

MINNESOTA. UNIVERSITY. DULUTH  
THESES . . .

A DIAGNOSTIC TEST OF MUSIC NOTATION  
IN THE  
DULUTH ELEMENTARY SCHOOLS

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by  
Juanita Grace Williams  
University of Minnesota  
Duluth, Minnesota  
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## CHAPTER I

### THE NEED FOR A TESTING PROGRAM IN MUSIC

The need and desirability of a testing program should be carefully considered in a subject area of basic skills, and even more carefully in the field of music, which is considered a cultural rather than a basic subject. Test results are not outcomes and high test scores are not to be taken as aims under any conditions. Since music in the public schools is for every child and a small percentage of the school population will engage in music professionally, it is felt by most authorities that appreciation is the major goal of school music.

From this major agreement, however, there is a divergence of opinions on how best to foster this love of good music. At one extreme is a program in which theory and sight singing are entirely disregarded. All singing is by rote and appreciation is taught by planned lessons of listening to musical selections. At the other extreme, an intensive technical course of study aims to prepare a child for both participation and appreciation. Somewhere in between these extremes lies the ideal balance; just where will probably never be agreed upon.

The intensive "listening" program has fallen into disuse because children are essentially "doers". They much

prefer making their own music to listening to a record. As the child grows into adulthood the music he prefers is the kind with which he is personally familiar. The person who has struggled to play a Mozart symphony in high school orchestra is the one who will pay to hear a great symphony orchestra perform it. The person who "studied" it from a record is more likely to say, "Oh, I don't want to hear that. I've already heard it." This attitude of appreciation through participation is well stated by Brooks and Brown.<sup>1</sup>

Music education in the school of today should mean music for every child and the program should be designed to meet the musical interests and needs of each pupil to the greatest possible extent. The program should be a living experience which should help the child to enjoy music and make his associations with music vital and full of meaning. This cannot be achieved by merely setting aside a certain number of minutes every week in which the teacher teaches children to appreciate music in a well-planned formal lesson on a specific musical selection. By participating in an integrative program in music, the child should build up an appreciation whereby he will interpret music as he sees it, feels it, and enjoys it. It must be a unification of the child and music. Only in this manner can music appreciation contribute to the child's growth.

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<sup>1</sup> Marion Brooks and Harry A. Brown, Music Education in the Elementary School (American Book Co. 1946) p. 196

If this philosophy of appreciation through participation is carried out in the teaching of music there must be, of necessity, a fairly thorough and consistent approach to the study of music notation. A course of instruction in music fundamentals should never be pushed to the point where it becomes an irksome task; but a progressive program with occasional testing to see that all are learning the material will add to the effectiveness and hence to the enjoyment of the music period. Whenever a factual program is followed diagnostic tests can be of great value to both the teacher and the supervisor. Their principal value to the teacher is to enable him to tell how well his own teaching is succeeding and to indicate which children need special help. Since music is a group rather than an individual affair, it is very easy for even the competent teacher to assume that all pupils know certain facts. Casual questioning brings a number of upraised hands; and in singing many can be carried along by the abilities of a few... This peculiarity of music teaching makes a testing program especially desirable. Diagnostic tests are useful to a supervisor or administrator in pointing out areas which need special emphasis. A study of specific items may indicate that a change in the course of study or in methods of presentation is desirable.

## CHAPTER II

### REVIEW OF MUSIC TESTS

Music tests are of two general kinds, those which purport to measure innate music ability and those which attempt the measurement of acquired knowledges and skills.

#### I. NATIVE ABILITY TESTS

Ability tests are most useful for purposes of prognosis. They are often used in initiating an instrumental program or in setting up special courses for talented children. Ability tests can screen out children who would not benefit by such courses.

The Seashore Test of Musical Talent<sup>1</sup> is the most outstanding in this field. It consists of records and individual answer sheets. The pupil indicates his responses in tests designed to measure pitch, intensity, time, timbre, rhythm, and tonal memory. Although the tests are highly discriminatory, they have been found feasible for use with children at or above the fifth grade level.

The Kwalwasser-Dykema Music Tests also require the use of phonograph records and are similar in form to the Seashore tests.

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<sup>1</sup> Carl E. Seashore, Seashore Measures of Music Talent, rev. ed. (RCA Manufacturing Co., 1939).



The Drake Musical Memory Test<sup>2</sup> approaches the problem from an entirely different angle. The pupil listens to a melody and three variations or repetitions of it. He then indicates whether he heard a repetition, a change in key, a change in time, or a change in one or more notes. The test is designed for any age above seven.

The more recent Musical Aptitude Test<sup>3</sup> by Whistler and Thorpe is designed to be given from the piano keyboard. It purports to measure pitch recognition, rhythm recognition, melody recognition, pitch discrimination, and advanced rhythm recognition.

## II. ACHIEVEMENT TESTS

The three facets of achievement in music are knowledge, skill, and appreciation. The first two can be measured easily; but the third is almost impossible to define, hence extremely difficult to measure. Musical knowledge tests are generally concerned with symbols and terms, note and rest values, time and key signatures, letter and syllable names, history, biography, and instrumentation. Recall, matching, and multiple choice are the most frequently used techniques.

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<sup>2</sup> Raleigh M. Drake, Drake Musical Memory Test: A Test of Musical Talent (Public School Publishing Co., 1934).

<sup>3</sup> Harvey S. Whistler and Louis P. Thorpe, A Musical Aptitude Test, Series A (California Test Bureau, 1950).

One of the best known of the accomplishment tests is the Kwalwasser-Ruch Test of Musical Accomplishment.<sup>4</sup> Part of the test consists of recognition of the notation of familiar melodies and the detection of notation errors in the melodies.

The Beach Standardized Music Test,<sup>5</sup> which appeared in 1920, was one of the earliest of the achievement tests. It measures knowledge of the essential facts of notation, ability to hear and distinguish time and tune, aural recognition of structural elements, pitch discrimination, musical memory, sight singing through indirect methods, and the writing of music.

The Providence Inventory Test in Music<sup>6</sup> measures skill in naming notes, placing DO, naming note values, naming key signatures, naming measure signatures, naming rest values, naming syllables--treble clef, naming melodies, naming syllables--bass clef, and naming symbols.

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<sup>4</sup> Jacob Kwalwasser and G. M. Ruch, Kwalwasser-Ruch Test of Musical Accomplishment (Bureau of Educational Research and Service, University of Iowa, 1924).

<sup>5</sup> Frank A. Beach and H. E. Schrammel, Beach Music Test (Bureau of Educational Measurements, Kansas State Teachers College, 1920, 1929).

<sup>6</sup> Richard L. Allen, Walter H. Butterfield, and Marguerite Tully, Providence Inventory Test in Music (World Book Co., 1932).

The Kotick-Torgerson Diagnostic Tests of Achievement in Music<sup>7</sup> have no grade norms. The authors feel that the differing emphasis on music reading in various schools makes it difficult to establish such norms.<sup>8</sup> The sub-tests cover diatonic syllable names, chromatic syllable names, number names, time signatures, major and minor keys, note and rest values, letter names, signs and symbols, key names, and song recognition. A diagnostic profile shows the pupil's performance in these areas. The test is intended for grades four to twelve.

The major skill area of sight singing is difficult to measure objectively. A direct test of the ability is, of necessity, an individual test and depends upon the skill and judgment of the person administering the test. Perhaps the best known is the Hillbrand Sight-Singing Test.<sup>9</sup> It consists of a series of melodies to be sung by the pupil while the tester records errors in pitch and rhythm. It is intended for use in grades four through six.

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<sup>7</sup> M. Lela Kotick and T. L. Torgerson, Diagnostic Tests of Achievement in Music (Educational Test Bureau, 1950).

<sup>8</sup> Theodore L. Torgerson and Georgia Sachs Adams, Measurement and Evaluation (New York: The Dryden Press, 1954), p. 366.

<sup>9</sup> E. K. Hillbrand, Hillbrand Sight-Singing Test (New York: World Book Co., 1923).

There is, at this time, no satisfactory objective test of appreciation. Torgerson and Adams believe that the teacher can best determine this by personal observation, interviews, and questions about the child's musical preferences.<sup>10</sup> Certainly, appreciation varies so from school to school that no standard of achievement can be set.

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<sup>10</sup> Theodore L. Torgerson, op. cit., p. 368

## CHAPTER III

### CONSTRUCTION AND ADMINISTRATION OF DULUTH

#### MUSIC NOTATION TEST

If one holds to the hypothesis that performance is the best teacher of appreciation, then most certainly it is important that every child have a knowledge of the fundamentals of music notation and skill in their manipulation. It was with this idea in mind that a diagnostic testing of music notation was undertaken in the sixth grades of the Duluth Public Schools.

The purpose of the test was two-fold, first, to give each sixth grade teacher a fairly accurate inventory of the knowledges of his own class, and second, by city-wide studies, to determine which areas need more emphasis or a different approach to instruction.

A series of ability tests were planned to supplement the diagnostic test but these were not included in this study. It was felt that a music notation test plus ability tests would give teachers and supervisors a good working basis for improvement of instruction. Plans were also made to send this information along to the junior high schools where teachers might use it for forming special classes and groups. While a test in sight reading would be desirable, it is very difficult to conduct objectively. Such tests as

exist are individual and are not easy for the average teacher to give and score. Therefore a sight singing test was not included in the Duluth study. Since aural imagery is a vital part of sight singing, a test purporting to measure that ability was included.

### I. Contents of Test

The test was constructed with the Duluth course of study in mind. The music series in current use were examined to determine what items were necessary for adequate performance of the songs in these books. No effort was made to make the test hard enough to be highly discriminatory in the upper percentiles. Interest was centered in finding out whether pupils had the necessary knowledges for good performances in music classes. It was therefore expected that there would be a clustering of frequencies at the top of the scale with negative skewing of the frequency curve.

The original test was submitted to experts in the music field and to classroom teachers for criticism of the content and manner of presentation. Their suggestions were carefully considered and incorporated in the first revision. Trial runs in fourth, fifth, and sixth grade classes pointed out questions that were not clearly stated, items that were too difficult, and sub-divisions that were too long or too short. Timing was determined by allowing enough time for

about eighty per cent of the pupils to attempt all items. With the exception of Sub-test II (Use of SO-FA Syllables), limiting the time was a matter of practicality. Since there were necessary explanations at the beginning of each sub-test, it was important that the class be kept together. A trial run without timing did not prove satisfactory. In Sub-test II timing is an integral part of the test.

Trial tests were repeated three days apart and the results correlated to determine the reliability of the various sub-tests.

The tests were designed for easy administering and scoring. Duluth teachers generally teach their own music and highly technical procedures are not suitable in such a situation.

Sub-test I. Listening. This sub-test was called "listening" for lack of a more specific name. The first four items consist of lines of music to be played. The playing stops before the line is completed and the pupil is to place an X under the last note that he hears. As simple as this seems, many sixth grade children are unable to follow a line of notes satisfactorily. The remainder of the sub-test consists of sixteen problems, each having two groups of written notes. The pupil is given time to study each problem silently. Then he listens as one of the groups is played and puts

an X under the group he thinks was played. This attempts to measure the ability to look at a group of notes and get a mental image of the sound they should produce. This process involves a rather complicated set of skills, and to some degree, native ability. Since this aural imagery is one of the vital components of sight singing, it was hoped that some correlation between this test and the teacher's judgment of sight singing ability would be apparent.

Although many teachers could play the test problems on the piano, a record was made for this sub-test to insure uniform timing in all schools throughout the city.

A reliability coefficient of .555 was obtained from a test and re-test of a fifth grade on this sub-test. A split-halves correlation of scores made by a sixth grade resulted in a .561 coefficient.

Sub-test II. Use of SO-FA Syllables. This is necessarily a strictly timed test since almost any child who has any knowledge of syllables can figure out most of the responses if given sufficient time. Care was taken to use all areas of the staff, leger lines, both small and wide intervals, and some chromatic syllables. Although the key changes with every line, DO is always given. This is not a test in locating DO. The correlation of a test and re-test with a sixth grade group produced a reliability coefficient of .984.



Sub-test III. Symbols and Terms. For the symbols and terms section, several music series books were studied to determine the items most universally used. Those items which were missed by almost all students in the trial runs were eliminated in subsequent versions. The first part of the sub-test consists in a matching test of the most common symbols used in music. In the second part the more common terms and expressions are presented in multiple choice form. This part is corrected for guessing before the score is added to the score of the first part. The correlation of a test and re-test with a fifth grade group produced a reliability coefficient of .722.

Sub-test IV. Lines and Spaces. The designation of lines and spaces of the staff by number names is one of the first of the fundamentals of music to be taught. The constant reference to these numbers in the music class make it of the utmost importance that every child be familiar with these names. The test consists of five written notes, each with four possible number names given. Although the test is very short, the importance of the material led to giving it complete sub-test status. The correlation of a test and re-test produced a reliability coefficient of .531.

Sub-test V. Letter Names. Letter names are usually introduced in the fourth grade and used constantly thereafter. Here, again, a few items were given sub-test importance because of the great usage of the material. Five written notes are to be identified by letter name; and five notes are to be written in to correspond with given letter names. Notes above and below the staff were included in the test. A correlation of a test and re-test produced a reliability coefficient of .932.

Sub-test VI. The Piano Keyboard. There was some question as to whether this material should be included in the test since few teachers included it in their instruction. However, study materials on the piano keyboard were soon to be placed in the hands of the teachers, so it was decided to see how scores stood at the beginning of instruction. A follow-up test will show how much progress is made. In this sub-test, pupils indicate the location of notes on a small mimeographed piano keyboard. Questions involve both white and black keys and one item requires the location of a key from a note written on a staff. Correlation of a test and re-test showed a reliability coefficient of .871.

Sub-test VII. Note and Rest Values. This sub-test has two parts. In the first part pupils match notes and rests with their names. This part is weighted to score more

than the second part which is admittedly difficult. In the second section the pupils select from a music score notes and rests which have certain values. This is also a test of measuresignatures since the pupils must consider the signature in deciding the number of beats which a note or rest gets. Five different signatures are used in the six examples given. The reliability coefficient of .707 was obtained by correlation of scores of a test and re-test.

Sub-test VIII. Key Signatures. This test requires a knowledge of key-tones as well as of key signatures. There was some difficulty in finding a term to denote key-tone that would be understood by all pupils. After considerable experimentation, the item was written, "The last note of a major song is usually \_\_\_\_." This was readily understood and indicated the knowledge of key-tones, whether or not the term was familiar. In the items concerning major key signatures, three responses were asked for each signature given. There was some doubt that the question would be clear to all. Trial runs indicated understanding was good. In the final run, only ten pupils out of the 1048 tested showed evidence of misunderstanding the question. Only a small proportion of minor signatures was used. Although minor songs are frequently used, pupils are not usually required to make as thorough study of them as of the major. Tests and re-tests showed a reliability correlation coefficient of .821.

## II. ADMINISTRATION OF THE TESTS

The tests were given by the regular classroom teacher in as near a normal situation as possible. A set of directions accompanied each set of tests. The teacher was asked to familiarize himself with both the test and the directions before attempting to give the tests.

The use of records made it impossible for all the schools to give the test at the same time; however, all testing was finished within a span of four weeks.

Teachers and pupils thought the tests "fun" rather than a chore. There was great interest in this, the first music testing in the Duluth schools in recent years. Teachers and principals were eager to get their test results and to see how their classes stood in relation to the city-wide averages.

## CHAPTER IV

### TEST FINDINGS AND USES OF RESULTS

Sub-test I. Listening. Scores on this test ranged from 0 to 100 with the largest concentration of frequencies in the 86-90 interval. The scores were considerably higher than anticipated and perhaps indicate that the test could have been more difficult. The scores of two schools, chosen at random, were correlated with the teachers' estimate of the pupils' singing ability. The resulting correlation coefficient was .676. The item most often missed was one in which the two groups of notes were identical except that one note in one group was flatted, giving the group a minor tonality. The city-wide mean on this sub-test was 69.4 (see Table I).

Sub-test II. Use of SO-FA Syllables. The scores were fairly evenly distributed over a range from 0 to 100, with the exception of heavy concentrations in the 86-90 and the 76-80 intervals. Thus, while there are a great many pupils who use syllables with ease, about one-fourth fall below a score of 40. This is not a particularly good showing for such a basic skill. Evidently a need exists for a teaching program in which the majority of pupils, not just the leaders, acquire a facility in the use of syllables. The most frequent mistakes were on chromatic syllables.

Poor scores were obtained by pupils who made correct responses but worked so slowly that they were unable to finish within the allotted time. Other pupils finished but made errors. Both groups undoubtedly have difficulty in using syllables effectively in music reading. The city-wide mean for the sub-test was 61.3. (see Table II).

Sub-test III. Symbols and Terms. The results showed a nearly normal distribution, ranging from 0 to 100, with the largest number of frequencies in the 56-60 interval, as shown in Table III. These results were to be expected because the items were not as basic nor as universally agreed upon as in some of the other sub-tests.

Sub-test IV. Lines and Spaces. The pupils did very well on this part of the test. Of a total of 1048 pupils, 421 scored 100, and 443 scored 80. The most common mistakes were in reversing the order of the lines and spaces, that is, counting from the top rather than from the bottom of the staff. This mistake accounted for almost all of the zero scores. The other more frequent mistakes occurred on items involving lines or spaces above and below the staff.

TABLE I

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST I. LISTENING

Scores (Percentage)	Frequencies
*	
100 .....	70
95 .....	36
90 .....	132
85 .....	120
80 .....	101
75 .....	68
70 .....	82
65 .....	79
60 .....	68
55 .....	52
50 .....	58
45 .....	42
40 .....	29
35 .....	27
30 .....	26
25 .....	18
20 .....	16
15 .....	16
10 .....	7
5 .....	1
Total .....	1048
Mean .....	69.4

\*Since the scores are not continuous, no interval is given.

TABLE II

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST II. USE OF SO-FA SYLLABLES

Scores (Percentage) Interval #	Frequencies
96-100 .....	31
91- 95 .....	69
86- 90 .....	172
81- 85 .....	60
76- 80 .....	99
71- 75 .....	50
66- 70 .....	71
61- 65 .....	44
56- 60 .....	74
51- 55 .....	35
46- 50 .....	48
41- 45 .....	45
36- 40 .....	54
31- 35 .....	29
26- 30 .....	28
21- 25 .....	25
16- 20 .....	18
11- 15 .....	15
6- 10 .....	48
0- 5 .....	35
Total .....	1048
Mean .....	61.3

\*The unequal lower interval is  
necessary because of the absolute  
zero scores.



TABLE III

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST III. TERMS AND SYMBOLS

Scores (Percentage) Interval *	Frequencies
96-100 .....	23
91- 95 .....	35
86- 90 .....	19
81- 85 .....	38
76- 80 .....	67
71- 75 .....	76
66- 70 .....	54
61- 65 .....	50
56- 60 .....	97
51- 55 .....	85
46- 50 .....	81
41- 45 .....	71
36- 40 .....	85
31- 35 .....	66
26- 30 .....	60
21- 25 .....	64
16- 20 .....	37
11- 15 .....	23
6- 10 .....	11
0- 5 .....	6
Total .....	1048
Mean .....	52.1

\*The unequal lowest interval is necessary because of the absolute zero scores.

TABLE IV

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST IV. LINES AND SPACES

Scores (Percentage) Interval #	Frequencies
100 .....	421
80 .....	443
60 .....	11
40 .....	96
20 .....	36
0 .....	41
Total .....	1048
Mean .....	79

\*Since the scores are not continuous, no interval is given.

Sub-test V. Letter Names. The scores range from 0 to 100 with the largest number of frequencies, 413, at the 80 mark. Table V. shows that the nature of the test made for an "all-or-nothing" score. It is quite possible that the 100 pupils who made scores of from 10 to 50 avoided the zero mark only by lucky guesses. An analysis of the scores of one school (see Figure 1), chosen at random, shows that of 18 pupils, 16 missed item 3 (the added line below the staff), and 13 missed item 5 (the space above the staff). Only four pupils missed any items other than these two. This indicates that, while the pupils have learned the lines (e-g-b-d-f) and the spaces (f-a-c-e), they have no conception of the alphabetical continuity of notes on the staff. Otherwise they would immediately see that the space above the staff is the next note above the fifth-line f and therefore must be g. A change in or addition to teaching methods is indicated here. The city-wide mean for the sub-test is 73.7 (see Table V).

		Test Items									
		1	2	3	4	5	6	7	8	9	10
Pupil	1			X							
	2										
	3			X		X					
	4			X		X					
	5			X		X					
	6			X		X					
	7			X		X					
	8			X		X					
	9			X							
	10	X	X	X	X	X	X	X	X	X	X
	11	X	X	X	X	X			X		
	12			X		X					
	13			X							
	14			X							
	15			X		X					
	16					X					
	17			X	X	X	X			X	X
	18		X	X		X			X		

X indicates an error on the item.

Figure 1.

Responses to Items on Sub-test VI,  
Letter Names School W.

TABLE V

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST V. LETTER NAMES

Scores (Percentage) *	Frequencies
100 .....	187
90 .....	167
80 .....	413
70 .....	69
60 .....	33
50 .....	20
40 .....	30
30 .....	26
20 .....	19
10 .....	34
0 .....	50
Total .....	1048
Mean .....	73.7

\*Since the scores given were not  
continuous, no interval is given.

Sub-test VI. The Piano Keyboard. As was expected, the scores ran very low with a distinct tendency to "all-or-nothing". Out of 1048 scores, 377 were zeros and 145 were hundreds. All scores below 50 were quite probably the result of lucky guesses. A common mistake was in applying an f-a-c-e or e-g-b-d-f sequence to consecutive keys rather than the correct alphabetical sequence. Here, as in Sub-test V, the pupils fail to understand the alphabetical nature of scale-wise note progressions. A curious anomaly was that many students could correctly identify the highest and the lowest of the black keys shown but could not locate f-sharp. Table VI shows the unusual distribution.

Sub-test VII. Note and Rest Values. The scores showed a fairly normal distribution of frequencies. The difficulty and variety of the test proved more discriminatory than some of the other sub-tests. The large number of zeros on the second part of the test were due, not to omissions, but to the fact that wrong choices outnumbered the correct responses. Many mistakes were due to inability to correctly interpret the lower figure of the measure signature. The city-wide mean is 52.6 (see Table VII).

TABLE VI

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST VI. PIANO KEYBOARD

Scores (Percentage) Interval *	Frequencies
100 .....	145
90 .....	97
80 .....	52
70 .....	45
60 .....	37
50 .....	50
40 .....	37
30 .....	47
20 .....	63
10 .....	98
0 .....	377
Total .....	1048
Mean .....	38.5

\*Since the score are not continuous, no interval is given.

Sub-test VIII. Key Signatures. Although this sub-test was on material almost universally taught in the fifth and sixth grades, the results were quite low. In the 0-5 interval there were 148 frequencies. Frequencies were fairly well distributed throughout the remainder of the range, including the top score of 100. Quite a large number of students knew the rule for finding DO but were unable to put the rule into practice. Other common mistakes were failing to notice the sharps and flats when determining the names of the keys and treating the minor signatures as though they were major. A number of students reversed the rules for finding DO, applying the "flat" rule to sharp signatures and vice versa. Another frequent error was counting up to DO with the same syllables used in counting down. The pupil would count down correctly, FA-MI-RE-DO, to locate low DO, but count up incorrectly, FA-MI-RE-DO, in locating high DO. Table VIII shows the unusual distribution.



TABLE VIII

ALL-CITY FREQUENCY DISTRIBUTION OF  
SUB-TEST VIII. KEY SIGNATURES

Scores (Percentage) Interval #	Frequencies
96-100 .....	51
91- 95 .....	23
86- 90 .....	41
81- 85 .....	41
76- 80 .....	97
71- 75 .....	53
66- 70 .....	51
61- 65 .....	45
56- 60 .....	95
51- 55 .....	37
46- 50 .....	33
41- 45 .....	36
36- 40 .....	43
31- 35 .....	30
26- 30 .....	34
21- 25 .....	23
16- 20 .....	63
11- 15 .....	40
6- 10 .....	64
0- 5 .....	148
Total .....	1048
Mean .....	52.6

\*The unequal lowest interval is necessary because of the absolute zero scores.

The Effect of Socio-economic Status of School on the Scores. Before the testing program was put into effect, it was felt by some that a high socio-economic status of the community in which the school was located would result in higher scores by the pupils because of the higher percentage of those receiving private music instruction. This did not prove to be true. The higher socio-economic level schools scored higher in keyboard knowledge, slightly higher in listening, syllable use, and note and rest values; but dropped lower in lines and spaces, letter names, terms and symbols, and key signatures. Of the seven highest ranking schools in the test, four are in what would be the so-called lower social and economic categories, two being in the down-town area, one in the steel mill area, and one near a low rental housing project. Table IX compares the scores on the eight sub-tests of two schools presumed to be the highest in the socio-economic scale with two schools generally accepted as being in the low category.

The All-city Profile. The pattern made by profiles of the sub-tests was substantially the same throughout the city. A Duluth profile formed of the means of the sub-tests computed from frequency distributions (Figure 2) shows weaknesses and strengths on a city-wide basis. Table X (appendix) shows the means of each school on the eight sub-tests computed from the raw scores.

TABLE IX

COMPARISON OF SCORES ON DIAGNOSTIC MUSIC TEST FROM SCHOOLS  
OF HIGH SOCIO-ECONOMIC STATUS WITH SCHOOLS OF LOW STATUS

School	Sub-test							
	I	II	III	IV	V	VI	VII	VIII
H (high)	73.0	64.9	55.2	82.5	80.7	57.1	55.0	52.9
T (high)	78.6	63.0	61.0	74.9	79.1	31.7	57.1	52.0
Ave. H, T	75.8	64.0	58.1	78.7	79.9	44.4	56.1	52.5
D (low)	71.1	61.7	75.5	96.6	88.3	25.5	62.7	57.3
C (low)	57.7	65.4	43.2	78.5	71.8	11.4	42.9	55.8
Ave. D, C	64.4	63.6	59.4	87.6	80.1	18.5	52.8	56.6

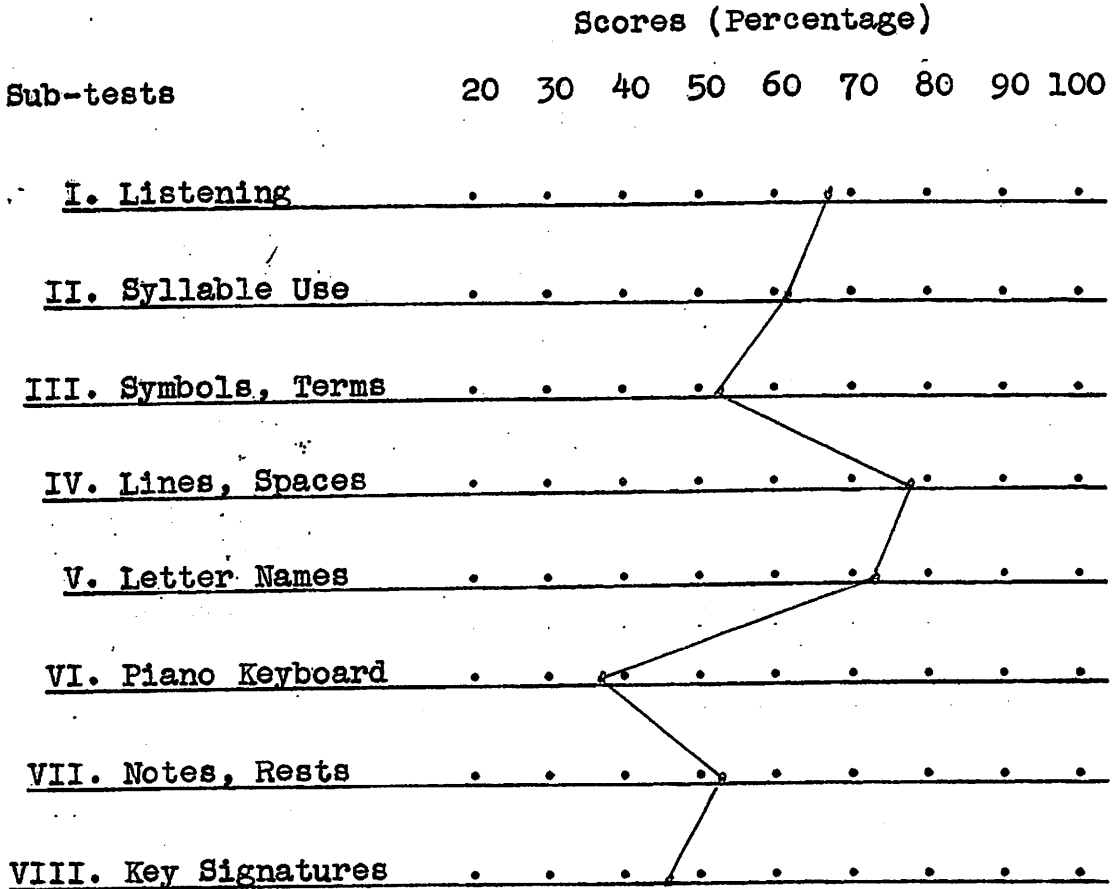


Figure 2 Duluth Profile  
Showing Means on Sub-tests of Diagnostic Music Test

Uses of the Test Findings. The individual scores of the pupils were returned to the classroom teacher as soon as the tests were graded. It was hoped these would prove helpful by spotting pupils who need help and areas of music which need emphasis.

The Duluth profile was mimeographed and each school given a copy on which their own school profile was superimposed. Thus each school could compare their results with the all-city record.

Copies of all scores were retained in the music supervisor's office for study and reference. They will be used in planning courses of study, ordering materials, and in helping individual teachers with their music problems.

Conclusions. Since the purpose of the test was purely diagnostic, there was no attempt to prove anything. Therefore, any conclusions drawn are of a very general nature. The results have pointed out certain strengths and weaknesses in music accomplishment in the Duluth elementary schools. It is hoped that this knowledge will prove helpful in improving instruction.

The tests are fairly comprehensive and several requests have come from teachers for copies of the test and scoring booklets for use as teaching aids. Although test material is seldom, if ever, suitable for instructional

purposes, these requests point out a need for a compilation of music theory items needed in the elementary school. Most books of theory tell the teacher "more than they want to know", which is really more than they have the background to assimilate and use. If a brief theory of music were stripped of the usual complicated harmony, scale building, and modulations of the average text it would be welcome material for the non-musically educated teacher.

Plans are being made for a repetition of the test next year. This will enable a comparison of the two sets of scores and an evaluation of the music program in Duluth.

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## APPENDIX

TABLE X  
SUB-TEST AVERAGE SCORES FOR EACH SCHOOL

School	N	Sub-tests							
		I	II	III	IV	V	VI	VII	VIII
A.	46	60.7	64.7	50.9	80.0	80.4	40.6	48.0	52.0
B.	32	65.8	73.3	54.4	90.0	88.8	25.0	64.1	73.9
C.	22	57.7	65.4	43.2	78.5	71.8	11.4	42.9	55.8
D.	18	71.1	61.7	75.5	96.6	88.3	25.5	62.7	57.3
E.	44	61.8	74.0	45.6	88.9	74.2	20.2	60.5	81.2
F.	40	66.7	58.3	50.8	80.0	69.3	33.4	48.0	38.9
G.	72	60.9	56.9	41.3	82.2	73.2	26.7	44.6	37.6
H.	28	73.0	64.9	55.2	82.5	80.7	57.1	55.0	52.9
I.	26	55.4	52.5	35.8	62.3	63.1	33.1	36.6	21.2
J.	18	66.9	72.2	56.7	95.6	97.8	5.0	48.3	67.3
K.	37	63.5	58.1	54.3	90.8	73.5	42.2	59.9	61.6
L.	22	57.0	59.8	68.8	70.9	79.5	50.5	52.3	40.4
M.	28	68.7	82.9	55.2	94.2	76.4	35.7	59.6	42.3
N.	39	55.3	59.2	37.3	75.9	65.4	35.1	49.7	30.8
O.	29	55.5	59.2	52.7	77.9	74.5	20.7	46.4	34.1
P.	83	66.1	63.3	44.1	76.9	73.0	26.0	42.8	30.5
Q.	60	60.5	63.0	57.6	84.7	55.1	35.0	64.1	52.9
R.	24	60.8	80.6	47.7	81.6	77.5	31.6	36.2	22.3
S.	47	69.1	53.1	56.9	79.1	68.9	56.4	50.6	45.1
T.	35	78.6	63.0	61.0	74.9	79.1	31.7	57.1	52.0
U.	21	70.2	79.1	47.1	75.2	52.9	44.3	43.6	24.0
V.	32	69.8	72.9	66.0	86.3	86.3	51.6	43.5	55.0
W.	18	55.3	51.0	63.3	81.1	72.8	30.0	48.4	25.4
X.	44	68.3	83.4	64.2	84.5	82.3	58.6	70.3	67.6
Y.	40	65.8	59.4	61.9	93.5	83.5	55.8	65.6	75.9
Z.	32	57.5	74.1	72.5	93.8	90.9	43.1	70.0	67.6
AA.	47	65.1	58.3	47.6	81.7	71.7	31.3	50.5	42.2
BB.	64	66.3	61.5	56.8	80.2	58.6	47.5	55.3	41.1
	<u>1048</u>								

# Duluth Diagnostic Music Test

## Purpose of the Test

The test is designed to show proficiencies and deficiencies in the knowledge of music notation. It makes no attempt to measure native ability, either in hearing or singing. It contains material normally taught in the elementary grades.

## Contents of the Test.

The following areas are tested.

- I. Listening ( Following a line of notes, and recognition of simple rhythmic and melodic patterns.)
- II. Use of So-Fa Syllables
- III. Symbols and Terms
- IV. Lines and Spaces
- V. Letter Names
- VI. Piano Keyboard
- VII. Notes and Rests
- VIII. Keys and Key Signatures

## Directions for Administering

The examiner should read all directions and familiarize himself with the test before administering it. The total time required is one hour. It is advisable to end the first sitting with test V, thus dividing the test into two thirty minute periods.

### General Directions:

1. Give no more help than indicated in the specific directions.
2. Retain a natural classroom situation as far as possible.
3. With lower grades or immature groups, the examiner may use his judgment in clarifying directions. The first item may be done aloud in class if the examiner feels this is necessary to establish correct procedure.
4. Pupils should be told that in cases where a word or So-Fa syllable is to be written in, they are to spell the word as it sounds to them if they do not know the correct spelling. Misspelling does not count against the score. No spelling is to be given by the examiner.
5. Pupils should be told not to guess wildly, but to answer all items which they think they might know.

### Specific directions:

- I. After all pupils are supplied with pencils and erasers, have them fill in the blanks at the top of the title page. When this is finished say, " Here is a test to show how much you know about how music is written. It is to you advantage to do your best, even though the test does not count on your music grade. Turn to the next page. This part of the test is on a record. Listen carefully. ( If you feel that it is necessary at any time to stop the record in order to explain procedure, do so.)

### III. Use of So-Fa Syllables

Read the directions aloud as the pupils watch. Caution the pupils not to turn to the next page nor back to the pages already finished. Allow 5 minutes for this part of the test.

#### III A. Symbols and Terms

Read the directions aloud. Hold up test and point to the first symbol. "Look at the first symbol. It is the five lines and four spaces on which music is written. Look down the list of names (point to list) until you find the one you think is the name of the five lines and four spaces. Notice the number just in front of that name. Write that number on the short line just after the symbol. Go only to the dotted line. Do not do III B now. Allow 3 minutes.

#### III B.

Read the instructions aloud, then say, "Look at question 1. What is the curved line beneath the notes called? If you think it is a tie, draw a circle around the letter "a". If you think it is a slur, circle "b". If it is a bar circle "c", or if it is a hold, circle "d". When you finish this page, go right on to page 5. Stop and wait at the bottom of page 5." Allow 5 minutes.

#### IV. Lines and Spaces V. Letter Names

Say, "The five questions on the top half of this page are done in the same way as the page you just finished. Look at the bottom of the page. You are to write in the letter names, not syllables, on the short lines under the notes. On the last line, draw a note on the staff for each of the letter names underneath." (If a pupil asks "which A" or "which C", tell them that either one is all right. Do not volunteer this information. Allow 5 minutes for the entire page.

#### VI. The Piano Keyboard

This test is self explanatory. Allow 5 minutes.

#### VII.A. Notes and Rests

Read directions aloud. Allow 5 minutes.

VII.B. Say, "Read the directions and notice the measure signature for each of the six lines. The X's go under single notes, not under groups of notes which might add up to the number of beats called for." Repeat directions or explain further if some seem doubtful.) Allow 5 minutes.

#### VIII. Key Signatures

Say, "The answers to the first four questions are syllable names.

For the seven major key signatures there are three things to do." (Read "a., b., and c. aloud. For the minor signatures give no more explanation than is written on the test.)

Allow 10 minutes.

#### Grading

I am enclosing a test marked for grading with each packet of tests. These can be taken apart and folded. Check each correct response. If you wish to do your own grading and thus have the results for immediate use, I will be more than pleased to have you do so. If you do not wish to grade the tests, I will do them. I will get a profile of your class to you as soon as possible, but cannot be sure that I can return individual scores.

I sincerely hope that the tests will be of help to all of us, and that the inconvenience involved is not too great. Thank you very much.

Juanita Williams Irving School

## Duluth Diagnostic Music Test

Pupil's Name \_\_\_\_\_ Age \_\_\_\_\_ Grade \_\_\_\_\_

Address \_\_\_\_\_ Phone \_\_\_\_\_

School \_\_\_\_\_ Room \_\_\_\_\_

Subtest	Score Score	Percentage Score
I. Listening		
II. Syllable Use		
III. Symbols and Terms		
IV. Lines and Spaces		
V. Letter Names		
VI. Piano Keyboard		
VII. Notes and Rests		
VIII. Key Signatures		

### Profile

	0	10	20	30	40	50	60	70	80	90	100
I. Listening											
II. Syllable Use											
III. Symbols and Terms											
IV. Lines and Spaces											
V. Letter Names											
VI. Piano Keyboard											
VII. Notes and Rests											
VIII. Key Signatures											

Average Scholastic Grades ... A    B    C    D    F

Singing Ability..... A    B    C    D    F

# 1. Listening

Follow these notes as they are played or sung. Put an X under the last note that you hear. Watch carefully! The music may stop at any time. There are four tunes. Each one is a separate trial.

## 1 A.

1.

2.

3.

4.

Score 1 A - Author: [illegible]

On this page and the following page you will find numbered pairs of rhythms and tunes. You will hear only one of each pair played. Put an X under the one that you hear. You will be given time to study each pair and think how they should sound. Now look at the example. The first group has three notes. Think how it should sound. The second group has five notes. Think how it should sound. Listen to one of them played. Put an X under the one you heard.

Example

1.

a.

b.

2.

a.

b.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

18.

WAIT DO NOT TURN THE PAGE  
 Test 1B number right \_\_\_\_\_

Score - number right - number wrong \_\_\_\_\_ Score \_\_\_\_\_

Test 1 A plus 1 B Total score \_\_\_\_\_

## 11. Use of So-Fa Syllables

Write the syllable name under each note. The first syllable in each key is given. If you are not sure of the correct spelling of the syllables, spell them as they sound to you. Incorrect spelling will not count against you. Do not skip around; take each note as it comes. Work as fast as you can without making mistakes.

Do \_\_\_\_\_

Do \_\_\_\_\_

LA \_\_\_\_\_

Do \_\_\_\_\_

So \_\_\_\_\_

Score- Number of correct responses

Score \_\_\_\_\_



111 A. Symbols and Terms

In the left column are some music symbols. Choose the name of the symbol from the column of names at the right. Write the number of the name you think is right on the short line just after the symbol.

1. hold
2. flat
3. natural
4. staff
5. accent
6. treble clef sign
7. sharp
8. bass clef sign
9. alto clef sign
10. measure rest
11. half note
12. double sharp

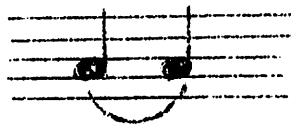
111 A. Number right \_\_\_\_\_

111 B.

Each of the following questions has four answers written below it. Draw a ring around the letter that is in front of the answer you think is right.

1. What is the curved line beneath these notes called?

- a. a tie
- b. a slur
- c. a bar
- d. a hold



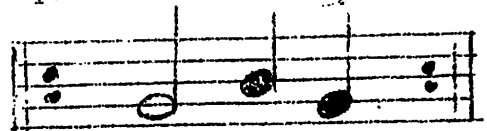
2. How are these three notes to be played or sung?

- a. each is played or sung three times
- b. played or sung on the third beat
- c. all played or sung on one beat
- d. played or sung by three people

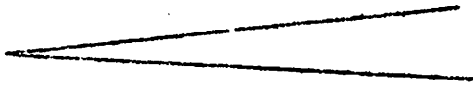


3. How is this music played or sung?

- a. played or sung twice
- b. played or sung softly
- c. left out
- d. played or sung slowly



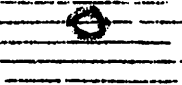
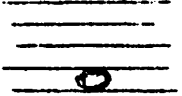
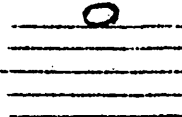
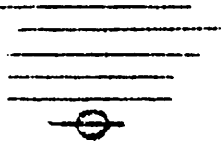
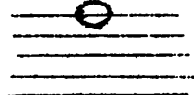
GO ON TO THE NEXT PAGE

4. What is the name given to this group of syllables? DO MI SO  
 a. a scale  
 b. a trio  
 c. a quartet  
 d. a tonic chord
5. Music is divided by up-and-down lines called bars. What is the music between two bars called?  
 a. a repeat  
 b. a section  
 c. a measure  
 d. a signature
6. What is the group of sharps or flats at the beginning of a piece of music called?  
 a. the measure signature  
 b. the scale  
 c. the key signature  
 d. the relative major
7. What does this sign mean?  
 a. go faster  
 b. go slower  
 c. become softer  
 d. become louder
- 
8. What does unison mean?  
 a. everyone playing or singing the same part  
 b. singing or playing in harmony  
 c. a long rest in the music  
 d. singing without an accompaniment
9. The word "forte" ( or its abbreviation f ) means  
 a. soft  
 b. loud  
 c. fast  
 d. slow
10. What does a double bar show?  
 a. that there is a repeat  
 b. that the measure is too long  
 c. that the measure is too short  
 d. that the music ends
11. What does D. C. mean?  
 a. go back to the beginning  
 b. diminish continually  
 c. stop  
 d. repeat the last measure
12. What does the word "ritard" ( or its abbreviation rit. ) mean?  
 a. gradually faster  
 b. very soft  
 c. repeat from the beginning  
 d. gradually slower

Score 111B R - W \_\_\_\_\_ Total score test 111. \_\_\_\_\_  
 3

IV. Lines and Spaces

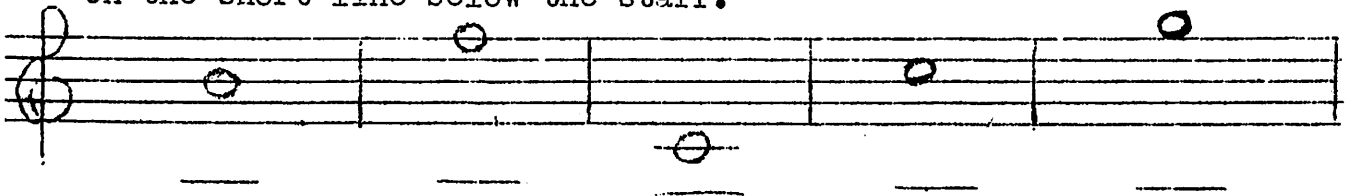
Put a circle around the letter before the answer that you think is correct.

1. This note  is on the
  - a. 2nd line
  - b. 4th line
  - c. 2nd space
  - d. 1st space
  
2. This note  is on the
  - a. 1st space
  - b. 1st line
  - c. 4th space
  - d. 5th line
  
3. This note  is on the
  - a. 1st space
  - b. space above the staff
  - c. 5th space
  - d. 5th line
  
4. This note  is on the
  - a. space below the staff
  - b. 1st line
  - c. 6th line
  - d. line below the staff
  
5. This note  is on the
  - a. 1st line
  - b. 5th line
  - c. 4th space
  - d. 1st space

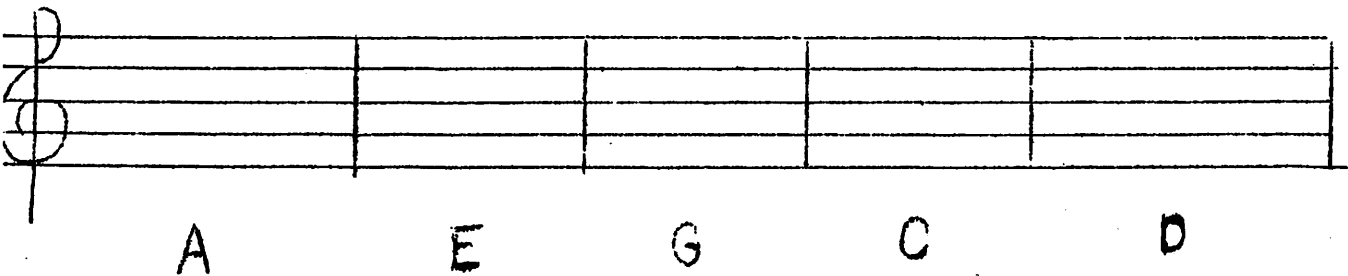
Score R -  $\frac{W}{3}$

V. Letter Names

Write the letter name ( a,b,c,d,e,f,g) of each of these notes on the short line below the staff.



Put the correct note on the staff for each of the letter names written below the staff.



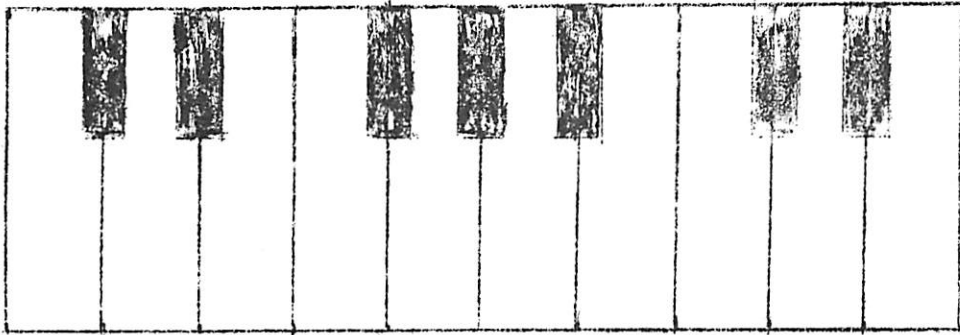
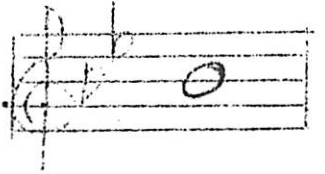
A                      E                      G                      C                      D

Score - number right \_\_\_\_\_

## VI. The Piano Keyboard

Do these things to the picture of a part of a piano keyboard shown below.

1. Write C on all keys that are C's.
2. Write A on all keys that are A's.
3. Put an X above the key that is F# .
4. Put a O above the key that this note represents .







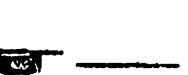





Answer the following questions.

5. How many E's are shown in the picture? \_\_\_\_\_
6. The lowest key shown is ..... \_\_\_\_\_
7. The highest key shown is ..... \_\_\_\_\_
8. The highest black key shown is ..... \_\_\_\_\_
9. The lowest black key shown is ..... \_\_\_\_\_
10. How many F's are shown? ..... \_\_\_\_\_

Score - Number right \_\_\_\_\_

## Test VII.A. Note and Rest Values

To the left is a column of notes and rests. Find the name of the note or rest in the column to the right. Put the number of the right name on the short line after the note or rest.

- |    |   |                        |
|----|---|------------------------|
| A. |    | 1. whole note          |
| B. |    | 2. whole rest          |
| C. |    | 3. half note           |
| D. |    | 4. half rest           |
| E. |    | 5. quarter note        |
| F. |    | 6. quarter rest        |
| G. |    | 7. eighth note         |
| H. |   | 8. eighth rest         |
| I. |  | 9. sixteenth note      |
| J. |  | 10. sixteenth rest     |
|    |   | 11. thirty-second note |
|    |   | 12. thirty-second rest |
|    |   | 13. measure rest       |

STOP AND WAIT

Score for Test VIIA is the number of correct responses X 3

Score \_\_\_\_\_

# VII B.

## Note Values

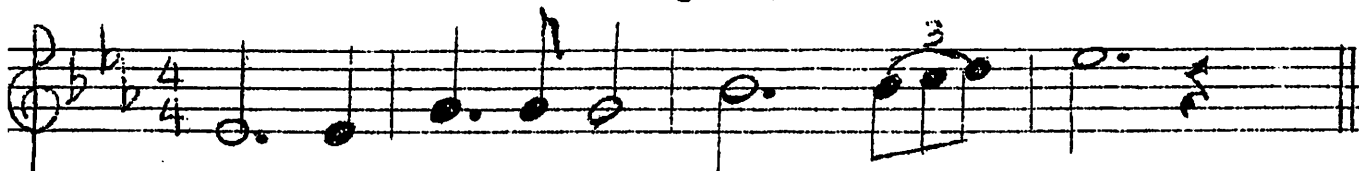
1. Put an X under each note that gets two beats and under each rest that gets two beats.



2. Put an X under each note that gets one-half beat and under each rest that gets one-half beat.



3. Put an X under each note that gets 3 beats.



4. Put an X under each note that gets 1 and one-half beats.



5. Put an X under each note that gets 2 beats and each rest that gets 2 beats.



6. Put an X under each note that gets 1 beat.



Score    Rights - Wrongs    \_\_\_\_\_ + VII A = \_\_\_\_\_ Total score

# VIII

## Key Signatures

In the following rules, fill in each blank with the correct syllable ( DO, RE, MI, etc.)

1. To find DO when the key signature is sharps, call the last sharp to the right \_\_\_\_, count up or down to DO.
2. To find DO when the key signature is flats, call the last flat to the right \_\_\_\_, count up or down to DO.
3. The last note of a major song is usually \_\_\_\_.
4. The last note of a minor song is usually \_\_\_\_.

For each of the following major key signatures,

- a. Put a note on high DO
- b. Put a note on low DO
- c. Write the name of the key underneath. If a sharp or flat is part of the name of the key, be sure to write it in.

If you cannot do all of this, be sure to do the parts that you can do. The first one is done for you.

\_\_\_\_\_

\_\_\_\_\_

Write the name of the key beneath the following minor signatures.

\_\_\_\_\_

Score - Number of correct responses \_\_\_\_\_