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ABSTRACT

The introductory portion of the manual presents a brief statement of the purpose of the test and its general features. The test itself is designed to provide schools with an instrument for periodic evaluation of status and progress in physical fitness of boys and girls in grades 4-12. The seven components measured are posture, accuracy, strength, agility, speed, balance, and endurance. Descriptions and directions are presented for all seven exercises, stressing the need for uniformity in the testing procedures. Raw scores, total physical fitness scores, and achievement levels are recorded by each student. The manual provides a section on the various uses and interpretations of the test results. Tables of achievement level norms for boys and girls in each grade are included along with a table for interpreting the achievement level of the class as a whole. (BRB)

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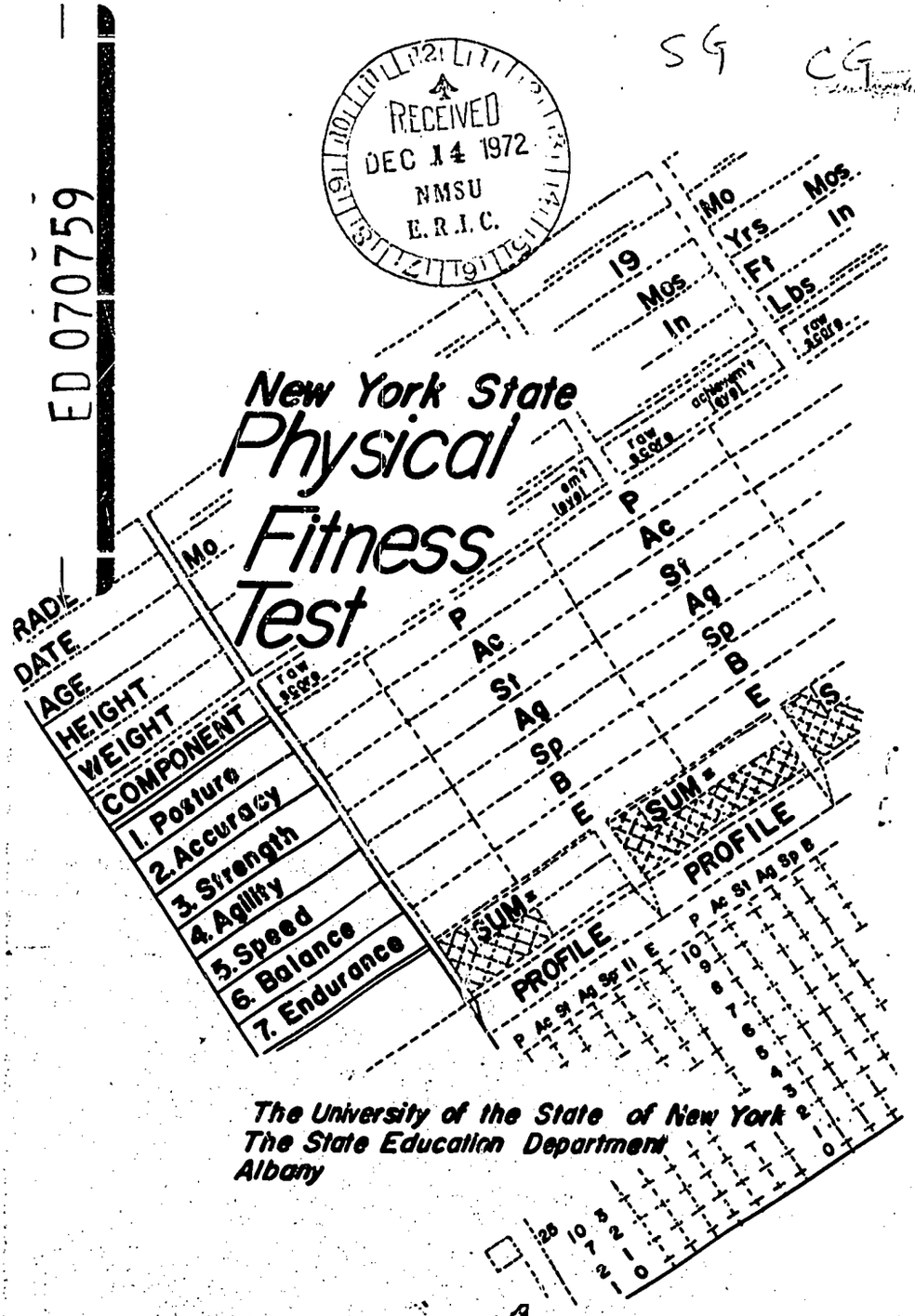
New York State Physical Fitness Test



The University of the State of New York
The State Education Department
Albany

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THE NEW YORK STATE PHYSICAL FITNESS TEST

For Boys and Girls
Grades 4-12

(1966 Revision)

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A Manual for Teachers of Physical Education

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FOREWORD

Physical fitness has always been an important objective of physical education. In fact, in its infancy, physical education was almost wholly devoted to the development of muscular power and endurance . . . the physical development of the body. Gradually, the objectives of physical education expanded to embrace also such goals as mental, social, and emotional development.

Today, physical fitness is only one of several objectives of physical education. We now interpret physical education as an experience that affects the total organism. Physical education is education by means of selected experiences in physical activity and movement in a particular environment. The physical educator is concerned not only with the development of muscular strength and basic activity skills but with the total response of the individual in this physical education environment. Under proper leadership, these activity experiences help to develop an understanding of some of the laws which govern the use of the body and their effects upon the individual's own style of movement; an awareness of the need of the total organism for exercise and activity; and an appreciation of the satisfactions to be derived from joyful and purposeful activity.

This shift from a single objective to a concept of total development has been accompanied by a certain amount of speculation about the importance of physical fitness in school programs. That some confusion exists today regarding the appropriate place of physical fitness in the physical education program is seen from the differing emphasis on physical fitness in various physical education programs throughout the country.

In New York State, physical fitness through appropriate activities continues to hold an important place among the objectives of physical education because it: (1) stimulates physical growth, (2) is needed for effective motor skill learning, (3) is an essential prerequisite for gaining satisfactions from physical activity, (4) is essential to the safety and well-being of physically active persons, and (5) provides a state of readiness for any emergency that requires strenuous physical exertion.

The New York State Physical Fitness Test is designed to measure, in an objective manner, seven components of physical fitness. We hope that the results of this test, when adequately supplemented with information from other sources, will provide schools with a greater opportunity for making enlightened educational decisions concerning their pupils.

GEORGE H. GROVER, *Director*
Division of Physical Education
and Recreation

CONTENTS

DESCRIPTION OF THE TEST

This section of the manual presents a brief statement of the purpose of the test, its general features, and what it measures.

Purpose

The New York State Physical Fitness Test is designed to provide schools with a convenient instrument for periodic evaluation of status and progress in physical fitness of boys and girls in grades 4 through 12. It is hoped that this test, when used as a part of the total school evaluation program, will be helpful in planning educational programs based on pupil needs and will be of value in measuring the outcomes of such programs. Although the chief value of the test may be supervisory—to evaluate the general effectiveness of the instructional program—the test can also serve important instructional and guidance functions. If the results are interpreted with caution, general estimates of status and progress in physical fitness can be obtained for individual pupils. The results can be used as a motivating device for the pupil, as a diagnostic aid for the teacher, and as a source of objective information for the parent.

General Features

The Physical Fitness Test is an individual performance-type test composed of seven different test items. In addition to a total physical fitness score, the test provides seven part scores indicating relative strengths and weaknesses in seven basic components of physical fitness. The test has purposely been designed so that six of the seven test items can be administered to pupils in squad groups, or to half the class at one time with pupils alternating as performers and scorers. The total score may be based either on these six items or on all seven items. Separate norms, in the form of achievement levels, are provided for each of the total physical fitness scores, and for the component scores for boys and for girls in each of grades 4 through 12. The norms are based on the performance of pupils at the beginning of the school year — October — and the test should be used by schools at that time. However, in programs where fall administration is impossible, a school may prefer to obtain general estimates of pupil status by administering the test at a more convenient time and interpreting the norms accordingly.

The seven components measured to obtain a total physical fitness score are: posture, accuracy, strength, agility, speed, balance, and en-

durance. A brief description of the test items used to measure each component is given below.

Posture: Posture is evaluated by means of a *Posture Rating Chart.* The pupil is compared with figure drawings illustrating posture for 13 different body segments. Each body segment is scored as 5, 3, or 1 making a possible range of scores from 13 to 65.

Accuracy: The *target throw* is used to measure accuracy. The pupil makes 20 throws with a softball at a circular target and is scored on the number of hits in the 20 throws.

Strength: Pullups (chinning) for boys and *modified pullups* for girls are used to measure strength in the seventh grade and above. *Modified pushups* against a bench are used in grades 4 through 6 for both boys and girls. The score is the number of pullups or pushups completed.

Agility: The *sidestep* is used to measure agility. Starting from a center line, the pupil sidesteps alternately left and right between two lines eight feet apart. He is scored on the number of lines crossed in 10 seconds.

Speed: The *50-yard dash* is used to measure speed. The score is the amount of time to the nearest half second.

Balance: The *squat-stand* is used to measure balance. The pupil squats with elbows against the inner knee surfaces and leans forward until the feet are raised just off the floor. He is scored on the number of seconds he holds his balance.

Endurance: The *treadmill* is used to measure endurance. The subject starts from a modified front leaning rest position, one knee flexed and the other extended; he then performs by exchanging the positions of his feet. The score is the number of leg changes in a given time.

Certain of the test items measure something in addition to the components they represent. For example, the pullups, a measure of strength, also reflect some endurance because they involve a repeated action. The squat-stand requires balance, its major component, but obviously strength and endurance are also needed to sustain the weight of the body on the arms.

The fact that a test item is not a pure measure of a component does not impair the value of the test. The primary emphasis in this test is upon total physical fitness, rather than upon separate components of fitness. The sum total of the component scores, with or without the posture component, should provide an adequate basis for determining general physical fitness.

What the Test Measures

The New York State Physical Fitness Test may be used to evaluate the ability of pupils to sustain vigorous physical activity. Persons who do well on the test may be expected to participate in vigorous physical activity for longer periods, with less fatigue, than persons who score low on the test.

High test results also imply that the person has the ability to utilize his muscular efforts for effective movement patterns. This is an important aspect of fitness. Although the pupil with basic strength and endurance tends to have an advantage in physical activity over those who lack these qualities, it is even more important that he have the ability to use his strength and endurance in situations which demand coordinated muscular effort. The New York State Physical Fitness Test reflects this ability to utilize available strength and endurance in physical movement patterns.

It should be emphasized that this is not a medical test. High scores do not attest to the soundness of the functioning organs within the body. Scientists have demonstrated that some persons with heart lesions and other types of organic disabilities are able to score well on physical fitness tests. Furthermore, although the high fitness score does indicate that the person can sustain physical exertion, this is in no way an indication that such a strenuous activity is desirable. For this reason, approval for participation in a physical education program should be based upon a medical examination and not upon the results of a physical fitness test.

In no case should this test be given to pupils whose medical status is questionable.

The Physical Fitness Screening Test

Some schools may be unable to administer the Physical Fitness Test because of limitations in time, facilities, or equipment. To assist such schools in the identification of physically underdeveloped pupils, the New York State Physical Fitness Screening Test has been developed. The Physical Fitness Screening Test can be administered to an entire class in one class period, and very little equipment is required. Four components are measured: agility, strength, speed, and endurance. Further information on this test may be obtained from the Division of Health, Physical Education and Recreation.

GENERAL DIRECTIONS

This section presents information concerning the Pupil Scorecard and the Cumulative Record Form. It also includes directions for planning the layout of the testing stations and the organization of the pupils for testing in relation to available time, space, and adult and pupil leadership. Detailed planning and an adequate orientation of pupils prior to the administration of the test items will help to insure reliable test results and will make the testing situation a profitable educational experience for the pupils.

Pupil Scorecard

A special scorecard is provided for each pupil. The heading of the scorecard provides space for the pupil to record his name, grade, the date of the testing, and other information concerning such physical characteristics as age, height, and weight. The pupil keeps this card with him during the testing, and his scores for the components are recorded on it as he completes each test item. A column is also provided on this card for entering the achievement level for the component raw scores, the total physical fitness score, and its achievement level.

Cumulative Record Form

A cumulative record form is provided on which to retain the scores of consecutive testing periods from the 4th grade through the 12th grade. Profile charts for each testing period are also provided. These charts may be used to show relative strengths and weaknesses in visual form, and also progress or lack of progress in total physical fitness from one grade or testing period to the next.

In addition, the cumulative record form contains the Posture Rating Chart. This chart illustrates posture for 13 segments of the body and provides spaces for recording scores for these segments for consecutive testing periods from grade 4 through grade 12.

Time Requirements

It will take each pupil from 10 to 15 minutes of actual testing time to complete the seven test items. The amount of time needed to administer the test to a class of pupils will depend upon whether or not the posture rating is included. It will also depend upon the number of stations a school can provide for performing each test item and the

amount of supervision required by the pupils. Junior and senior high school pupils may be able to perform most of the items on a self-testing basis under the general supervision of one teacher, with pairs of pupils alternating as scorers and performers. Elementary school pupils will require more immediate supervision as they carry out the required testing procedures.

The minimum amount of time one teacher will need to administer the entire test to a class of 30 eighth-grade pupils is four or five physical education class periods. In general, one period will be needed for pupil orientation, another for posture rating, two or three periods for administration of the other six test items, and perhaps one period for interpretation of the test results. Subsequent testings of the same class of pupils will require considerably less time since the pupils will be familiar with the scoring forms, the organization for testing, and the procedures for performing the test items.

Sequence for Administering the Test Items

A pupil's performance on one test item may be affected by fatigue from performing previous items. If more than one item is administered to a pupil during the class period, the pupil must perform the items in the order listed on the pupil scorecard.

Space Planning

One posture testing station requires an area of approximately 5 by 15 feet. One or more of these stations, depending upon the availability of qualified raters, may be set up in the gymnasium or in any other convenient place such as the locker room or the school nurse's office.

With the possible exception of the Speed Test, the stations for the remaining test items can be set up in the gymnasium. Since all pupils must proceed from one test item to the next in a fixed order, it is improbable that testing stations for all items will be needed during a single testing period. Space, therefore, can be planned for setting up several testing stations for the accuracy, strength, and agility test items on one day and then the same space laid out to accommodate several stations for the speed, balance, and endurance test items on another day.

The test items for the accuracy, strength, and agility tests are the target throw, pushups or pullups, and the sidestep. Only two separate areas are needed for administering these three test items. The target throw and the sidestep may be conducted in one area and the pushups or pullups in another. Figure 1 shows a layout of these areas which pro-

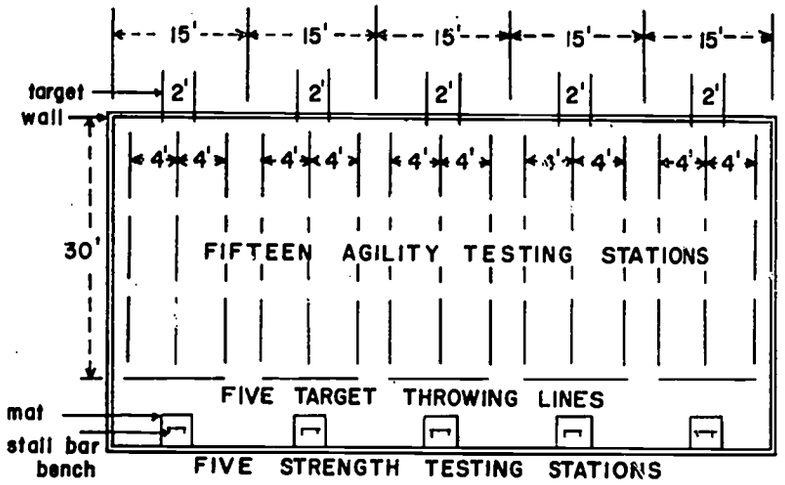

Figure 1

Arrangement of Stations for Accuracy, Strength and Agility Testing

vides for conducting 5 accuracy and 5 strength tests or 15 agility tests at one time.

By using separate areas for the target throw and the pushups, the first pupils in each squad to finish the target throw may start the push-ups without waiting for the rest of the class to finish. Because the side-stepping can wait until the class has completed the first two items, the sidestepping can be conducted in the same area used for the target throw.

The test items for the Speed, Balance, and Endurance Tests are the 50-yard dash, the squat-stand, and the treadmill. Here again, two separate areas are needed for these three test items. Because a space approxi-

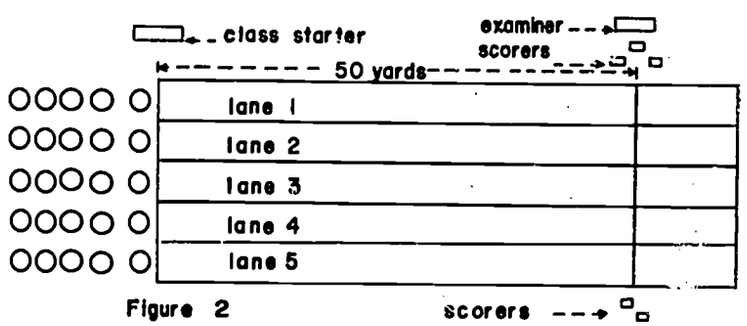

Figure 2

Arrangement of Stations for Speed Testing

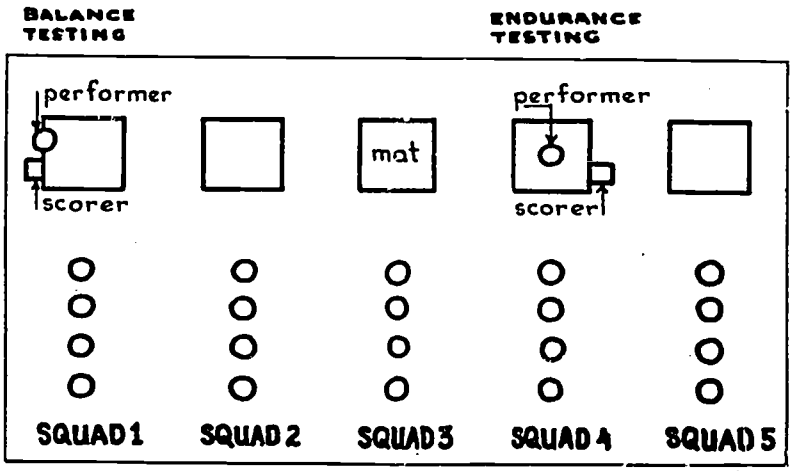

Figure 3

Arrangement of Stations for Balance and Endurance Testing

mately 3 feet by 75 yards is needed for each running lane in the 50-yard dash, it may be necessary to administer this test out-of-doors. Figure 2 shows the layout of five speed testing stations in which a class of 30 pupils divided into five squads can be tested. The squat-stand and the treadmill can be given in the gymnasium and the same testing stations used for both items. Figure 3 shows the layout of five testing stations for these two events. Sufficient stations to test half the class at one time can be set up, if suitable arrangements can be made for timing.

Pupil Organization During Testing

During the Posture Test, the class lines up at the testing station and the examiner rates the pupils one at a time using the Posture Rating Chart in the Pupil's Cumulative Record Form. If more than one examiner and one testing station can be provided, the class may be divided into as many squads as there are testing stations.

The manner in which the class should be organized for the remaining six test items depends upon the particular test item, the availability of testing stations, and the amount of direct supervision required by the pupils. The following pattern of organization is appropriate for use with a class of 30 eighth-grade pupils in administering the target throw, the pullup, and the sidestepping in one class period and the 50-yard dash, the squat-stand, and the treadmill in another. This organization

requires 15 stations for the sidestepping and 5 stations for each of the other test items. The pupils are divided into five squads of six pupils each. (The organization of pupils as described here is optional. The examiner may modify this pattern as necessary to suit the grade level of the pupils, the testing area, etc. Variations from this pattern will not impair the validity of the test results as long as the test items that are given in a class period are administered in the prescribed order and in strict accordance with the testing procedures for each item.)

Target Throw Station. Each squad lines up in a single column behind the target-throwing line. Adjacent pupils within each squad are paired, and, for this purpose, it helps to have an even number of pupils in each squad.

The first pair of pupils immediately begins the target throw, alternating as performer and scorer. That is, one pupil throws and the other judges the throw, keeps the score, and records it on the Pupil Scorecard. At the same time, the second pair in each squad acts as retrievers. One partner remains at the throwing line to return the balls to the container as they are rolled to him by his partner. The rest of the squad waits its turn to move up to the retriever position, and then from the retriever position to the throwing and scoring position.

As each pair of pupils completes the target throw, they move on to the pushup or pullup testing stations shown in figure 1.

Pushup or Pullup Station. The first pair to reach the pushup or pullup station alternates as performer and scorer. As succeeding pairs of pupils come to this station from the target throw, they wait their turn to perform and score.

As the first pair of pupils finishes the pushups or pullups, they may retrieve for the accuracy test or move to the area designated for the sidestep (figure 1).

Sidestep Station. The sidestep testing does not begin until all pupils in all squads finish the target throw and the pushups or pullups. At that time, the pairs of pupils take their places with one in each pair ready to perform and the other to count the score.

The examiner, with stopwatch in hand, calls out the start and the finish of the time interval for the entire class. Each scorer counts and records the score for his partner. After the count is recorded, each scorer then becomes a performer, while his partner counts and records his score.

Fifty-Yard Dash Station. Each squad lines up behind the starting line of its running lane as shown in figure 2. The squad leader takes

his place at the finish line. The first pupils in starting positions in the squads start the dash at a signal from the starter, and the squad leader notes and records the time at the finish. This is repeated until all pupils in each squad have run. Then the second pupil in each squad acts as squad leader while the regular squad leader runs.

NOTE: (1) If the squad leaders can use stopwatches properly and read them accurately, the examiner acts as the starter. The squad leaders start the watches at the examiner's starting signal and stop them when pupils in their squads cross the finish line. As soon as the squad leaders have read the watches and recorded the scores on the Pupil Scorecards, they reset the watches and await the examiner's signal for the second pupil in each squad to start running.

(2) If squad leaders are not able to use stopwatches, the examiner, by selecting a pupil to act as starter, stations himself near the finish line and reads the stopwatch aloud. In this way each squad leader will be able to determine the time for each pupil without having to know how to manage a stopwatch. The examiner should call out the time distinctly and accurately with the proper inflection. He should use the word "five" indicating the half-second. That is, the examiner calls, "*four*-five-*five*-five-*six*-five," etc. The squad leader records the score in decimals; for example, a pupil finishing in 6 seconds would have his score recorded as 6.0 and another finishing in 6½ seconds would have his score recorded as 6.5.

Squat-Stand Station. As soon as all pupils have completed the 50-yard dash, they line up by squads at the squat-stand testing stations. As in the 50-yard dash, the squad leader acts as scorer and recorder. After each pupil in his squad has performed, the squad leader's assistant scores while the squad leader takes the test.

NOTE: If the squad leaders are not able to use stopwatches to time this test, a single audible timer such as an electric metronome and amplifying system can be used, with all squad leaders counting the score from the audible timer.

Treadmill Station. At the end of the squat-stand testing, the squads are in position for the treadmill, inasmuch as the same stations are used for both items. The pupils follow in the same order as for the squat-stand, with the examiner acting as the timer and the squad leaders as counters and recorders.

Supervisory and Leadership Requirements

At least one physical education teacher, acting as the examiner, is needed to supervise each testing period. When pupils are working on a

self-testing basis, he acts as overall supervisor to make sure the pupils are performing the test items properly in exact accordance with the testing procedures. Posture should be rated by the physical education teacher or other persons with special training in this area, such as the school nurse or physician.

Squad leaders should be selected on the basis of their ability to understand and carry out the testing and scoring procedures. If necessary, they should be trained in advance by the physical education teacher. In the elementary grades, additional adult leaders should be oriented to the test and should be assigned to help squads and squad leaders carry out the testing procedures correctly. Where necessary, the adult leader should act as scorer and recorder for each pupil in order to make certain the items are correctly executed and the scores properly recorded.

Pupil Orientation

The first testing period should be devoted to pupil orientation. At this time the physical education teacher explains the procedures for testing, demonstrates the test items, and gives the pupils an opportunity to practice any item with which they may be unfamiliar. The following points should be covered during this period:

1. Purpose of the test
2. Meaning of physical fitness
3. Test components and test items used to measure each component
4. Demonstration of each test item
5. Practice of any unfamiliar test items
6. Layout of testing stations
7. Class organization during the testing
8. Pupil responsibility for scoring and recording
9. Use of Pupil Scorecard
10. Purpose of the Cumulative Record Form and use of the Posture Rating Chart
11. Dates, times, places, and uniforms for the testing

In connection with point 9, the orientation period may also be used to have the pupils fill out the heading of the Pupil Scorecard. As much direction should be given to the class as is necessary to obtain a properly completed form from each pupil.

At the beginning of the orientation period the following introductory statement can be paraphrased or read verbatim to the pupils by the teacher:

> We are going to work with the New York State Physical Fitness Test during the next few class periods. The purpose of the test is to show whether you are high, average, or low in general physical fitness, in comparison with pupils in the same grade in other New York State schools. For this test to be of value to you, it is necessary that you give your full cooperation. It is especially important that you do your best in each item in the test, and be honest with yourself in reporting results.
>
> Before you start the test, you will need to know the directions and rules for taking each of the tests so that each of you will do the tests in exactly the same way. Otherwise, your scores will not be meaningful. I shall try to explain each test as clearly as I can. If necessary, you will be allowed to practice those tests with which you are unfamiliar.
>
> You are expected to be accurate and neat in supplying the information requested on the scorecard. When taking the test you are to wear your physical education uniform. Sneakers must be worn during all tests except the posture rating. Rules of safety must be observed at all times.

TESTING PROCEDURES

The specific directions for setting up the testing stations and for administering and scoring each test item are presented in this section. The procedures given for each test item must be followed exactly. When two or more tests are given during a single testing period, they must be given in the order presented.

Importance of Uniform Testing Procedures

A test is defined as a work sample performed under uniform conditions. The results of this test are to be interpreted on the basis of test norms and it is essential, therefore, that the specific directions and procedures be followed exactly. Obviously, if some pupils are given a longer time to perform a test item, or if they are given special help or consideration during the test, their test scores will not be comparable with the test scores of other pupils who did not have such special advantages. Similar lack of comparability will result if pupils are handicapped by being given insufficient time or an inadequate explanation of what they are to do. Naturally, scoring errors or failure to maintain scoring standards will also invalidate the test results. It is all-important, therefore, that each pupil participating in this testing program be made thoroughly familiar with the testing procedures for each item.

The Posture Test

Posture is measured by reference to the rating guides for the 13 different segments identified on the Posture Rating Chart in the Cumulative Record Form. Each pupil must be rated individually by a qualified examiner.

a. Equipment and Testing Station

1. Heavy, clearly visible plumb line
2. Convenient stationary support for plumb line; e.g., horizontal bar
3. Masking tape (approximately 1 inch wide)
4. Backdrop or screen

Suspend a plumb line from a stationary support in front of an appropriate screen so that the bob almost touches the floor. Directly under the bob, construct a straight line using the masking tape. This

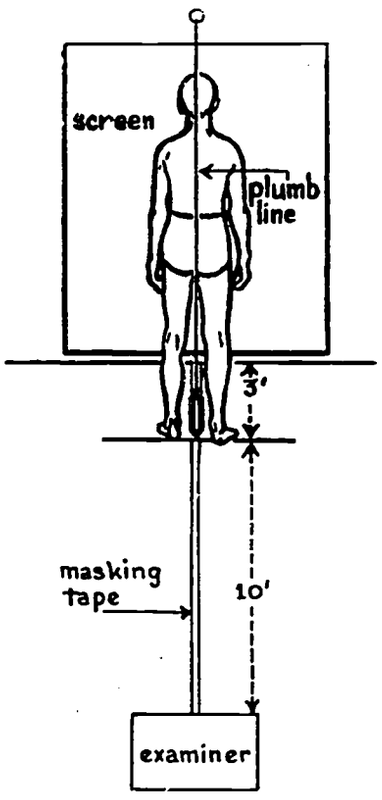

Figure 4

Position for Rating Lateral Posture

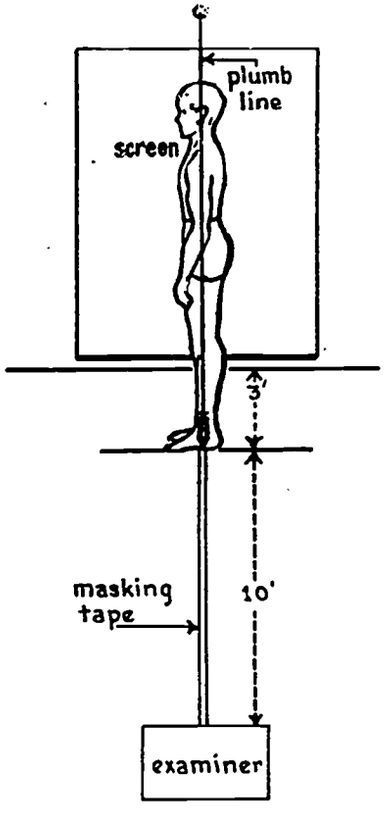

Figure 5

Position for Rating Anteroposterior Posture

line should begin at a point on the floor 3 feet from the bob toward the screen, pass directly under the bob, and extend 10 feet on the examiner's side of the bob.

b. Testing Procedure and Scoring

The pupil being examined assumes first a *comfortable and natural* standing position between the plumb line and the screen, straddling the short end of the floor line with his back to the plumb line. The examiner takes a position on the floor line about 10 feet from the pupil with the plumb line between himself and the pupil (figure 4).

After the pupil's lateral posture and feet have been rated, the pupil then makes a one-quarter left turn so that his left side is next to the

plumb line, and stands with his feet at right angles to the floor line. His left ankle bone must be in line with the plumb bob (figure 5).

As the examiner scores each segment as shown on the Posture Rating Chart, he should first observe the pupil, then review the illustrations and descriptions on the rating chart, and, finally, evaluate the pupil and record his score in the box under the appropriate grade column. The pupil's score on each segment must be 5, 3, or 1. Each segment should be scored separately and the scoring of the previous segments should not be allowed to influence the score of the segment under consideration at the moment. The examiner should not be reluctant to enter extreme scores of ideal or markedly defective posture if they are merited. After ratings have been made for each of the 13 segments, record the total score in the space provided at the bottom of each page in the appropriate grade column. The sum of the 13 scores should, of course, be an odd number.

The Accuracy Test

The target throw is the test item used to measure accuracy.

a. Equipment and Testing Station

1. Four regulation 12-inch softballs (without raised seams)
2. Masking tape (approximately 1 inch wide)
3. Appropriate container for balls at throwing line
4. Target

On a padded surface, scribe a clearly visible circle with the center 4 feet from the floor surface and with an outside diameter of 2 feet. Directly in front of the target, mark (using the masking tape) visible throwing lines as follows:

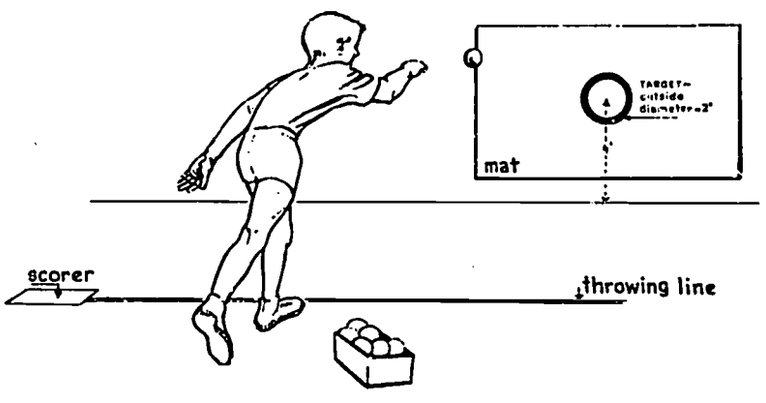

Figure 6 **Accuracy Testing Station**

For boys and girls, grades 4, 5, 6 — 30 feet from the center of the target.

For girls, grades 7 through 12 — 30 feet from the center of the target.

For boys, grades 7 through 12 — 35 feet from the center of the target.

b. Testing Procedure and Scoring

Standing behind the throwing or restraining line and using an overhand throw with the regulation softball, the pupil attempts to hit the target as many times as he can in *two series of 10 throws each* (figure 6). No step over the line is allowed on the throw and the two series of throws must be separated by at least one other performer.

Count 1 point for each time the ball hits the target. Balls hitting the line are good. Record the total number of successful hits in the *20 trials* on the Pupil Scorecard as the raw score.

The Strength Test

Three different test items are used to measure strength, depending upon the grade level and the sex of the pupil.

For Boys and Girls, Grades 4 Through 6

The modified pushup is the test item used to measure strength for boys and girls, grades 4 through 6.

a. Equipment and Testing Station

1. Standard stall bar bench (11 by 21 by 14 inches)
2. Mat

Place a standard stall bar bench on a mat near a flat wall surface.

b. Testing Procedure and Scoring

The pupil takes a standing position on the mat between the wall and the stall bar bench with his back to the wall. The pupil then leans forward, grasps the outer edges of the bench at the nearest corners and assumes the front leaning rest position, moving his feet back until both feet are flat against the wall. The body and arms must form a right angle (figure 7). The bench should be placed at a distance from the wall that is appropriate to the height of the pupil. Also, the smaller child may find it necessary to grasp the outer edges of the narrow dimensions of the bench if this width more closely approximates the width of the shoulders.

The pupil bends his arms until his upper chest lightly touches the near edge of the stall bar bench. He then pushes to a straight arm

position. The pupil performs the pushup in this manner as many times as possible. The movement may be fast or slow, but there may be no rest between moves. The body must be held straight and the heels must remain in contact with the wall. In no case is the pupil permitted to raise or lower the hips out of line with the shoulders and feet.

Count one point for each complete pushup. If the body sways or arches, or if the pupil does not go down to the prescribed position or does not raise the body until the forearms are completely extended, the movement does not count. When the pupil is finished, record the total number of pushups on the Pupil Scorecard as the raw score. No half-pushups are counted. For safety, and for promoting confidence, the scorer should keep one hand lightly in contact with the arm of the pupil. He should also brace the bench if necessary.

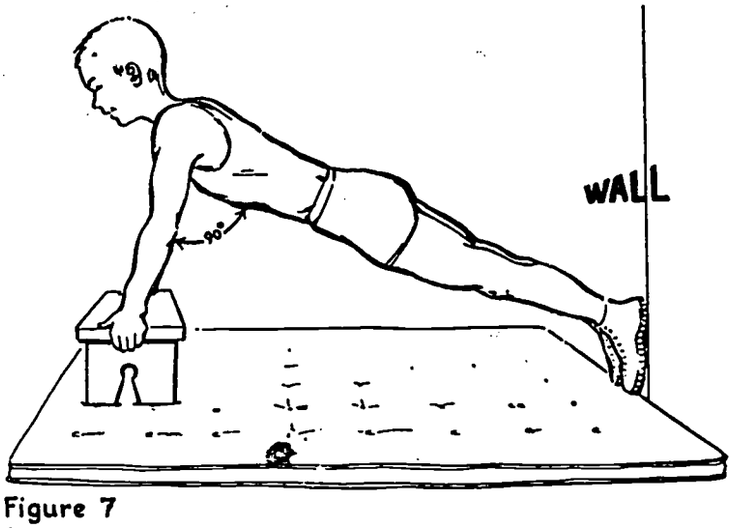

Figure 7
Strength Testing Position for Boys and Girls
Grades 4 – 6

For Girls, Grades 7 Through 12

The modified pullup is the test item used to measure strength for girls in grades 7 through 12.

a. Equipment and Testing Station

1. Standard horizontal bar or horizontal ladder
   (Note: If neither of these is available, a strong hardwood house ladder can be used)
2. Mat

Adjust the horizontal bar so that it is stabilized in the position where the girl can grasp the bar at a height even with the bottom of her sternum (breast bone). Provide appropriate matting under the equipment. If a ladder is used, it should be fastened securely to a rigid support such as the basketball backboard supports. The ladder should form an angle of about 45 degrees with the floor.

b. Testing Procedure and Scoring

From a standing position, the girl grasps the bar with the palms upward and slides the feet under the bar until the legs and the trunk are completely extended and until the arms form an angle of 90 degrees with the chest. The weight of the body should rest on the heels. The line of the body should form an angle of approximately 45 degrees with the floor line. The scorer should place the foot sidewise under the insteps of the pupil to prevent the feet from sliding on the mat (figure 8).

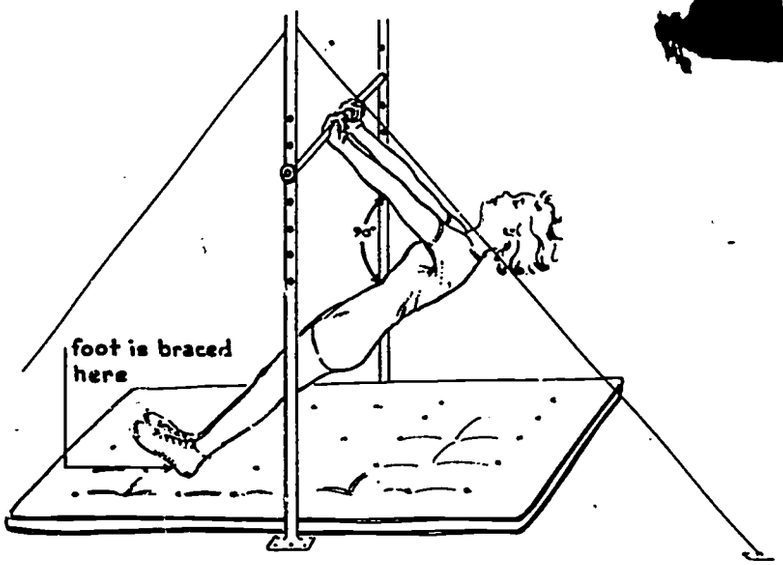

Figure 8

Strength Testing Position for Girls · Grades 7-12

The girl then pulls her body upward to the bar until her arms are completely bent and her chest touches the bar. The girl performs the pullup as many times as possible in this manner. The movement may be fast or slow, but there may be no rest between moves. Each time the girl must extend her arms completely.

Each pullup counts one point. If the hips sag or rise during the performance, the motion does not count. When the girl is finished, enter the number of complete pullups on the Pupil Scorecard as the raw score. No half-pullups are counted.

For Boys, Grades 7 Through 12

Full chinning or pullup is the test item used to measure strength for boys in grades 7 through 12.

a. Equipment and Testing Station

1. Standard horizontal bar
2. Mat

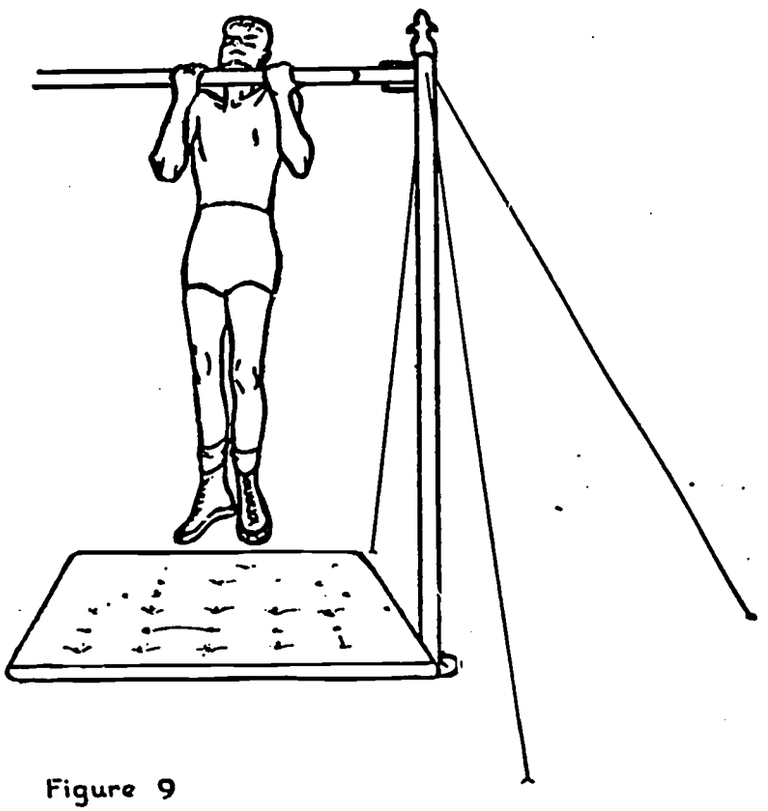

Figure 9

Strength Testing Position for Boys
Grades 7 – 12

Adjust the horizontal bar high enough so that the tallest boy may hang fully extended without touching the floor with his toes. Provide appropriate matting under the equipment.

b. Testing Procedure and Scoring

The pupil assumes as a starting position, a still hang; at full extension with an underhand or reverse grip, palms toward the face.

From this position, the pupil flexes his arms and pulls his body up to the bar until his arms are completely bent and his chin is level with the bar (figure 9) and then lets himself down until his arms are fully extended. The boy chins himself in this manner as many times as possible. The movement may be fast or slow, but there may be no rest between moves. Each time he must lower himself all the way.

Each complete pullup counts one point. The feet may be together or apart, but no swinging or kicking is allowed when executing the chin. When the pupil is finished, enter the number of complete chins on the Pupil Scorecard as the raw score. No half chins are counted.

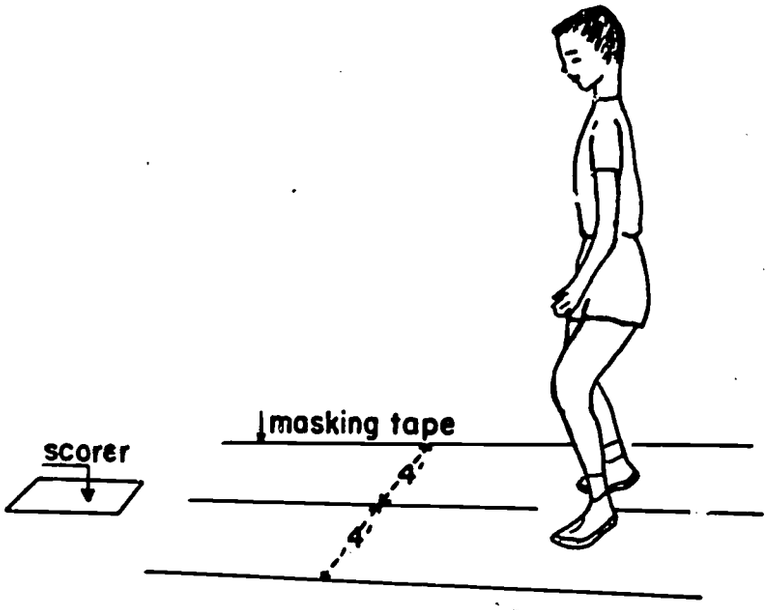

Figure 10 **Agility Testing Station**

The Agility Test

The sidestep is the test item used to measure agility.

a. Equipment and Testing Station

1. Masking tape for marking floor lines (approximately 1 inch wide)
2. Stopwatch

Construct a set of three parallel lines, each approximately 5 feet in length. The distance from the middle of the center line to the outer borders of the outside lines should be 4 feet. The outer borders of the outside lines will then be 8 feet apart.

The pupil being tested takes a standing position astride the center line with feet parallel to the line (figure 10).

At the command "Ready-Go," the pupil sidesteps to the left until his left foot completely crosses the line on his left and touches the floor on the outside of the line. This counts one point. He then sidesteps back to the right across the center line. This counts one point. He continues to the right until his right foot completely crosses the line on his right and touches the floor outside the right-hand line. This counts one point. He next sidesteps back to his left and continues to sidestep back and forth as rapidly as possible for 10 seconds. The command "Halt" is given at the end of 10 seconds.

Each time the pupil crosses *one* of the three lines as described—left, center, or right during the 10 seconds—counts one point. The sidestepping may be done in any manner as long as the feet do not cross over one another and as long as the feet and the front of the body (chest and abdomen) point in a direction parallel to the lines on the floor. The shoulders and hips must not turn or twist. The total number of line crossings in 10 seconds constitutes the score and this number is entered on the Pupil Scorecard as the raw score.

The Speed Test

The 50-yard dash is the test item used to measure speed.

a. Equipment and Testing Station

1. Stopwatch
2. Starting flag
3. Hardsurfaced running area
4. Rubber-soled shoes must be worn by pupils.

A hard surface of at least 75 yards is required. The running lane should be at least 3 feet wide with a clearly marked starting line and a finish line 50 yards from the start. For maximum safety, allow appropriate space at both ends of the course (figure 11).

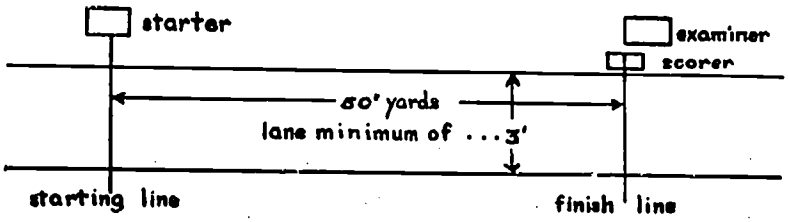

Figure 11 **Speed Testing Station**

b. Testing Procedure and Scoring

The pupil takes a standing position at the starting line within a running lane. The starter uses the commands "Take Your Mark! Get Set! Go!" He lowers the starting flag at the command "go" and the pupil runs the 50 yards at top speed.

The timer starts his stopwatch at the "go" signal and times the crossing of the finish line to the nearest half-second. This time is recorded on the Pupil Scorecard in seconds and half-seconds using decimals; e.g., 6.0, 6.5, as the raw score.

The Balance Test

The squat-stand or tip-up is the test item used to measure balance.

a. Equipment and Testing Station

1. Stopwatch
2. Mat
3. Metronome or percussion instrument (optional)

One large mat (5 by 10 feet) may be used for two testing stations. Place the mat in a suitable position on the floor.

b. Testing Procedure and Scoring

From a standing position on the floor facing the mat, the pupil squats, places his hands on the floor inside his feet close to the mat with fingers spread and pointing forward. The hands should be slightly more than shoulder-width apart and the elbows should be placed between the knees. The pupil then braces with the elbows and presses them into the crook behind the knees between the thigh and calf. Keeping his head up and over the mat, the pupil slowly leans forward until his feet leave the floor, and he assumes a position of complete hand balance (figure 12). He holds his balance position as long as possible without touching any part of his body except his hands to the floor.

The time that balance is maintained is the score. Count one point

if it were omitted, no other remaining component would even indirectly mirror it. The six components in the category of physical or motor function were retained.

Selection of Test Items

Identification of Tests To Measure the Components

Several tests prominently mentioned in physical education literature were initially selected for each component on the basis of their apparent reliability, validity, ease of administration, time required for administration, equipment needed, personnel requirements for administration and scoring, and other factors peculiar to measurement. The test items were then pretested with pupils in representative New York State schools.

The test items used in this pretesting to measure each of the components were:

1. *Posture:* posture rating scale for the convenient scoring of various body segments
2. *Accuracy:* the target throw, bucket toss, table tennis keep-up, and target stab
3. *Strength:* pullups, dips, pushups, broad jump, vertical jump, and situps
4. *Agility:* sidestepping, boomerang, zigzag run, box test, and crisscross jump
5. *Speed:* 40-yard shuttle run, 7-second run, 50-yard dash, and run in place
6. *Balance:* balance beam, squat-stand, dizziness recovery, hand balance, stick stand, and stork stand
7. *Endurance:* 440-yard run, treadmill, a ratio test (using the 40-yard shuttle dash compared with a 220-yard shuttle run) and the Carlson run

Final Choice of Test Items

The final choice of test items to measure the seven components of physical fitness was made on the basis of their validity, reliability, and administrative feasibility as indicated by the pretest results. This selection was as follows:

1. *Posture:* The rating scale which was constructed for the purpose of rating various body segments was further revised and clarified to increase the reliability of the scale used in the testing tryouts.

2. *Accuracy:* From among the four tests administered to measure this component, the target throw ranked highest in validity, in reliability, and in administrative feasibility. Upon further pretesting, however, it was discovered that shortening the distance for grades 4–6 and for high school girls provided a more suitable distribution of scores for these groups.
3. *Strength:* Pullups and bar dips ranked almost equally high in validity, reliability, and administrative feasibility. Because of a slightly higher rank in validity, the pullup was chosen to measure the strength component. This test item, however, was not appropriate for elementary school boys and girls or for secondary school girls. In further pretesting to determine suitable and related measures of strength for these groups, it was found that the modified pullup for high school girls and the modified pushup for elementary boys and girls adequately met the three criteria for the selection of test items.
4. *Agility:* The boomerang and sidestepping ranked highest in validity and reliability. When weighed against the criterion of administrative feasibility, sidestepping ranked distinctly higher. The boomerang test must be run individually by each pupil and each test averages 15 seconds, while sidestepping can be administered to one-half of the class in 10 seconds.
5. *Speed:* Although the 50-yard dash ranked second in reliability and third in validity, again the administrative criterion determined its choice. The shuttle run (first in validity and reliability) requires the construction and placement of shuttles which are not standard school equipment, and the 7-second run (second in validity and third in reliability) requires marking off a field and estimations on the part of the scorers.
6. *Balance:* Although the balance beam ranked first in validity, the squat-stand ranked higher in reliability and administrative practicability. The balance beam test requires at least two beams and only one student may be tested at a time unless there are more than two beams available. Although the squat-stand did not provide a suitable score distribution when used as a measure of balance in the elementary grades, it was decided to retain this measure rather than eliminate the balance component altogether.
7. *Endurance:* The 440-yard run emerged highest in reliability and validity but because the time and space required are extensive, it did not meet the administrative criterion. The tread-

for each full second the pupil is in position and enter this number on the Pupil Scorecard as the raw score. *This means that the time for a pupil is not counted until his feet leave the floor.* If the pupil loses the balance position during the first 5 seconds, he may try a *second* time only, and his score is the number of seconds he held the position on *only the longer of the two attempts.*

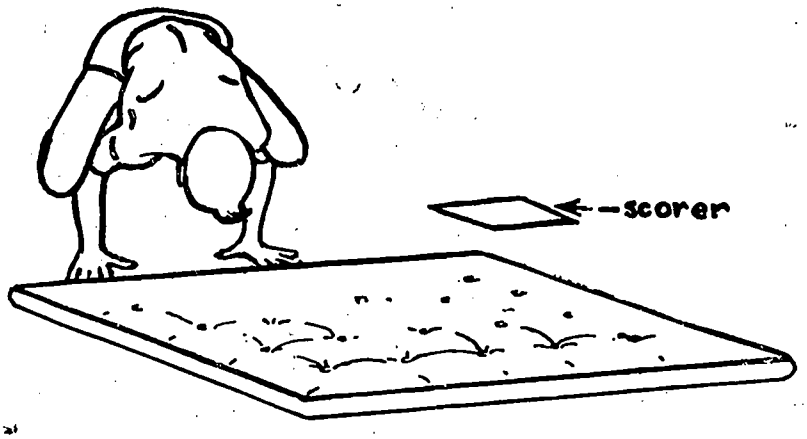

Figure 12

Balance Testing Position

The Endurance Test

The treadmill or front leaning leg thrust is the test item used to measure endurance.

a. Equipment and Testing Station

1. Stopwatch
2. Mat

Place the mat in a suitable position on the floor.

b. Testing Procedure and Scoring

From a standing position on the mat, the pupil assumes a modified front leaning rest position (pushup position) with both hands on the mat, arms extended, one leg fully extended to the rear, and the other leg flexed so that the knee is between the arms and the thigh is against the chest (figure 13).

At the command, "Ready, Go" the pupil exchanges the positions of his feet as rapidly as possible. Both feet must leave the mat at each change—the action is a jump change. The flexed thigh must touch the chest each time it is brought forward.

The time interval is *30 seconds* for boys and girls in grades 4 through 6 and for girls in grades 7 through 12, and *1 minute* for boys in grades 7 through 12. The command "Halt" is given at the end of the appropriate time.

Count one point for each change. If the thigh does not touch the chest, or the opposite leg is not fully extended on a change, a foul is committed and the change does not count. Sliding the feet without raising them off the mat is also a foul and should not be counted. The total number of points or changes made during the time interval is the pupil's raw score and is entered on the Pupil Scorecard.

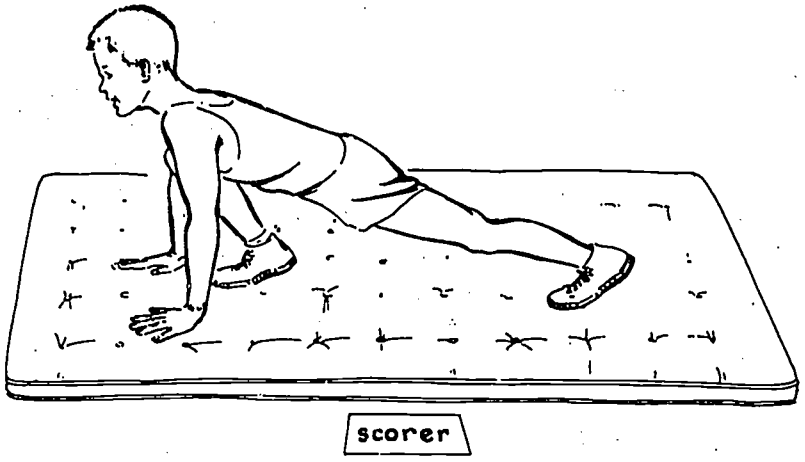

Figure 13 **Endurance Testing Position**

mill, which ranked next, was therefore chosen on the basis of administrative ease.

Inasmuch as the original pretesting was done on high school boys, it was necessary to determine the suitability of this test item for elementary boys and girls and high school girls. In further tryouts, it was determined that the shorter time of 30 seconds, for these groups, provided a suitable measure of endurance on the basis of score distributions.

In summary, a number of test items were pretested for each component. Each item was then evaluated on the basis of its validity, reliability, and ease of administration, and the following items were chosen to measure the seven components: (1) posture—the posture rating chart; (2) accuracy—the target throw; (3) strength—the pullups, modified pullups, and modified pushups; (4) agility—the sidestepping; (5) speed—the 50-yard dash; (6) balance—the squat-stand; and (7) endurance—the treadmill.

Standardization Procedure

The revised norms for the Physical Fitness Test were obtained by administering the test to 10,855 pupils in 30 different school systems. With the exception of the New York City school system, which was not included in the standardization, these schools were geographically representative of the State. In addition, they were selected so that the results would include pupils in the upstate city schools, village schools, and schools in supervisory districts, in about the proportion of pupil enrollments in these different types of schools.

TABLE 1

Number of pupils in the 30 school systems used as basis for the Physical Fitness Test Norms

Grade	Boys	Girls	Total
4	627	646	1,273
5	593	650	1,243
6	631	646	1,277
7	566	615	1,181
8	582	615	1,197
9	545	621	1,166
10	561	625	1,186
11	557	609	1,166
12	558	603	1,166
All grades	5,220	5,630	10,855

INTERPRETING THE TEST SCORES

Raw scores on this test indicate a pupil's performance without indicating how well he performs in comparison with others. In order to compare one component score with another, and in order to be able to add the component scores into a single physical fitness score, it is necessary to convert the raw scores to a common unit of measurement. This section of the manual describes the method for converting the raw scores to achievement level units through the use of norm tables, gives the procedure for computing a total physical fitness score, and explains the use of the Profile Chart on the Cumulative Record Form.

Description of the Test Norms

Two types of normative information, achievement levels and their percentile equivalents, are provided to help interpret the results of the Physical Fitness Test. This information is presented in tables of norms for boys and for girls beginning each of grades 4 through 12. These tables, located at the end of this manual, offer a basis for comparing pupil scores with those of pupils in comparable grades throughout the State.

The achievement level norms represent 11 equal units along a theoretical scale of physical fitness in the same way that inches represent 12 equal units along a 1-foot scale of distance. The average achievement level is 5 and the high and low extremes are 10 and 0, respectively. The amount of difference in physical fitness is the same from any one achievement level to the next. Achievement level norms in this test, just as norms on other tests, take the shape of a normal distribution with the result that the scores of more pupils are clustered about the mean or average score than at any other point on the scale. About 50 percent of the scores made by any normal group of pupils will occur at achievement levels 4, 5, and 6. About 25 percent of the scores will occur above these levels, at levels 7 through 10, and about 25 percent below, at levels 0 through 3.

The percentile equivalent of a score is the percentage of all scores which that score exceeds. Since a score is high if it surpasses many other scores and low if it surpasses only a few, the percentile equivalent also provides a basis for interpreting the quality of a score. In this test the percentile equivalent is useful in understanding and interpreting achievement levels. The percentile equivalents corresponding to each achievement level are presented in the norm tables. For example, an achievement level of 7 has a percentile equivalent of 84. This means that a pupil with a raw score at level 7, on the average, surpasses

The test was administered by the physical education staff in each school system to one representative class of boys and one representative class of girls in each of grades 4 through 12. The testing started in September 1962 and was completed in November 1962. The total number of pupils in each grade used as a basis for establishing the norms is given in table 1.

Development of the Test Norms

The first step in the determination of norms for the Physical Fitness Test was to check the score distributions of each component for any variations from the expected normal curve. Although several such variations were observed, these variations appeared to be due to the type of test activity or to the method of administration, and did not indicate any inherent lack of normality in the population distributions of any component.

Achievement levels were established by converting the component raw scores and the total physical fitness score to C scores.

The achievement levels, since they are expressed in C-scale units, represent equal units in the components measured based on the assumption of normal distributions. In numbering the achievement levels, it may have been advantageous to shift the range from 0 to 10 to 1 to 11. However, it was felt that an achievement level of 0 would not be inappropriate for the lowest one percent of the pupils, and that using 10 as the highest level would be better understood than using 11.

In converting the scores to achievement levels, fluctuations away from an expected progression of raw scores from grade to grade were found. These fluctuations appeared to be due to sampling errors and appropriate adjustments were made through the use of routine smoothing procedures.

Gradual improvements in raw scores from grade to grade were noted for mean grade scores for both the boys and the girls in all components except posture and speed. In the posture component, the differences in the mean grade scores between boys and girls and among the various grades were so small that the grade distributions for both boys and girls were combined. As a result, achievement levels for the posture raw score are based on a single combined distribution for the 10,855 pupils tested.

In the speed component, the mean grade raw scores for boys indicated continued improvement from grade 4 through 12. This was also true for girls in grades 4 through 8. However, there was practically no change in mean grade scores for the girls from grade 8 through grade 12. The raw scores of all girls for these upper five grades, therefore,

84 percent of the pupils in his particular grade and is surpassed by 16 percent of them.

How To Convert the Raw Scores to Achievement Levels

The achievement levels for the various raw scores on the physical fitness test are listed in tables 6 through 23. The first and last columns in each table list the achievement levels and the second column lists the percentile equivalents. The other columns contain the raw scores for each component, for total physical fitness on all seven components, and for total physical fitness without the posture component. The following is the procedure for obtaining the achievement level for any raw score:

1. Refer to the table for the appropriate sex and grade.
2. Find the raw score value in the appropriate columns.
3. Read the corresponding achievement level at the right or left of the table.
4. Enter the achievement level in the appropriate place on the Pupil Scorecard.

Suppose, for example, that the posture raw score for a boy starting fifth grade is 51. To find the achievement level of that score, refer to the table of norms for "Boys—Begin Grade 5." This is table 7 on page 46. Find the score 51 in the column for the posture raw score. (It is included in the interval 49-51.) The achievement level in the first or the last column that corresponds to this raw score is 3. A raw score of 51 in posture for a fifth-grade boy is at the third achievement level. The percentile rank in the second column of the table that corresponds to a score of 51 is 16.

The Total Physical Fitness Score and Physical Fitness Level

The Physical Fitness Level is computed in two steps: (1) add the component achievement levels to get the total physical fitness score, and (2) convert this score into an achievement level in the same way as the raw scores for the components are converted into achievement levels. For example, if a fifth-grade boy who was tested in all seven components obtained achievement level scores of 7, 6, 7, 4, 3, 2, and 7, his total physical fitness score would be the sum of these levels, or 36. To find the achievement level for this score, refer to the table of norms for "Boys—Begin Grade 5." Find the score 36 in the column "Total Physical Fitness with Posture." The achievement level, as indicated in the first and last columns, is 5. If this same boy had not been rated in posture, his total physical fitness score would have been 29. This score is found in the column "Total Physical Fitness without Posture" in the same table of norms, and it also has an achievement level of 5.

were grouped into a single distribution and the achievement levels determined from this distribution.

The two total physical fitness scores were computed from the component achievement levels of each pupil individually. In the case of each of the total scores, as expected, the score distributions obtained for boys and for girls for each grade were similar for all groups and were combined into a single distribution for all 10,855 pupils. The physical fitness achievement levels were then computed for the total scores from this distribution.

TABLE 2

Intercorrelation of component and total physical fitness scores among 897 ninth-grade boys

Component Score	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture
Posture	.07	.15	—.02	.26	.19	.06	.46
Accuracy		.15	.23	.13	.15	.08	.46
Strength			.14	.49	.39	.33	.67
Agility				.15	.09	.18	.46
Speed					.24	.26	.64
Balance						.33	.62
Endurance							.57

Intercorrelation of Components

The intercorrelations among the various component scores and between each component score and the total physical fitness score with posture are presented in tables 2 and 3. These are based on the scores made by 897 boys and 748 girls tested in the ninth grade in the fall of 1956.

TABLE 3

Intercorrelation of components and total physical fitness scores among 748 ninth-grade girls

Component Score	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture
Posture	.04	.10	.12	.02	.17	—.01	.35
Accuracy		.21	.18	.20	.17	.27	.53
Strength			.30	.21	.24	.39	.65
Agility				.12	.24	.33	.59
Speed					.23	.27	.53
Balance						.30	.57
Endurance							.67

Finding the Achievement Level for a Class

Class record sheets are provided for making a convenient record of the achievement levels of all pupils in a class. This record may be used in several ways, including: (1) grouping pupils within a class for instructional purposes, and (2) estimating the achievement level for a class as a whole.

To estimate the achievement level of a class, compute either the median achievement level or the arithmetic average of the achievement levels for each of the components and for total physical fitness. The median is the achievement level below and above which half the pupils are found. Either the median or the mean achievement level indicates the standing of the median or average pupil, which in turn can be used as a rough estimate of the physical fitness of the class.

If the median or mean achievement level is computed to 1 decimal place, the table of percentile equivalents in Appendix A may be used to interpret the results. Suppose, for example, that the mean total physical fitness score for a class of eighth-grade boys is 6.5. Reference to Appendix A indicates that an achievement level of 6.5 has a percentile equivalent of 77. Therefore, the average pupil in this class has attained a level of physical fitness which exceeds that attained by 77 percent of the eighth-grade boys in the State.

Illustrative Use of the Profile Chart

A cumulative record form is provided on which to retain scores in consecutive testing periods from grades 4 through 12. This record form also contains a series of profiles, one for each testing period. Each profile by itself can be used to show relative strengths and weaknesses as well as status in total physical fitness. After several testings, the series of completed profiles will also show progress or lack of progress in total physical fitness from one testing period to the next. The shaded area on the profile chart represents the levels attained by the middle 50 percent or average group of New York State pupils in each grade. The white portion below and above the shaded area represents the physical fitness levels of pupils in the upper and lower quarters of the grade.

The first step in drawing the profile on the cumulative record form is to indicate total physical fitness level by drawing a solid horizontal line across the profile at the appropriate place on the achievement level scale. This line shows the status of the pupil in respect to overall physical fitness. Next, to obtain a picture of the relative strengths and weaknesses in a pupil's physical fitness pattern, plot the achievement level for each of the six or seven components on the vertical lines. Then, complete the profile by connecting the points with a solid heavy line.

The correlations between each component score and the total physical fitness score range from .35 to .67. These relationships indicate that each of the component test scores provides a substantial contribution to the determination of the physical fitness score. The fact that no correlation is above .67, however, indicates that no one component score is closely indicative of the physical fitness score.

The correlations between the components range from —.02 to .49. All but six of the 42 intercorrelations are .30 or below. The highest intercorrelation, .49, between strength and speed for the boys, indicates that a greater similarity of measurement exists between these two components than between any other two components. In general, the low correlations between component scores indicate a desirable lack of similarity of functions measured.

Reliability of the Physical Fitness Test

To estimate the reliability of the Physical Fitness Test, the test was administered twice during the fall of 1963, with approximately 3 weeks between testings, to 841 pupils in grades 5, 8, and 11 in six school systems. The test-retest reliability coefficients for total and part scores are reported in Table 4 for boys and in Table 5 for girls.

Raw score standard errors of measurement are given in the last column of each table. Interpretation of these standard errors in terms of the corresponding ranges of achievement levels and percentile ranks can be made by reference to the tables of achievement level norms. The means, standard deviations, and standard errors of measurement reported are based upon the first administration of the test.

In addition, the average physical fitness level of the pupil's own class or grade can be shown on the profile chart as a horizontal line. The class or grade physical fitness level is available on the completed Class Record Sheets and the line used to indicate it should be dotted or of a different color so as to differentiate it from the pupil's physical fitness level.

The use of the pupil profile is illustrated in figure 14. The straight line across this profile of an eighth-grade girl indicates that her physical fitness level, as measured by this test, is well above average. In fact it is above the middle of the upper quarter. Her component profile indicates she is above average in all components except endurance, in which she is average, and strength, in which she is below average. In terms of percentile rank, her total physical fitness surpasses that of 98 percent of the girls in the eighth grade in New York State while her endurance and strength surpasses that of only 69 percent and 16 percent, respectively.

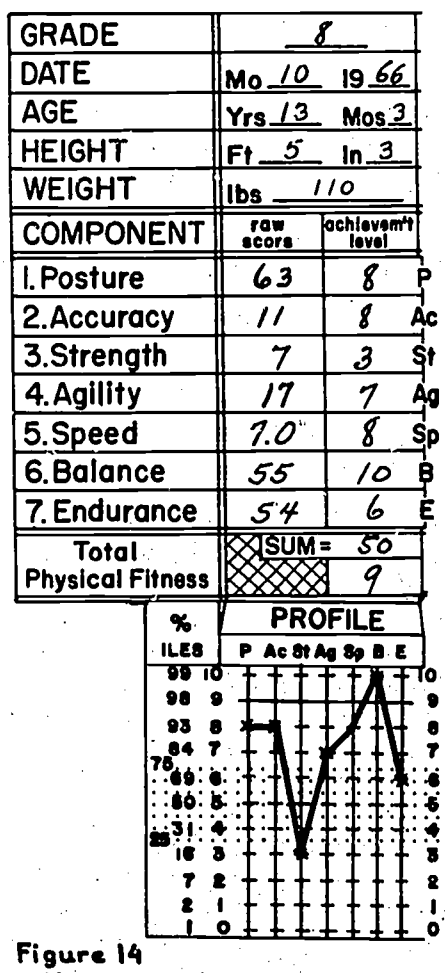

Figure 14
ILLUSTRATIVE PROFILE CHART

It is interesting to note that all but one of her component levels are below her physical fitness level. In most tests approximately half of the achievement levels for the parts of a test would be expected to fall above the achievement level for the total test and approximately half below this level. This would be especially true if there was a high degree of relationship among the parts of the test. In the Physical Fitness Test, however, there is a rather low relationship or correlation among the component tests, and it is only the exceptional pupil who will obtain high scores in a majority of them. A pupil with five out of seven component scores in the upper quarter has such exceptional total physical fitness that he or she will rank in a higher achievement level for total fitness than for most of the components.

TABLE 4

Reliability coefficients and standard errors of measurement for boys

Test Score	Grade	N	Means	Standard Deviations	r	SE M
Posture	5	147	56.2	5.0	.96	1.0
	8	150	53.0	5.9	.98	.8
	11	127	55.8	5.4	.97	.9
Accuracy	5	147	7.5	3.7	.77	1.8
	8	150	9.6	3.9	.79	1.8
	11	127	11.8	3.8	.84	1.5
Strength	5	147	15.7	10.2	.91	3.1
	8	150	5.9	4.0	.93	1.1
	11	127	9.5	4.4	.91	1.3
Agility	5	147	13.5	2.2	.75	1.1
	8	150	15.6	2.0	.66	1.2
	11	127	18.2	2.9	.77	1.4
Speed	5	147	8.7	.7	.75	.4
	8	150	7.5	.6	.84	.2
	11	127	6.8	.5	.87	.2
Balance	5	147	7.6	10.1	.88	3.5
	8	150	21.3	22.7	.95	5.1
	11	127	27.3	23.2	.95	5.2
Endurance	5	147	51.7	14.5	.73	7.5
	8	150	93.5	25.3	.92	7.1
	11	127	98.8	24.8	.82	10.5
Total Without Posture	5	147	30.2	6.3	.89	2.1
	8	150	31.6	6.3	.88	2.2
	11	127	31.2	7.2	.89	2.4
Total With Posture	5	147	35.3	7.2	.91	2.1
	8	150	35.6	7.2	.90	2.3
	11	127	36.2	8.2	.91	2.4

USING THE TEST RESULTS

Proper use of this test implies full realization of its functions and limitations. It means using the test for the purposes for which it is intended. It means good judgment in interpreting the information provided by the test scores. And, finally, it means placing the test scores in their proper perspective as only one of the types of evaluative information in the total school appraisal program.

What the Test Results Indicate

The Physical Fitness Test provides four specific types of information. Each type of information is available for use with pupils as individuals or, by averaging the achievement levels, for use with pupils in classes, grades, or other school groupings.

First, the test results offer a basis for comparing a pupil's physical fitness status at the time of testing with that of a representative group of New York State pupils of similar sex and grade. If a fifth-grade boy obtains a score of 36 in total physical fitness with posture, this does not, in itself, indicate a meaningful degree of fitness, but when 36 is converted to a physical fitness level of 5, it indicates that he has average fitness. Approximately 50 percent of pupils in his grade throughout the State have a greater degree of fitness and 50 percent have a lesser degree of fitness. The same use of the results, of course, can be made for each component.

Second, the test results provide a basis for comparing one component of physical fitness with another. A fifth-grade boy's raw score of 4 in the strength test does not indicate superiority or the lack of it over his score of 7.5 in the speed test. However, by comparing his achievement level of 3 in the strength test with his achievement level of 7 in the speed test, it is apparent that his fitness in respect to strength is much less than his fitness in respect to speed.

Third, the test results provide a basis for comparing a pupil's achievement in component or total physical fitness with that of other pupils in his own class or in his own school. An achievement level of 5 may place a pupil in the average classification in respect to pupils on a statewide basis. However, if the achievement levels of all the pupils in his class are above 5, the results indicate that he is not average in respect to pupils in his class but well below their average.

Fourth, the test results provide an indication of the amount of progress in component and total physical fitness. Normal progress is

TABLE 5

Reliability coefficients and standard errors of measurement for girls

Test Score	Grade	N	Means	Standard Deviations	r	SE M
Posture	5	144	57.9	4.2	.93	1.1
	8	123	52.8	7.2	.99	.7
	11	150	52.6	7.2	.98	1.0
Accuracy	5	144	3.3	2.7	.74	1.4
	8	123	6.9	3.6	.79	1.7
	11	150	7.9	3.6	.78	1.7
Strength	5	144	8.6	6.9	.86	2.5
	8	123	31.4	15.5	.86	5.8
	11	150	22.1	9.6	.78	4.5
Agility	5	144	13.0	2.5	.72	1.3
	8	123	15.3	3.1	.69	1.7
	11	150	15.2	2.9	.77	1.4
Speed	5	144	8.8	.8	.78	.4
	8	123	8.2	.9	.89	.3
	11	150	8.2	.7	.84	.3
Balance	5	144	10.6	16.3	.72	8.6
	8	123	6.0	6.9	.92	2.0
	11	150	8.7	16.4	.98	2.3
Endurance	5	144	45.4	18.2	.88	6.3
	8	123	52.1	15.1	.87	5.4
	11	150	49.9	10.1	.84	4.0
Total Without Posture	5	144	31.6	5.7	.87	2.1
	8	123	32.3	7.3	.90	2.3
	11	150	30.5	6.3	.89	2.1
Total With Posture	5	144	37.3	6.2	.89	2.0
	8	123	36.4	8.2	.91	2.4
	11	150	34.5	7.0	.91	2.1

indicated when a pupil on repeated testings continues to obtain scores which place him at the same achievement level. If a pupil scores at the fourth achievement level in fifth grade, and at the fourth achievement level in sixth grade, he may be considered to have made normal progress. He has maintained his same relative position in relation to the pupils with whom he is being compared. If he scores at the fifth achievement level or higher in the sixth grade, he may be considered to have made above average progress. Similarly, if he scores at the third achievement level or below, he may be considered to have made below average progress.

It is interesting to note that equal improvement in component raw scores does not indicate equivalent amounts of progress. Amount of progress can only be determined through the use of achievement levels. For example, a boy obtained a raw score of 41 in the posture test in the 9th grade and 43 in the 10th grade. In the accuracy test he obtained a raw score of 2 in the 9th grade and 4 in the 10th grade. His posture raw scores place him in the first achievement level in the 9th grade and in the second achievement level in the 10th grade. On the other hand, his accuracy raw scores place him in the same achievement level in both grades. Thus, a 2-point increase in raw score indicates above average progress in one instance and only average progress in another.

Specific Functions Served by the Test

The information supplied by this test should be helpful to administrators and teachers. It can also have an immediately beneficial effect upon pupils. Administrators will have available objective information which will help evaluate the physical education program in respect to physical fitness objectives. The teacher will, in addition, have available the type of information which will be useful in planning instruction to meet the specific needs of pupils and in evaluating the effectiveness of procedures and activities. The teacher will also have additional information to help the pupil interpret his strengths and weaknesses, and to help plan a program for improving his physical fitness.

Testing at the beginning of the year will help to indicate the amount of time the pupils need to spend in vigorous physical activities in relation to other program objectives, such as learning specific skills and knowledges. Testing at the beginning of the following year will indicate whether or not the pupils, after participating in the total physical education program for a full year, have developed or maintained a desirable level of physical fitness. If they have, the program would seem to be accomplishing its purposes in respect to physical fitness. If not, possible implications for program adjustment may be revealed. Lack of

TABLES OF ACHIEVEMENT LEVEL NORMS

TABLE 6

Boys — Begin Grade 4

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	16–20	44+	20+	0–6.5	36+	76+	53+	46+	10
9	98	65	13–15	36–43	18–19	7.0	21–35	70–75	49–52	43–45	9
8	93	63	11–12	30–35	16–17	7.5	14–20	63–69	46–48	39–42	8
7	84	61	9–10	21–29	15	8.0	8–13	57–62	42–45	36–38	7
6	69	59	7–8	16–20	14	8.5	4–7	51–56	38–41	32–35	6
5	50	57	5–6	11–15	12–13	—	3	44–50	34–37	29–31	5
4	31	53–55	3–4	7–10	11	9.0	2	34–43	30–33	25–28	4
3	16	49–51	2	3–6	10	9.5	1	21–33	26–29	22–24	3
2	7	43–47	1	1–2	8–9	10.0–10.5	0	14–20	22–25	18–21	2
1	2	39–41	0	0	6–7	11.0–11.5	—	8–13	18–21	15–17	1
0	1	13–37	—	—	0–5	12.0+	—	0–7	0–17	0–14	0

program effectiveness may be due to such factors as improper choice of activities, insufficient time, insufficient instruction, or lack of facilities, equipment, or time; or may be due to other factors related to pupils, such as health status, home environment, or interest.

The test results may be used for grouping pupils within a class or for intramural teams. They may also be used as a guide in assignment of pupils to physical education classes. Where individual pupils are found to have extremely low physical fitness scores, further investigation is indicated. Such a followup may point to a need for medical referral or for extra special work beyond the regular program requirements. Extremely low scores in the posture test, for example, would indicate referral to the school physician or to an orthopedic specialist. Similarly, extremely high scores, in total physical fitness for example, may indicate the need for an enriched activity program.

The use of this test may have a desirable motivational effect upon pupils. Where possible, it is suggested that pupils be allowed to convert their own scores and plot their own profile charts. This can be done quite simply by reproducing the appropriate norm table from the manual so that copies can be provided them. As pupils see concrete evidence of their own performance on the test items, in comparison with other New York State pupils in their own grades, they are provided with an excellent opportunity for self-evaluation of their strengths and weaknesses in physical fitness. While a test of this nature should not be an end in itself and hence influence the pupil's total grade excessively, the test score may serve as a basis for measuring pupil progress and achievement in relation to the pupil's potential as indicated by this test.

This test is also a convenient and easily understood means for supplying parents with information concerning the physical fitness of their children. The Cumulative Record not only presents the scores for total fitness and each component in profile form, but also includes a complete description of the pupil's posture as rated on the Posture Rating Chart. Definite advantages are to be gained by sending the Cumulative Record home. At the appropriate time, the pupils or leaders should prepare duplicate copies of the Cumulative Record for the pupils to take home with an accompanying letter similar to the one suggested in Appendix B.

Test Scores as Estimates

No test will afford an infallible and unalterable measure of physical fitness. Every test is subject to error. This test consists of a sample of pupil performance on a sample of items selected to measure a few components of physical fitness. Some allowance must be left for possible

TABLE 7

Boys — Begin Grade 5

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	18–20	47+	21+	0–6.5	45+	80+	53+	46+	10
9	98	65	15–17	36–46	19–20	7.0	27–44	74–79	49–52	43–45	9
8	93	63	13–14	31–35	17–18	—	16–26	66–73	46–48	39–42	8
7	84	61	11–12	23–30	16	7.5	9–15	60–65	42–45	36–38	7
6	69	59	9–10	16–22	15	8.0	5–8	53–59	38–41	32–35	6
5	50	57	7–8	11–15	13–14	8.5	3–4	46–52	34–37	29–31	5
4	31	53–55	5–6	7–10	12	—	2	35–45	30–33	25–28	4
3	16	49–51	3–4	3–6	11	9.0	1	22–34	26–29	22–24	3
2	7	43–47	2	1–2	9–10	9.5–10.0	0	15–21	22–25	18–21	2
1	2	39–41	1	0	7–8	10.5–11.0	—	8–14	18–21	15–17	1
0	1	13–37	0	—	0–6	11.5+	—	0–7	0–17	0–14	0

variations in pupils' scores as a result of accidents of sampling. In addition, the best test may give an invalid picture of pupil fitness if the pupil is improperly motivated, fatigued, disturbed, or otherwise unable to function at maximum efficiency. For these reasons, test scores must be regarded as estimates. They are indicative rather than conclusive. They should never constitute the sole basis for important educational decisions.

Norms Versus Standards

Norms or achievement levels represent average physical fitness of a grade under average conditions. Hence test results must be interpreted in terms of the particular conditions existing at the school, the level of maturity of the pupils, the experience of the teachers, the amount of available facilities and equipment, or other opportunities for pupils to become physically fit. A norm does not provide a standard to be attained by all pupils. Physical fitness that is below average for the grade does not imply failure. It should be kept constantly in mind that, by definition, half of the pupils and half of the schools must be below average.

Physical fitness above the average, on the other hand, does not assure that there has been, or is, optimum teaching or even satisfactory teaching. Just as half of the schools must be below average, half of them must necessarily be above average. Perhaps all schools are able to do a better job than they are doing. In other words, the grade norms may be generally too low. In addition, as the program in physical education becomes more effective in the schools and as teachers become more experienced, the present norms may progressively underestimate average fitness in the schools of the State. Thus, the concept of a norm is essentially a dynamic rather than a static one.

Tests and the Evaluation of Teaching

Tests provide additional information to be considered along with a large number of factors in the total school situation. Any test of physical fitness necessarily measures only part of the desirable outcomes or objectives of physical education teaching. Pupil attitudes, satisfactions, appreciations, skills, habits, and similar factors are largely ignored in a test of this type. Hence the total product of the physical education program, or the total effectiveness of any individual teacher, cannot be evaluated solely on the basis of the results of this test.

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TABLE 8

Boys — Begin Grade 6

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	18–20	48+	23+	0–6.5	61+	82+	53+	46+	10
9	98	65	16–17	37–47	20–22	—	35–60	75–81	49–52	43–45	9
8	93	63	14–15	32–36	18–19	7.0	19–34	69–74	46–48	39–42	8
7	84	61	12–13	24–31	17	7.5	10–18	62–68	42–45	36–38	7
6	69	59	10–11	17–23	16	—	5–9	55–61	38–41	32–35	6
5	50	57	8–9	11–16	14–15	8.0	3–4	48–54	34–37	29–31	5
4	31	53–55	6–7	7–10	13	8.5	2	35–47	30–33	25–28	4
3	16	49–51	4–5	3–6	12	9.0	1	23–34	26–29	22–24	3
2	7	43–47	2–3	1–2	10–11	9.5–10.0	0	15–22	22–25	18–21	2
1	2	39–41	1	0	8–9	10.5–11.0	—	8–14	18–21	15–17	1
0	1	13–37	0	—	0–7	11.5+	—	0–7	0–17	0–14	0

Teaching for the Test

It is poor pedagogy to teach for a test. Teaching specifically for any given evaluation instrument not only impairs the validity of the results, based as they are on the assumption that the test content is a fair sample of pupil status and progress, but also tends to constrict course curriculum and objectives. Teachers should concentrate on teaching a sound, well-rounded course in physical education, regardless of what is contained in any particular test or measuring instrument. It would be indeed unfortunate if this test, or any other test, were to supplant teacher judgment in determining the scope and emphasis of physical education instruction.

TABLE 9

Boys — Begin Grade 7

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	18–20	18+	24+	0–6.0	73+	137+	53+	46+	10
9	98	65	16–17	14–17	21–23	6.5	44–72	126–136	49–52	43–45	9
8	93	63	14–15	11–13	19–20	7.0	23–43	117–125	46–48	39–42	8
7	84	61	12–13	8–10	17–18	—	12–22	105–116	42–45	36–38	7
6	69	59	10–11	5–7	16	7.5	7–11	93–104	38–41	32–35	6
5	50	57	7–9	3–4	15	8.0	4–6	78–92	34–37	29–31	5
4	31	53–55	6	1–2	14	—	2–3	62–77	30–33	25–28	4
3	16	49–51	4–5	0	12–13	8.5	1	47–61	26–29	22–24	3
2	7	43–47	2–3	—	10–11	9.0–9.5	0	36–46	22–25	18–21	2
1	2	39–41	1	—	8–9	10.0–11.0	—	21–35	18–21	15–17	1
0	1	13–37	0	—	0–7	11.5+	—	0–20	0–17	0–14	0

TEST DEVELOPMENT NOTES

The preceding sections of this manual provide complete instructions for administering the Physical Fitness Test and for interpreting the test results. For those interested in the technical development of the test, further details are presented concerning the selection of the components and the test items and the development of the test norms.

Selection of the Components To Be Measured by the Test

Identification of Components

A review of the literature revealed the names of 69 components of physical fitness. For convenience, these components were classified into three categories: (1) medical or physiological function, (2) anthropometrical condition pertaining to physique or appearance, and (3) physical or motor function.

1. *Medical or Physiological Function*

Twenty-one components were identified in this category. However, grouping these components under the various sytems of the body, it was possible to combine them into seven major components. Visual and auditory acuity, color vision, reflex time, basal metabolism, alkali reserve, nutrition, muscular latency, resistance to disease, circulatory-respiratory function, and cardiovascular endurance, for example, were grouped under the following major component classifications: (1) functions of the nervous system; (2) function of the heart, circulatory system, and blood; (3) function of the respiratory system; (4) function of the digestive system; (5) function of the muscular system; (6) function of the endocrine system; and (7) general health.

2. *Anthropometrical Condition*

Eight components were identified in this category: development, posture, height-weight relationship, flexibility, dead weight, height or structure, body structure, and bone-muscle-fat relationship. After eliminating duplication, these components were combined in three major component classifications: body development, posture, and flexibility.

3. *Physical or Motor Function*

Forty components were identified in this category. It was possible to reduce this number to 16 by eliminating overlapping and duplication. These 16 components were then combined into six major classifications:

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TABLE 10

Boys — Begin Grade 8

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	19–20	19+	24+	0–6.0	80+	147+	53+	46+	10
9	98	65	17–18	15–18	21–23	—	56–79	135–146	49–52	43–45	9
8	93	63	15–16	12–14	20	6.5	29–55	125–134	46–48	39–42	8
7	84	61	13–14	9–11	18–19	7.0	16–28	113–124	42–45	36–38	7
6	69	59	11–12	6–8	17	—	9–15	102–112	38–41	32–35	6
5	50	57	9–10	4–5	16	7.5	5–8	89–101	34–37	29–31	5
4	31	53–55	7–8	2–3	15	8.0	3–4	75–88	30–33	25–28	4
3	16	49–51	6	1	13–14	8.5	2	59–74	26–29	22–24	3
2	7	43–47	4–5	0	11–12	9.0	1	40–58	22–25	18–21	2
1	2	39–41	2–3	—	9–10	9.5–10.0	0	25–39	18–21	15–17	1
0	1	13–37	0–1	—	0–8	10.5+	—	0–24	0–17	0–14	0

(1) accuracy, (2) agility, (3) balance, (4) strength, (5) endurance, and (6) speed. Such qualities as hand-eye coordination, foot-eye coordination, timing or motor rhythm, motor educability, shiftiness, reaction time, static equilibrium, muscle or kinesthetic sense were combined under the main subdivisions of coordination: accuracy, agility, and balance. Similarly, such qualities as dynamic strength, static strength, power, and motor explosiveness were combined under strength. Vitality, stamina, and muscular endurance were combined under endurance, and speed or velocity became a major classification by itself.

Elimination of Components

The major components which evolved from the first phase of this research were then judged against the criteria of suitability for measurement in the public schools of New York State under the present conditions of:

1. Leadership
2. Time
3. Scheduling
4. Equipment and facilities

These criteria were applied to the components in each category with the following results:

1. *Medical or Physiological Function*

Although the components listed in this category were considered important, they were deemed unsuitable for measurement in the school situation because many required the leadership of trained medical men or physiologists, or more time and equipment than is normally available.

2. *Anthropometrical Condition*

Body development and flexibility were eliminated in this category because highly specialized personnel and equipment were needed for accurate measurement. Posture was retained, however, because it could be measured.

3. *Physical or Motor Function*

Strength, speed, endurance, accuracy, agility, and balance met a majority of the criteria and were retained.

Summary: Although no components were retained in the medical-physiological category, it was felt that some of these components would be indirectly reflected in the seven components that were retained. Posture was retained in the anthropometric category. The literature tended to show posture as unrelated to other components of physical fitness; thus,

Table 11

Boys — Begin Grade 9

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	19–20	19+	25+	0–5.5	84+	149+	53+	46+	10
9	98	65	17–18	16–18	22–24	6.0	63–83	137–148	49–52	43–45	9
8	93	63	16	13–15	21	—	35–62	126–136	46–48	39–42	8
7	84	61	14–15	10–12	19–20	6.5	20–34	116–125	42–45	36–38	7
6	69	59	12–13	8–9	18	7.0	11–19	105–115	38–41	32–35	6
5	50	57	10–11	5–7	16–17	—	6–10	95–104	34–37	29–31	5
4	31	53–55	8–9	3–4	15	7.5	4–5	80–94	30–33	25–28	4
3	16	49–51	6–7	2	13–14	8.0	2–3	64–79	26–29	22–24	3
2	7	43–47	4–5	1	11–12	8.5	1	43–63	22–25	18–21	2
1	2	39–41	2–3	0	9–10	9.0–9.5	0	29–42	18–21	15–17	1
0	1	13–37	0–1	—	0–8	10.0+	—	0–28	0–17	0–14	0

TABLE 12

Boys — Begin Grade 10

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	19–20	20+	26+	0–5.5	88+	149+	53+	46+	10
9	98	65	18	17–19	24–25	6.0	67–87	137–148	49–52	43–45	9
8	93	63	17	14–16	22–23	—	43–66	127–136	46–48	39–42	8
7	84	61	15–16	11–13	20–21	6.5	24–42	118–126	42–45	36–38	7
6	69	59	13–14	9–10	19	7.0	14–23	107–117	38–41	32–35	6
5	50	57	11–12	6–8	17–18	—	8–13	97–106	34–37	29–31	5
4	31	53–55	9–10	4–5	16	7.5	5–7	82–96	30–33	25–28	4
3	16	49–51	7–8	3	14–15	8.0	3–4	64–81	26–29	22–24	3
2	7	43–47	5–6	1–2	12–13	8.5	1–2	43–63	22–25	18–21	2
1	2	38–41	3–4	0	10–11	9.0–9.5	0	31–42	18–21	15–17	1
0	1	13–37	0–2	—	0–9	10.0+	—	0–30	0–17	0–14	0

TABLE 13

Boys — Begin Grade 11

Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
99	—	19–20	21+	27+	0–5.5	92+	149+	53+	46+	10
98	65	18	18–20	25–26	—	71–91	138–148	49–52	43–45	9
93	63	17	15–17	22–24	6.0	51–70	129–137	46–48	39–42	8
84	61	16	12–14	21	—	28–50	120–128	42–45	36–38	7
69	59	14–15	10–11	20	6.5	17–27	109–119	38–41	32–35	6
50	57	12–13	8–9	18–19	7.0	10–16	98–108	34–37	29–31	5
31	53–55	10–11	5–7	17	—	5–9	82–97	30–33	25–28	4
16	49–51	7–9	4	15–16	7.5	3–4	64–81	26–29	22–24	3
7	43–47	5–6	2–3	13–14	8.0	2	43–63	22–25	18–21	2
2	39–41	4	1	10–12	8.5–9.5	1	31–42	18–21	15–17	1
1	13–37	0–3	0	0–9	10.0+	0	0–30	0–17	0–14	0

Table 14

Boys — Begin Grade 12

rcentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
99	—	20	22+	27+	0–5.5	97+	149+	53+	46+	10
98	65	19	18–21	25–26	—	72–96	138–148	49–52	43–45	9
93	63	18	15–17	22–24	6.0	53–71	130–137	46–48	39–42	8
84	61	16–17	13–14	21	—	31–52	121–129	42–45	36–38	7
69	59	14–15	10–12	20	6.5	19–30	110–120	38–41	32–35	6
50	57	12–13	9	18–19	—	11–18	98–109	34–37	29–31	5
31	53–55	10–11	6–8	17	7.0	6–10	82–97	30–33	25–28	4
16	49–51	8–9	4–5	15–16	7.5	3–5	65–81	26–29	22–24	3
7	43–47	6–7	2–3	13–14	8.0	2	43–64	22–25	18–21	2
2	39–41	5	1	10–12	8.5–9.5	1	31–42	18–21	15–17	1
1	13–37	0–4	0	0–9	10.0+	0	0–30	0–17	0–14	0

Table 15

Girls — Begin Grade 4

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	11–20	44+	18+	0–6.5	25+	77+	53+	46+	10
9	98	65	8–10	31–43	17	7.0	14–24	65–76	49–52	43–45	9
8	93	63	6–7	24–30	16	7.5	8–13	59–64	46–48	39–42	8
7	84	61	4–5	17–23	14–15	8.0	5–7	54–58	42–45	36–38	7
6	69	59	3	11–16	13	8.5	3–4	49–53	38–41	32–35	6
5	50	57	2	7–10	12	9.0	2	41–48	34–37	29–31	5
4	31	53–55	1	3–6	11	9.5	1	32–40	30–33	25–28	4
3	16	49–51	0	1–2	9–10	10.0	0	24–31	26–29	22–24	3
2	7	43–47	—	0	7–8	10.5–11.0	—	16–23	22–25	18–21	2
1	2	39–41	—	—	5–6	11.5–12.0	—	9–15	18–21	15–17	1
0	1	13–37	—	—	0–4	12.5+	—	0–8	0–17	0–14	0

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Table 16

Girls — Begin Grade 5

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	13–20	48+	21+	0–6.5	35+	77+	53+	46+	10
9	98	65	10–12	31–47	19–20	7.0	17–34	69–76	49–52	43–45	9
8	93	63	8–9	23–30	17–18	7.5	11–16	64–68	46–48	39–42	8
7	84	61	6–7	16–22	15–16	8.0	6–10	58–63	42–45	36–38	7
6	69	59	4–5	10–15	14	8.5	4–5	52–57	38–41	32–35	6
5	50	57	2–3	6–9	13	9.0	2–3	44–51	34–37	29–31	5
4	31	53–55	1	3–5	12	9.5	1	36–43	30–33	25–28	4
3	16	49–51	0	1–2	10–11	10.0	0	27–35	26–29	22–24	3
2	7	43–47	—	0	8–9	10.5–11.0	—	18–26	22–25	18–21	2
1	2	39–41	—	—	5–7	11.5–12.0	—	11–17	18–21	15–17	1
0	1	13–37	—	—	0–4	12.5+	—	0–10	0–17	0–14	0

TABLE 17

Girls — Begin Grade 6

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	15–20	50+	21+	0–6.5	41+	79+	53+	46+	10
9	98	65	12–14	31–49	19–20	7.0	21–40	72–78	49–52	43–45	9
8	93	63	9–11	23–30	18	7.5	13–20	67–71	46–48	39–42	8
7	84	61	7–8	16–22	16–17	—	6–12	61–66	42–45	36–38	7
6	69	59	5–6	10–15	15	8.0	4–5	54–60	38–41	32–35	6
5	50	57	3–4	5–9	14	8.5	2–3	46–53	34–37	29–31	5
4	31	53–55	2	2–4	12–13	9.0	1	39–45	30–33	25–28	4
3	16	49–51	1	1	11	9.5	0	29–38	26–29	22–24	3
2	7	43–47	0	0	9–10	10.0–10.5	—	20–28	22–25	18–21	2
1	2	39–41	—	—	7–8	11.0–11.5	—	12–19	18–21	15–17	1
0	1	13–37	—	—	0–6	12.0+	—	0–11	0–17	0–14	0

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Table 18

Girls — Begin Grade 7

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	16–20	75+	21+	0–6.5	49+	81+	53+	46+	10
9	98	65	13–15	58–74	19–20	7.0	24–48	73–80	49–52	43–45	9
8	93	63	10–12	49–57	18	—	14–23	67–72	46–48	39–42	8
7	84	61	8–9	38–48	16–17	7.5	7–13	61–66	42–45	36–38	7
6	69	59	6–7	25–37	15	8.0	4–6	54–60	38–41	32–35	6
5	50	57	4–5	17–24	14	8.5	3	46–53	34–37	29–31	5
4	31	53–55	2–3	12–16	13	9.0	2	39–45	30–33	25–28	4
3	16	49–51	1	7–11	11–12	9.5	1	31–38	26–29	22–24	3
2	7	43–47	0	4–6	9–10	10.0	0	22–30	22–25	18–21	2
1	2	39–41	—	2–3	7–8	10.5–11.0	—	13–21	18–21	15–17	1
0	1	13–37	—	0–1	0–6	11.5+	—	0–12	0–17	0–14	0

TABLE 19

Girls — Begin Grade 8

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	17–20	73+	21+	0–6.0	55+	81+	53+	46+	10
9	98	65	14–16	57–72	20	6.5	25–54	73–80	49–52	43–45	9
8	93	63	11–13	50–56	18–19	7.0	14–24	66–72	46–48	39–42	8
7	84	61	9–10	37–49	17	7.5	7–13	61–65	42–45	36–38	7
6	69	59	7–8	25–36	16	—	4–6	54–60	38–41	32–35	6
5	50	57	5–6	17–24	15	8.0	3	47–53	34–37	29–31	5
4	31	53–55	3–4	12–16	14	8.5	2	40–46	30–33	25–28	4
3	16	49–51	2	7–11	12–13	9.0	1	32–39	26–29	22–24	3
2	7	43–47	1	4–6	10–11	9.5	0	23–31	22–25	18–21	2
1	2	39–41	0	2–3	8–9	10.0–10.5	—	15–22	18–21	15–17	1
0	1	13–37	—	0–1	0–7	11.0+	—	0–14	0–17	0–14	0

TABLE 20

Girls — Begin Grade 9

Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
99	—	18–20	71+	22+	0–6.0	56+	79+	53+	46+	10
98	65	15–17	57–70	20–21	6.5	28–55	71–78	49–52	43–45	9
93	63	12–14	51–56	19	7.0	14–27	65–70	46–48	39–42	8
84	61	9–11	37–50	17–18	7.5	7–13	59–64	42–45	36–38	7
69	59	7–8	27–36	16	—	5–6	53–58	38–41	32–35	6
50	57	5–6	19–26	15	8.0	3–4	47–52	34–37	29–31	5
31	53–55	4	13–18	14	8.5	2	39–46	30–33	25–28	4
16	49–51	2–3	8–12	12–13	9.0	1	31–38	26–29	22–24	3
7	43–47	1	4–7	10–11	9.5	0	22–30	22–25	18–21	2
2	39–41	0	2–3	8–9	10.0–10.5	—	14–21	18–21	15–17	1
1	13–37	—	0–1	0–7	11.0+	—	0–13	0–17	0–14	0

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Table 21

Girls — Begin Grade 10

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	18–20	71+	23+	0–6.0	58+	75+	53+	46+	10
9	98	65	15–17	57–70	21–22	6.5	30–57	69–74	49–52	43–45	9
8	93	63	12–14	51–56	19–20	7.0	15–29	64–68	46–48	39–42	8
7	84	61	10–11	37–50	18	7.5	8–14	58–63	42–45	36–38	7
6	69	59	8–9	28–36	16–17	—	5–7	52–57	38–41	32–35	6
5	50	57	6–7	20–27	15	8.0	3–4	46–51	34–37	29–31	5
4	31	53–55	5	14–19	14	8.5	2	39–45	30–33	25–28	4
3	16	49–51	3–4	9–13	13	9.0	1	30–38	26–29	22–24	3
2	7	43–47	2	4–8	11–12	9.5	0	23–29	22–25	18–21	2
1	2	39–41	1	2–3	9–10	10.0–10.5	—	13–22	18–21	15–17	1
0	1	13–37	0	0–1	0–8	11.0+	—	0–12	0–17	0–14	0

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TABLE 22

Girls — Begin Grade 11

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	18–20	70+	24+	0–6.0	59+	75+	53+	46+	10
9	98	65	15–17	57–69	21–23	6.5	31–58	70–74	49–52	43–45	9
8	93	63	12–14	49–56	19–20	7.0	16–30	64–69	46–48	39–42	8
7	84	61	10–11	37–48	18	7.5	9–15	58–63	42–45	36–33	7
6	69	59	8–9	27–36	16–17	—	5–8	52–57	38–41	32–35	6
5	50	57	7	20–26	15	8.0	3–4	46–51	34–37	29–31	5
4	31	53–55	5–6	13–19	14	8.5	2	39–45	30–33	25–28	4
3	16	49–51	3–4	8–12	13	9.0	1	31–38	26–29	22–24	3
2	7	43–47	2	4–7	11–12	9.5	0	24–30	22–25	18–21	2
1	2	39–41	1	1–3	9–10	10.0–10.5	—	14–23	18–21	15–17	1
0	1	13–37	0	0	0–8	11.0+	—	0–13	0–17	0–14	0

Table 23

Girls — Begin Grade 12

Achievement Level	Percentile Rank	Posture	Accuracy	Strength	Agility	Speed	Balance	Endurance	Total Physical Fitness With Posture	Total Physical Fitness Without Posture	Achievement Level
10	99	—	18–20	67+	24+	0–6.0	60+	76+	53+	46+	10
9	98	65	16–17	56–66	21–23	6.5	32–59	71–75	49–52	43–45	9
8	93	63	13–15	46–55	19–20	7.0	16–31	64–70	46–48	39–42	8
7	84	61	11–12	36–45	18	7.5	9–15	58–63	42–45	36–38	7
6	69	59	9–10	26–35	16–17	—	5–8	52–57	38–41	32–35	6
5	50	57	7–8	19–25	15	8.0	3–4	46–51	34–37	29–31	5
4	31	53–55	5–6	12–18	14	8.5	2	40–45	30–33	25–28	4
3	16	49–51	3–4	7–11	13	9.0	1	32–39	26–29	22–24	3
2	7	43–47	2	3–6	12	9.5	0	25–31	22–25	18–21	2
1	2	39–41	1	1–2	10–11	10.0–10.5	—	15–24	18–21	15–17	1
0	1	13–37	0	0	0–9	11.0+	—	0–14	0–17	0–14	0

APPENDIX A

The following table of percentile equivalents may be used for interpreting the achievement of a class, as described on page 27.

Percentile equivalents of achievement levels

Achievement Level	Percentile Equivalent	Achievement Level	Percentile Equivalent
9.4 and above	99	5.0	50
9.0—9.3	98	4.9	48
8.7—8.9	97	4.8	46
8.4—8.6	96	4.7	44
8.2—8.3	95	4.6	42
8.1	94	4.5	40
8.0	93	4.4	38
7.9	93	4.3	36
7.8	92	4.2	34
7.7	91	4.1	33
7.6	90	4.0	31
7.5	89	3.9	29
7.4	88	3.8	27
7.3	87	3.7	26
7.2	86	3.6	24
7.1	85	3.5	23
7.0	84	3.4	21
6.9	83	3.3	20
6.8	82	3.2	18
6.7	80	3.1	17
6.6	79	3.0	16
6.5	77	2.9	15
6.4	76	2.8	14
6.3	74	2.7	13
6.2	73	2.6	12
6.1	71	2.5	11
6.0	69	2.4	10
5.9	67	2.3	9
5.8	66	2.2	8
5.7	64	2.1	7
5.6	62	2.0	7
5.5	60	1.9	6
5.4	58	1.7—1.8	5
5.3	56	1.4—1.6	4
5.2	54	1.1—1.3	3
5.1	52	0.7—1.0	2
		0.6 and below	1

APPENDIX B

The letter below is suggested as a basis for a form letter to be sent home by the school with the pupil's Cumulative Record Form.

Dear Parent:

Our school district has recently administered the New York State Physical Fitness Test to all pupils in grades 4 through 12. This test is an individual performance type of standardized test which provides a basis for comparing the physical fitness of your child with that of pupils in the same grade in schools throughout the State. The test measures seven basic components of physical fitness — posture, accuracy, strength, agility, speed, balance, and endurance, as well as providing a total physical fitness score.

On the attached Cumulative Record Form you will find your son's (or daughter's) rating in various segments of posture as well as his (or her) individual score on each test item. In addition you will find his (or her) test scores plotted on a profile chart. The horizontal line indicates his (or her) own total physical fitness level.

As an interested parent, you may ask how you can use this information. The shaded area on the profile chart represents scores made by the middle 50 percent of pupils in New York State. If your son's (or daughter's) score is below the shaded area on the profile chart, he (or she) has scored in the lower 25 percent of pupils throughout the State, and if it is above the shaded area, he (or she) has scored in the upper 25 percent. When scores fall in the lower 25 percent area, we would suggest that you contact your child's physical education teacher to discuss ways and means of improving this condition. Likewise, when there appears to be a significant drop in the total physical fitness score from one grade to another, a conference with the school physical education teacher is suggested.

Sincerely yours,

Principal or