note or rest as being a quarter, an eighth, etc. and determine the number of beats the note or rest is to be held. They may work with notes only, with rests only, or with a combination of notes and rests.

OBJECTIVES...

1. to identify the following notes and rests:
 - dotted whole
 - whole
 - dotted half
 - half
 - dotted quarter
 - quarter
 - dotted eighth
 - eighth
 - sixteenth
2. to specify how long a given note or rest should be held if a quarter note receives one beat.

NOTE TYPES

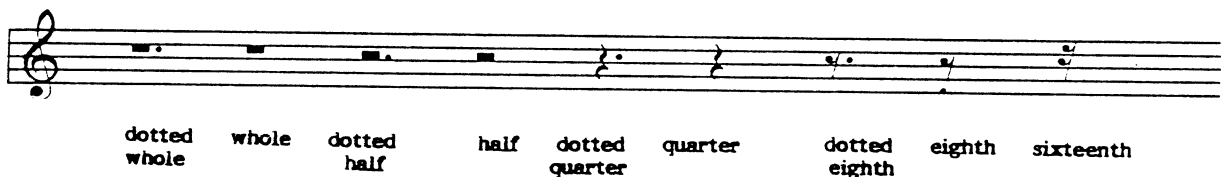
BACKGROUND INFORMATION...

To work with this program students should know note and rest types and how to determine the number of beats a note or rest is to be held. This program provides drill on recognizing the note and rest types shown below:

Notes



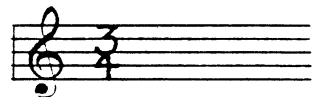
Rests



The number of beats a rest or note is held depends on both the **time signature** and the **type of note or rest**.

Time Signature

The time signature is the pair of numbers found to the right of the clef at the beginning of the composition. The top number is the number of beats in a measure and the bottom number indicates which type of note receives one beat. In the example, there are 3 beats in a measure and a quarter note receives one beat.



NOTE TYPES

Note type

A system for naming notes helps the performer determine how long one note should be held relative to another.

A half note is held half as long as a whole note,

A quarter note is held half as long as a half note
and one-fourth as long as a whole note.

Looking at things from the other direction, if a quarter note is held one beat, then a half note is held twice as long, or two beats

A dot (·) following a note increases the length of time the note is held by fifty percent, for example:

If a half note is held two beats, a dotted half note is held
(2 X 1.5) or 3 beats.

USE IN AN INSTRUCTIONAL SETTING...

Students should know note and rest types and how to determine the number of beats a note or rest is held. (See Background Information.) Instructors should fill in the top of the Recording Sheet for NOTE TYPES before students are sent to the computer. Space is provided for recording results for two computer sessions on NOTE TYPES. If more practice is needed to achieve the expected total needed for mastery, an additional Recording Sheet, should be prepared for students.

Instructors should decide if students are to follow the suggested sequence of instruction (see General Description) for the music theory programs.

If the suggested sequence is to be followed, a folio should be prepared for each student with the recording sheet for each program the student is to use. NOTE TYPES, NAME THE NOTE, and ENHARMONICS are the programs required to complete Level One of the suggested sequence.

NOTE TYPES RECORDING SHEET

Name _____

Number of problems to do Notes Only _____ (10 max.)
 Rests Only _____ (10 max.)
 Notes & Rests _____ (10 max.)

Total needed for mastery _____

Session _____

Session _____

Notes Only: Number Tried _____
 part 1 Number Correct _____
 part 2 Number Correct _____

Notes Only: Number Tried _____
 part 1 Number Correct _____
 part 2 Number Correct _____

Rests Only: Number Tried _____
 part 1 Number Correct _____
 part 2 Number Correct _____

Rests Only: Number Tried _____
 part 1 Number Correct _____
 part 2 Number Correct _____

Notes & Rests: Number Tried _____
 part 1 Number Correct _____
 part 2 Number Correct _____

Notes & Rests: Number Tried _____
 part 1 Number Correct _____
 part 2 Number Correct _____

Master Achieved _____

(Yes or No)

Master Achieved _____

(Yes or No)

NOTE TYPES

SAMPLE RUNS

This program provides drill on recognizing different notes and rests. The program will print a note or rest and you will be asked:

1. to identify the type of note or rest - e.g. whole, half, dotted quarter, etc.
2. how many beats the note or rest should be held when a QUARTER NOTE is held ONE beat.

To enter a part of a beat, use decimals. For example, when a QUARTER NOTE is held ONE beat, an eighth note would receive .5 beats.

Press **RETURN** to continue.

The instructions explain to students the two parts of the drill and to enter a part of a beat using a decimal.

EXAMPLES OF SCREEN OUTPUT

You may be drilled on any of the following:

1. Notes only.
2. Rests only.
3. A Mixture of notes and rests.

Which would you like? **■**

Students specify the type of drill they wish to work on. They also specify the number of problems.

NOTE TYPES

SAMPLE RUNS

When identifying notes, use the abbreviations given below:

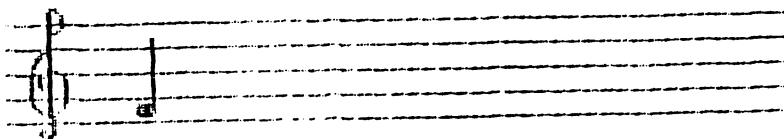
Abbreviation	Note or rest type
W	Whole
H	Half
Q	Quarter
E	Eighth
S	Sixteenth
DW	Dotted Whole
DH	Dotted Half
DQ	Dotted Quarter
DE	Dotted Eighth

The abbreviations are displayed on the screen while you answer the questions.

Press **RETURN** to continue.

Students are told how to enter note names using abbreviations.

EXAMPLES OF SCREEN OUTPUT



Enter the abbreviation for this note.
(DW, W, DH, H, DQ, Q, DE, E, S)?

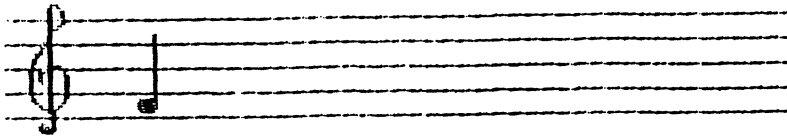
WD, it is Q, a QUARTER note.

Press **RETURN** to continue.

For each exercise a note is displayed and students are asked to type its abbreviation. (Abbreviations are listed on the screen.) Students have one chance to answer each problem. If the response is incorrect, the correct answer is displayed.

NOTE TYPES

SAMPLE RUNS



How many beats does it receive?
(.25, .5, .75, 1, 1.5, 2, 3, 4, 6)? 1

Correct!!!

Press **RETURN** to continue.

After identifying the note or rest type, students are asked how many beats the note or rest gets if a quarter note gets one beat. Possible answers (.25, .5, .75, 1, 1.5, 2, 3, 4, 6) are displayed on the screen.

EXAMPLES OF SCREEN OUTPUT

```

*****
*      Number tried...20      *
*      Number correct         *
*      First part...10        *
*      Second part...10       *
*****
  
```

Press **RETURN** to continue.

In the score, the student gets one point for each note type identified correctly and one point per problem for giving the correct number of beats. Therefore, the student who requests 10 problems and gets them all right will get a score of 20 correct.

NAME THE NOTE

TERMS AND NOTATION

Specific Topic: Note Identification
Type: Drill and Practice
Reading Level: 9 - 10 (Dale-Chall)

DESCRIPTION...

NAME THE NOTE gives students practice in identifying notes in both treble and bass clefs. Students specify the clef(s) to be used and decide whether or not exercises will include sharps, flats, and ledger lines.

OBJECTIVES...

1. to name notes in both treble and bass clefs.
2. to name notes which are written with ledger lines.
3. to name notes when the key signature contains sharps or flats.

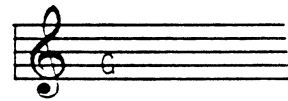
NAME THE NOTE

BACKGROUND INFORMATION...

To work with this program student should know the scheme for naming notes and the functions of ledger lines and key signatures.

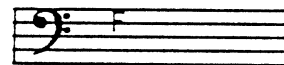
The two most commonly used clefs are the **treble** and **bass clefs**. Alternate names are **G-clef** and **F-clef** respectively. Notice that the treble clef seems to focus on the second line of the staff. The treble or G-clef identifies this line as G.

Treble Clef



Notice in the drawing of the bass clef that the focus of the clef symbol is on the fourth line. The bass or F-clef identifies this line as F.

Bass Clef

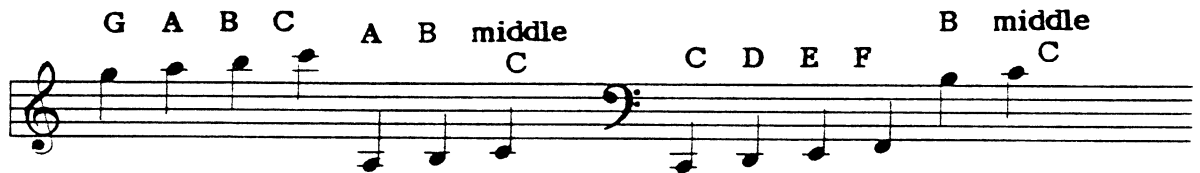


Other notes on the staffs can be determined from the starting points of F and G as shown below:



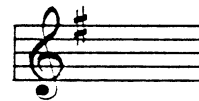
Ledger Lines

Since all notes can not be displayed on these staves, composers use **ledger lines** to show those notes which go above or below a staff. A ledger line should be regarded as a continuation of the staff as in the examples below:



Key Signatures

A key signature is a shorthand method of identifying notes to be sharpened or flatted throughout the composition. In the key of G major, for example, the note, F, is almost always played as F-sharp. Rather than placing a sharp sign before each F in the piece, the composer uses a key signature as shown.



Since the sharp sign is placed on the fifth line (F), the performer knows that all F's are to be played as F sharp's.



In the example above, notice that there are two sharps: F and C. This means that all F's and C's in the piece are now played as F#'s and C#'s.

N A M E T H E N O T E

USE IN AN INSTRUCTIONAL SETTING...

Students should know the scheme for naming notes and the functions of ledger lines and key signatures. (See Background Information.) Instructors should fill in the top of the Recording Sheet for NAME THE NOTE before students are sent to the computer. Space is provided for recording results for two computer sessions on NAME THE NOTE. If more practice is needed to achieve the expected total needed for mastery, an additional Recording Sheet should be prepared for students.

Note that for students following the suggested Sequence of Instruction, NOTE TYPES, NAME THE NOTE, and ENHARMONICS are required to complete Level One.

NAME THE NOTE RECORDING SHEET

Name _____

Number of problems to do	Set 1	_____	(30 max.)
	Set 2	_____	(30 max.)
	Set 3	_____	(30 max.)
	Set 4	_____	(30 max.)
	Set 5	_____	(30 max.)

Total needed for mastery _____

Session _____

Session _____

 Set 1: Number Tried _____
 Number Correct _____

 Set 1: Number Tried _____
 Number Correct _____

 Set 2: Number Tried _____
 Number Correct _____

 Set 2: Number Tried _____
 Number Correct _____

 Set 3: Number Tried _____
 Number Correct _____

 Set 3: Number Tried _____
 Number Correct _____

 Set 4: Number Tried _____
 Number Correct _____

 Set 4: Number Tried _____
 Number Correct _____

 Set 5: Number Tried _____
 Number Correct _____

 Set 5: Number Tried _____
 Number Correct _____

Mastery Achieved _____

Mastery Achieved _____

(Yes or No)

(Yes or No)

NAME THE NOTE

SAMPLE RUNS

There are five levels of problems:

1. All treble clef, no sharps, flats, or ledger lines.
2. All bass clef, no sharps, flats, or ledger lines.
3. Mixture of treble and bass clefs, no sharps, flats or ledger lines.
4. Mixture of treble and bass clefs, some ledger lines, no sharps or flats.
5. Mixture of treble and bass clefs, some ledger lines and some sharps and flats.

Which level do you want? █

The student selects the level of problem difficulty.

EXAMPLES OF SCREEN OUTPUT

How many problems would you like? 99
Enter a number between 1 and 30.

The student specifies the number of problems to be attempted.

NAME THE NOTE

SAMPLE RUNS

Sharps (#)

Use the pound sign (Shift 3).

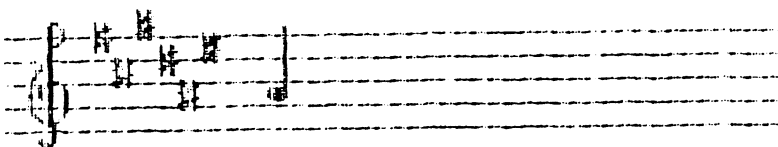
Flats (b)

Use the percent sign (Shift 5).

Press **RETURN** to continue.

Level 5 of the program explains that a % sign (shift 5) placed after a note name indicates a flat, e.g. E% is E-flat. A pound sign (#) placed after a note name indicates a sharp, e.g. F# is F-sharp.

EXAMPLES OF SCREEN OUTPUT



What is the name of this note? D
NO. The correct answer is A.

Press **RETURN** to continue.

In each exercise a note is displayed for the student to identify. The student has one chance to answer each problem. If the response is incorrect, the correct answer is displayed.

TERMS AND NOTATION

Specific Topic: Enharmonics Equivalents

 Type: Drill and Practice

Reading Level: 9 - 10 (Dale-Chall)

DESCRIPTION...

ENHARMONICS gives the student drill in identifying notes which are equivalent in pitch but which may be written differently, such as G-flat and F-sharp. The student decides whether or not to include exercises containing double sharps and double flats.

OBJECTIVE...

to identify note names which are enharmonically equivalent.

BACKGROUND INFORMATION...

To work with this program students should know the function of flats, sharps, double flats, and double sharps. Ideally, they will have access to a keyboard instrument. Students should become familiar with the following facts about a keyboard:

1. White keys are labelled C D E F G A B
2. Black keys are used for sharps and flats, and may be called by more than one name.
3. If a note is sharped, it is played one half step (one note) higher than it is written.
4. If a note is flatted, it is played one half step lower than written.

Example: The black key between F and G can be called F-sharp because it is one half step higher than F, but it can also be called G-flat because it is one half step lower than G.
5. A double sharp causes a note to be played a whole step (2 notes) higher than written and a double flat causes a note to be played a whole step lower than written.

Example: F-double sharp is G, and G-double flat is E.
6. Note that C-flat is B, and E-sharp is F.

ENHARMONICS

To work with this program students should know the function of flats, sharps, double flats, and double sharps. Ideally, they will have access to a keyboard instrument. Students should become familiar with the following facts about a keyboard:

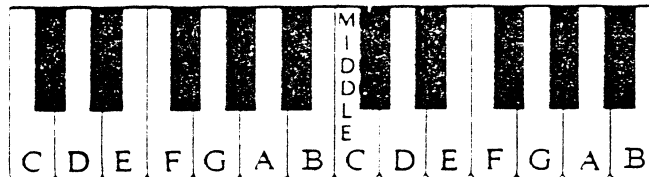
1. White keys are labelled C D E F G A B
2. Black keys are used for sharps and flats, and may be called by more than one name.
3. If a note is sharpened, it is played one half step (one note) higher than it is written.
4. If a note is flatted, it is played one half step lower than written.

Example: The black key between F and G can be called F-sharp because it is one half step higher than F, but it can also be called G-flat because it is one half step lower than G.

5. A double sharp causes a note to be played a whole step (2 notes) higher than written and a double flat causes a note to be played a whole step lower than written.

Example: F-double sharp is G, and G-double flat is E.

6. Note that C-flat is B, and E-sharp is F.



USE IN AN INSTRUCTIONAL SETTING...

Students should know the function of flats, sharps, double flats, and double sharps. (See Background Information.) Instructors should fill in the top of the Recording Sheet for ENHARMONICS before students are sent to the computer. Space is provided for recording results for two computer sessions on ENHARMONICS. If more practice is needed to achieve the expected number needed for mastery, an additional Recording Sheet should be prepared for students.

Note that for students following the suggested Sequence of Instruction, NOTE TYPES, NAME THE NOTE, and ENHARMONICS are required to complete Level One.

ENHARMONICS RECORDING SHEET

Name _____

Number of problems to do Set 1 _____ (14 max.)
Set 2 _____ (10 max.)

Total needed for mastery _____

Session _____

Session _____

Set 1: Number Tried _____
Number Correct _____

Set 1: Number Tried _____
Number Correct _____

Set 2: Number Tried _____
Number Correct _____

Set 2: Number Tried _____
Number Correct _____

Mastery Achieved _____
(Yes or No)

Mastery Achieved _____
(Yes or No)

ENHARMONICS

SAMPLE RUNS

There are two sets of enharmonic spelling drills from which you may choose.

1. Spellings with only sharps and flats.
2. Spellings with double sharps and double flats.

Which set do you want? ■

Students may choose to work with either single sharps and flats or double sharps and flats.

EXAMPLES OF SCREEN OUTPUT

How many problems would you like? 10

The student specifies the number of problems.

ENHARMONICS

SAMPLE RUNS

Sharps (#)

Use the pound sign (Shift 3).

Flats (b)

Use the percent sign (Shift 5).

Press **RETURN** to continue.

The student is informed how to enter sharp and flat signs.

EXAMPLES OF SCREEN OUTPUT

Sharps (#) - (Shift 3)

Flats (b) - (Shift 5)

What is the simplest enharmonic
spelling of F#? G

NO. The answer is Gb.

Press **RETURN** to continue.

In each exercise, the computer displays a note name and the student enters the simplest enharmonically equivalent spelling for that note. For example, if the computer displays F#, the student should answer with G flat. Students get one chance to answer each problem. If the response is wrong, the computer displays the correct answer.

TERMS AND NOTATION _____

Specific Topic: Definitions of Musical Terms

Type: Drill and Practice

Reading Level: 5 - 6 (Dale-Chall)

DESCRIPTION...

TERMS provides drill on the definitions of fifty-seven musical terms.

OBJECTIVE...

to know the definitions of fifty-seven musical terms after completing the three sets of drills in the program.

BACKGROUND INFORMATION...

TERMS provides three levels of problem difficulty:

- most commonly used music terms
- commonly used music terms
- less commonly used music terms

Students select the level of problem difficulty and the number of problems to be presented.

The computer keeps records of which terms have been identified correctly. Once identified correctly, a term will not be presented again until all terms have been identified correctly.

The chart on the following page lists the musical terms used in the program and their definitions.

SET 1 - Most Commonly Used Music Terms

<u>SET</u>	<u>MUSIC TERM</u>	<u>DEFINITION</u>
1	a cappella	singing without accompaniment
1	a tempo	resume the normal tempo
1	adagio	slowly and leisurely
1	allegro	quick, but not so fast as presto
1	andante	at walking speed
1	arpeggio	playing the notes of a chord quickly, one after the other
1	coda	a final passage closing a composition or piece
1	crescendo	becoming gradually louder
1	diminuendo	becoming gradually softer
1	dolce	sweetly
1	fine	the end
1	forte	loud
1	largo	slow and stately

SET 1 - Most Commonly Used Music Terms (Continued)

<u>SET</u>	<u>MUSIC TERM</u>	<u>DEFINITION</u>
1	legato	smooth
1	mezzo	medium or fairly
1	piano	soft
1	presto	very fast
1	ritard	become gradually slower
1	staccato	with distinct breaks between successive notes

SET 2 - Commonly Used Music Terms

<u>SET</u>	<u>MUSIC TERM</u>	<u>DEFINITION</u>
2	agitato	fast and with excitement
2	al fine	to the end
2	canon	a round
2	cantabile	in singing style
2	con	with
2	dolore	sad
2	grazioso	smooth, elegant
2	grave	with gravity
2	lento	slowly
2	meno	less
2	piu	more
2	pizzicato	plucked
2	poco	a little
2	rubato	intentionally deviating from strict rhythm
2	sempre	always
2	sforzando	with emphasis
2	sostenuto	held for the full indicated time value
2	tutti	for all instruments
2	vivace	lively, spirited

SET 3 - Less Commonly Used Music Terms

<u>SET</u>	<u>MUSIC TERM</u>	<u>DEFINITION</u>
3	al segno	to the sign
3	brio	bright
3	calore	warm
3	capo	head or beginning
3	comodo	comfortable
3	da capo al fine	return to the beginning and conclude with the word, fine
3	fuoco	fire
3	ma non troppo	but not too much
3	maestoso	majestically
3	marcato	strongly accented
3	molto	very much
3	moto	motion
3	pesante	heavily
3	poco a poco	little by little
3	rallentando	slowing, gradually
3	segue	continue
3	stringendo	accelerating the tempo toward a climax
3	subito	suddenly
3	tenuto	hold for full value

USE IN AN INSTRUCTIONAL SETTING...

Students should be encouraged to learn the Italian pronunciation of the music terms used to mark a composition as well as to recognize what the words mean. Only recognition of terms and definitions is drilled on in the program. Instructors should fill in the top of the Recording Sheet for TERMS before students are sent to the computer. Space is provided for recording results for two computer sessions for each of the three sets for TERMS. If more practice is needed to achieve the expected total needed for mastery, an additional Recording Sheet should be prepared for students.

Note that for students following the suggested Sequence of Instruction, Set 1 of TERMS is required at Level Two, Set 2 of TERMS is required at Level Three, and Set 3 of TERMS is required at Level Eight.

TERMS RECORDING SHEET

Name _____

Number of problems to do Set 1 _____ (19 max.)
 Set 2 _____ (19 max.)
 Set 3 _____ (19 max.)

Total needed for mastery _____

Session _____
 Set 1: Number Tried _____
 (Level Two) Number Correct _____
 Mastery Achieved _____
 (Yes or No)

Session _____
 Set 1: Number Tried _____
 (Level Two) Number Correct _____
 Mastery Achieved _____
 (Yes or No)

Session _____
 Set 2: Number Tried _____
 (Level Five) Number Correct _____
 Mastery Achieved _____
 (Yes or No)

Session _____
 Set 2: Number Tried _____
 (Level Five) Number Correct _____
 Mastery Achieved _____
 (Yes or No)

Session _____
 Set 3: Number Tried _____
 (Level Eight) Number Correct _____
 Mastery Achieved _____
 (Yes or No)

Session _____
 Set 3: Number Tried _____
 (Level Eight) Number Correct _____
 Mastery Achieved _____
 (Yes or No)

T E R M S

SAMPLE RUNS

There are three sets of terms to
choose from:

1. Most commonly used terms.
2. Commonly used terms.
3. Less commonly used terms.

Which set of terms would you like? ■

Students choose to work
with most commonly
used terms, commonly
used terms, or less
commonly used terms.

EXAMPLES OF SCREEN OUTPUT

How many problems would you like? 19

Students specify the
number of problems.

TERMS

SAMPLE RUNS

Presto

- A. Singing without accompaniment.
- B. Loud.
- C. Very fast.

What is the correct answer? ■

In each exercise a term is printed at the top of the screen with three possible definitions of that term. Students enter the letter of the definition which most closely defines the term. They get one try per problem. If the response is wrong, the correct answer is displayed.

EXAMPLE OF SCREEN OUTPUT

KEY SIGNATURES

TERMS AND NOTATION

Specific Topic: Major and Minor Key Signatures

Type: Drill and Practice

Reading Level: 7 - 8 (Dale-Chall)

DESCRIPTION...

KEY SIGNATURES gives the student drill in recognizing major and minor key signatures. Students may choose to work with major keys only, minor keys only, or with a mixture of major and minor key signatures.

OBJECTIVES...

1. to identify all major key signatures.
2. to identify all minor key signatures.

KEY SIGNATURES

BACKGROUND INFORMATION...

To work with this program students should know the names of the notes (see NAME THE NOTE) and be somewhat familiar with a procedure for identifying key signatures.

The key signature (sharps or flats next to the clef) identify the key in which the music is written, e.g., A major, B minor, etc.

Major Keys

There are several methods for identifying major key signatures. One of the more popular methods has two rules: If there are sharps in the key signature, **DO** (the name of the key) is one half step up from the last (rightmost) sharp. If there are flats in the key signature, **DO** is the second to the last flat.

Minor Keys

There are several ways to identify minor key signatures. Perhaps the easiest is to first identify the major key and then move down a minor 3rd. Using this method, if there is one sharp in the key signature, the major key is G. The pitch found a minor 3rd below G is E. Therefore, a key signature which has one sharp is E minor. The **relative minor** of G major is E minor.

The key can also be determined by counting the number of sharps or flats in the key signature. The table on the next page shows keys determined by the number of sharps or flats.

KEY SIGNATURE CHART

<u>Number of Sharps or Flats</u>	<u>Names</u>							<u>Major Key</u>	<u>Minor Key</u>
7 sharps	F#	C#	G#	D#	A#	E#	B#	C#	A#
6 sharps	F#	C#	G#	D#	A#	E#		F#	D#
5 sharps	F#	C#	G#	D#	A#			B	G#
4 sharps	F#	C#	G#	D#				E	C#
3 sharps	F#	C#	G#					A	F#
2 sharps	F#	C#						D	B
1 sharp	F#							G	E
None								C	A
1 flat	Bb							F	D
2 flats	Bb	Eb						Bb	G
3 flats	Bb	Eb	Ab					Eb	C
4 flats	Bb	Eb	Ab	Db				Ab	F
5 flats	Bb	Eb	Ab	Db	Gb			Db	Bb
6 flats	Bb	Eb	Ab	Db	Gb	Cb		Gb	Eb
7 flats	Bb	Eb	Ab	Db	Gb	Cb	Fb	Cb	Ab

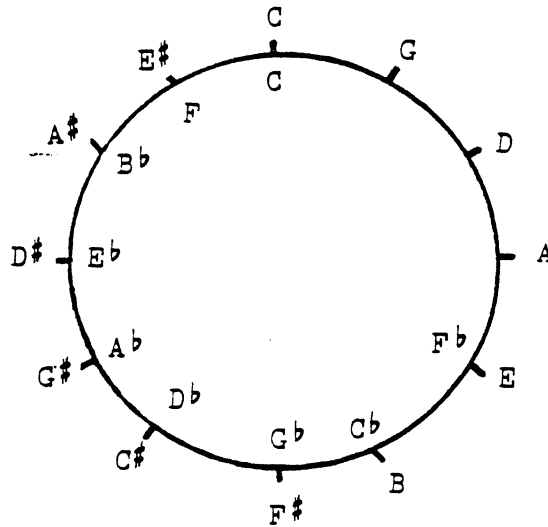
NOTE:

1. The first sharp is always F, the second C, etc.
2. The first flat is always B, the second E, etc.
3. The notes are flatted in the reverse order from the way they are sharped, i.e., the sharps in order are: FCGDAEB and the flats are BEADGCF.
4. The notes are sharped and flatted in a predictable order. Each sharp is a fifth up from the previous sharp and each flat is a fifth down from the previous flat.

KEY SIGNATURES

Useful in studying the order of sharps, flats, and key signatures is a concept called:

**The Circle
of Fifths**



Notice the order of the pitches. They are arranged so that the interval between adjacent pitches is a fifth.

C is at the top.

G, the note to the right of C, is a fifth higher than C.

F, the note to the left of C, is a fifth lower than C.

The Circle of Fifths can be used to identify a key signature or to determine the order of sharps and flats in a key signature.

All the key signatures which have sharps start at C and go clockwise.

Example: G has 1 sharp, D has 2, etc.

All the key signatures which have flats start at C and go counterclockwise.

Example: F has 1 flat, Bb has 2, etc.

The order of the sharps can be found by starting at F# and moving clockwise. The order of flats can be found by starting at Bb and moving counterclockwise.

KEY SIGNATURES

USE IN AN INSTRUCTIONAL SETTING ...

Students should know the names of notes and a procedure for identifying key signatures. (See Background Information). Instructors should fill in the top of the Recording Sheet for KEY SIGNATURES before students are sent to the computer. If more practice is needed to achieve the expected total needed for mastery, an additional Recording Sheet should be prepared for students.

Note that for students following the suggested Sequence of Instruction, Set 1 of KEY SIGNATURES is required for Level Two, Set 2 is required for Level Eight, and Set 3 is required for Level Nine.

KEY SIGNATURES RECORDING SHEET

Name _____

Number of problems to do Set 1 _____ (15 max.)
 Set 2 _____ (15 max.)
 Set 3 _____ (15 max.)

Total needed for mastery _____

Session _____
 Set 1: Number Tried _____
 (Level Two) Number Correct _____
 First Try... _____
 Second Try... _____
 Mastery Achieved _____
 (Yes or No) _____

Session _____
 Set 1: Number Tried _____
 (Level Two) Number Correct _____
 First Try... _____
 Second Try... _____
 Mastery Achieved _____
 (Yes or No) _____

Session _____
 Set 2: Number Tried _____
 (Level Eight) Number Correct _____
 First Try... _____
 Second Try... _____
 Mastery Achieved _____
 (Yes or No) _____

Session _____
 Set 2: Number Tried _____
 (Level Eight) Number Correct _____
 First Try... _____
 Second Try... _____
 Mastery Achieved _____
 (Yes or No) _____

Session _____
 Set 3: Number Tried _____
 (Level Nine) Number Correct _____
 First Try... _____
 Second Try... _____
 Mastery Achieved _____
 (Yes or No) _____

Session _____
 Set 3: Number Tried _____
 (Level Nine) Number Correct _____
 First Try... _____
 Second Try... _____
 Mastery Achieved _____
 (Yes or No) _____

KEY SIGNATURES

SAMPLE RUNS

This program is a drill in identifying key signatures.

Drill choices:

1. Only Major keys.
2. Only Minor keys.
3. Both Major and minor keys.

Which would you like? ☐

Students choose to work with major key signatures, minor key signatures, or a mixture of both.

EXAMPLES OF SCREEN OUTPUT

A key signature will be drawn on the screen. The key signature, sharps or flats next to the clef, identifies the key in which the music is written. Type the name of the key but do not enter the words major or minor.

Examples

A-Flat is Ab.
G is G.
F-Sharp is F#.

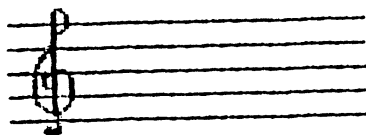
Press **RETURN** to continue.

Students are told to enter sharp and flat signs. A % sign (Shift 5) placed after a note indicates a flat, e.g., E% is E-flat. A pound sign (#) placed after a note indicates a sharp, e.g., F# is F-sharp.

KEY SIGNATURES

SAMPLE RUNS

Sharps (#) - (Shift 3)
Flats (b) - (Shift 5)



This is the key signature for which
what key? C

Correct!!!

Press **RETURN** to continue.

In each exercise, a key signature is displayed for students to identify. There are two tries per problem, but an answer is counted as correct only if it is answered correctly on the first try. If incorrect on the second try, the correct answer is displayed.

EXAMPLES OF SCREEN OUTPUT

```
*****
*                                     *
*   Number tried...10               *
*   Number correct                   *
*   First try..... 0               *
*   Second try..... 0              *
*                                     *
*****
```

Press **RETURN** to continue.

The computer keeps records of which key signatures have been identified correctly. Once identified correctly, a key signature will not be presented again until all other key signatures have been correctly identified.

APPENDICES



GETTING TO KNOW YOUR ATARI COMPUTEREquipment

ATARI COMPUTER CONSOLE: The computer and keyboard.

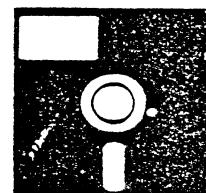
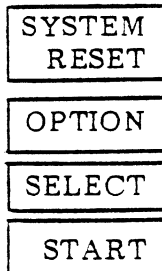
BASIC LANGUAGE CARTRIDGE: A cartridge (containing the BASIC computer language) that is inserted into the console above the keyboard.



TELEVISION: A television set used to display information.

DISK DRIVE: A unit that holds and reads the diskette.

DISKETTE: A 5¼ inch "record" that contains a series of computer programs.

ATARI Computer Keyboard


The ATARI Computer keyboard looks much like the keyboard of a typewriter. Some special keys are noted below:



RETURN Key—When you are finished typing either a response to a question or a line in a program, you send the information to the computer by pressing the **RETURN** key.






BACK S (Backspace) Key—Each time you press the **BACK S** key, the cursor backs up one space and erases each letter it passes over. This feature allows you to correct typographical errors easily.


 **BREAK** Key—Press this key to stop the execution of a program. The program will remain in the computer memory and may be run again. If **BREAK** doesn't work to stop the program, try the **RESET** key.


**SYSTEM
RESET**

RESET Key—Like the **BREAK** key, the **RESET** key stops program execution. It also clears the screen. To restart, type RUN"D:HELLO".


 **ESC** (Escape) Key—While you are using MECC diskettes, press the **ESCAPE** key in response to a question to stop program execution. The computer will ask whether you wish to run the program again. If you do not, the computer will display the diskette menu, and you may choose another program.


 **SHIFT** Key—Use the computer **SHIFT** key like that of a typewriter. If a key displays two characters, you may hold down the **SHIFT** key while typing to print the upper character. For example, holding down the **SHIFT** key and typing  will print !.

 **CAPS/LOWR** (Capitals/Lower case) Key—When you press this key, the computer begins typing in lower-case letters. To capitalize individual letters, you must hold down the **SHIFT** key as with a typewriter. To switch back to all capitals, hold down the **SHIFT** key, and press the **CAPS/LOWR** key again.

 **CTRL** (Control) Key—Hold down the **CONTROL** key while pressing another key if indicated by the computer instructions.

Keys That Can Cause Confusion

 **0** (Zero)—The zero is on the top row of keys. Do not use the letter **O** interchangeably with this number key.

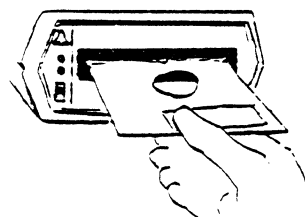
 **1** (One)—The number one is on the top row of keys. Do not use it interchangeably with a lower-case **L** (l).

USING A MECC DISKETTEUsing the Computer

1. Make certain that the ATARI Computer, BASIC language cartridge, disk drive and television are plugged in and connected to each other properly. (See the ATARI Computer New User's Guide by MECC for detailed instructions.)
2. Turn on the television.
3. Turn on the disk drive. The PWR ON and BUSY lights will come on. After about 10 seconds the BUSY light will go off, and the whirling sound will stop.

Turn on the disk drive before you turn on the computer.

4. Press the rectangular release button below the disk drive to open the door. Insert a diskette into the disk drive, exposed oval part first, with the diskette label up. Diskettes are sensitive to dust, heat, cold and magnetic fields, so handle them with care. (See the User's Guide for information on diskette care.)



5. Close the door on the disk drive.
6. Turn on the ATARI Computer. The power switch is located on the right side near the power cord. The disk BUSY light will turn on, and you will hear a whirling sound from the disk drive.

If the disk BUSY light does not go off in about 10 seconds, turn the computer off, and make sure that the diskette is placed correctly in the disk drive. Then turn the computer on.

If no display appears on your television screen at this point, and the television is set at channel 2 or 3, the computer may be set for the wrong channel. The channel select switch is on the back of the ATARI 400 Computer. Switch it to the opposite position.

7. A MECC logo will appear on the screen with the diskette name. Then a "menu" will appear. The menu gives a list of programs on the diskette. To run a program, type the number shown in front of the program name, then press the **RETURN** key. To access any available teacher options on the diskette, hold down the **CTRL** key and type A.
8. Follow the directions given in the program. Remember to press the **RETURN** key after each answer.
9. To return to the menu while running a program, press the **ESC** (Escape) key in response to any question.

The screen will then ask whether the current program is to be run again or not. If not, the menu is automatically displayed.

10. To use a different diskette, select the END option from the menu, and follow the directions on the screen.

Turning Off The Computer

1. Take the diskette out of the disk drive, and store it in its protective envelope.
2. Turn off the ATARI Computer, the disk drive and the television.

DEFINITIONS OF TERMS

BACKGROUND INFORMATION—The information that explains or enriches program content or provides technical information on the program.

COURSEWARE—A collection of computer programs together with accompanying support materials.

DOCUMENTATION—The written material for the teacher to use with the computer program (also called a support booklet or support materials).

DRILL AND PRACTICE—A computer program that provides repetitive practice on a skill or a set of facts.

EDUCATIONAL GAME—A computer program that presents an instructional purpose in a game format.

GRADE LEVEL—The range of grades for which the program was designed.

HANDOUTS—The pages of the support booklet that may be duplicated for student or teacher use.

MODULE—The package containing the computer program(s) and the support booklet.

OBJECTIVES—The results to be achieved by using the program and support materials.

PROBLEM SOLVING—A computer program that processes data for a problem defined by the student.

PROGRAM—The routines and operations that instruct the computer.

READING LEVEL—The readability of the text that appears on the computer screen.

SAMPLE RUNS—The pages of the support booklet that show examples of computer screen output and accompanying explanations to outline the program flow.

SELO—Some Essential Learner Outcomes prepared by the Minnesota State Department of Education. When applicable these are included with the objectives in MECC support booklets.

SIMULATION—A computer program that approximates a real-world environment for examination.

SUPPORT BOOKLET—The written material (also called documentation) that provides the information a teacher may need to use the program in a classroom.

TEACHER AID—A computer program designed to assist a teacher with classroom management tasks.

TUTORIAL—A computer program that provides new information to teach a concept and may include drill and practice.

MUSIC I - TERMS AND NOTATIONS

TECHNICAL INFORMATION

INTRODUCTION

Main Program:	INTRO	Address:	15232
Binary Files:	FFS.BIN	Length:	102
	MUSIC.FNT	Address:	15360
		Length:	1024

ENHARMONICS

Main Program:	ENHARM	Address:	15360
Binary File:	MUSICTXT.FNT	Length:	1024

KEY SIGNATURES

Main Program:	KEYSIG	Address:	15360
Binary File:	MUSICTXT.FNT	Length:	1024

NAME THE NOTE

Main Program:	NAMENOT	Address:	15232
Chains to:	NAMNOT2	Length:	102
Binary Files:	FFS.BIN	Address:	15360
	MUSIC.FNT	Length:	1024

NOTE TYPES

Main Program:	NOTETYP	Address:	15232
Chains to:	NOTETYP2	Length:	102
Binary Files:	FFS.BIN	Address:	15360
	MUSICC.FNT	Length:	1024

TERMS

Main Program:	TERMS
---------------	-------

CREDITS

Music I - Terms and Notations for the ATARI Computer was converted from a series of programs developed by Linda Borry Hausmann, formerly of the MECC staff.

Testing and evaluation of the original programs with students was greatly aided by Elwood Johnson of Minneapolis Roosevelt High School.

The diskette for the Atari computer was programmed by Cynthia Schroeder of the MECC staff.

The support booklet was compiled by Shirley Keran of the MECC staff.

This module is a production of the MECC Instructional Services Division.

MECC INSTRUCTIONAL SERVICES ACTIVITIES

PURPOSE: The primary purpose of the Minnesota Educational Computing Consortium (MECC) is to assist users and educational member systems in coordinating and using computing resources through cooperative planning and decision making. MECC also provides current computing methods and materials.

SERVICES: All MECC activities in instructional computing are the responsibility of the Director of Instructional Services (Telephone: 612/376-1105). Direct any questions related to MECC policy, procedures, or regulations to this office. The MECC Instructional Services Division is organized as follows:

Instructional Systems Development—This group is responsible for the production, coordination, and refinement of MECC instructional computing courseware products, computer programs, and their related user support material. Direct any questions on operations within this area to the Manager, Instructional Systems Development (Telephone: 612/376-1103).

Technical Services—This group is responsible for operation and operating systems maintenance of the MECC Timeshare System (MTS), a 400+ port, all-purpose, multiple language computer, which serves all Minnesota public higher education institutions and 300 school districts. Technical Services also establishes and maintains the MTS telecommunications network. Direct any questions on operations within this area to the Manager, Technical Services (Telephone: 612/376-1141).

User Services—This group is responsible for timeshare and microcomputer user communications and training and the distribution of computing equipment and MECC courseware products. A staff of instructional computing coordinators is located throughout Minnesota to promote and facilitate computer usage. Direct all questions on operations in this area to the Manager, User Services (Telephone: 612/376-1101).

GENERAL INFORMATION:

MECC provides the above information to assist individuals who wish to contact the MECC office with specific questions. Direct all written requests for information to the appropriate office at MECC, 2520 Broadway Drive, St. Paul, MN 55113. The following two items address many routine questions:

MECC Publications and Programs Price List

MECC distributes this free list upon request and suggests that you obtain it quarterly. Contact the MECC Publications Office (Telephone: 612/376-1118).

MECC USERS Newsletter

MECC distributes this free newsletter regularly during the school year to individuals on the mailing list. Contact the User Services Office (Telephone: 612/376-1117).

All requests for visits to MECC must be scheduled in advance by calling 612/376-1130.

Limited Warranty on Media and Hardware Accessories. We, Atari, Inc., guarantee to you, the original retail purchaser, that the medium on which the APX program is recorded and any hardware accessories sold by APX are free from defects for thirty days from the date of purchase. Any applicable implied warranties, including warranties of merchantability and fitness for a particular purpose, are also limited to thirty days from the date of purchase. Some states don't allow limitations on a warranty's period, so this limitation might not apply to you. If you discover such a defect within the thirty-day period, call APX for a Return Authorization Number, and then return the product along with proof of purchase date to APX. We will repair or replace the product at our option.

You void this warranty if the APX product: (1) has been misused or shows signs of excessive wear; (2) has been damaged by use with non-ATARI Home Computer products; or (3) has been serviced or modified by anyone other than an Authorized ATARI Computer Service Center. Incidental and consequential damages are not covered by this warranty or by any implied warranty. Some states don't allow exclusion of incidental or consequential damages, so this exclusion might not apply to you.

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EVALUATION SHEET

Please comment on this manual and the accompanying diskette. MECC will carefully consider user suggestions and incorporate them into future documentation whenever practical.

COMMENTS ON COMPUTER PROGRAM

Diskette Name _____ Vol. No. _____ Version _____
Program Name _____

COMMENTS ON MANUAL

Title of Manual _____
Program Name _____
Page No. _____

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We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many of our authors are eager to improve their programs if they know what you want. And, of course, we want to know about any bugs that slipped by us, so that the author can fix them. We also want to know whether our

instructions are meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program.

2. If you have problems using the program, please describe them here.

3. What do you especially like about this program?

4. What do you think the program's weaknesses are?

5. How can the catalog description be more accurate or comprehensive?

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

- _____ Easy to use
- _____ User-oriented (e.g., menus, prompts, clear language)
- _____ Enjoyable
- _____ Self-instructive
- _____ Useful (non-game programs)
- _____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers).

8. What did you especially like about the user instructions?

9. What revisions or additions would improve these instructions?

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the user instructions and why?

11. Other comments about the program or user instructions:

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